Anusandhan National Research Foundation (ANRF)

Ministry of Ayush
Government of India

12th (SECON 2025) CONVENTION

Society for Ethnopharmacology India

ABSTRACT BOOK

INTERNATIONAL CONFERENCE

on

Traditional Medicine – Ancient & Modern Concordance

30-31 October, 2025

JAMIA HAMDARD

CENTRE OF EXCELLENCE IN UNANI MEDICINE

(Pharmacognosy and Pharmacology)

BNPL, SPER, Jamia Hamdard, New Delhi

Anusandhan National Research Foundation (ANRF)

Ministry of Ayush
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Society for Ethnopharmacology India

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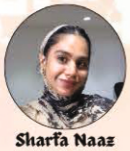

Sana Khan


Hamad


Afeefa Khan


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Mohd Ansar


Lovely Khan

12th (SECON 2025) CONVENTION

Society for Ethnopharmacology India

INTERNATIONAL CONFERENCE

on

Traditional Medicine- Ancient & Modern Concordance

30-31 OCTOBER 2025

(Pre-congress workshop on 29th October 2025)

Convention Centre, Jamia Hamdard, New Delhi, India

PROGRAM SCHEDULE

***Keynote Lectures*: 08(03 Sessions)**

***Plenary Lectures*: 30(03 Sessions)**

***Short Lectures*:70(04 Sessions)**

***Young Ethnopharmacologist Award Presentations*: 25**

***Oral Presentations*: 100(08 Sessions)**

***Poster Presentations*:340(04 Sessions)**

***Pre-Conference Workshops*: 03**

***Panels*: i-Connect: 60 industries**

Healer's Meet:50 healers

Pre-Convention Workshop: Oct 29, 2025 (Wednesday)

08:30 to 09:30 AM	REGISTRATION	VENUE: REGISTRATION DESK, HAH AUDITORIUM	
Time	**HAH Archives Auditorium**	**CoE Auditorium**	**CoE Meeting Room**
09:30 to 10:30 AM	**Inauguration** *(Dr Rabea Parveen, Dr Bushra Parveen, & Dr Kulsum Jaan, Coordinators)* **Janab Hammad Ahmed**, Chancellor, JH **Dr M Afshar Alam**, Vice Chancellor, *JH* **Dr Mita Kotecha**, NIA **Dr N Zaheer Ahmed**, CCRUM, *New Delhi* **Dr S Shah Alam**, NIUM, Bangalore **Dr Uma Bhandari**, Dean SPER, JH **Dr Yasmeen Shamsi**, Dean SUMER, JH **Col Tahir Mustafa**, Registrar, JH **Dr Sayeed Ahmad**, Organizing Secretary		
10:30 to 11:00 AM	HIGH TEA		
11:30 to 01:30 PM	**Unani Aahar: Traditional Wisdom for Modern Nutrition (4L)** *(Dr Azhar Jabin & Dr Shazia Jeelani: Coordinators)* **Prof Abdul Wadud,** JH **Dr Abdul Rauf,** AMU **Dr Tarique Nadeem,** JH **Dr Amanullah,** CCRUM **Dr Waseem Ahmad,** NIUM **Dr Eram Rao,** DU	**HPTLC Analysis: A tool for Quality Control of Traditional medicine (4L)** *(Prof Mohd Mujeeb & Prof SR Mir: Coordinators)* **Dr Sayeed Ahmad,** JPC **Dr Irena Choma,** Poland, JPC **Dr Tien Do,** CAMAG, Switzerland **Dr Ranjan Mitra,** Dabur **Dr Rahul Singh,** Emami	**Cell Culture & Zebrafish inn Ayush Research (3L)** *(Prof Mohd Akhtar & Prof Abul Kalam Najmi: Coordinators)* **Dr Anuja Krishnan,** JH **Dr Meraj Ansari,** JH **Dr Raghavendra,** Dr Reddy's
01:30 to 02:30 PM	LUNCH BREAK		
02:30 to 04:30 PM	**"UNANI AAHAR: WAY FORWARD AND FUTURE SCOPE" PANEL DISCUSSION (PD*)** *(Dr Uzma Bano, Dr Shahid Shah Chaudhary, Dr Zehra Zaidi, Coordinators)* ***Dr Asim Ali Khan,** JH, Concluding Remark* ***Dr Mohammed Khalid,** Ayush, NCT, Session Moderator* ***Dr Ghazala Javed,** CCRUM, Session Moderator* **Dr Sitesh C Bachar,** Dhaka **Dr Eram Rao,** DU **Dr Mahnaz Karimi,** Iran **Dr Mukhleshur Rehman,** UK **Dr Rabinder Singh,** FSSAI **Dr Sanjay Sharma,** HUL **Dr Prem K Jaiswal,** FSSAI **Dr M Idris,** AKT Karolbagh **Dr M Zubair,** AKT Karolbagh **Dr Younis Iftekhar Munshi,** CCRUM **Dr Ghazala Javed,** CCRUM **Dr M Shahid Malik,** Regma **Dr Bilal Ahmed,** CCRUM **Dr Muste Hasan,** CCRUM **Dr Malik Itrat,** NIUM **Dr Minhaj Ahmed,** JH **Dr Mohd Akram,** JH **Dr Khursheed A Ansari,** JH **Dr Umar Jahangir,** JH **Dr Anzar Alam,** JH **Dr Mohmmad Akhtar Ali,** JH **Dr Abida Parveen,** BNPL **Senior Members: Dr S Shakir Jamil, Dr MA Jafri, Dr M Aftab Alam, Dr M Akhtar, Dr SM Arif Zaidi** **UDMA Members: Mr Mohsin Dehlvi, Mr Maqbool Hasan, Mr Nabeel Anwar, Mr S Muneer Azmat, Mr Mohd Arif, Dr Gayoor Ali, Mr M Jalees**	**HPTLC DEMONSTRATION** *(Dr Abid, Archana Kumari & Abdur Rehman: CoE Lab Members)* **Abhijeet Kale,** Anchrom **Rakesh Ranjan,** Anchrom	**CELL CULTURE & ZEBRAFISH DEMONSTRATION** *(Naveen Reddy* *Md Reyaz Alam: CoE Lab Members)* **Dr Veena Rani,** JH
Time	**CoE-UM Auditorium**		
04:30 to 05:30 PM	**Valedictory Function** *(Dr Uzma Bano, Dr Sadia Chisty, Dr Sahar Zaidi, Coordinators)* **Janab Hammad Ahmed**, Chancellor, JH **Dr M Afshar Alam**, Vice Chancellor, JH **Dr MA Qasmi**, Advisor, Ayush **Dr Yogita Munjal**, Ayush NCT **Dr S Shah Alam**, NIUM, Bangalore **Dr Asim Ali Khan**, JH **Dr Anwar Hussain Khan**, SUMER, JH **Dr Sayeed Ahmad,** Organizing Secretary		
05:30 to 06:00 PM	TEA BREAK		
06:00 to 07:30 PM	SFE India GBM (CoE UM Auditorium) Special Guest Dr MA Qasmi		
07:30 to 09.:0 PM	DINNER & MEHFIL-E- MUSHAIRA (Speakers, Session Chairs and VIPs) Hospitality area of SECON/ Convention Centre, Jamia Hamdard		

SECON 2025, TECHNICAL PROGRAM

Day 1: Thursday, 30th Oct, 2025

08.30 - 09.30 AM	**Registration**	**Venue: Registration Desk, Convention Centre**		
09:30 - 10:30 AM	***Chairpersons:*** **Dr M Afshar Alam,** VC, JH **Mrs Amina Al Haidan,** Lotus, UAE **Dr M Iqbal,** JH Welcome by: **Dr Sayeed Ahmad &** Introduction by**: Dr Pulok K Mukherjee**		**Keynote 1: Dr Domenico V. Delfino,** Italy *Title: Cucurbitacin D from Elaeocarpus hainanensis: Bridging Traditional Medicine and Molecular Oncology through ZNF217 Modulation in NPM1-Mutated Acute Myeloid Leukemia* **Keynote 2: Dr Hongjie Zhang,** Hongkong *Title: Discovery of broad-spectrum antiviral lignans from justicia plants by targeting host V-ATPase*	
10.30 - 11.00 AM	**HIGH TEA**			
11:00 - 01:30 PM	**HALL 1- Convention Centre**	**HAH Archives Auditorium/ Short Lectures & Hakeem Abdul Hameed Young Researcher Awards**	**Central Library building (Three halls, LT-05, LT-13, LT-12) Oral Presentations & Young Ethnopharmacologist Awards**	**Convention Centre First Floor/ Poster area**
Hall Coordinators	*Prof Javed Ali* *Dr Pooja Jain* *Dr Azka*	*Prof Zeenat Iqbal & Prof Divya Vohra*	*Prof Abul K Najmi & Prof. SR Mir (LT-05)* *Prof Sandhya Bawa & Prof Manju Sharma (LT-13)* *Dr Shahid S Chaudhary & Dr Azhar Jabin (LT-12)*	*Dr Prachi Tewari,* *Dr Zoheb &* *Dr Jamshed Haneef (PS1)* *Dr Aamir Mirza, Dr Kashif Haider & Dr Suruchi Singh (PS2)*
	PLENARY LECTURE ***Chairpersons:*** **Dr Raman Mohan Singh,** PCIMH **Dr SH Ansari,** JH **Dr. Subhash C Mandal,** SFE **Dr Farhan Jalees Ahmad,** JH **Dr S Shakir Ali,** JH **Dr Subhra Chakraborty,** NIPGR **SPEAKERS** **Prof. USN Murty,** NIPER, Guwahati *Title: A Progressive Step Towards Phytopharmaceutical Development in India* **Dr Saif Ahmad Khan,** USA *Title: Role of Natural products in neurodegenerative disorders* **Dr. Charu Lata,** Editor, IJTK *Title: Traditional Health Practices: Documentation, Validation and Commercialization* **Dr Mohammed Kamil,** UAE *Title: From Traditional Knowledge to Pharmaceutical and Phyto-Pharmaceutical Products- with special Reference to Quality Control and Standardization* **Dr Sitesh C Bachar,** Dhaka *Title: Tradition of Traditional Medicine- Bangladesh Perspectives* **Dr Tanveer Alam,** Turkey *Title: Natural Food Colors: Sources, Stability, Formulations, and Their Applications* **Dr Proma Khondkar (UK)** *Title:Safety Concerns and Mycotoxin Detection in Herbal Medicines* **Dr. Narayan Chandra Talukdar,** NIPER, Guwahati	**SHORT LECTURES/ YOUNG INVESTIGATORS SESSION- I** **(SL 01-20)** ***Chairpersons:*** **Dr Prakash Itankar,** Nagpur **Dr Saleemullah Khan,** Manglore **Dr Pallab K Halder,** JU, Kolkata **Dr Ghalib,** AIIA **Dr Mukesh Nandave,** DPSRU **Dr Gayoor Ali,** Rex **Dr Hifzul Kabir,** JH **Dr Ayesha Siddiqui,** JH **Dr. N Murgeshwaran,** NMPB **Dr Yasheshwar,** DU **SPEAKERS** Dr Aasiy Ul Erum Dr Adil Ahamad Dr Ahamed Shifak Dr Fathima Shifra Dr Aisha Siddiqui Dr Alkeshkumar Dr Kiritbhai Patel Dr Shradhanjali M Dr Archana Raina Dr Atul Kumar Gupta Dr Azad Hussain Lone Dr Azhar Jabin Dr Aziz Ahmed Dr Bisma Jan Dr Bushra Parveen Dr Deepika Modi Dr Md Nasar Dr Mallick Dr Silpi Chanda Dr Tapan Behl Dr Farah Deeba Dr Fouzia Bashir Dr Harjeet Singh Dr Manjula SN Dr Gurupadayya BM	**ORAL PRESENTATION SESSION- I, LT-05** **(OP 01-15)** ***Chairpersons:*** **Dr Deepti Pandita,** DPSRU **Dr BP Panda,** JH **Mr. Amitava Das,** SFE **Dr Pallavi Ahirrao Jachak,** Chandigarh **Dr Aabid Ali Ansari,** NIUM **Dr Meenakshi Chauhan,** DPSRU **Dr Silpi Chanda,** Amity Lucknow **ORAL PRESENTATION SESSION II, LT-13** **(OP 16-30)** ***Chairpersons:*** **Dr Manju Sharma,** JH **Dr Ajay K Sharma,** DPSRU **Dr Abdul Haseeb Ansari,** NIUM **Dr Bhuwan Mishra,** NIPER **Dr Minhaj Ahmad,** JH **Dr. S.C. Verma,** PCIM&H **Dr Jayanthy A,** PCIM&H **Dr Maqsood Ali,** BNPL **Dr Tanveer Naved,** Amity Noida **YOUNG ETHNOPHARMACOLOGIST SESSION I, LT-12** **(YEA 01-15)** ***Chairpersons:*** **Dr Sanjay Jachak,** NIPER **Dr Irena Choma,** Poland **Dr. Sharad K. Srivastava,** NBRI **Dr Kakali Mukherjee,** SFE **Dr Jamal Akhtar,** CCRUM **Dr Prasoon Gupta,** IIIM **Dr Amit Kar,** SFE **Dr Santanu Bhadra,** SFE **Dr K Muruthunjaya,** Mysuru **Dr Atul K Gupta,** CIMAP, Lucknow	**POSTER SESSION I** **(PS 01-109)** ***Evaluators:*** **Dr. Shovanlal Gayen,** JU, Kolkata **Dr. Nilanjan Ghosh,** ORF, Kolkata **Dr. Pranibesh Mandal,** JU, Kolkata **Dr. Abdul Nasir,** SUMER **Dr. Ali Sartaj,** SPER **Dr. Arya Lakshmi Marisetti,** DPSRU **Dr. Ashraf Ashfaq,** SCLS **Dr. Azka,** SPER **Dr. Devesh Tewari,** DPSRU **Dr. Farkhunda Jabin,** SUMER **Dr. Fouzia Bashir,** SUMER **Dr. Foziya Zakir,** DPSRU **Dr. Javed Ahmad,** SCLS **Dr. K Parveen Kumar,** DPSRU **Dr. Md. Afroz Ahmad,** SPER **Dr. Md. Rafi Haider,** SPER **Dr. Mohd Imran,** SCLS **Dr Anandkumar Tengli**, Mysuru **Dr Paramakrishnan N**, Mysuru **Dr Bisma Jaan,** BNPL **Mrs Tohfa,** BNPL **Mrs Monalisha Samal,** BNPL **Mrs Varsha Srivastav,** BNPL
11:00 - 01:30 PM	**Centre of Excellence Auditorium (Nano building 3rd Floor) Special Flagship programs of Society for Ethnopharmacology**			
Hall Coordinators	*Dr Khalid Bashier, Dr Syed Shafi, Dr Bushra Shahida & Dr Abida Parveen*			
	I-CONNECT PROGRAM **Program Coordinator** **Dr CK Katiyar,** Emami **GUESTS** **Prof. Vd. Rabinarayan Acharya,** DG, CCRAS **Dr. Koustubha Upadhyaya,** Advisor, Ayush **Dr Debashish Panda,** Ministry of Ayush **Dr Ravindra Singh,** FSSAI **Shri Anil Mehta,** FSSAI **Dr Ajit Kumar Shasany,** CSRI-NBRI **Dr Mohammad Khalid,** Dept of Ayush, NCT of Delhi	**INDUSTRY LEADERS & SPEAKERS** **Dr Anju Majeed,** Sami Sabinsa **Shri Ranjit Puranik,** Shri Dhootpapeshwar **Mr Mansoor Ali,** Hamdard Foods **Dr Anurag Varshney,** Patanjali **Dr UV Babu,** Himalaya **Dr R Govindrajan,** Kapiva **Dr Baidhyanath Mishra,** Dabur **Dr Shubhra Devi,** Meira Foods **Mr Akshay Charegaonkar,** Anchrom, Mumbai	**Panelists:** **Dr Aboli Girme,** Natural Remedies **Dr Anil K Sharma,** Aimil **Dr Arun Gupta,** Ayuswastha **Dr Arun Srivastava,** J-Amada Remedies **Dr Arvind Saklani,** Sami Sabinsa **Dr Asim Akhatar,** Ekyure herbals **Dr Gaurav Sharma,** RB **Dr Khalid Md. Saifullah,** Naturoveda Organics Pvt. Ltd. **Dr Lal Hingorani,** Pharmanza **Dr MA Nambi,** Care Keralam **Dr Matiullah Majeed,** Maqs Remedies **Dr Nazish Islahi,** Islahi Dawakhana **Dr Salman Khalid,** Fehmina Herbals **Dr Sanjay Nipanikar,** TIMER **Dr Sanjay Sharma,** Unilever	**Mr Yasmanil Usmani,** Herbo Drugs & Pharmaceuticals **Mr Zahid,** Khojati Herbal **Mr Sayed Samar Ahmed,** Mega Impex, UAE **Mr Anwar Ali Khan,** Ahmed and Company **Mr Arjun Vohra,** Avitech Nutrition **Mr Hakeem Ghulam Mohiuddin,** Simla Pharmacy **Mr Hakim Arbab Uddin,** Sadar Dawakhana **Mr Hitesh Patel,** Patel Phyto **Mr Intekhab Alam,** Zilaxo **Mr Maqbool Hasan,** Nature & Nurture Healthcare **Mr Mohammed Amjad Ali Faiz,**

	INTERNATIONAL EXPERTS **Prof Ikhlas Khan,** USA **Dr Roy Upton,** USA **Dr Irena Choma,** Poland **Dr Mukhlesur Rehman,** UK **Dr Domenico Delfino,** Italy **Dr Hongi Zhang,** Hongkong **Dr M Kamil,** UAE		**Dr Sateesh Chauhan,** Avitech Nutrition **Dr Shahid Bux,** Shafin Herbal Care **Dr Vivek Srivastav,** Zeon Lifescience **Hakeem M. Kashif Zakai,** Neelam Dawakhana **Hakeem M. Khubaib Baqai,** Zeal Organosys **Hakeem Uzair Baqai,** Baqai Health Care **Mr Abdul Wahid Khan,** BIS Research **Mr Aijaz Ahmed 'Aijazi,** Naaz Herbal Pharmacy **Mr Amandeep Singh,** Amaara **Mr Amit Varma,** Ayurfresh **Mr Anand Sharma,** Eureka **Mr Animesh Katiyar,** Fur Ball Story **Mr Shakeel Jameel,** Sana Herbals **Mr Syed Muneer Azmat,** New Royal Products	Dawakhana Faiz Unani **Mr Mohammed Jalees,** Liimra (U&A) Remedies **Mr Mohammed Naushad,** Auliya Herbals **Mr Mohd Sadiq Babla,** IMC Unani **Mr Mohd. Arif,** Rex Remedies **Mr Mohsin Dehlvi,** Dehlvi Naturals **Mr Mudassir Jamal Bakhshi,** Bakhshi & Co. **Mr Nabeel Anwar,** Drugs Laboratories **Mr Parvez Ahmed Khan,** Ratib Herbal Care **Mr Sadique Babla,** Indian Marketing Company **Mr Sahil Khan,** Atiya Herb **Mr Shahroz Khan & Rishab Awasthi,** Ideal Natural Extract **Mr Shaikh Intekhab Alam,** Advanced Pakiza Unani Pune LLP
01:30- 02:30 PM	**LUNCH BREAK**			
02:30 - 04:00 PM	**KEYNOTE ADDRESSES** ***Chairpersons:*** **Dr Pradeep K Prajapati,** AIIA **Dr Asim Ali Khan,** JH **Dr. Tapan K Mukherjee,** SFE **Dr BD Khan,** AMU **SPEAKERS** **Dr. Irena M. Choma,** Poland *Title: Antioxidant properties and TLC bio-profiling of various cultivars of Actinidia arguta* **Dr. Mukhlesur Rahman,** UK *Title: Antimicrobial metabolites from medicinal plants and propolis* **Dr NK Dubey,** BHU *Title: Indian Traditional Knowledge on Medicinal Plants: A Miraculous and Sustainable Approach Towards Health Scrutiny* **Dr Shekhar C Mande,** Pune	**SHORT LECTURES/ YOUNG INVESTIGATORS SESSION- II** **(SL 21-35)** ***Chairpersons:*** **Dr Harish Dureja,** MDU **Dr Suhel Parvez,** JH **Dr A Selvapandian,** JH **Dr L Satynarayanan,** Pune **Dr Salahuddin,** Bangluru **Dr Sanmoy Karmakar,** Kolkata **Dr Sidharth Mehan,** ISF, Moga **Dr. Gita Chawla,** SPER **Dr Ennus Tajuddin Tamboli,** Satara **SPEAKERS** Dr Hasina Yasmin Dr Iqra Hashmi Dr Jada Naga Lakshmi Dr Kailash Chandra Dr Kalpana Zutshi Dr Kausar Jahan Dr Madhukar Garg Dr Maqsood Ali Dr Maryam Sarwat Dr Md Salik Noorani Dr Mhaveer Singh Dr Mohammad Javed Qureshi Dr Mohammed Kaleem Dr Mohd Ashraf Ashfaq Dr Mohd Faheem Khan Dr Ramit Ramu Dr Narendra Kumar	**ORAL PRESENTATION SESSION III, LT-05** **(OP 31-39)** ***Chairpersons:*** **Dr M Shaharyar,** JH **Dr Anju Dhiman,** MDU **Dr Suhail Fatima,** JH **Dr Shadab Zafar,** Ayush, NCT **Dr Alok Goyal** NIPER **Dr Mohammad Mateen Zehgeer,**JH **Dr Swati Madan,** Amity Noida **ORAL PRESENTATION SESSION IV, LT-13** **(OP 40-49)** ***Chairpersons:*** **Dr Arun Gupta,** Ayuswastha **Dr M Z Abdin,** JH **Dr SR Wakode,** DPSRU **Dr Nilofar Khan,** DRDO, DIPAS **Dr Shushma Talegaonkar,** DPSRU **Dr Mariyam Sarwat,** Amity Noida **YOUNG ETHNO-PHARMACOLOGIST SESSION II, LT-12** **(YEA 16-25)** ***Chairpersons:*** **Dr Sanjay Jachak,** NIPER **Dr Irena Choma,** Poland **Dr Sharad K. Srivastava,** NBRI **Dr Kakali Mukherjee,** SFE **Dr Jamal Akhtar,** CCRUM **Dr Prasoon Gupta,** IIIM **Dr Amit Kar,** SFE **Dr Santanu Bhadra,** SFE **Dr K Muruthunjaya,** JSS Mysuru **Dr Atul K Gupta,** CIMAP, Lucknow	**POSTER SESSION II** **(PS 110-219)** ***Evaluators:*** **Dr. Heena Mewara,** COE-Ayush **Dr. Rupali Bhalerao,** COE-Ayush **Dr. Swati Juneja,** COE-Ayush **Dr. Deepti Deewan,** COE-Ayush **Dr. Poonam Dixit,** COE-Ayush **Dr. Ubaid,** COE-Ayush **Dr. Jeetendra Kumar Vaishya,** NMPB **Dr. Kavita Tyagi,** NMPB **Mr Saurabh Sharma,** NMPB **Dr Pawan Kumar Yadav,** CCRUM **Dr Ram Pratap Meena,** CCRUM **Dr Parakh Basist,** BNPL **Dr Priyanka Bagri,** BNPL **Dr Madhukar Garg,** BNPL **Dr Ritu Tiwari,** IPC
04:00 - 04:15 PM	**HIGH TEA**			
04:15 - 06:30 PM	**INAUGURATION AND AWARD CEREMONY: HALL 1- Convention Centre**			
	Chief Guest: **Padmashree V Rajesh Kotecha,** *Secretary, Ayush* Chief Patron: **Janab Hammad Ahmed,** *Chancellor, JH* Co-Patron: **Janab Sajid Ahmed,** *OSD* Patron & Organizing Chairman: **Prof. M Afshar Alam,** *VC, JH* Guest Honor: **Dr MA Qasmi,** *Advisor (U), AYUH* Guest Honor: **Dr N Zaheer Ahmed,** *DG CCRUM*		Guest of Honor: **Prof Ikhlas A Khan,** *USA* Guest of Honor: **Prof Pulok K Mukherjee,** *SFE* Guest of Honor: **Prof Domenico V. Delfino,** *ISE* Dean SPER: **Prof Uma Bhandari,** *JH* Dean SUMER: **Prof Yasmeen Shamsi,** *JH* Registrar: **Col Tahir Mustafa,** *JH* Organizing Secretary: **Prof Sayeed Ahmad,** *JH*	
06:30 - 07:30 PM	**NETWORKING & DINNER**			
07:30 - 09:30 PM	**LAUGHTER AND SUFIAYANA (QAWWALI) ENTERTAINMENT**			

Day 2: Friday, 31st Oct 2025

09:30 - 10:30 AM	Convention Centre			
	HALL 1- Convention Centre ***Chairpersons:*** **Dr V Ravichandiran,** DPSRU **Dr Pulok K Mukherjee,** SFE **Dr UB Babu,** Himalaya		**Keynote 3: Dr Ikhlas A Khan,** USA *Title: Bridging Tradition and Science: Strategies to Overcome Quality and Safety Challenges in Herbal Medicine* **Keynote 4: Dr. Ajit Kumar Shasany,** NBRI *Title: Plants for Dosha Samanam: How similar these are* **Keynote 5: Dr. YK Gupta,** AIIMS	
10:30 - 11:00 AM	**HIGH TEA**			
	HALL 1- Convention Centre	**HAH Archives Auditorium/ Short Lectures & Hakeem Abdul Hameed Young Researcher Awards**	**Central Library building (Three halls, LT-05, LT-12, LT-13) Oral Presentations and Young Ethnopharmacologist Awards**	**Convention Centre First Floor/ Poster area**
Hall Coordinators	*Prof M Mumtaz Alam* *Dr Saba Khan* *Dr Sharba Tasneem*	*Prof M Aqil &* *Prof M Mujeeb*	*Prof M S Zaman &* *Prof M Akhtar (LT-12)* *Prof Mymoona Akhter &* *Prof BP Panda (LT-13)* *Dr Mohan Kamthan &* *Dr Meraj A Ansari (PF Room)*	*Dr Kulsum Jaan,* *Dr Entesar Hanan* *Dr Sehar Zaidi* *Dr Charu Chabra*
11:00 - 01:30 PM	**PLENARY LECTURE** ***Chairpersons:*** **Dr Sitesh C Bachar,** Dhaka **Dr Arun Bandyopadhyay,** Kolkata **Dr Surender Singh,** AIIMS **Dr Mohd Anis,** AMU **Dr Asgar Ali,** SPER **Dr S Raisuddin,** JH **Dr. Preeti Kothiyal,** Uttarakhand **SPEAKERS** **Dr Yuet Patrick Chiu,** Hongkong *Title: Exotic Materia Medica and Chinese Pharmacy: A Journey of Two Millenia* **Dr Alka Ahuja,** Oman *Title: Formulation and Characterization of Quercetin-Enhanced Nanoformulation Containing Boswellic Acid and Resveratrol for Colon Cancer Therapy* **Dr Mahnaz Karimi,** *Iran* *Title: Advances in Drug Delivery Systems for Natural Products: Trends, Challenges and Future Prospects* **Dr Proma Khondkar (UK)** **Dr Shah Alam Khan,** Oman *Title: Inhibitory effects of natural plant products on Cholinesterase activity: A rational approach for the development of anti- Alzheimer drugs* **Dr Zahoor Ahmad Shah,** USA *Title: Perspectives on the Beneficial Effects of Ginkgo biloba in Neurological and Cerebrovascular Disorders* **Dr Arvind Saklani,** Sami labs *Title: Medicinal plants cultivation, sustainable supply of quality-assured raw materials and integrated supply chain* **Dr Sanjay Jachak,** NIPER *Title: Nutraceuticals and Phytopharmaceuticals: A Paradigm Shift in Herbal Drug Technology* **Dr. Anurag Varsnney** Patanjali	**SHORT LECTURES/ YOUNG INVESTIGATORS SESSION- III** **(SL 36-55)** ***Chairpersons:*** **Dr. Javed Ali,** JH **Dr P Srinivasa Babu,** Vignan, Guntur **Prof Mahmooduzzafar,** JH **Dr. Rajesh Singh Pawar,** Dehradun **Dr. Mukti Pada Rana,** Kolkata **Dr Mobasshir Khan,** IUF **Dr Anwar Saeed,** Saharanpur **Dr. Asif Husain,** SPER **Dr. Ozair Alam,** SPER **SPEAKERS** Dr Mohd Kashif Husain Dr Monalisha Samal Dr Nahid Khan Dr Noman Anwar Dr Nusrat Nabi Dr P V V Siva Krishna Dr Parakh Basist Dr Pawan Kumar Sagar Dr Payal Chakraborty Dr Pooja Jain Dr Prachi Tiwari Dr Prakash Yoganandam G Dr Pravin Kumar Atul Dr Priyanka Bagri Dr Pushpendra Kumar Shukla Dr Rabea Parveen Dr Rajendra Gyawali Dr Rashida Begum Dr Rohitas Deshmukh Dr Roohi Azam Dr Santanu Bhadra	**ORAL PRESENTATION SESSION V, LT-05** **(OP 50-62)** ***Chairpersons:*** **Dr Qazi Rizwanul Haque,** JMI **Dr Javed Ahsan Qadri,** AIIMS **Dr. Emdad Hossain,** JU **Dr Hina Hamid,** SCLS **Dr Shabbir Ahmed,** AKT, Karolbagh **Dr Humaira Farooqui,** SCLS **Dr Mhaveer Singh,** BNPL **ORAL PRESENTATION SESSION VI, LT-13** **(OP-63-77)** ***Chairpersons:*** **Dr Shohrab A Khan,** JH **Dr M Irfan Qureshi,** JMI **Dr M Shamim,** JH **Dr K Suresh Babu,** IICT, Hyderabad **Dr Saima Wajid,** SCLS **Dr Rushtam Eqabbal,** BNPL **Dr. Kiran Dubey,** SPER **Dr Gaurav Jain,** JH **ORAL PRESENTATION SESSION VII, LT 12** **(OP-78-88)** ***Chairpersons:*** **Dr SM Safdar Ashraf,** AMU **Dr Mahfoozur Rehman,** JMI **Dr. Rajyalakshmi K,** Vignan, Guntur **Dr Anuja Krishnan, L,** JH **Dr Mishbahuddin Azhar,** CCRUM **Dr Rajni Mathur,** DPSRU **Dr Nidhi,** SCLS **Dr Nasar Malick,** BNPL **Dr Imtiyaz Hussain,** JMI **Dr. S. E. Haque,** SPER	**POSTER SESSION II** **PS (220-340)** ***Chairpersons:*** **Dr Mohd Usman,** SUMER **Dr Mohd Wasi Akhtar,** SUMER **Dr Peer Saifullah,** SCLS **Dr Pooja Jain,** SPER **Dr Rasikh Javaid Nengroo,** SUMER **Dr Rikeshwer Prasad Dewangan,** SPER **Dr Roohi Azam,** SUMER **Dr Saba Khan,** SPER **Dr Sadia Nikhat,** SUMER **Dr Sakshi Bajaj,** DPSRU **Dr Shoaib Ahmad,** SUMER **Dr Uzma Parveen,** SUMER **Dr Vijender Kumar,** DPSRU **Mrs Manju Vyas,** DPSRU **Dr Madhukar Garg,** BNPL **Dr Mohd Saquib, Takmil-utTib,** Lucknow **Dr Mahaveer Singh,** DPSRU **Dr S Ziyaul Abrar,** RB **Dr Rashida Begum,** JH
11:00 - 01:30 PM	**Centre of Excellence Auditorium (Nano building 3rd Floor) Special Flagship programs of Society for Ethnopharmacology** **TRADITIONAL HEALERS MEET**			
Hall Coordinators	*Dr Anwar Hussain Khan, Dr Minhaj Ahmad, Dr Bushra Shahida, Dr Abida Parveen*			
	TRADITIONAL HEALERS MEET ***Dr. Debprasad Chattopadhyay****, Former Director NITM* *Coordinator Mr Usman Hassan* *Session Coordinator Dr Abida Parveen* ***GUESTS*** **Dr Mahesh Dadheech,** NMPB **Dr Raghu Arackal,** Ayush **Dr Narayanam Srikanth,** CCRAS ***SPEAKERS*** **Dr Sharad K. Srivastava,** NBRI **Dr Heena Tabassum,** ICMR **Dr Prakash Itankar,** Nagpur **Dr Pramod J H,** KLE Belagavi ***A&U Practitioners:*** **Dr Adil Ahmad,** Aurveda Practitioner, Mumbaij **Dr M Shahid Malik,** Unani Practitioner, Aligarh **Dr Mobashir Khan,** IUF		***Healers:*** **Dr. Vijay Chaurasia,** Dindori Forest M.P **Hafiz Abdul Malik Ishati,** Malegaon **Hakeem Abdul Qayyum,** New Delhi **Hakeem Faisal,** Tamil Nadu **Hakeem Murtuza,** New Delhi **Hakeem Nooruddin,** New Delhi **Hakeem Sajjad,** Karnataka **Hakeem Yacoub** **Hakim M. Imran,** Hakimi Dawakhana and Ayurvedic Store **Moulana Mohd Haroon,** New Delhi **Mr Akhilesh Dubey,** Ghoradungri, MP **Mr Arun Azad,** Bulandshahr UP **Mr Awdhesh Kumar Kashyap,** Chhattisgarh **Mr B. Arumugapandian,** Tamilnadu **Mr B. Thangapandian,** Tamilnadu	**Mr Balram Dhurve,** Ghoradungri, MP **Mr D S Manjunath** Challakere, Karnataka **Mr Iqbal Hossain,** Dhaka **Mr Mahendra Singh** Parihar, Rajasthan **Mr Mohammed Aftab,** Hikmat Herbal, Delhi **Mr Nandaji Ramji Chalakh,** Maharashtra **Mr Prakash N Urkude,** Maharashtra **Mr Pratapibai Guni,** Rajasthan **Mr Salauddin,** Delhi **Mr Samelal Yadav,** Chhattisgarh **Mr Sankirttan Majhi,** Odisha	**Mr Santilal Guni,** Rajasthan **Mr Shahzad Ahmed,** Shahzad Dawakhana, Delhi **Mr Sushil Upadhyay,** Jabalpur, MP Mr Wasi Ahmed Qureshi, New Delhi **Shri Ramniwas Verma,** Amarkanthak **Vaidya Santanu Kumar,** Odisha **Vaidya Shridhar Desai,** Karnataka **Vd. Anup Sarkar,** West Bengal **Vd. Savitabrata Das,** West Bengal **Vd. Sukhalal Pansari,** Dropadi Devi, Jharkhand **Mr Ved Prakash Bharti,** Gonda, UP **Mr Netaji Anpatrawar,** Gadchiroli

01:30 - 02:30 PM	**LUNCH BREAK**			
02:30 - 04:00 PM	**PLENARY LECTURE** ***Chairpersons:*** **Dr Arun Garg,** MVN, Faridabad **Dr Vijay Bhalla,** SGT, Gurugram **Dr Partha Roy,** IIT Roorki **Dr Alka Mukne,** Mumbai **Dr Umesh K Patil,** Sagar **Dr Shoorvir Singh,** Mathura **SPEAKERS** **Dr L Sathiyanarayanan,** Pune *Title: Unlocking the Health Potential of Bee Products: Scientific Advances Toward a Healthier Future* **Dr Nishikant A Raut,** Nagpur *Title: Ethnopharmacology and Integrative Healthcare: Evidence-Based Validation of Narayan Tail as a Model for Global Harmonization of Traditional Formulations* **Dr Sanjeeb Kumar Sahoo,** Bhuwaneshwar *Title: Nimbolide based nanomedicine inhibits cancer progression and metastasis by targeting cancer stem-like cells in triple-negative breast cancer (TNBC)* **Dr Mansoor Ansari,** Sami Labs *Titel: Ancient Wisdom, Modern Standards: Standardized Product Development from Traditional Medicinal Plants: Insights from Sami-Sabinsa Group* **Dr Ahmed Ali,** Mumbai *Title: Therapeutic potential of UNIM-H, a polyherbal Unani formulation targeting oxidative stress and chronic inflammation* **Dr Arulmozhi Sathiyanai,** Pune *Titles: Ethnopharmacological validation of virgin coconut oil as a neuroprotective agent* **Dr Sidharth Mehan,** ISF, Moga *Title: Multiple Sclerosis (MS): Challenges, diagnostic approaches, and therapeutic solutions in neurodegeneration research*	**SHORT LECTURES/ YOUNG INVESTIGATORS SESSION IV** **(SL 56-70)** ***Chairpersons:*** **Dr PK Sahoo,** DPSRU **Dr Uma Bhandari,** JH **Dr Yasmeen Shamsi,** JH **Dr Sandhya Bawa,** JH **Dr Shahid Umar,** JH **Dr M Akram,** JH **Dr Jayshree Bhattacharji,** DU **SPEAKERS** Dr Ruchira Shankar Karpe Dr Rustam Ekbbal Dr Saba Zaidi Dr Sabiha Fatima Dr Sana Rehman Dr Saroj Yadav Dr Shahid Shah Chaudhary Dr Shamim Sahranavard Dr Shazia Jilani Dr Sidharth Mehan Dr Siraj Anwar Dr Uzma Bano Dr Uzma Parveen Dr Varsha Srivastav Dr Yasheshwar	**ORAL PRESENTATION SESSION VIII,** **LT-05** **(OP 89-100)** ***Chairpersons:*** **Dr Sanjula Baboota,** JH **Dr Mohd Hussain,** JMI **Dr Hema Chaudhary,** KR Mangalam **Dr Roohi Ali,** DPSRU **Dr SM Abbas Zaidi,** Bhopal **Dr. Mohd Maaz,** SUMER **Dr. Aisha Perveen,** SUMER **Dr Masood Shah Khan,** BNPL	**JURY MEMBERS FOR AWARDS/ PRESENTATIONS** **Dr Rabea Parveen,** JH **Dr Kakali Mukherjee,** SFE **Dr Sanjay Jachak,** NIPER **Dr K Suresh Babu,** IICT, Hyderabad **Dr Uma Bhandari,** JH **Mr Amitabh Das,** SFE **Dr S Shakir Ali,** JH **Dr Suhail Parvez,** JH **Dr A Selvapandian,** JH **Dr Yasmeen Shamsi,** JH **Dr S Shah Alam,** NIUM **Dr Saleemullah Khan,** Mangalore **Dr Anwar Husain Khan,** JH **Dr Mohd Ahmad Khan,** JH **Dr Bushra Parveen,** JH **Dr Jamal Akhtar,** CCRUM
04:00 - 05:30 PM	**VALEDICTORY FUNCTION AND FELICITATIONS:** Chief Patron: **Janab Hammad Ahmed,** *Chancellor-JH* Patron & Organizing Chairman: **Prof. M Afshar Alam,** *VC-JH* Chief Guest: **Monalisa Dash,** *Ministry of Ayush* Guest of Honor: **Dr MA Qasmi,** *Advisor (U), AYUH* Guest of Honor: **Prof Ikhlas A Khan,** *USA* Guest of Honor: **Prof Domenico V. Delfino,** *ISE* Guest of Honor: **Prof Pulok K Mukherjee,** *SFE* Organizing Secretary: **Prof Sayeed Ahmad,** *JH*			
05:30 - 06:30 PM	**NETWORNG & HIGH TEA**			

KEYNOTE / SPEAKERS

S. No.	Name	Title
1.	Ikhlas Khan	Bridging tradition and science: Strategies to overcome quality and safety challenges in herbal medicine
2.	Domenico Vittorio Delfino	Cucurbitacin D from *Elaeocarpus hainanensis*: Bridging traditional medicine and molecular oncology through ZNF217 modulation in npm1-mutated acute myeloid leukemia
3.	Shah Alam Khan	Inhibitory effects of natural plant products on cholinesterase activity: a rational approach for the development of anti- Alzheimer drugs
4.	Yuet Patrick Chiu	Exotic materia medica and Chinese pharmacy: Abjourney of two millennia
5.	Irena Maria Choma	Antioxidant properties and TLC bio-profiling of various cultivars of *Actinidia arguta*
6.	Tanveer Alam	Natural food colors: sources, stability, formulations, and their applications
7.	Tanveer Alam	The influence of feeding of yellow pigments (2% xanthophylls) on egg yolk color for age-related macular degeneration (AMD)
8.	Md Mukhlesur Rahman	Antimicrobial metabolites from medicinal plants and propolis
9.	Saif Ahmad	Role of natural products in neurodegenerative disorders
10.	Seyedeh Mahnaz Karimi	Advances in drug delivery systems for natural products: Trends, challenges and future prospects
11.	Alka Ahuja	Formulation and characterization of quercetin-enhanced nanoformulation containing boswellic acid and resveratrol for colon cancer therapy
12.	Hongjie Zhang	Discovery of Broad-Spectrum Antiviral Lignans from Justicia Plants by Targeting Host V-ATPase
13.	Zahoor Ahmad Shah	Perspectives on the beneficial effects of *Ginkgo biloba* in neurological and cerebrovascular disorders
14.	Mohammad Kamil	From traditional knowledge to pharmaceutical and phyto-pharmaceutical products- with special reference to quality control and standardization
15.	Mojibur R. Khan	Traditional fermented food as ethnomedicine: A source of next generation probiotics for healthy ageing
16.	Nishikant A. Raut	Ethnopharmacology and integrative healthcare: evidence-based validation of *narayan tail* as a model for global harmonization of traditional formulations
17.	Sanjeeb Kumar Sahoo	Nimbolide based nanomedicine inhibits cancer progression and metastasis by targeting cancer stem-like cells in triple-negative breast cancer (TNBC)
18.	Sharad Srivastava	Translating nature's pharmacy: industrial challenges and emerging opportunities in harnessing medicinal herbs
19.	Ahmad Ali	Therapeutic potential of UNIM-H, a polyherbal Unani formulation targeting oxidative stress and chronic inflammation
20.	Raghavender Medishetti	Zebrafish models in AYUSH research: Integrating pharmacology, toxicology, and disease modelling
21.	Emdad Hossain	Utilization of anthelmintic medicinal plants for future medication in Indian context
22.	Munish Garg	Policy integration of ethnopharmacology in public health and AYUSH programs
23.	L. Sathiyanarayanan	Unlocking the health potential of bee products: scientific advances toward a healthier future
24.	Arulmozhi S	Ethnopharmacological validation of virgin coconut oil as a neuroprotective agent
25.	Prakash Rambhauji Itankar	Bridging tradition and science: Panchagavya-based healing and the revitalization of India's indigenous health systems
26.	Nawal Kishore Dubey	Indian traditional knowledge on medicinal plants: a miraculous and sustainable approach towards health scrutiny
27.	Prakash Yoganandam Gnanakumar	Formulation development, characterization and evaluation of *Crossandra infundibuliformis (L.)* Nees ethosomes: A novel approach for enhanced anti-inflammatory drug delivery
28.	Charu Lata	Traditional health practices: Documentation, validation and commercialization
29.	Sitesh C Bachar	Tradition of "traditional medicine" - Bangladesh perspectives
30.	Proma Khondkar	Safety concerns and mycotoxin detection in herbal medicines
31.	U.S.N. Murty	PRIP – a progressive step towards phytopharmaceutical development in India
32.	Sanjay M. Jachak	Nutraceuticals and phytopharmaceuticals: a paradigm shift in herbal drug technology
33.	Mohammad Mansoor Ansari	Ancient wisdom, modern standards: standardized product development from traditional medicinal plants: insights from Sami-Sabinsa Group
34.	Arvind Saklani	Medicinal plants cultivation, sustainable supply of quality-assured raw materials and

		integrated supply chain
35.	Ajit Kumar Shasany	Plants for *Dosha samanam*: How similar these are
36.	Sidharth Mehan	Multiple sclerosis (MS): challenges, diagnostic approaches, and therapeutic solutions in neurodegeneration research
37.	Manjula SN	Targeting Soluble Epoxide Hydrolase in Alzheimer's Disease: Preclinical Evaluation of *Nigella sativa* as a Natural Inhibitor
38.	Gurupadayya BM	Phytochemicals from corn plant as Anti-Inflammatory Agents: Molecular Insights and Therapeutic Perspectives
39.	Ramit Ramu	Thermoresponsive and Biocompatible Probiotic–Polymer Delivery System for Sustainable Management of Oral Candidiasis
40.	Narendra Kumar	Isolation, characterization of astragalin and calceolarioside A from *Nyctanthes arbor-tristis* L. and the diversity assessment and harvesting time optimization for higher yield
41.	Santanu Bhadra	From Wisdom to Data: Structuring Traditional Knowledge for AI Readiness in Ethnopharmacology
42.	Amit Kar	Scientific exploration and validation of Northeast Indian Plant Bioresources for Metabolic Disorders – An evidence-based approach

SHORT LECTURES

Day 1 Thursday: Oct 30, 2025		
Young Investigators Session/ Short Lectures I SL (01-20)		
HAH Archives, 11:00 - 01:30 PM		
S. No.	**Name**	**Title**
SL–1	Aasiy Ul Erum	High performance thin layer chromatography analysis of seed extracts of Tudri Surkh (*Cheiranthus cheiri*)
SL–2	Adil Ahamad	To evaluate the antithrombocytopenic potential of the bioactive extract derived from *Psidium guajava* L.
SL–3	Ahamed Shifak Fathima Shifra	Role of Unani system of medicine in the promotion of health and well-being of patients living with HIV/AIDS: A scientific review
SL–4	Aisha Siddiqui	Screening of antidepressant- like effect of a polyherbal formulation
SL–5	Alkeshkumar Kiritbhai Patel	Deciphering the cellular immunotherapeutic potential of natural products in metastatic colorectal cancer (mCRC)
SL–6	Sradhanjali Mohapatra	Reviving ancient healing: Integrating traditional herbs into modern therapeutics for menopause
SL–7	Archana P. Raina	Genus *Ocimum* L. from Eastern India: chemotaxonomic markers for species identification
SL–8	Atul Gupta	Investigation of phenolics from leaves of *Zanthoxylum armatum* DC for value addition and pharmacological actions
SL–9	Azad Hussain Lone	Phytotherapies for Acne vulgaris: A critical evaluation of clinical evidence
SL–10	Azhar Jabin	Therapeutic application of Katan (*Linum usitatissimum* Linn) in Respiratory disorders
SL–11	Aziz Ahmed	Ethnopharmacology and drug discovery: From folk medicine to modern therapeutics
SL–12	Bisma Jan	Plant-based proteins: Nutritional potential, functional applications, and future prospects
SL–13	Bushra Parveen	Reverse pharmacology as a pathway for natural medicines: Way forward
SL–14	Deepika Modi	Dexamethasone loaded *in-situ* gel of gellan gum and chitosan for treatment of dry eye disease
SL–15	Md. Nasar Mallick	AI-powered drug discovery: Transforming the future of pharmaceutical research
SL–16	Silpi Chanda	Tropical Fruits: Bridging Ethnomedicinal Wisdom and Modern Nutraceutical Innovation-A Comprehensive Review of Prebiotic-Probiotic Synergies and Therapeutic Applications
SL–17	Tapan Behl	From fruit to remedy: How *Terminalia catappa* shields via triple modulator action in diabetic retinopathy
SL–18	Farah Deeba	Therapeutic insights into pregnenolone sulphate: dual in-silico and in-vivo evaluation against CB1-mediated diabesity
SL–19	Fouzia Bashir	Unani Medicine and Evidence-based Practice: Building Bridges for Global Health
SL–20	Harjeet Singh	Development of pharmacoepoeial standards for *Zygophyllum creticum* through HPTLC, macromorphological and cytomorpholigal studies

Day 1 Thursday: Oct 30, 2025		
Young Investigators Session/ Short Lectures II SL (21-35)		
HAH Archives, 02:30 - 04:00 PM		
SL–21	Hasina Yasmin	The role of *Moringa oleifera* in human lactation: A systematic review on clinical trials
SL–22	Iqra Hashmi	Arwāḥ and bioenergetics: Exploring the parallels between Unani vital forces and mitochondrial function
SL–23	Jada Naga Lakshmi	Neuroprotective Effects of Bacosides on Scopolamine-Induced Memory Deficits in Rodents: A Preclinical Study
SL–24	Kailash Chandra	*Acne Vulgaris*: Phytotherapeutic perspectives for its management
SL–25	Kalpana Zutshi	Dry needling or corticosteroid injections for musculoskeletal conditions: A systematic review

SL–26	Kausar Jahan	Parachlorophenylalanine and DSP-4 induced oxidative stress in 6-Hz Psychomotor seizures in mice
SL–27	Madhukar Garg	Utilization of *Nigella Sativa* seed oil in management of neoplasm
SL–28	Maqsood Ali	Artificial Intelligence (AI) guided approach to phytochemical screening and therapeutics
SL–29	Maryam Sarwat	Impact of sleep deprivation and circadian disruption on brain function: Neuroprotective roles of Khamira-e-Gaozaban sada and curcumin
SL–30	Md Salik Noorani	Viruses as hidden drivers of bioactive compound variation in medicinal plants
SL–31	Mhaveer Singh	Exploring herbal remedies for skin disorders: A synergy of tradition and science
SL–32	Mohammad Javed Qureshi	Formulation and in vitro characterization of lipid hybrid nanoparticles encapsulating olaparib poly (ADP-Ribose) polymerase (PARP) enzyme inhibitor for the targeted delivery to colorectal cancer
SL–33	Mohammed Kaleem	Development of (−)-epigallocatechin-3-gallate-loaded folate receptor-targeted nanoparticles for prostate cancer treatment
SL–34	Mohammad Faheem Khan	Unveiling the secret of Labda-8(17),12,14-trien-19-oic acid and karanjin as anti-prostate cancer agents
SL–35	Mohd Ashraf Ashfaq	Authentication of bala and Indian senna using Sequence Characterized Amplified Regions (SCAR) markers
Day 2 Friday: Oct 31, 2025		
Young Investigators Session/ Short Lectures III SL (36-55)		
HAH Archives, 11:00 - 01:30 PM		
SL–36	Mohd Kashif Husain	Ethnomedicinal relevance of AYUSH-Unani medicinal plants of Andhra Pradesh
SL–37	Monalisha Samal	Determination of brain tonic potential of AYUSH formulations using *in-vitro, in-vivo* and metabolomic approaches
SL–38	Nahid Khan	*From traditional rehabilitation to modern outlook: Addition of balance training to conventional pulmonary rehabilitation protocols in COPD*
SL–39	Noman Anwar	Safūf-e-Qaranfal mediated biogenesis of nanocomposites towards antibiotic-resistance in medically important ESKAPE bacteria
SL–40	Nusrat Nabi	Integration of academic across different systems of medicine
SL–41	P V V Siva Krishna	Translational Development of NCE 14a: From Predictive Pharmacokinetics and Molecular Docking to Colon-Targeted Nanoparticles for Colorectal Cancer Therapy
SL–42	Parakh Basist	Synergistic nephroprotection of *Cinnamomum zeylanicum* and *Piper cubeba*: Metabolite profiling and efficacy in cisplatin-induced renal injury
SL–43	Pawan Kumar Sagar	Phytochemical, Quality, Safety screening studies, DSR, HPTLC, GC-MS profiling of Lavandula stoechas L. arial parts samples and their pharmacological medicinal potential values
SL–44	Payal Chakraborty	Investigation for the therapeutic efficacy of Olive Vinegar in comparison to miglitol in the diabetic foot ulcer (DFU) *in-vivo* model
SL–45	Pooja Jain	Development and evaluation of a multicomponent delivery system for periodontal affliction
SL–46	*Prachi Tiwari*	Artificial intelligence and traditional medicine: A physiotherapy-oriented approach to innovative rehabilitation
SL–47	Prakash Yoganandam Gnanakumar	Formulation development, characterization and evaluation of *Crossandra infundibuliformis* (L.) Nees Ethosomes: A novel approach for enhanced anti-inflammatory drug delivery
SL–48	Pravin Kumar Atul	Drugs based alternative systems of medicine
SL–49	Priyanka Bagri	Potential role of *Cinnamon tamala* as a medical food ingredient in diabetes control
SL–50	Pushpendra Kumar Shukla	Calibration and simultaneous quantification of bioactive compounds in *Bixa orellana* through High-Performance Thin Layer Chromatography
SL–51	Rabea Parveen	Nanocarrier-phytoconstituent synergy: A sustainable approach for Next-Generation therapeutics
SL–52	Rajendra Gyawali	Assessment of the Panchasakar Churna for its standardization

SL–53	Rashida Begum	Internet gaming disorder and gender: Insights for modern behavioral health from traditional concepts of balance
SL–54	Rohitas Deshmukh	Revitalizing traditional medicine through qbd-guided naringin-loaded nanosponges for colon cancer therapy
SL–55	Roohi Azam	Restoring metabolic balance through Unani dietary regimens
Day 2 Friday: Oct 31, 2025		
Young Investigators Session/ Short Lectures IV SL (56-70)		
HAH Archives -02.30 - 04.00 PM		
SL–56	Ruchira Shankar Karpe	Bridging Ayurveda and nanomedicine: Polyherbal silver nanoparticles as cardioprotective and pro-angiogenic agents
SL–57	Rustam Ekbbal	Epidemiology, etiology, ethnopharmacology, and clinical challenges in cardiovascular diseases: An overview and future perspectives
SL–58	Saba Zaidi	An integrative study of temperament-specific susceptibility to stress-related emotional symptoms in premenstrual syndrome
SL–59	Sabiha Fatima	Clinical Pharmacology in Unani medicine: An epistemological and scientific interface
SL–60	Sana Rehman	Evaluation of antioxidant activity of Banadiqul buzoor – An Unani compound formulation in renal diseases
SL–61	Saroj Yadav	Science behind senescence and dermohacking in skin care
SL–62	Shahid Shah Chaudhary	Development and standardisation of a Unani hematinic syrup formulation
SL–63	Shamim Sahranavard	Neuroprotective Potential of Plants introduced in Persian Medicine: Experimental Studies on Epilepsy, Alzheimer's Disease, and Peripheral Neuropathy
SL–64	Shazia Jilani	A therapeutic approach to non-alcoholic fatty liver disease (NAFLD) with Unani medicine
SL–65	Sidharth Mehan	Multiple Sclerosis (MS): Challenges, Diagnostic Approaches, and Therapeutic Solutions in Neurodegeneration Research
SL–66	Siraj Anwar	*Lactobacillus helveticus* NS8 strain probiotic: A search for anti-anxiety effect
SL–67	Uzma Bano	Some important paediatric formulations in Unani system of medicine
SL–68	Uzma Parveen	Wet cupping as an alternative therapy for knee osteoarthritis
SL–69	Varsha Srivastav	Zotero: A diverse bibliometric tool for Literature screening and in-text citations
SL–70	Yasheshwar	Harmonizing Ayurveda with global and Indian biodiversity regulations

ORAL PRESENTATIONS

Day 1 Thursday: Oct 30, 2025		
Oral Presentation / Session I LT-05 OP (01-15)		
Central Library building -11.00 - 01.30 PM		
S. No.	**Name**	**Title**
OP–1	Aatika Khan	Exploring the intersection of neck pain, cognitive function, and virtual reality: A multimodal approach to assessment and rehabilitation
OP–2	Abdur Rahman	Human microbiom microbiome modulation: A review
OP–3	Adeeba Zaidi	Evaluation of hydroalcoholic extract of *Fagonia cretica* Linn on benzene-induced leukemia in male wistar rats
OP–4	Afreen Ahmed	Influence of mizaj on memory performance and modulatory role of Unani herbs: Bridging traditional concepts with modern neurophysiology
OP–5	Afsha Parveen	Combined effect of pilates and nutritional supplementation on female's health: A systematic review
OP–6	Agrima Aggarwal	Development of a screening tool for analysing the risk of acquiring cognitive decline among adults aged 40 to 60 years: A face and content validation study
OP–7	Ahamed Shifak Fathima Shifra	Promotion of metabolic health and prevention of non-communicable diseases through millets-based food supplements: A scientific review

OP–8	Aisha Razi	Aligning traditional wisdom with contemporary research: Steroidogenic modulation by a Unani pharmacopoeial formulation in wistar albino rats
OP–9	Aliefia Yusuf Lehri	Ashwagandha in advanced nanomedicine: Approaches and applications
OP–10	Anas Kafil	An overview of research on cardiovascular health and natural products
OP–11	Aqsa	The healing power of *Prunus cerasus* L. (Aalu Balu): From traditional medicine to scientific evidence
OP–12	Arshi Riaz	Analysis of urinary (bawl) parameters for determining human temperament (Mizaj-e-Insani)
OP–13	Asha Budakoti	Extraction, isolation and value addition of phytomolecules from *Glycyrrhiza glabra* L. and their anti-cancer activity
OP–14	Ashraf Imam	From roots to remedies: Strengthening traditional medicines for the future
OP–15	Asma Naqi	Development and optimization of dual drug loaded nanoformulation via actively targeting hepatocellular carcinoma
Day 1 Thursday: Oct 30, 2025		
Oral Presentation / Session II LT-13 OP (16-30)		
Central Library building -11.00 - 01.30 PM		
OP–16	Atish Khan	Integrative literature review on Asthma: Biomedical and Unani perspectives
OP–17	Balakrishna Attuluri	Bio-analytical method development and validation of an LC-MS/MS method for accurate quantification of tepotinib in biological matrices
OP–18	Batool Akhtar	Talbinah as a dietary intervention in preventive unani medicine: Bridging tradition and evidence
OP–19	Bisma	Clinical correlation of *Mizaj* (Temperament) with uterine fibroid and its treatment in Unani medicine
OP–20	Chandrachur Ghosh	Indian lychee honey mitigates hepatic lipotoxicity by inducing Fam134b-mediated reticulo-mito-phagy and restoring mitochondria-ER contact sites (MERCSs) in NAFLD condition
OP–21	Zikra Rahman	Impact of late-night mobile phone usage on heart rate variability on different mizaj individuals
OP–22	Durai Raj M	Novel insights of neuroprotective effect of ellagic acid in monosodium glutamate-induced neurotoxicity in zebra fish larvae
OP–23	Divya Bhatt	From waste to wellness: Unlocking citrus peels' potential in the fight against Malaria
OP–24	Farazuddin Hashmi Ume Kulsum Faridi	Exploring the pharmacological activities and therapeutic applications of quercetin
OP–25	Firdaus Jawed	Glycemic control and functional mobility in Type 2 diabetes: Insights from tug and chair stand tests
OP–26	Foziyah Zakir	Development of a reformulated traditional therapeutic agent for the management of migraine
OP–27	Gomathi Maniyan	Investigating the molecular mechanisms of *Dioscorea alata* L. in treating menstrual disorders through network pharmacology and molecular docking
OP–28	Gulnaz Azmi	Therapeutic potential of Afsanteen *(Artemisia absinthium* Linn.*)*: Traditional knowledge and modern pharmacological evidence
OP–29	Gurseen Rakhra	Flavonoids: Potential therapeutic targets in inflammatory bowel diseases
OP–30	Habiba Sundus	The role of long-term exercise in optimizing thyroid function in hypothyroidism: Evidence from a systematic review and meta-analysis
Day 1 Thursday: Oct 30, 2025		
Oral Presentation / Session III LT-05 OP (31-39)		
Central Library building -02.30 - 04.00 PM		
OP–31	Hammad Ahmed Siddiqui	Cognitive effects of exercise in older adults with subjective cognitive decline: A systematic review
OP–32	Hanaan Kasim Ansari	Computational identification and experimental validation of natural inhibitors targeting dengue virus NS1 Protein
OP–33	Harpreet Singh	Belladona: The witches herb
OP–34	Heena Jindal	Ethnopharmacological insights into herbal and nutraceutical remedies for menopausal migraine

OP–35	Himanshu Singh	Antibacterial and antibiofilm activity of *Averrhoa carambola* L. fruit extract
OP–36	Ifra Aman	Dry needling or corticosteroid injections for musculoskeletal conditions: a systematic review
OP–37	Ifrah Iqbal	Role of leech therapy in gynaecological disorders
OP–38	Jyoti Ganai	Effect of perceived stress on cardiopulmonary parameters in healthy adolescents: A systematic review
OP–39	K G Geetha	Ethnopharmacological insights into Flavonoids and Stilbenoids: A molecular docking- based exploration of cervical cancer therapy
Day 1 Thursday: Oct 30, 2025		
Oral Presentation / Session IV LT-13 OP (40-49)		
Central Library building -02.30 - 04.00 PM		
OP–40	Khushi Quadri	Brain-Targeted delivery of phytopharmaceuticals using cubosomal nanotechnology: A novel approach to epilepsy management
OP–41	Kirti Nandkumar Deshmukh	Development and characterization of BOERSOMES for the treatment of alcoholic liver disease: A quality-by-design (RSM-CCD) approach
OP–42	L Priyanka Dwarampudi	Formulation and characterization of zinc based nano complex for the treatment of polycystic ovarian syndrome
OP–43	Manya Pengoria	Exploring the anticancer potential of *Artemisia annua*, Egyptian medicinal flora, and *Piper nigrum*: A review of multitargeted therapeutic mechanisms
OP–44	Md Farhan Alam	Effects of lower extremity plus trunk exercises versus trunk exercises alone on foot posture, gait cycle, and ankle motion in patients having chronic low back pain with pronated feet
OP–45	Mohammad Mohsin	*In Vitro* embryogenesis-based regeneration of *Urceolina grandiflora* (Planch. & Linden) Traub and genetic fidelity assessment through Cytological, Flow Cytometric, and SCoT marker analyses
OP–46	Mohd Rashid Fazal	An observational analytical study of happiness index in young adults with reference to different mizaj
OP–47	Mohd Safdar	*Iris ensata* (Irsa): Scientific validation of its unani claims
OP–48	Mohd Sami	Diagnostic evaluation of *Bawl al-Dam* (Hematuria) in Unani medicine: A literature-based review
OP–49	Mudabbira Shams	Asbāb Sitta Ḍarūriyya and the six pillars of lifestyle medicine: An ancient–modern concordance
Day 2 Friday: Oct 31, 2025		
Oral Presentation / Session V LT-05 OP (50-62)		
Central Library Building, 11:00 - 01:30 PM		
OP–50	Munazzah Beg	Traditional and modern dietary approaches in mental health: Integrating Unani principles with nutritional psychiatry
OP–51	Nayab Ishrat	Chebulinic acid from *Terminalia chebula* reduces insulin resistance via activation of AMP-activated protein kinase
OP–52	Neha Singh	Underutilized botanicals for functional foods: RSM-guided development, characterization, and phytotherapeutic profiling
OP–53	Noor Mohammad	The role of core strength training in managing pain and enhancing daily functioning in primary dysmenorrhea: An occupational therapy intervention
OP–54	Noorain	Evaluation of colloidal nanoformulation via nose to brain delivery approach for seizure management
OP–55	Jahnavi Patibandla	Current trends and clinical outlook of herbal emulgel delivery systems in proctology
OP–56	Quba Naaz	Insights into chronic pharyngitis (*Waram-i-Halaq*) in the light of Unani and contemporary medicine
OP–57	Rajendran Silambarasan	Chemical profiling, proinflammatory cytokines, *in vivo* excision wound healing activity, and its network pharmacology and molecular docking of selected medicinal plants species used by the Indigenous Malayali tribe communities, Eastern Ghats, Tamil Nadu
OP–58	Ramisha Rajput	A review of anxiety disorders (*Izterab-E-Nafsani*) through the lens of Unani system of medicine
OP–59	Ranabir Sahu	Formulation of green synthesis of silver nanoparticles from *Macropanax undulatus* leaf extract and its characterization, biological evaluations, and protein and DNA interactions

OP–60	Ranjit K Harwansh	Evaluation of a quercetin–phospholipid gel for enhanced transdermal delivery and photoaging
OP–61	Rekha Khatri	A comparative study for quantitative analysis of quercetin and rutin in *Agropyron repens* and *Ribes nigrum* hydroalcoholic extracts using HPTLC
OP–62	Riya Cyril Dsilva	Bioactive Mineral Cream for Wound Healing and Cosmeceutical purpose
Day 2 Friday: Oct 31, 2025		
Oral Presentation / Session VI LT-13 OP (63-77)		
Central Library Building, 11:00 - 01:30 PM		
OP–63	Rizwan Ahamad	Development of quality standards, phytochemical analysis and HPTLC profiling of Dawaul Kurkum: A classical Unani formulation
OP–64	Roma M Sharma	Design and fabrication of pH-dependent drug delivery system Laden with Quercetin
OP–65	Rooshi Fareed	Effect of *Zimad* (Unani pharmacopeial liniment) in the management of Knee osteoarthritis: A case study
OP–66	Rujuta Gandhi	Heart-smart nanogreens: *Tribulus terrestris*–infused iron oxide nanoparticles for cardioprotection
OP–67	Saakshi Saini	Integrating Traditional Medicine and Nanotechnology for Neuroprotection in Anxiety and Depression
OP–68	Sabiha Fatima	Integrative assessment of obesity: Bridging modern biometrics and Unani constitutional evaluation
OP–69	Sahiba Ansari	Quality control and nephroprotective potential of Jawarish Zarooni Sada and its sugar-free dosage form using *in vitro, in vivo* and metabolomics approaches
OP–70	Sahiba Khan	Unveiled *Mahiyat-e-Maraḍi* (Pathogenesis) of *Dhayābitus* through the prism of Unani medicine: A critical review
OP–71	Saima Shafi	Pseudo-cereals in gluten-free diets and celiac disease management: A scientific review
OP–72	Sanchita Sethi	Industrial applications of terpenoids
OP–73	Sarika Chouksey	Development of one-tube multiplex arbitrary (RAPD & ISSR) marker-based SCAR assay for simultaneous detection and authentication of Indian senna (*Senna alexandrina* Mill.) and its adulterant species
OP–74	Saroj Adittya Rajesh	Clinical evaluation of finger millet cookies as a dietary supplement in the management of iron deficiency anaemia
OP–75	Satyajyoti Kanjilal	Strategic approach for evidence generation to substantiate claims related to Ayurvedic ingredient usage
OP–76	Satyendra Kumar	Anti-allergic and anti-asthmatic potential of *Terminalia chebula* Retz & amp; *Quercus infectoria* Oliv as a substitute of plant *Pistacia integerrima* Linn.
OP–77	Sehrish Khan	Efficacy of *Habb-e-Muqil* and a novel Unani ointment in experimental hemorrhoids
Day 2 Friday: Oct 31, 2025		
Oral Presentation / Session VII LT-12 Room OP (78-88)		
Central Library Building, 11:00 - 01:30 PM		
OP–78	Shahnawaz Ahmad	Anticonvulsant, antioxidant and neuroprotective effect of Trimetazidine in a PTZ-induced kindling model of mice through modulation of the NF-κB and HMGB-1/TLR-4 axis.
OP–79	Shahzama Siddiqui	Tracing hysteria in Unani medicine: The concept of *Ikhtināq al-Raḥim*
OP–80	Shahzeb Ahmad Khan	Integrative review of Juntiyana (*Gentiana lutea* Linn.): Bridging Unani insights with modern evidence
OP–81	Shaima Saifi	Effect of nomophobia on chronic neck pain and sleep quality among university students in Delhi NCR region.
OP–82	Shaista Perveen	Assessment of unani concept of therapeutic interchange (Abdaal-e-Advia) with special emphasis on phytochemistry
OP–83	Sharmistha Samanta	Formation and Evaluation of an Ayurvedic Banaspati Dark Chocolate to mitigate oxidative stress in athletes
OP–84	Shazia S. Shamim	Integration of artificial intelligence and traditional medicine with special reference to Unani system of medicine
OP–85	Shaziya Begum	Exploring the therapeutic potential: *Ta'līq al-'Alaq* (Leech Therapy) for *Qarḥa Khabītha* (Non-healing ulcer): A case study

OP–86	Sheema Wazib	Role of *Asparagus racemosus* (Willd.) promotes uteroplacental perfusion by modulating angiogenesis and systemic maternal inflammation in preeclampsia
OP–87	Shifali Gupta	Overview on therapeutic utility of industrial crops: A promising approach
OP–88	Shubha Arora	Hand grip and pinch strength: A systematic review: methods and outcomes in clinical and health population
Day 2 Friday: Oct 31, 2025		
Oral Presentation / Session VIII LT-12 OP (89-100)		
Central Library Building, 02:30 - 04:00 PM		
OP–89	Srikanth Alapati	Determination of leachables in fosaprepitant injection from the container closure system by novel analytical techniques
OP–90	Sultan Zahiruddin	Toxicity and safety levels assessment of oxygen heterocyclic compounds and terpene in cold-pressed grapefruit essential oils using UHPLC-MS/MS
OP–91	Syeda Asma Firdose	Study on a non-pharmacopeial formulation for its hepatoprotective activity against drug-induced hepatotoxicity in animal model
OP–92	Tuba Razi	Efficacy of Unani formulations in the conservative management of uterine fibroids: A case report
OP–93	Ummar Atta	Morphological and phytochemical plasticity of medicinal plant *Origanum vulgare* L. (Oregano) in response to an elevational gradient
OP–94	Uzma Jabeen	Integrated metabolomic and computational analysis of antibacterial compounds from *Ocimum sanctum* targeting uropathogenic *Klebsiella pneumoniae*
OP–95	Vidhya Bhayal	Ethnomedicinal practice of *Achyranthes aspera* L. for labour facilitation: Evidence from tribal communities in Malwa and Nimar region of Madhya Pradesh
OP–96	Zakira Iqrar	Anti-cholagogue medicines and liver health: From unani concepts to biomedical validation
OP–97	Zuheb Ahmed Siddiqui	Wearable technology in physiotherapy: Enhancing monitoring and exercise adherence

YOUNG ETHNOPHARMACOLOGIST AWARD

Day 1 Thursday: Oct 30, 2025		
Young Ethnopharmacologist/ Session I LT-12 YEA (01-15)		
Central Library Building, 11:00 - 01:30 PM		
S. No	**Name**	**Title**
YEA-01	Abiha Ahmad Khan	Efficacy of cinnamon extract, powder, and metformin in PCOS: A randomized controlled trial
YEA-02	Anshu Ojha	Quality evaluation and metabolomic profiling of honey
YEA-03	Ashish Kumar Rai	Tracing nutrient landscapes: A geographical exploration of macro and micronutrient variation in Punarnava Root, Finger Millet, and Palm Jaggery across India
YEA-04	Babita Kumari	Role of Honey as income generating source for S/T poor inhabitants and Undergraduate Students for their better livelihood in some adjacent villages near Delhi
YEA-05	Barun Das Gupta	Metabolomics-based evaluation of *Allium hookerii* thwaites in non-insulin-dependent diabetes mellitus and dyslipidaemia
YEA-06	Fatima Khan	Unani perspectives on *Anethum graveolens* L. (Sowa): A comprehensive review of its analgesic potential and underlying mechanisms
YEA-07	Jalaluddin Khan	Nattokinase a fibrinolytic agent for the prevention and delay of Alzheimer disease progression
YEA-08	Kanika Pasrija	In silico evaluation of Na^+/K^+-ATPase inhibitory activity of the phytocontituents of *Punica granatum* for cardiotonic action
YEA-09	Maria Mukherjee	A five-phase ethical framework for the integration of generative artificial intelligence in ethnopharmacology
YEA-10	Mini Gupta	Isolation and value addition of hydroxylated flavonoids for pharmacological actions
YEA-11	Mohammad Nawab	The safety, efficacy and tolerability of *Iksir-i-shifa* in essential hypertension: A randomized controlled clinical trial

YEA-12	Narges Tajik	Indian medicinal substances in Avicenna's *Canon of Medicine*: Botanical identification and historical pharmacology
YEA-13	Naveen Reddy Penumallu	Development of synergistic nephroprotective potential of selected Unani herbs using *in vitro* and *in vivo* approaches
YEA-14	Nazia Sadaf	Evaluation of the prophylactic potential of *Hordeum vulgare* in non-communicable diseases: A decisive review
YEA-15	Neha Kumari	A novel and environmentally benign method for the synthesis of diisoeugenol from eugenol-rich essential oils of Ocimum species
Day 1 Thursday: Oct 30, 2025		
Young Ethnopharmacologist/ Session II LT-12 YEA (16-25)		
Central Library Building, 02.30 - 04.00 PM		
YEA-16	Ravali Ravi	Anti-allergic activity of ethanolic extract of *Tridax procumbens L*: An i*n silico* and i*n vitro* mast cell stabilization and anti-histamine study
YEA-17	Sageer Abass	Integrating chromatography, in vitro, and in silico approaches to elucidate the antibacterial potential of *Andrographis paniculata* and *Berberis aristata*
YEA-18	Saman Anees	The synergy of Unani medicine and modern pharmacology in chronic disease management
YEA-19	Sathi Bhulakshmi	Design and synthesis of entadamide a derivatives targeting breast cancer: Insights into *in silico*, *in vitro* and *in vivo* models
YEA-20	Shamim Sahranavard	Neuroprotective potential of plants introduced in Persian medicine: Experimental studies on Epilepsy, Alzheimer's disease, and peripheral neuropathy
YEA-21	Sirsha Naskar	Rapid determination of the extractive value of dried ginger using a near infrared spectrometer
YEA-22	Tathagata Kundu	p-Coumaric acid of Indian Jamun honey inhibits proliferation of hepatocellular carcinoma by eliciting er-stress mediated ubiquitination of β-catenin
YEA-23	Yashesvi Ambardar	Protective role of *Tribulus terrestris* L. against hypoxia-induced pulmonary hypertension by modulating inflammatory signalling and vascular remodelling
YEA-24	Yogita B. Tandalekar	Protective effect of *Schleichera oleosa* (Lour.) Oken in CFA-induced arthritic rats
YEA-25	Zareena Aquil	Evaluating the anxiolytic potential of Tukhme Kahu (*Lactuca sativa* seeds) in the management of anxiety disorders: A review

POSTER PRESENTATIONS

Day 1 Thursday: Oct 30, 2025		
Poster Session I PS (01-109)		
Convention Centre First Floor, 11:00 - 01:30 PM		
S. No	**Name**	**Title**
PP–1	A. Nazia Rahmani	Understanding the pathogenic footprint of *Amrāḍ Mu'diya* (infectious diseases) in the light of *Mizāj* in early childhood
PP–2	Aaditi Jha	Plant-based vaccines: A new approach in immunization
PP–3	Aala Keerthi	CocoaBloom: A novel diabetic-friendly, sugar-free functional chocolate sweetened with Cocoa pulp and Jamun
PP–4	Aaliya Sharief	*Apium graveolens*: Phytochemical screening, total phenolic, flavonoid content and HPTLC profiling
PP–5	Aanika Sominder	Acute oral toxicity studies of sugar-free Khamira-e-Gaozaban Sada (sf-KGS) a polyherbal unani formulation in swiss albino mice
PP–6	Aaysha Ali Urooj Sajid	Giloy as a nutraceutical: A natural pathway to wellness
PP–7	Abdullah	Methi's (*Trigonella foenum-graecum*) metamorphosis: From folklore to pharmacology
PP–8	Abdullah Ayaz	From hospitals to communities: The expanding burden of antimicrobial resistance
PP–9	Abdullah Faizul Hasan	Cardioprotective potential of *Doronicum hookeri* (Daroonaj Aqrabi): Insights from Unani literature and modern pharmacology
PP–10	Abdur Rahman	Scientific validation of antiviral efficacy in traditional Unani formulations

PP–11	Adiba Saifi	Phytochemical characterization, monograph development, and network pharmacology studies on *Coriandrum sativum* for nephroprotection
PP–12	Aditya Khandelwal	Network pharmacology-based analysis of squalene from *Amaranthus tricolor* (Pusa Kiran) for anti-obesity activity
PP–13	Adnan Khan	Development and evaluation of antibacterial turmeric ointment
PP–14	Adnin Sama Ahmed	Synthesis of 4-amino-3-nitro coumarin derivatives
PP–15	Afeefa Khan	Integrative pharmacological and phytochemical profiling of *Boswellia serrata* in chronic kidney disease: Network pharmacology, bibliometric insights, and HPTLC quantification
PP–16	Afeefa Khan	Herbal cosmetics in India: Consumer survey and proposal for future research
PP–17	Afeefa Nafees	Comparative GC-MS based metabolite profiling of field-grown and in vitro-regenerated tissues of *Gladiolus grandiflorus* L. cv Pusa Kiran
PP–18	Afnan Khairi	Artificial Intelligence (AI) solutions for integrating traditional medicine into modern healthcare systems
PP–19	Afshan Ahmed	Advancements in natural biomaterials for tissue-engineered vascular grafts
PP–20	Afshan Khan	Pharmacognostical and phytochemical evaluation of *Majoon-i-Gul*, a pharmacopoeial Unani formulation: A comprehensive approach with modern techniques
PP–21	Aftab Alam	Exploring the scientific validation and nephroprotective potential of Unani drugs: Integrating in-vivo, in-vitro, in-silico, and network pharmacology approaches with molecular and metabolomic Insights
PP–22	Aghna Parveen	*Bryonia epigoea Rottl*: Pharmacological and therapeutic aspects
PP–23	Ahmad	Unani Aahār: The cornerstone of health, prevention, and therapy in Unani medicine
PP–24	Aisha Tyagi	Ani epileptic Unani drugs: Classical literature with the scientific validation
PP–25	Aisha Perveen	Nutool therapy- a unani regimen to reduce anxiety
PP–26	Alfia Yusufzai	Poly-γ-glutamic acid: A green biomaterial for the future
PP–27	Alisha	Cloning, expression and characterization of Dengue virus Non-Structural 4B protein
PP–28	Aliya Siddiqui	Formulation of silver nanoparticle using peanut shell extract
PP–29	Aliza Parveen	Cardio-protective role of *Punica granatum* (Pomegranate) extracts in reducing atherosclerotic risk
PP–30	Amarjeet Shandil	GCMS analysis of *Leptadenia pyrotechnica* (Forsk.) decne hydro-alcoholic extracts and assessment of their antioxidant and anti-inflammatory properties
PP–31	Amit Bayas	Traditional medicine in cancer therapy: An evidence-based approach
PP–32	Anish Murtaja Alam Khan	In vitro targeting of dual-specificity tyrosine phosphorylation-regulated kinase 1A (DYRK1A) for β-cell regeneration using the chicoric acid-rich fraction extracted from *Cichorium intybus* seeds
PP–33	Anjali Luthra	A review on stress management with traditional systems of medicine
PP–34	Anjlina Aqil	Exploring the remarkable chemotherapeutic potential of polyphenolic antioxidants in battling various forms of cancer
PP–35	Ankit Patel	Food as medicine: Concept of pathya in Ayurveda and modern nutritional science
PP–36	Anshu Upadhyay	Evaluation of pharmacognostical and anti-oxidant efficacy of *Prosopis cineraria* Bark
PP–37	Anza Ali	From botanicals to nutraceuticals: Innovations in food supplements
PP–38	Aqsa Rani	Prevention through lifestyle modifications in Unani system of medicine
PP–39	Archana Kumari	Analysis of vitamin d in herbs and medicinal plants: A bibliometric analysis
PP–40	Archit Akhil	From garden tea to global therapy: Bridging tradition and innovation through Artemisinin

PP–41	Areeba Siddiqui	Herbal shampoo: Development and assessment
PP–42	Ariba	Assessment of hepatoprotective potential in *Rubus coreanus* and *Rubus parvifolius*
PP–43	Ariba Ansari	Avoidance of *Ghidhā'* in *Mashā'ikh* according to the Unani system of medicine
PP–44	Arifa Ashraf	Greener solvent assessment tools: Comparative evaluation and industrial implications
PP–45	Asha Ali Rizvi	PEGylated-thymoquinone-nanoparticle mediated retardation of breast cancer cell
PP–46	Ashfa Anjum	From root to remedies: Herbal intervention in diabetes
PP–47	Ashfa Naaz	Impact of traditional herbal medicine on stress and emotional well-being in women
PP–48	Ashiya Shabnam	Microwave-assisted synthesis of silver nanoparticles using senna leaf extract
PP–49	Ashna Chettri	Herbal remedies in management of Polycystic Ovarian Syndrome (PCOS)
PP–50	Asifa Shaikh	Decoding brain fog: Mechanistic insights and therapeutic potential of alternate system of medicine as adjuvant therapy
PP–51	Asiya Parveen	Approved SGLT2 inhibitors: A structural and pharmacological overview
PP–52	Asra Siddiqui	Fluoroacetate nightmare: Advancing therapeutic strategies to mitigate *Dichapetalum cymosum* (Gifblaar) toxicity
PP–53	Atousa Darafsh	Application of nanoformulations in enhancing the efficacy of herbal medicines
PP–54	Ayaan Khan	Synergistic Role of *Momordica charantia*, *Gymnema sylvestre* and *Trigonella foenum-graecum* in enhancing anti-diabetic therapy
PP–55	Ayesha Zuha	Luteolin - a potential therapeutic agent in traumatic brain injury
PP–56	Ayeza Sarwar Kalam	Evaluation of anti-inflammatory and analgesic activities of *Thymus vulgaris* root extract
PP–57	Aysha Khatoon	Integrating modern and Unani approaches in the management of Trigeminal Neuralgia *(Usaba)*
PP–58	Azra	Scientifically revalidated Unani formulations in the management of Nisyan (Dementia)
PP–59	Barnali Das	Documentation and validation of traditional medicine in Purulia district, West Bengal, India
PP–60	Bhawna Garg	Demystifying the pharmacological potential of imatinib against 3-nitropropionic acid (3-NPA) induced huntington's disease in albino mice
PP–61	Bushra Farheen	Integrating traditional medicinal plants with modern science for effective diabetes management
PP–62	Bushra R. Quadri	Targeting musculoskeletal disorders with Willow Bark extract from traditional use to modern clinical evidence
PP–63	CH. Sravani	Natural mosquito repellent gel: A safe and eco-friendly gel
PP–64	Chirag Singhal	LC–MS for herbal drug standardization and quality control: Current progress and future prospects
PP–65	Danish Aman	Role of lifestyle modification in cases of non alcoholic fatty liver disease (NAFLD)
PP–66	Danish Irfan	Holistic Unani approach in managing diffuse hair loss: Effect of oral formulations, head massage, and Hijama bil Shart
PP–67	Deepak Mishra	Neuroprotective effects of polysaccharide rich extract of *Sargassum wightii* in cuprizone induced multiple sclerosis in Wistar rats
PP–68	Devesh Yaduvanshi	Ethnopharmacology of *Ginkgo biloba* in management of neuroinflammation-mediated Alzheimer's disease
PP–69	Deyasini Das	A comprehensive study on the phytochemical, pharmacological and nutritional properties of *Moringa oleifera*
PP–70	Dilshad Fatima	AYUSH Aahar
PP–71	Dimple Verma	Cannabis as a potential compound against various malignancies, legal aspects, advancement by exploiting nanotechnology and clinical trials
PP–72	Dinesh Kumar Yadav	Applications of twigs of *Ziziphus mauritiana* (भारतीय बेर) *as* Potent Anti-Microbials agent
PP–73	Faishal	Impact of regulatory science in the thalidomide tragedy on global public health

PP–74	Faiz Qamar	Animal models for induction of diabetes and its complications
PP–75	Faizah Ansari	Herbal approaches to chronic diseases: Insights from traditional medicine
PP–76	Farhan Haider	Plant-derived exosomes as novel drug delivery vehicles: Bridging traditional medicine and modern therapeutics for neurodegenerative disorders
PP–77	Farheen Azad	Fermented soy metabolites as novel therapeutics for postmenopausal osteoporosis
PP–78	Fatma Zarrin	Irsal-e-Alaq (Leech Therapy): Ancient-to-modern healing
PP–79	Fayez Salik	In silico techniques formulation profiling of Majoon-e-Kundur
PP–80	Fiza A Shaikh	Pharmacological and therapeutic potential of harmaline: A natural β carboline alkaloid
PP–81	Fiza Khan	Herbal Teas in Traditional Medicine: Phytochemical Profiles and Therapeutic Potential
PP–82	Fizza Sayeda Zaidi	Clinical efficacy of a herbo-mineral compound for the management of cataract
PP–83	Garima Goyal	Machine-learning-based hit selection of natural compounds for the development of novel multitarget directed Anti-Alzheimer's agents
PP–84	Gauri	Immunity-boosting botanicals in traditional medicine (Tulsi, Ashwagandha, Giloy)
PP–85	Guddi Kumari	Investigation on the primary and secondary phytoconstituents of *Tiliacore acuminate* (Lam.) Miers: An Ethnomedicinal Plant of India
PP–86	Gulafsha Shakir	Omega-3 fatty acids and medicinal herbs in traditional Indian diets: Bridging nutritional gaps through ethnobotanical knowledge
PP–87	Gurjot Singh	Phytosomes: A novel approach in herbal drug delivery
PP–88	Gurpreet Singh	Development of herbal–synthetic dual drug-based nanogel for psoriasis
PP–89	Gutta Varshitha	Phytosomes: A novel approach to enhance bioavailability of plant-based compounds
PP–90	Habiba Shafiq	Traditional herbal approaches in Alzheimer's disease management
PP–91	Hajar Sadat Sadeghi	A systems biology approach to assess the sleep-enhancing effects of flaxseed consumption
PP–92	Hammad Ali	Synergistic nephroprotective activity of *Punica granatum* and *Piper cubeba* against diclofenac-induced toxicity: *In Vitro* and *In vivo* approaches
PP–93	Hammad Ahmed Khan	Nephroprotective potential of *Cucumis melo L.* in chronic kidney disease: Scientific validation of Unani claims
PP–94	Hari Om Saxena	A validated HPTLC method for concurrent quantification of four bioactive compounds in *Woodfordia fruticosa* (L.) Kurz: An important medicinal plant species
PP–95	Harsh Bajaj	Nature's neuropharmacy: phytochemicals in the battle against brain degeneration
PP–96	Haziqua Kafeel	Therapeutic role of tragacanth gum in managing diabetes and related health problems
PP–97	Heena	Exploring the therapeutic potential of medicinal plants in traditional and modern medicine
PP–98	Hemchand	Therapeutic interventions of herbal phytosomes: A promising approach
PP–99	Hemlata	Ameliorative effects of triterpenoid (1S)-(-)-verbenone in traumatic brain injury in mice
PP–100	Hibah	From nature to nano: Revolutionising herbal therapies through nanotechnology
PP–101	Himanshu Gautam	Preparation of sugar-free Unani formulation and its comparison with the Unani drug for their immunomodulatory potential against the *in-vivo* model of maniac phase of Bipolar disorder (BD)
PP–102	Hina Meraj	Antimicrobial effect of Unani poly-herbal formulation used in vaginal discharge syndrome against different microbial pathogens
PP–103	Hina Parveen	Correlation of fluid-electrolyte balance and Akhlat balance: A physiological and Unani perspective
PP–104	Huma Parveen	Evaluate the role of Unani and Ayurveda nutraceuticals in migraine

		and tension-type headache: An in silico study
PP–105	Ibra Masroor	From lifestyle to technology: Non-pharmacological trends in hypertension management
PP–106	Ilma Rani	Kefir as a functional postbiotic: Modulating gut microbiota and the gut–brain axis for mental health
PP–107	Imsha Parveen	Smart nanoparticle delivery systems for resveratrol: A targeted strategy to enhance anticancer efficacy and bioavailability
PP–108	Insha Mahmood	Curcumin (mechanisms and therapeutic potential as a multifaceted anticancer agent
PP–109	Iqra Fatima Khan	Rethinking diabetes: Gauging awareness of remission among patients with Type 2 diabetes
Day 1 Thursday: Oct 30, 2025		
Poster Session II PS (110-220)		
Convention Centre First Floor, 02:30 - 04:00 PM		
PP–110	Iqra Malik	Development of a naproxen and gaultheria oil based topical nanoemulsion for the amelioration of osteoarthritis
PP–111	Iqra Yasmeen	Evaluation of antidiabetic and antioxidant effects of seabuckthorn (*Hippophae rhamnoides* L.) in streptozotocin-nicotinamide induced diabetic rats
PP–112	Iram Jahan	Pharmacological and drug delivery potential of *Nigella sativa* and thymoquinone: A comprehensive review
PP–113	Irham Ahmad	Forskolin and its derivatives: Advances in pharmacology, clinical applications, and nanoformulations
PP–114	Isha Gupta	Formulation and evaluation of terbinafine-loaded invasomes with linalool as herbal terpene penetration enhancer for onychomycosis
PP–115	Ishan Madan	Protein power meets savoury flavor: A novel bar formulation
PP–116	Jagriti Gupta	Targeting ovarian cancer: The promise of liposome-based therapies
PP–117	Jahanvi Yadav	Uses of turmeric as an antioxidant in cardiovascular diseases
PP–118	Jai Vardhan Ajmani	NMR-based metabolomics of herbal medicines
PP–119	Jiyaul Hak	Pharmacological and drug delivery potential of *Nigella sativa* and thymoquinone: A comprehensive review
PP–120	Junaid Saifi	Therapeutic role of Satawar (*Asparagus racemosus*) in enhancing immune function during adolescence
PP–121	Jyoti	Application of *Rumex hastatus* to treat antidiabetic, anti-inflammatory and antioxidant activities
PP–122	K. Naga Venkata Kavya	Formulation of herbal shampoo powder
PP–123	Kahkashan Jabin	Development of herbal drugs containing nanoparticulate gel formulation: A novel approach for enhanced skin cancer treatment
PP–124	Kahkashan Khan	From Mizāj to Mitochondria: The role of Unani Āhār in neurodegenerative disorders
PP–125	Kaiful Wara	Antidiabetic potential of Indian medicinal plants
PP–126	Kamal Kumar	Enzyme Immobilization and therapeutic Approach an Advance Technique: Current Status
PP–127	Kashif Amaan	Green extraction and quantification of caffeine from tea leaves of different brands for comparative analysis
PP–128	Kashish Langeh	Chemical and pharmacological attributes of menthol
PP–129	Khan Asgar Jamal Abdul Mannan	Ziabetus (Diabetes mellitus): Evidence-based integration of Unani and allopathy
PP–130	Khushi Raza	Ethnopharmacological insights into diethylene glycol poisoning: Bridging traditional detoxification and modern toxicology
PP–131	Koganti Aasritha	Formulation and evaluation of transdermal patches using natural permeation enhancer: Cinnamon oil
PP–132	Komal	Evidence-based use of *Aloe vera* in modern Unani formulation: An introduction
PP–133	Kritika Shukla	Emerging roles of phytohormones and growth regulators in modulating plant immunity against viral pathogens
PP–134	Kulsoom Fatma	Quality control and nephroprotective potential of Majoon-e-Kundur and its sugar free formulation using *in vitro, in vivo* and metabolomics approaches

PP–135	Lakshav Sharma	*Citrullus colocynthis*: A phytochemical and ethnopharmacological review
PP–136	Laraib	Phytochemical analysis of aqueous extracts of selected medicinal plants
PP–137	Madhvi Ahuja	Novel Strategies for androgenetic Alopecia therapy: Integrating multifunctional plant extracts with nanotechnology for advanced cutaneous drug delivery
PP–138	Madiha Ashfaque	Holistic healing vs target-based therapy: Finding the concordance
PP–139	Mahboobeh Feizy	Pharmacological potential of Iranian saffron *(Crocus sativus L.):* An update from tradition to modern medicine
PP–140	Maliha Arsalan	In silico techniques formulation profiling of Jawarish Zarooni
PP–141	Manisha Singh	Formulation development and evaluation of paclitaxel loaded nanoemulgels for targeted skin cancer treatment
PP–142	Manjulika Mukherjee	Revealing the antidiabetic potential of herbal nanoparticles
PP–143	Mansi Jain	Synergistic anticancer effect of *Argemone mexicana* L. and artesunate in MCF-7 cells
PP–144	Manya Arora	Photoprotective potential of natural products: Determination of antioxidant activity and sun protection factor
PP–145	Mariya	Phytochemical investigation of Punarnava (*Boerhavia diffusa* Linn.): An important traditional Indian medicinal plant
PP–146	Mariya Khan	Nanocarrier mediated delivery of berberine for Alzheimer's disease: A therapeutic approach
PP–147	Mariyam Hussain	Carbon based nanomaterials in Alzheimer's disease: Advances in diagnosis and therapy
PP–148	Masheera Akhtar	Artificial intelligence in nanomedicine: Integrating herbal therapeutics for next-generation drug delivery
PP–149	Md Abu Nasar	Assessment of the modulatory effects of unani formulation on the anticancer activity of standard cancer drugs against colorectal cancer
PP–150	Md Arman	Multi target in silico screening of *Punica granatum* bioactive compounds for its nephroprotective action
PP–151	Md. Motasim	An analytical case study on *Waram-e-Lawzatayn Muzmin* (chronic tonsillitis) in the light of Unani medicine
PP–152	Md. Nadira Sulthana Begum	Eco-friendly hand sanitizer: A green approach to hygiene solution
PP–153	Md Nafisur Rahman	Post-marketing safety signal detection using real-world data for locally marketed over the counter (OTC) analgesics
PP–154	Md. Sarfaraz Umar	Traditional wisdom in modern times: The Unani approach to hypertension management
PP–155	Md Shahabuddin Akhtar	Synergistic effect of takmeed-har-ratab (steam fomentation) with Hijamah-bil-Shart (wet cupping) in knee osteoarthritis: a randomized controlled clinical study
PP–156	Md Tabib Hasan	Bioprocess of soyabean for nattokinase production by different methods
PP–157	Md Tousif	Protective effect of nerolidol, cyclophosphamide and their combination against 7, 12-dimethylbenz(a)anthracene (DMBA)-induced breast cancer in female Wistar rats
PP–158	Md. Umar	Herbal crystal engineering and hybrid co-crystals: Translational pathways from febuxostat proof-of-concept to AYUSH therapeutics for enhanced potential
PP–159	Meher Priya Sharma	Investigating allicin's role in Alzheimer's disease: Neuroprotection via oxidative stress modulation and apoptosis inhibition
PP–160	Mehnaz Jameel Khan	From classical texts to clinical evidence: Unani approaches to memory decline and cognitive enhancement
PP–161	Mehwish Sheikh	Scientific validation of traditional claims of *Nigella sativa* L. as a *nephroprotective* drug through in silico Analysis
PP–162	Mena Abdul Amir	Exploring the fine line between remedy and poison for different Datura species
PP–163	Misbah Ansari	Revisiting razi's *Bar-us-Sa'ah*: Unani emergency care through the ages
PP–164	Mohammad Humza	Research on cardiovascular health and natural products

PP–165	Mohammad Ikram	Carbon-based nanomaterials in Alzheimer's disease: Advances in diagnosis and therapy
PP–166	Mohammad Moonis	Rotundic acid protects against cyclophosphamide-induced nephrotoxicity by regulating inflammatory, oxidative and apoptotic pathways
PP–167	Mohammad Usman	Establishing quality control standards and metabolomic profiling for identification of highly adulterated seed drugs of Indian medicinal plant
PP–168	Mohammad Waseem	Ayush aahar through the lens of mīzāj: Personalizing diet for sustainable health
PP–169	Mohammadamin Feizy	From root to brain: Nanocarriers of glycyrrhetinic acid for intranasal delivery
PP–170	Mohammed Shafikur Rahman	Therapeutic potential of *Moringa oleifera* in HIV management: A systematic review of randomized controlled trials
PP–171	Mohd Abubakar	AI enhanced digital cupping: A revolutionary advancement in cupping therapy
PP–172	Mohd Almas Khan	Camphene mitigates cyclophosphamide-induced cardiotoxicity by down regulating pro-apoptotic Caspase-3, attenuating NF-κB p65–dependent inflammatory pathways, and suppressing iNOS-mediated nitrative stress responses in Wistar albino rats
PP–173	Mohd Altamash	Nano formulations of curcumin plant extracts for Alzheimer's treatment and pathways targeted
PP–174	Mohd Amaan	Formulation and development of pain relief oil
PP–175	Mohd Danish Khan	PAT tools in pharmaceutical crystallization: Step toward better drug stability and performance
PP–176	Mohd Farhan Ali	Medicinal plants with potential anti Parkinson activity: An updated review
PP–177	Mohd Hanzala Khan	CAAT box-derived polymorphism (CBDP) and start codon targeted (SCoT) based Sequence characterised amplified regions (SCARs) authenticate true-to-type *Sida cordifolia* L. and its adulterant species
PP–178	Mohd Hassan	Unveiling the bioactive profile and antioxidant potential of *Pistacia lentiscus* Gum
PP–179	Mohd. Muddassir	Artificial intelligence and Unani medicine: Integrating individual, drug, and regional temperament's (*Mizāj)* in the pathway of drug development
PP–180	Mohd Mushfiq	Ancient wisdom, modern evidence: Unani adjuvant therapy in a rare case of kartagener syndrome
PP–181	Mohd Sabir Husain	Impact of artificial intelligence in the development of traditional (Unani) system of medicine: Challenges and prospects
PP–182	Mohd Salman	Shatavari (Asparagus racemosus): A unani and modern pharmacological perspective on stress, fatigue, and nervous disorders
PP–183	Mohd Sameer	Skin cancer: Understanding the journey of transformation from conventional to advanced treatment approaches
PP–184	Mohd Vaseem	Amelioration of gastric ulcer using a hydro-alcoholic extract of *Mangifera indica* in Sprague Dawley rats by prevention of muco-oxidative stress
PP–185	Mohd Waris	Developing bioactive heterocyclic compounds through strategic design and synthesis
PP–186	Mohd Zeeshan	Green crimes: Forensic insights into poisonous plants
PP–187	Mohit	Recent update on electrospinning and electrospun nanofibers: current trends and their applications
PP–188	Mrinmoy Jana	Anti-inflammatory activity and acute oral toxicity of phospholipid complex formulation prepared using standardized flavonoid enriched fraction of *Hippophae salicifolia* D. Don
PP–189	Mukta Satsangi	Quality assessment of Tulsi during post-harvest storage
PP–190	Mumtaz	Formulation and characterization of dual drug-loaded chitosan nanoparticles for enhanced Alzheimer's disease therapy
PP–191	Nabeela Khanam	Scientific validation of traditional claims of *Tribulus terrestris* L. as a *nephroprotective* drug through in silico analysis
PP–192	Nafisa Perveen	Therapeutic potential of spearmint and peppermint bioactives in hormonal, cognitive, and gastrointestinal disorders
PP–193	Naima Sultan	From traditional medicine to nanomedicine: Berberine as a next-generation anticancer agent

PP–194	Nandita Medda	Therapeutic efficacy of syringic acid-enriched Karvi honey: Modulation of the PINK1/Parkin mediated mitochondrial fission-fusion dynamics and the induction of apoptosis in breast cancer
PP–195	Naseem Bano	Pharmacological evaluation of *Eruca sativa* Linn in the management of urolithiasis (anti-urolithiatic activity) in an experimental animal model
PP–196	Nazreen Tabassum	Development and evaluation of DPP-4 inhibitor-based nanoformulation: Optimization and characterization for management of Alzheimer's disease
PP–197	Neha Dutta	Exploring the medicinal potential and therapeutic efficacy of Guduchi in disease management
PP–198	Nida Parveen	Lavender oil based formulations for treatment of migraine
PP–199	Nidhi Sharma	Ghee as a functional food: Exploring its role in health and wellness
PP–200	Nidhi Singh	Prospect of phytomedicine in modulating gut-liver axis
PP–201	Niharika	Comparative micro-morphological, histological, and electron microscopic analysis of *Rauvolfia serpentina* Benth. ex. Kurz and its adulterant
PP–202	Nikita	Virome profiling of *Hibiscus rosa-sinensis* using high-throughput sequencing
PP–203	Noorain	Harnessing the potential of therapeutic oils in the management of Parkinson's disease
PP–204	Nooreen Ali Nizami	Herbal photosensitizers-loaded nanocarriers: A transformation in photodynamic therapy for cancer
PP–205	Ourooj Jannat	NMR Spectroscopy for detecting milk adulteration and ensuring quality
PP–206	Parbati Das	Nephroprotective role of *Zea mays* in chronic kidney disease: A systematic review in animal models
PP–207	Parth Sharma	Pharmacological evaluation of tributyrin and Vitamin-D in the management of glucocorticoid-induced osteoporosis in rats
PP–208	Partho Biswas	Hydrogel-like electrospun PVA nanofibers incorporating Acacia gum and Bee Pollen extract: A natural bioactive scaffold for enhanced wound healing
PP–209	Patil Kantika Jyotiram Patil	Scientific validation of unifloral honeys from Maharashtra
PP–210	Pote Maithili Umakant	From peel to appeal: Sustainable skincare with herbal under-eye cream from potato & dragon fruit peel extracts
PP–211	Prabin Kumar Shahu	Comparative analysis of silver nanoparticles from *Pongamia pinnata* and *Simmondsia chinensis*: Synthesis and pharmacological profile
PP–212	Prashant Dhaka	Neuroprotective mechanisms of curcumin in vascular dementia: Insights and prospects
PP–213	Pratibha Rathee	Antidiabetic effects of *Nigella sativa* essential oil against streptozotocin-nicotinamide-induced diabetic rats: An *in vitro* and *in vivo* study
PP–214	Preeti Yadav	Clove oil as promising natural remedy for diabetes mellitus
PP–215	Preksha Mehta	Use of turmeric in the treatment of oral submucous fibrosis
PP–216	Prithwisha Dev	Natural immunoregulators found in ethnopharmacological plants
PP–217	Pritisha Sadhu	Insights of Anti-Alopecia potential in *Salvia rosmarinus* phytoconstituents through molecular docking and LC-HRMS analysis
PP–218	Priyanka Bhandari	Evaluation of the gastroprotective effect of *Mimosa pudica* root extract against aspirin-induced gastric ulcers in albino wistar rats
PP–219	Priyanka Tiwari	Harnessing hCG: Bridging traditional hormonal insights with modern breast cancer immunotherapy
Day 2 Friday: Oct 31, 2025		
Poster Session III PS (220-340)		
Convention Centre First Floor -11.00 - 01.30 PM		
PP–220	Pushkar Kaira	Linseed (*Linum usitatissimum*) as a transgenic platform for molecular farming of podophyllotoxin from Indian mayapple

		(*Sinopodophyllum hexandrum):* A heterologous sustainable metabolic engineering approach
PP–221	Rahul Tarafdar	Uncovering polypharmacological mechanisms of sunidra vati against insomnia: An integrative network pharmacology and molecular docking study
PP–222	Rashid Lateef	Evaluation of Unani formulations on FoxP3-Expressing regulatory T cells in the modulation of rheumatoid arthritis
PP–223	Rashmi Ranjan Kumari	Lavender as a natural anxiolytic agent: A review on mechanistic basis and therapeutic potential
PP–224	Renu Yadav	Polypharmacology in Alzheimer's disease: The promise and outward of multi target drug design
PP–225	Reyaz Alam	Neuroprotective potential of Ayush-based synergistic combination and phytopharmaceutical against diabetes-induced dementia
PP–226	Rida Anees	*Elephantous scaber* Linn: Pharmacological profile, chemical constituents and therapeutic benefits
PP–227	Ritik Rohilla	Plants as a source of novel anti-ulcer agents: A systematic review
PP–228	Ritu Sharma	Exploring the therapeutic potential of synthetic & herbal nanoformulation for the amelioration of Alzheimer's disease
PP–229	Rudra Rai	Kachnar: Insights into phytochemical and therapeutic potentials
PP–230	Rupali Ghosh	Cytotoxic and poptotic evaluation of Pumpkin seed oil Nanoemulsion against breast cancer
PP–231	Ruqaiya	Integrative approaches for the diagnosis and management of NAFLD in type 2 diabetes mellitus: Role of novel biomarkers and targeted therapies
PP–232	Saba Rafiq	An integrative approach to breast cancer: Insights from modern and Unani perspectives
PP–233	Sabah Khan	Elucidating the potential of edible and medicinal mushrooms to combat the ER stress: A systematic review
PP–234	Sabnam Farhat	Engineering sustainable defense in spinach (*Spinacia oleracea L.*) against soft leaf rot pathogen, *Pseudomonas syringae* through plant-based nanoparticles of oxides of zinc and copper
PP–235	Sadab Alam	Bridging traditional temperament theory and modern microbiome science: A review toward personalized and preventive health
PP–236	Sadaf	Multi-targeted herbal interventions for the topical management of psoriasis: A comprehensive review
PP–237	Sadaf Chaudhary	Development of nano lipidic carrier-based topical delivery system for Vemurafenib in melanoma treatment
PP–238	Sadiqa Parveen	Acute diarrhoea: A persistent threat to child health
PP–239	Sadiya Ayaz	Immunomodulatory and therapeutic potential of *Tinospora cordifolia* (Giloy) in lifestyle disease management
PP–240	Sahiba	Preparation and profiling of boswellic acid-rich extracts from *Boswellia serrata* Roxb.
PP–241	Saima Mazhar	Biology and evolution of spider venom in pharma: A pharmacological tool
PP–242	Saiyada Haseeba Zaidi	Unveiling herb-drug interactions potential of *Foeniculum vulgare:* A computational and analytical approach
PP–243	Sakhaviya Noor	Revisiting food-borne natural toxins through Ayurvedic and toxicological perspectives
PP–244	Sakina Fatma	Tukhm-e-Kharbuza in traditional medicine: Health benefits and Unani perspective
PP–245	Sakshi Singhal	The role of prebiotics, probiotic, postbiotics and neuroprotectives in managing Alzheimer's disease
PP–246	Saleha Hasan	The imperative of menstrual hygiene management: Unveiling its profound impact on the well-being of adolescent girls
PP–247	Saloni Sharma	Understanding clinical and pre-clinical scenarios related to drug-induced nephrotoxicity: Mechanistic insights, risk stratification, and emerging prevention strategies
PP–248	Samanvya Ajmani	Network Pharmacology of various secondary metabolites of the herbal components of Unani formulation *Khamira-e-Gaozaban Sada*
PP–249	Samarth	Aloe vera gel: A natural alternative for wound healing and skin

		inflammation
PP–250	Sameeya	Nanoparticle-based therapeutics: A novel frontier in cardiovascular disease management
PP–251	Sami Ahmad	rDNA technology as an advanced integrated approach for drug carrier development: Recent updates
PP–252	Samiya Ansari	Greco–Arab legacy in understanding of metabolic disorders with special reference to diabetes
PP–253	Samreen	Insomnia and anxiety: Managing with lifestyle modification in the light of Asbab-e-Sitta Zaruriya
PP–254	Sana	Waram-e-Kabid: Unani perspective on hepatic inflammation and therapeutic interventions
PP–255	Sana Khan	Development and evaluation of herbal nutraceutical formulation for male sexual health and wellness
PP–256	Sanover Khan	*In Silico* analysis of phytoconstituents from *Azadirachta indica* (Neem) on uropathogenic bacteria using network pharmacology and molecular docking
PP–257	Santosh Singh Negi	Nanophytosomes for enhanced delivery of herbal drugs
PP–258	Sara Akhtar Khan	Unmasking the hidden dangers: A scientific perspective on food adulterants in daily diets
PP–259	Sarfaraz Ahmed	Development of quality standards for a proprietary polyherbal Churna intended for arthritis pain
PP–260	Sarushi Rastogi	Formulation and evaluation of instant mushroom soup premix enriched with black garlic: A functional food approach
PP–261	Sepideh Parvar	Pharmacological and therapeutic role of flavonoids in hypertension
PP–262	Shaheen Shabbir	Global research trends and HPTLC analysis of *Boerhavia diffusa*
PP–263	Shaikh Mohd Aatif Jamil Ahmed	Molecular docking study of AAO1 as a potential EGFR-targeted anticancer agent
PP–264	Shamama Kousar	From roots to algorithms: Integrating AI with traditional medicine
PP–265	Sharfa Naaz	Nephroprotective potential of Fenugreek (*Trigonella foenum-graecum*) in chronic kidney disease: HPTLC-based phytochemical profiling and bibliometric analysis
PP–266	Shazia Khan	Hijama (Cupping therapy): A holistic approach to healing
PP–267	Shazia Parveen	The effect of probiotics for polycystic ovary syndrome (PCOS)
PP–268	Sheetal Thapliyal	NLRP3 inflammasome as a therapeutic target in chronic inflammatory diseases: A theoretical review with preliminary insights
PP–269	Sher Afghan	To evaluate the role of metformin in L-NAME induced animal model of Preeclampsia
PP–270	Shifa Khan	Traditional Unani approaches to premature greying of hair (*Shayb*): A review
PP–271	Shoaib Khan	A clinical study to evaluate the efficacy and safety of Jadwar (*delphinium denudatum*) in the management of chronic sinusitis
PP–272	Shruti Ranjan	PCOS x Obesity: The vicious loop – from fat to fertility and back
PP–273	Shubhangi Sadhwani	Ashwagandha: Its role in Alzheimer's disease
PP–274	Shweta Sharad Aher	Enhancement of solubility and dissolution of diosgenin using solid dispersion technique
PP–275	Siddhartha Das Pramanik	Osteogenic differentiation potential of Chyura honey mediated green synthesized silver nanoparticles through mild ER stress in C3H10T1/2 cell lines and alleviating Glucocorticoid induced osteoporosis in Wistar rats
PP–276	Sneha Chauhan	PCR advance techniques and potential approach in therapeutic applications: In-depth and current
PP–277	Soma Chowdhury	Neuroprotective potential of *Clitoria ternatea* L. extract: *In-vitro* and *in- vivo* studies
PP–278	Somya Gupta	Germplasm collection, molecular and biochemical characterisation of *Boswellia serrata* (Traina & Planch) for its conservation with special reference to Madhya Pradesh

PP–279	Sonali Sharma	Development of cellulose-based polymers from spent lemongrass: Sustainable applications
PP–280	Sonam Parashar	Nanotechnology-based enhancement of antimicrobial activity of traditional medicinal plants
PP–281	Sudhanshu Singh	Nature's pharmacy: Unlocking health with functional foods
PP–282	Sukla Dhara	Metabolite profiling and integrated network pharmacology-based mechanism of *Houttuynia cordata* Thunb leaves against non-insulin-dependent diabetes mellitus
PP–283	Sumit Gupta	Bridging the chemical profile and biomedical effects of Türkiye medicinal and aromatic plants essential oil: A new approach toward aromatherapy
PP–284	Sunaina Biswas	Beyond the rhizome: Unraveling the ethnobotanical and pharmacological signicance of *Curcuma caesia*
PP–285	Sunny Kumar	Flavonoids in therapeutic and nutraceuticals dual approach
PP–286	Surthani prasanthi	PhytoBrigh: A polyherbal depigmentation powder based on ayurvedic herbs for safe and sustainable skin brightening
PP–287	Sushmita Alam	Preeclampsia prediction via artificial intelligence: Driven analysis of blood, biochemical and inflammatory markers
PP–288	Susmita Saikia	Molecular analysis of potato latent virus associated with the medicinally important plant *Withania somnifera*
PP–289	Syed Afzal Hussain	Clinical validation of traditional nasal drug delivery system: ethnopharmacological assessment of Viola odorata oil for sleep disorder management
PP–290	Syed Amir Azam Zaidi	Combinatorial drug delivery for neuropathic pain: Preformulation and *in silico* approaches towards nanoformulation development
PP–291	Syed Hassan Balkhi	*Astragalus mongholicus* as a novel traditional herbal candidate for neuroprotection in amyotrophic lateral sclerosis
PP–292	Syeda Minhaz	To evaluate the efficacy of herbal mouthwash vs chlorhexidine mouthwash as an adjunct to mechanical plaque control in the treatment of gingivitis: A randomized clinical trial
PP–293	Tabassum Jahan	Pharmacological potential of Kanghi (*Abutilon indicum* L.)
PP–294	Tabinda Ali	Structural dynamics and functional characterization of NDK isoforms: Advancing anti-leishmanial drug discovery
PP–295	Tanumoy Chatterjee	*In-vitro* evaluation of the anti-arthritic potential of *Soymida febrifuga* (Roxb.) A. Juss. Bark extract
PP–296	Tanya	Genetically modified crops and ayurvedic practice: evaluating potential risks and ethical dilemmas in herbal medicine
PP–297	Tanya Biswas	Aza arene: Empowering anticancer drug discovery
PP–298	Tenzin Dongsar	Design and development of folic acid decorated drug loaded biomimicking dendrimeric nanosystem for targeted breast cancer therapy
PP–299	Tenzin Dongsar	Design and development of electrospun nanofiber co-loaded with bioactive glass nanoparticle and therapeutics for the treatment of peri-implantitis
PP–300	Tirumalasetty Tejo	Formulation and evaluation of herbal gel with anti microbial properties for dental applications
PP–301	Tiyasa Pathak	Dietary phytocompound luteolin enhances cisplatin bioavailability via PPARγ-mediated upregulation of CTR1 in lung cancer
PP–302	Tohfa Siddiqui	Exploring the anticancer potential of *Ocimum sanctum* and *Phanera variegata* as natural plant-based therapeutics for breast cancer with emphasis on molecular mechanisms in triple negative sub-type
PP–303	Tuba Ehtaisham	Survey on awareness of oral/periodontal health and hygiene among the college students
PP–304	Tufail Ahmad	Therapeutic evaluation of alogliptin and metformin in high-fat diet and streptozotocin-induced diabetic osteoporosis in *Wistar Rats*
PP–305	Tuhina Saurya	Ashwagandha authentication methods
PP–306	Tushar Tapadiya	Calendula: A natural treatment for Urolithiasis
PP–307	Umaira Mirza	Antifungal efficacy of phytochemicals in combination against *Candida* cell membrane: *in vitro* and *in silico* study

PP–308	Umar Nissar	Decoding herbal legacy: planar chromatography in traditional medicine
PP–309	Umme Kulsum	Analysis of differentially expressed genes and molecular pathways in peanut allergy induced dynamic changes involved in peanut-specific immune responses: A systematic and bioinformatics approach
PP–310	Umme Kulsum	Development and evaluation of fumaric acid loaded chitosan nanoparticles
PP–311	Urvashi Jain	Shankhpushpi: From ancient Medhya Rasayana to modern neurotherapeutics
PP–312	Vadlamudi Vatsnavika	Formulation and evaluation of skin whitening herbal soap
PP–313	Vanama Vamsi	Magna pads: The magnetic and mineral revolution for pain-free menstruation
PP–314	Vansh Dhiman	Integrative assessment of *Cucumis melo*) seeds in chronic kidney disease: A combined network pharmacology, bibliometric analysis and HPTLC-based phytochemical study
PP–315	Vansh Sharma	Medicinal plants with anti-arthritic potential: Ethnopharmacological perspectives
PP–316	Vedala Pranathi	Ethno pharmacology as catalyst for novel anti-cancer drug discovery
PP–317	Velagala Anjali	Hepatoprotective activity of *Calycopteris floribunda* on Atorvastatin induced hepatic damage in rodents
PP–318	Vishal	Integrating traditional medicine phytochemicals with microbiome research: Evidence-based pathways to future therapeutics
PP–319	Vishnu Mittal	Formulation and optimization of herbal drug delivery system for osteoarthritis
PP–320	Yalnaz Malik	Nutritional profiling of food samples using advanced analytical techniques: A methodological study and an innovative functional food formulation
PP–321	Yash Jasoria	Neuroprotective role of plant-based phytoconstituents in ameliorating Alzheimer's pathology associated with cognitive impairments
PP–322	Yash Raj Saini	Immunoblotting techniques: ELISA, western blotting, southern blotting and applications in development
PP–323	Yash Singh Gusain	From data to discovery: AI in predicting herbal synergy for cancer
PP–324	Yukta Kiran	Babchi: Unveiling the healing power of *Psoralea corylifolia*
PP–325	Zaid Sayeed	Neuroprotective effect of ginseng extract against cisplatin induced neurotoxicity in male sprague dawley rats
PP–326	Zainab Ansari	In-vivo screening of aqueous extracts of leaves and seeds of *Neolamarckia cadamba* for antimalarial activity
PP–327	Zainab Fatima	Understanding gingivitis through Unani humoral theory and treatment
PP–328	Zainab Mantasha	Cinnamon in contemporary pharmacology and traditional medicine: The role of coumarin
PP–329	Zainab Rahman	Aragvadha,'the disease killer' therapeutic significance of *Cassia fistula* Linn.
PP–330	Zoha Khan	Nephroprotective Functional Foods for CKD: A Review of Guideline Based Dietary Strategies
PP–331	Zoha Seraj	Advances in PCSK9 inhibitors for cardiovascular disease: From pharmacology to translational research
PP–332	Zunaira Sidddiqui	Bridging centuries: Traditional diets and modern nutrition science for holistic health

केन्द्रीय यूनानी चिकित्सा अनुसंधान परिषद
आयुष मंत्रालय, भारत सरकार
مرکزی کونسل برائے تحقیقات طب یونانی
وزارت آیوش، حکومت ہند
CENTRAL COUNCIL FOR RESEARCH IN UNANI MEDICINE
Ministry of Ayush, Government of India

डॉ. एन. ज़हीर अहमद
महानिदेशक
Dr. N. Zaheer Ahmed
Director General

Date: October 17, 2025



MESSAGE

It gives me immense pleasure to learn that the Centre of Excellence in Unani Medicine-Bioactive Natural Products Laboratory, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi in collaboration with the Society for Ethnopharmacology-India, is organizing the 12th International Convention of the SFE-India (SECON 2025), themed "Traditional Medicine – Ancient & Modern Concordance", from 30–31 October, 2025, along with pre-convention workshops on 29 October, 2025.

I have been told that this Convention will bring together leading scientists, researchers, practitioners, industry leaders, and traditional healers from over 25–30 countries to deliberate on ethnopharmacology, medicinal plant research, Ayush systems, nutraceuticals, functional foods, regulatory science, and integrative healthcare.

The CoE-BNPL has successfully organized various scientific programs in the past. I believe, SECON 2025 will significantly contribute to promoting research and development in Unani medicine and advancing India's vision of 'Viksit Bharat.'

I commend the efforts of all involved and extend my best wishes for the convention's success and fruitful outcomes.

(Dr. N. Zaheer Ahmed)

जवाहर लाल नेहरू भारतीय चिकित्सा एवं होम्योपैथी अनुसंधान भवन, 61–65, सांस्थनिक क्षेत्र, जनकपुरी, नई दिल्ली– 110 058
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Dated October 23, 2025

MESSAGE

I pleased to note that the 12th International Convention of the Society for Ethnopharmacology, India (SECON 2025) and International Conference on "Traditional Medicine – Ancient & Modern Concordance" is being organized by the Centre of Excellence in Unani Medicine (BNPL), SPER, Jamia Hamdard, New Delhi, in association with SFE-India, from 30–31 October 2025, with pre-convention workshops on 29 October 2025.

This Convention provides an important global platform to discuss the integration of traditional knowledge and modern science, particularly in the field of Unani medicine and ethnopharmacology. The participation of eminent scientists, policymakers, industry leaders, and traditional healers from more than 25–30 countries will ensure fruitful exchange of ideas and innovative approaches to drug discovery, nutraceuticals, functional foods, and integrative healthcare.

The inclusion of workshops on HPTLC, Unani Aahara, and Cell Culture & Zebrafish Models, along with plenary and keynote lectures, oral/poster presentations, Industry Connect Programme, Healers' Meet, SECON Exhibition, AYUSH Health Mela, and thematic panels such as Unani Aahar: Future Scope and Modernization of AYUSH Formulations, makes this event especially relevant for strengthening the global reach of Unani medicine.

I am confident that SECON 2025 will make a significant contribution towards advancing the scientific validation, modernization, and international recognition of the Unani system, in line with the Ministry's vision.

I convey my best wishes to the organizers and participants for the success of this prestigious convention.

(Dr. M. A. Qasmi)

वैद्य राजेश कोटेचा
सचिव
Vaidya Rajesh Kotecha
Secretary





भारत सरकार
आयुष मंत्रालय
आयुष भवन, 'बी' ब्लॉक, जी.पी.ओ. कॉम्प्लेक्स,
आई.एन.ए, नई दिल्ली–110023
Government of India
Ministry of Ayush
Ayush Bhawan, B-Block, GPO Complex,
INA, New Delhi-110023
Tel. : 011-24651950, Fax : 011-24651937
E-mail : secy-ayush@nic.in

MESSAGE

The Centre of Excellence in Unani Medicine (BNPL), Jamia Hamdard, funded by the Ministry of Ayush, is a state-of-the-art research hub with strong national and international collaborations. Equipped with modern facilities like HPTLC, GC-MS, ICP-MS, Zebrafish housing, and a BSL-3 lab, it stands as a leading institution in translational Unani research.

I am happy to learn that the Centre of Excellence in Unani Medicine (Pharmacognosy & Pharmacology), Bioactive Natural Product Laboratory (BNPL), School of Pharmaceutical Education and Research (SPER), Jamia Hamdard, New Delhi, in association with the Society for Ethnopharmacology, India, is organizing the 12th International Convention of the Society for Ethnopharmacology, India (SECON 2025) and International Conference on *"Traditional Medicine – Ancient & Modern Concordance"* on 30th–31st October, 2025, with pre-convention workshops on 29th October, 2025.

I am confident that the deliberations during SECON 2025 will lead to meaningful outcomes and pave the way for further scientific advancement and global recognition of the Ayush systems.

I extend my best wishes to the organizers and participants for the grand success of SECON 2025.

(Rajesh Kotecha)

New Delhi
27.10.2025

SOCIETY FOR ETHNOPHARMACOLOGY

"Globalizing local knowledge and localizing global technologies"

23/3 Shaktigarh, Jadavpur, Kolkata 700032

(Affiliated to the International Society for Ethnopharmacology)

Website: www.ethnopharmacology.in



President, SFE

12th International Convention of the Society for Ethnopharmacology (SFCON 2025)



Secretary, SFE

MESSAGE

Dear Esteemed Members and Distinguished Guests, participants

Greetings from the Society for Ethnopharmacology (SFE)!

Since its inception in 2012, the Society for Ethnopharmacology has worked tirelessly for promotion and development of the traditional knowledge with contemporary scientific approaches. Since its inception, the Society for Ethnopharmacology (SFE), India, has organized numerous national and international events across the country. To date, SFE has conducted over 60 scientific programs, including 12 International Congresses, 12 National Conventions, 23 Traditional Healers' Meets, 11 Business Meet: Industry Connect (i-Connect) programs, and various capacity-building and training initiatives.

Currently, 17 local chapters spread across the country working with the major focus on "Globalizing local knowledge; Localizing global technologies". This year one new chapters have joined their hands for the promotion and development of medicinal plant research. Committed to promoting traditional healthcare practices, SFE has undertaken several initiatives to establish a global platform for exploring and disseminating ethnopharmacological knowledge, fostering the development of ancient healthcare systems.

SFE remains committed to encouraging young researchers and recognizing outstanding contributions to the field through awards such as the SFE-Best Publication Award, Young Ethnopharmacologist Award which highlights the dedication of scholars and scientists in advancing ethnopharmacology and medicinal plant research. SFE has also initiated *"Jigyasha: जिज्ञासा"*, the SFE Popular Science Writing Competition which delves into the fascinating world of ethnopharmacology, traditional medicines, and natural products for the young members of the society. Furthermore, the Ethnopharmacology Conclave will provide an opportunity for traditional healthcare professionals to share their invaluable insights and experiences. This year, SFE has introduce the "Fellow of SFE (FSFE)" to recognize eminent professionals and scientists from India and abroad, who have made outstanding and sustained contributions to the advancement in this field and allied sciences.

It is our great pleasure to welcome you all in the on the theme of "Traditional Medicine—Ancient & Modern Concordance" during the 12th International Convention of SFE (SECON 2025) at Jamia Hamdard, New Delhi, India, during October 30-31, 2025, at Jamia Hamdard, New Delhi, India. This congress will feature a wide range of activities, including keynote speeches, plenary lectures, panel discussions, and paper and poster presentations with the participation of 1200 delegates and resource persons from more than 30 countries. We are grateful to the organizing committee for their efforts in hosting this event. We are confident that SECON 2025 will provide a unique opportunity to develop innovative ideas and strategies for advancing sustainable healthcare solutions.

Wishing you a fruitful and enriching experience at the convention!

Shri Birendra Kumar Sarkar
President
Society for Ethnopharmacology, India

Dr. Amit Kar
Secretary
Society for Ethnopharmacology, India

Message from Organising Secretary

The 12th International Convention of the Society for Ethnopharmacology, India (SFE-India), is proudly being hosted by the Centre of Excellence in Unani Medicine (Pharmacognosy & Pharmacology), Bioactive Natural Product Laboratory, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi. This landmark event will take place on 30–31 October 2025, with pre-convention workshops scheduled for 29 October 2025.

Centered around the theme "Traditional Medicine – Ancient & Modern Concordance," the convention will explore a wide range of topics including ethnomedicine, medicinal plant research, AYUSH systems, nutraceuticals, functional foods, integrative healthcare, and regulatory issues. Distinguished scientists, policymakers, industry experts, practitioners, and traditional healers from India and over 25 countries will come together to exchange insights.

Highlights of the convention encompass workshops on HPTLC analysis of Indian medicines, Unani Aahara, and Cell Culture & Zebrafish Models in AYUSH Research. The event anticipates over 160 participants in workshops, more than 40 plenary lectures, 8 keynote sessions, 25 Young Ethnopharmacologist Awards, 75 short lectures, over 100 oral presentations, and 350 poster presentations. Additionally, there will be an Industry Connect Programme involving over 60 industries, a Healers Meet with participation from more than 45 healers, an AYUSH Health Mela featuring over 30 industries, young researcher awards, and engaging panel discussions.

I would like to extend my heartfelt gratitude to the Ministry of AYUSH, Government of India; SFE-India; Hamdard Foods India; Hamdard National Foundation; Amaara Botanicals; ANRF; CCRUM; UDMA; Sana Herbals; Anchrom; Ayurfresh; Liimra Remedies; Nasreena; Dehlvi Naturals; Edures Scientific; and the leadership of Jamia Hamdard. A special thanks to my colleagues, research scholars, and volunteers for their unwavering support in organizing this grand event. I am also deeply grateful to Honourable Chancellor Janab Hammad Ahmed Sb, former Chancellor Janab Hamid Ahmed Sb, and OSD to Chancellor Janab Sajid Ahmed Sb for their continued encouragement.

I warmly welcome all delegates and participants, and I am confident that SECON 2025 will serve as a significant milestone in advancing ethnopharmacology and traditional medicine, contributing meaningfully to the vision of "Viksit Bharat."



Prof. Sayeed Ahmad
Organizing Secretary, SECON 2025
Centre of Excellence in Unani Medicine (Pharmacognosy and Pharmacology),
Jamia Hamdard, New Delhi – 110062, India

CC: University Notice Boards and JH Website



www.ethnopharmacology.in

12th International Convention of the Society for Ethnopharmacology (SFCON 2025)

SFE India - Uniting Tradition, Science, and Innovation for Healthier Future

Prof. Pulok Kumar Mukherjee
Founder, Society for Ethnopharmacology (SFE), India
Professor, Dept. of Pharmaceutical Technology, Jadavpur University,
Kolkata-700032, India;
www.pulokmukherjee.com

Dear Participants and Members of SFE India,

It gives me immense pleasure to extend warm greetings to all participants of the 12th Convention of the Society for Ethnopharmacology (SFE) India and the International Conference on "Traditional Medicine – Ancient & Modern Concordance", being hosted by the Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi, from October 30-31, 2025.

This prestigious gathering provides an excellent platform for leading researchers, academicians, clinicians, industry professionals, and policymakers from India and abroad to exchange ideas, foster collaborations, and explore new frontiers in traditional medicine, ethnopharmacology, and natural product research. It truly exemplifies the spirit of SFE India, bringing together the wisdom of ancient traditions and the rigor of modern science to promote sustainable healthcare innovation.

Since its inception in 2012, SFE India has evolved into a strong, inclusive, and visionary community dedicated to advancing the science of ethnopharmacology and traditional medicine. What began as a modest initiative has now become a dynamic national and international movement, inspiring excellence through research, education, and collaborative action. Guided by the vision and blessings of Dr. A. P. J. Abdul Kalam, the former President of India, SFE India continues to uphold its mission

of integrating traditional health wisdom with evidence-based modern medicine to serve humanity.

Through a wide range of initiatives, including national and international conferences, workshops, symposia, outreach programs, and research collaborations, SFE India has consistently worked to promote the responsible use of natural products, validate traditional healing practices, and contribute to the sustainable use of bioresources. Our members and chapters across the country have been actively engaged in capacity building, awareness programs, and scientific advocacy, ensuring that ethnopharmacology remains at the forefront of holistic healthcare innovation.

The year 2025 marks another milestone in this continuing journey. This international convention, at the esteemed Jamia Hamdard, provides a unique opportunity to reaffirm our collective commitment to bridging the gap between ancient traditions and modern scientific approaches. Together, we are shaping a future where traditional medicine and contemporary healthcare coexist in harmony, ensuring both scientific integrity and cultural continuity.

On behalf of SFE India, I extend my heartfelt appreciation to the organizers, participants, and collaborators for their dedication and efforts in making this event a grand success. Your contributions and engagement will continue to strengthen our shared mission of promoting ethnopharmacology for global health, innovation, and sustainability.

With best wishes for a successful and inspiring convention.

Prof. Pulok Kumar Mukherjee
Founder, Society for Ethnopharmacology (SFE), India

Message from Organising Secretary, SECON 2025 (T-Healers Meet)



Prof. Sayeed Ahmed
Organizing Secretary, SECON 2025
Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi

It gives me immense pleasure to welcome all the distinguished guests, traditional healers, researchers, academicians, policy makers, and industry representatives to the Traditional Healers' Meet organized as part of SECON 2025, under the theme "Drugs from Nature: Exploring Ancestral Medicine."

This unique platform is dedicated to celebrating the timeless wisdom and healing traditions that have been nurtured through generations. Our traditional healers are the custodians of invaluable ethnomedicinal knowledge, rooted in local biodiversity and cultural heritage. Their experiential insights have served as the foundation for many modern drugs and therapeutic interventions. At a time when global health systems are seeking sustainable and holistic solutions, the wisdom preserved by these healers has never been more relevant.

The theme reflects our collective vision to rediscover, document, and validate the rich diversity of traditional practices across regions. This Meet aims to create a meaningful dialogue between traditional knowledge holders and modern scientific communities — to bridge the gap between indigenous wisdom and evidence-based research. It is through this collaboration that we can ensure the integration of ancestral medicine into mainstream healthcare in a scientifically validated, ethically respectful, and culturally inclusive manner.

The Traditional Healers' Conclave serves not only as a forum for knowledge sharing but also as a tribute to those who have dedicated their lives to serving humanity through natural remedies and traditional healing systems. Their contribution to primary healthcare, especially in rural and remote areas, continues to be indispensable. Recognizing and empowering these healers is essential for the conservation of both biological and cultural diversity — the twin pillars of sustainable health traditions.

Through SECON 2025, we seek to encourage scientific validation of traditional formulations, foster intellectual property protection for indigenous knowledge, and promote equitable benefit-sharing mechanisms. I sincerely hope that this Meet will strengthen the bridge between tradition and modernity, generating new pathways for research, innovation, and collaboration.

Once again, I warmly welcome all participants to this enriching event and wish SECON 2025 and the Traditional Healers' Meet grand success.

— Prof. Sayeed Ahmed
Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi

Message from Organising Secretary, SECON 2025 (Industry Connect)



Prof. Sayeed Ahmed
Organizing Secretary, SECON 2025
Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi

It gives me great pleasure to welcome all distinguished guests, industry leaders, researchers, entrepreneurs, and policymakers to the Industry Connect – Business Meet on the theme "Indian Botanicals for Global Markets- Challenges & Opportunities"**,** organized as a part of SECON 2025**.** This event is being held in cherished memory of Dr. Muhammed Majeed**,** a visionary scientist, entrepreneur, and pioneer in promoting Indian botanicals on the global stage.

Dr. Majeed's lifelong dedication to translating the wisdom of traditional Indian medicine into scientifically validated, globally accepted herbal products continues to inspire generations of researchers and innovators. His legacy exemplifies the bridge between traditional knowledge and modern science demonstrating how Indian botanicals can lead the way in developing sustainable, evidence-based healthcare solutions for the world.

The Industry Connect – Business Meet aims to provide a vibrant platform for dialogue between academia, industry, and policy stakeholders to identify key opportunities and challenges in the global botanical trade. India's biodiversity and heritage of traditional medicine represent an immense reservoir of therapeutic potential. However, realizing this potential requires collaborative efforts in areas such as quality standardization, regulatory harmonization, intellectual property protection, and sustainable sourcing practices.

This Meet seeks to encourage strategic partnerships that promote innovation, investment, and ethical commercialization of herbal products derived from India's rich flora. It is also an opportunity to explore how traditional wisdom, when coupled with cutting-edge research and advanced technology, can lead to globally competitive natural products that contribute to both human health and economic growth.

In remembering Dr. Muhammed Majeed, we honor his vision of a world where nature and science coexist in harmony transforming India into a global leader in the nutraceutical and phytopharmaceutical sectors. His contribution continues to light the path toward a future where Indian botanicals achieve their rightful place in global healthcare and trade.

I extend my heartfelt welcome to all participants and wish that this Industry Connect – Business Meet fosters meaningful collaborations and paves the way for a sustainable and globally recognized Indian botanical industry.

– Prof. Sayeed Ahmed
Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi

21th Traditional Heaers' Meet

(*Drugs from Nature: exploring ancestral medicine*)

"In the memory of respecetd Dr. Shekhar Dutt"

Date & Venue:

31 October 2025 | 11:00 AM to 1:30 PM

COE - Auditorium

Jamia Hamdard New Delhi, India

Organized by:

SOCIETY FOR ETHNOPHARMACOLOGY
Shaktigarh, Jadavpur, Kolkata, India
www.ethnopharmacology.in

Centre of Excellence in Unani Medicine
(Pharmacognosy & Pharmacology),
Jamia Hamdard, New Delhi
www.jamiahamdard.ac.in

12th International Convention of the
Society for Ethnopharmacology
(SECON 2025)

www.bnpl.org.in



SFE- India Exploring Ancestral Medicine Promoting Drugs from Nature



Prof. Pulok K. Mukherjee, PhD, FRSC

Founder, Society for Ethnopharmacology (SFE), India
Professor, Dept. of Pharmaceutical Technology, Jadavpur University, Kolkata-700032, India
www.pulokmukherjee.com

Dear Esteemed Traditional Healers, Scholars, and Members of SFE India,

"Science gives vision to tradition, and tradition gives roots to science."

It gives me immense pleasure to welcome all the participants to the *Traditional Healers' Meet* on "Drugs from Nature: Exploring Ancestral Medicine," organized by the Society for Ethnopharmacology (SFE-India) at SECON 2025, Jamia Hamdard, New Delhi. We dedicate this year event in the memory of respected Dr. Shekhar Dutt, who inspired us for developing the society and its activities. This program provides a unique and timely platform to celebrate and strengthen India's living heritage of healing, bringing together traditional healers, scholars, and scientists to co-create pathways for evidence-based advancement of ancestral medicine.

India is home to one of the world's richest repositories of medicinal plants and traditional health practices. For millennia, these systems have sustained community health through their holistic understanding of nature and the human body. Today, as global healthcare increasingly turns toward safe, natural, and sustainable solutions, our traditional healers continue to serve as living custodians of invaluable knowledge. The *Traditional Healers' Meet* is a tribute to their wisdom and contribution and a step toward integrating this experiential knowledge with modern scientific validation, translational research, and global healthcare innovation.

At its core, the Healers' Meet embodies SFE-India's belief that traditional knowledge and scientific research are not parallel paths but complementary forces. By facilitating this dialogue, the program aims to ensure that ancestral medicine continues to evolve not as an artefact of the past, but as a living, adaptive science for the future.

The meet also underscores the importance of sustainability and ethical stewardship of bio resources. As global demand for natural and plant-based products grows, it becomes imperative to protect the ecosystems and communities that sustain them.

Through this initiative, SFE-India seeks to promote conservation, transparency, and empowerment of healers as key stakeholders in the bio economy.

The Traditional Healers' Meet 2025 thus serves not only as a celebration of India's cultural and medicinal diversity but also as a movement to globalize local knowledge and localize global technologies. It reaffirms SFE-India's commitment to transforming traditional wisdom into evidence-based, ethically guided, and globally recognized healthcare solutions.

Since its inception in 2012, the Society for Ethnopharmacology has been committed to bridging traditional knowledge with contemporary science. Through national and international conferences, workshops, policy dialogues, and capacity-building initiatives, SFE-India has worked tirelessly to promote ethnopharmacological research and strengthen India's position as a global leader in herbal and natural product science. The *Healers' Meet* continues this mission by fostering collaboration among healers, ethnobotanists, pharmacologists, clinicians, academicians, and policymakers creating an inclusive space for mutual learning and recognition.

This program also highlights the importance of sustainability, ethical stewardship of bioresources, and community participation. By documenting, validating, and preserving traditional knowledge, we ensure that our natural heritage is used responsibly while benefitting the communities that have safeguarded it for generations. The meet encourages dialogue on biodiversity conservation, clinical validation, intellectual property protection, and fair benefit-sharing; ensuring that ancestral medicine continues to evolve with integrity and global relevance.

The Traditional Healers' Meet aims to transform India's ethno pharmacological legacy into a living, evolving, and globally recognized system of healthcare. It seeks to ensure that the voices of healers often marginalized yet profoundly knowledgeable are heard, respected, and empowered within the scientific, academic, and policy landscapes. The vision extends beyond commemoration; it is a movement to globalize local knowledge and localize global technologies for a healthier, more inclusive, and sustainable world.

As we celebrate this convergence of ancient wisdom and modern science, let us reaffirm our collective commitment to empowering traditional healers and nurturing India's contribution to global health. Together, we can transform ancestral knowledge into safe, effective, and scientifically credible healthcare solutions for the world.

On behalf of SFE-India, I extend my heartfelt appreciation to all traditional healers, researchers, collaborators, and the organizing team at Jamia Hamdard for their unwavering dedication. May this gathering inspire new ideas, partnerships, and innovations that honour our heritage while shaping the medicine of tomorrow.

— Prof. Pulok K. Mukherjee
Founder, Society for Ethnopharmacology (SFE-India)

Traditional Healers' Meet : "Drugs from Nature: Exploring Ancestral Medicine



Prof. Sayeed Ahmed
Organizing Secretary,
SECON 2025
Jamia Hamdard, New Delhi



Prof. D. Chattopadhyay
Coordinator,
Traditional Healers' Program SFE- India

It gives me immense pleasure to welcome all the distinguished guests, traditional healers, researchers, academicians, policy makers, and industry representatives to the Traditional Healers' Meet organized as part of SECON 2025, under the theme "Drugs from Nature: Exploring Ancestral Medicine."

This unique platform is dedicated to celebrating the timeless wisdom and healing traditions that have been nurtured through generations. Our traditional healers are the custodians of invaluable ethnomedicinal knowledge, rooted in local biodiversity and cultural heritage. Their experiential insights have served as the foundation for many modern drugs and therapeutic interventions. At a time when global health systems are seeking sustainable and holistic solutions, the wisdom preserved by these healers has never been more relevant.

The theme reflects our collective vision to rediscover, document, and validate the rich diversity of traditional practices across regions. This Meet aims to create a meaningful dialogue between traditional knowledge holders and modern scientific communities — to bridge the gap between indigenous wisdom and evidence-based research. It is through this collaboration that we can ensure the integration of ancestral medicine into mainstream healthcare in a scientifically validated, ethically respectful, and culturally inclusive manner.

The Traditional Healers' Conclave serves not only as a forum for knowledge sharing but also as a tribute to those who have dedicated their lives to serving humanity through natural remedies and traditional healing systems. Their contribution to primary healthcare, especially in rural and remote areas, continues to be indispensable. Recognizing and empowering these healers is essential for the conservation of both biological and cultural diversity — the twin pillars of sustainable health traditions.

Through SECON 2025, we seek to encourage scientific validation of traditional formulations, foster intellectual property protection for indigenous knowledge, and promote equitable benefit-sharing mechanisms. I sincerely hope that this Meet will strengthen the bridge between tradition and modernity, generating new pathways for research, innovation, and collaboration.

Once again, I warmly welcome all participants to this enriching event and wish SECON 2025 and the Traditional Healers' Meet grand success.

- Prof. Sayeed Ahmed
Organizing Secretary, SECON 2025 Program

- Dr. Debprasad Chattopadhyay
Coordinator, Traditional Healers'

It's hard to forget someone
who gave you so much to remember

In the Remembrance of



SHRI SHEKHAR DUTT

DECEMBER 20 1945 – JULY 02, 2025

WE LOST A GREAT SOUL, TRUE SFE ADVISOR
A GREAT PERSONALITY WHO
INSPIRES US A LOT

WE WILL MISS HIM AND WILL LIVE
WITH US FOREVER

SFE FAMILY WILL NEVER FORGET HIS
CONTRIBUTION AND DEDICATION

OUR HEARTFELT CONDOLENCES
ON HIS DEMISE
MAY HIS SOUL REST IN PEACE

SOCIETY FOR ETHNOPHARMACOLOGY · SFE INDIA

www.ethnopharmacology.in

"अनित्यं जगत् — सर्वं क्षणभङ्गुरजीवनम्।
शान्तिं च सद्गतिं चास्मै प्रभुः दद्यात् प्रियो जनः॥"

We will miss you a lot







www.ethnopharmacology.in

Society for Ethnopharmacology (SFE-India)

The Society for Ethnopharmacology (SFE-India) is a not-for-profit scientific organization established in 2013 under the West Bengal Societies Registration Act (1961). It is officially affiliated to the International Society for Ethnopharmacology (ISE), Switzerland. For more details please visit: www.ethnopharmacology.in

Vision & Mission

- **Vision:** *To globalize local knowledge and localize global technologies,* fostering sustainable development and ethical innovation in traditional medicine.
- **Mission:** To promote the scientific validation, documentation, and dissemination of traditional medical knowledge and to strengthen India's leadership in the global herbal industry by creating frameworks for research, regulation, and responsible commercialization.

Core Objectives

- **Scientific Advancement** – Encourage interdisciplinary research in ethnopharmacology, pharmacognosy, phytochemistry, and translational herbal sciences.
- **Knowledge Dissemination** – Organize international and national conventions, thematic symposia, and training programs to bridge academia and industry.
- **Capacity Building** – Empower young scientists, students, and entrepreneurs through mentorship, scholarships, and skill-development initiatives.
- **Ethical Standardization** – Advocate for quality, safety, and efficacy standards aligned with global guidelines.
- **Sustainability & Biodiversity** – Promote conservation and sustainable utilization of medicinal and aromatic plants (MAPs).
- **Entrepreneurial Ecosystem** – Facilitate innovation, incubation, and start-up creation based on validated ethnomedicinal knowledge.

National Footprint and Global Engagement

From its headquarters in Kolkata, SFE-India coordinates 18 regional chapters and more than 2,000 active members across India. These chapters collaborate with universities, AYUSH and other government organizations, research laboratories, NGOs, and industries to promote training, research, and societal outreach. Internationally, SFE-India partners with organizations and universities in the USA, Europe, and Asia, enabling exchange programs, collaborative projects, and participation in ISE's global conferences. Through these networks, the Society

advances India's role as a knowledge partner in global ethnopharmacology, aligning indigenous traditions with modern scientific frameworks.

International Society for Ethnopharmacology (ISE)

The International Society for Ethnopharmacology (ISE) was established in 1990 and is headquartered in Switzerland. It serves as a worldwide network of scientists, researchers, health-care professionals, and policy leaders dedicated to advancing knowledge on traditional medicines, natural products, and ethnobiological resources.

ISE's vision is to foster responsible, ethical, and evidence-based use of traditional medical knowledge through interdisciplinary research and global cooperation. ISE is dedicated to the study of the pharmacological actions of plants, animals, insects, and other organisms used in medicines of indigenous and modern, past and present cultures. The society encourages cultural respect, sustainability, and benefit-sharing between knowledge holders and scientific institutions.

The major objective of the ISE is to promote Ethnopharmacology as a scientific field of research. The society is dedicated to the exchange of information and understandings about people's use of natural products and their bio-prospecting. For more details please visit: www.ethnopharmacology.org

Jamia Hamdard University

Founded in 1989 under the visionary leadership of Hakeem Abdul Hameed, Jamia Hamdard (Deemed to be University) has emerged as one of India's foremost centers of excellence in health sciences, traditional medicine, and biomedical research.

The Centre of Excellence in Unani Medicine (Pharmacognosy & Pharmacology) at Jamia Hamdard, New Delhi, is a premier hub for advanced research and innovation in Unani medicine. Supported by the Ministry of AYUSH, Government of India, the Centre focuses on the standardization, validation, and scientific evaluation of Unani formulations and natural products.

It integrates traditional wisdom with modern pharmacological approaches to ensure evidence-based healthcare solutions. Through collaborative research, training, and technological advancements, the Centre continues to strengthen the global recognition of Unani medicine as a safe, effective, and sustainable healthcare system. For more details please visit: www.jamiahamdard.ac.in.

The Traditional Healers' Meet

"Drugs from Nature: Exploring Ancestral Medicine,"

The Traditional Healers' Meet is one of the key highlights of the 12th International Congress of the Society for Ethnopharmacology (SFE-India), to be held at Jamia Hamdard, New Delhi, from 30–31 October 2025. This special session is designed to bring together traditional health practitioners, healers, and knowledge holders from diverse regions of India to share their invaluable experiences, healing practices, and community-based wisdom in healthcare.

The event provides a unique and inclusive platform for dialogue and mutual learning among traditional healers, researchers, academicians, policy-makers, and students fostering the exchange of indigenous knowledge and promoting the documentation, validation, and integration of traditional healthcare systems with modern science. It reflects SFE-India's long-standing commitment to building bridges between the oral traditions of the past and the evidence-based healthcare of the future.

For centuries, India's healing traditions have embodied the spirit of harmony between humankind and nature. Long before the advent of modern medicine, traditional healers served as the foundation of healthcare across diverse communities preserving local knowledge, biodiversity, and cultural identity. Their wisdom, rooted in experience and observation, continues to provide safe, accessible, and holistic healthcare solutions to millions. The Traditional Healers' Meet, is a flagship platform dedicated to honoring these knowledge holders and integrating their ancestral wisdom into the framework of modern scientific research.

Since its inception in 2012, SFE-India under the visionary leadership of Professor Pulok Kumar Mukherjee, former Director of the Institute of Bioresources and Sustainable Development (IBSD), Department of Biotechnology, Government of India, and Professor at Jadavpur University, has been actively engaged in translating the wisdom of India's traditional healers into the language of modern science. This journey began with SFE-India's first international congress in 2012 and has evolved into a nationwide movement to recognize, document, and scientifically validate indigenous healing practices.

The 21st edition of this meet, themed "Drugs from Nature: Exploring Ancestral Medicine," carries this legacy forward. It seeks to provide an inclusive and participatory platform where traditional healers, ethnobotanists, pharmacologists, clinicians, and policymakers can:

- Exchange experiences and demonstrate ancient healing practices.
- Document medicinal plants and formulations used in indigenous systems.
- Discuss strategies for validation, standardization, and responsible utilization.
- Explore models for community participation, benefit-sharing, and livelihood enhancement.

At its core, the Healers' Meet embodies SFE-India's belief that traditional knowledge and scientific research are not parallel paths but complementary forces. By facilitating this dialogue, the program aims to ensure that ancestral medicine continues to evolve—not as an artifact of the past, but as a living, adaptive science for the future.

The meet also underscores the importance of sustainability and ethical stewardship of bioresources. As global demand for natural and plant-based products grows, it becomes imperative to protect the ecosystems and communities that sustain them. Through this initiative, SFE-India seeks to promote conservation, transparency, and empowerment of healers as key stakeholders in the bioeconomy.

The *Traditional Healers' Meet 2025* thus serves not only as a celebration of India's cultural and medicinal diversity but also as a movement to globalize local knowledge and localize global technologies. It reaffirms SFE-India's commitment to transforming traditional wisdom into evidence-based, ethically guided, and globally recognized healthcare solutions.

This journey began with SFE-India's first international congress in 2012 and has evolved into a nationwide movement to recognize, document, and scientifically validate indigenous healing practices.

Over the past decade, SFE-India has:

1. Prepared and continually updated a comprehensive database of traditional healers from nearly all Indian states.
2. **Categorized healers' areas of expertise**, covering herbal, mineral, and ritual-based healthcare traditions.
3. **Documented thousands of indigenous formulations and recipes** used for treating a wide spectrum of ailments among India's diverse communities.
4. **Developed reproducible ethnographic and scientific methods** to accurately capture knowledge on these traditional formulations.
5. **Identified and prioritized select formulations** for scientific validation through robust, evidence-based methodologies.
6. **Collaborated with universities, public and private research institutes, and pharmaceutical industries** to conduct validation studies through academic programs such as M.Pharm, M.Tech, MD, and PhD dissertations.

Professor Mukherjee's laboratory, in association with experienced healers, has already initiated several validation studies of traditional formulations. These collaborative efforts not only contribute to academic advancement—leading to doctoral research—but also create potential pathways for drug discovery and development based on ancestral wisdom.

The 2025 edition of the Traditional Healers' Meet continues this mission. It will feature interactive sessions with selected healers from across the country, allowing them to showcase their expertise, medicinal plants, and formulation practices before scientists, industry leaders, and government representatives. The meet will serve as a dynamic platform for recognizing healers' contributions, exploring opportunities for joint research, and identifying formulations suitable for translational development and commercialization.

Through this initiative, SFE-India reaffirms its dedication to preserving, promoting, and protecting the rich heritage of Indian ethnopharmacological traditions, while ensuring their alignment with global standards of safety, efficacy, and sustainability. It marks a renewed step toward realizing the Society's vision of transforming India's traditional knowledge systems into scientifically validated and socially inclusive healthcare models that can benefit communities worldwide.

Vision

The Traditional Healers' Meet envisions a future where the ancestral wisdom of India's traditional healers is scientifically recognized, ethically protected, and seamlessly integrated into the nation's evolving healthcare ecosystem. It represents the living spirit of ethnopharmacology a bridge connecting the timeless art of healing with the rigor of modern biomedical science.

The core vision of this initiative is to preserve, promote, and protect India's living heritage of traditional medicine, while ensuring that healers and knowledge holders are recognized as vital contributors to public health, community well-being, and the nation's bioeconomy. Rooted in the belief that ancient wisdom and modern innovation are not competing paradigms but complementary forces, this program reaffirms the Society for Ethnopharmacology's mission to unite all stakeholders under one inclusive and knowledge-driven platform.

Purpose and Guiding Objectives

- **Preservation of Indigenous Knowledge**
  - Safeguard the oral traditions and experiential wisdom of traditional healers by promoting documentation, archiving, and digital recording of indigenous healthcare practices across India's ethnolinguistic and ecological diversity.
- **Scientific Validation and Standardization**
  - Facilitate collaborative research to validate traditional formulations and practices using modern pharmacological, toxicological, and clinical methodologies - thereby ensuring global scientific credibility and patient safety.
- **Integration of Traditional and Modern Systems**
  - Promote dialogue between traditional healers, AYUSH practitioners, biomedical scientists, and policymakers to co-develop frameworks that integrate indigenous practices into national healthcare models through evidence-based approaches.
- **Empowerment and Ethical Recognition of Healers**
  - Recognize healers as equal partners in scientific discovery and innovation. Encourage fair benefit-sharing, intellectual-property protection, and economic inclusion of healer communities through transparent partnerships with academia and industry.
- **Sustainability and Conservation of Medicinal Bioresources**
  - Advocate sustainable harvesting, cultivation, and conservation of medicinal plants to ensure the ecological integrity of India's natural heritage. Encourage community participation and women's empowerment in value-chain development.
- **Capacity Building and Knowledge Transmission**
  - Build a national framework for training, mentorship, and intergenerational transfer of traditional healing knowledge through regional workshops, university collaborations, and community education initiatives.

- **Policy Advocacy and Global Engagement**
    - Support evidence-based policy formulation that strengthens traditional medicine within the national health agenda. Foster international collaborations to project India's ethnopharmacological strengths in global forums.

Through these objectives, the Traditional Healers' Meet aims to transform India's ethnopharmacological legacy into a living, evolving, and globally recognized system of healthcare.

It seeks to ensure that the voices of healers often marginalized yet profoundly knowledgeable are heard, respected, and empowered within the scientific, academic, and policy landscapes.

The vision extends beyond commemoration; it is a movement to globalize local knowledge and localize global technologies for a healthier, more inclusive, and sustainable world.

Key Highlights and Features

Traditional Healthcare Practices – Exploring Ancestral Medicine

- Showcasing authentic healing systems practiced by traditional health practitioners from various regions of India.
- Live demonstrations and storytelling sessions highlighting community-based health practices, plant usage traditions, and holistic therapeutic approaches.
- Recognition of traditional healers as knowledge custodians and frontline healthcare providers in rural and tribal settings.
- Exploring ways to safeguard oral traditions through documentation, mentorship, and intergenerational knowledge transmission.

Expected Outcomes:

- Strengthened visibility and recognition of healers at national and international platforms.
- Preservation of localized healing wisdom for inclusion in community health initiatives.

Scientific Validation and Documentation of Indigenous Knowledge

- Collaborative sessions between healers, ethnobotanists, pharmacologists, and clinicians to record, analyze, and scientifically validate indigenous formulations.
- Inclusion of newly documented formulations in the SFE-India National Healers' Database, with systematic cataloging of plants, preparation methods, and clinical observations.
- Discussions on laboratory partnerships and academic research pathways for ethnomedicine-based dissertations (M.Pharm, M.Tech, MD, PhD).
- Emphasis on evidence-based evaluation and publication of validated outcomes to ensure credibility, safety, and reproducibility.

Expected Outcomes:

- Compilation of scientifically documented traditional formulations.
- Formation of multi-institutional collaborations for validation and standardization studies.

Globalization of Traditional Medicines in Healthcare

- Panel discussions on internationalization of Indian traditional medicines, regulatory convergence, and global trade opportunities.
- Presentations on the role of SFE-India and allied institutions in aligning Indian herbal products with WHO, OECD, and pharmacopoeial standards.
- Interaction with global experts and representatives from partner organizations to share success stories of ethnopharmacology-driven innovation.
- Deliberations on ethical commercialization, intellectual-property protection, and benefit-sharing mechanisms to promote global trust.

Expected Outcomes:

- Roadmap for positioning Indian herbal formulations in global healthcare systems.
- Enhanced collaboration between Indian healers, scientists, and international research networks.

Translational Research Approaches for Promotion and Development of Medicinal Plants

- Showcasing bench-to-field models for developing value-added products from medicinal plants through translational research.
- Case studies on bioactive compound identification, extraction technologies, and preclinical validation of traditional formulations.
- Interactive sessions with scientists and industry experts on bridging laboratory research with community knowledge.
- Exploration of funding and incubation opportunities for ethnopharmacology-based start-ups and projects.

Expected Outcomes:

- Identification of priority medicinal plants for translational research.
- Development of joint research proposals linking healers, universities, and industries.

Promotion and Development of Local Health Traditions

- Recognition of local health traditions (LHTs) as vital pillars of India's primary healthcare.
- Demonstrations of community-led preventive and curative practices using locally available herbs and foods.
- Workshops on cultivation, sustainable sourcing, and conservation of medicinal plants used in LHTs.
- Empowering healers through training on quality assurance, documentation, and entrepreneurship in herbal product development.

Expected Outcomes:

- Strengthened community participation in healthcare and resource management.
- Framework for integrating local health traditions with mainstream AYUSH and public-health systems.

Collective Outcome and Legacy

Together, these five thematic pillars embody the true spirit of SECON 2025 — *to globalize local knowledge and localize global technologies.*
The Traditional Healers' Meet will serve as a living bridge between tradition and innovation, community and science, and heritage and modern healthcare, ensuring that India's ancestral medicine continues to guide the journey toward a sustainable and inclusive future.

Target Audience

The Traditional Healers' Meet 2025 welcomes a diverse and dynamic community of participants united by a shared passion for traditional medicine, ethnopharmacology, and medicinal plant research. The program is designed to foster interdisciplinary learning, mutual respect, and meaningful collaboration among all stakeholders in the field of natural product–based healthcare.
The event is open to registered delegates from across academia, industry, and traditional systems of medicine, including:

- Students and Research Scholars - pursuing undergraduate, postgraduate, doctoral, or postdoctoral studies in pharmacognosy, phytochemistry, ethnobotany, ethnopharmacology, Ayurveda, and allied disciplines.
- Faculty Members and Scientists- from universities, research institutions, and laboratories engaged in medicinal plant research, drug discovery, and validation of traditional formulations.
- Traditional Health Practitioners and Healers - representing local health traditions, community medicine, and ancestral healing practices from diverse regions of India.
- Healthcare Professionals and AYUSH Practitioners - interested in integrating traditional knowledge into modern therapeutic frameworks.
- Industry Professionals and Entrepreneurs - from the herbal, nutraceutical, and natural product sectors seeking opportunities for collaboration, innovation, and evidence-based product development.

The Traditional Healers' Meet encourages active participation, dialogue, and partnership among all delegates. By connecting traditional wisdom with modern research and industrial innovation, the program aims to cultivate a holistic ecosystem for knowledge exchange and capacity building in ethnopharmacology.
Together, this diverse audience will help shape the roadmap for ethical documentation, scientific validation, and global promotion of India's medicinal heritage.

Legacy of the Traditional Healers' Meet: A Decade of Preserving India's Living Knowledge

The Traditional Healers' Meet has been one of the most visionary and impactful initiatives of the Society for Ethnopharmacology (SFE-India) since its inception. Conceived under the dynamic leadership of Prof. Pulok K. Mukherjee, the meet was first introduced during the early years of the Society's formation to provide a national platform where *grassroots healers and modern scientists could share a common stage,* bridging ancestral wisdom with contemporary scientific research.

Since the first International Congress of SFE-India held in Kolkata (2012), every edition of the Healers' Meet has reflected the Society's unwavering commitment to recognizing

traditional healers as custodians of invaluable community health knowledge. These gatherings have celebrated the wisdom of practitioners from remote tribal regions, forest communities, and rural areas who have safeguarded centuries-old therapeutic traditions.

Over the years, the Healers' Meet has evolved from a modest dialogue forum into a structured knowledge-exchange movement - inspiring ethnopharmacologists, policymakers, and industry stakeholders to jointly document and validate ancestral formulations for modern use.

Highlights from Past Editions

Year / Edition	Venue	Key Themes & Achievements
2012 – 1st International Congress, Kolkata	Jadavpur University	Foundation laid for a national network of traditional healers; creation of the first *Directory of Healers of India*.
2014 – 2nd Congress, North Eastern Hill University, Shillong	Meghalaya	Emphasis on ethnomedicine of the Northeast; inclusion of tribal healers from over 25 indigenous communities.
2016 – 4th Congress, Nagpur	Maharashtra	Discussions on biodiversity conservation, bioresources management, and intellectual property protection.
2018 – 6th Congress, Jamia Hamdard, New Delhi	Delhi	Integration of Unani and Ayurvedic traditions with modern pharmacology; launch of SFE-India's *Herbal Validation Initiative*.
2019 – 7th Congress, Dhaka (Joint SFE–Bangladesh Meet)	International Edition	Promoted South Asian cooperation on traditional medicine and knowledge-sharing.
2021 – Virtual Edition	Online (Post-pandemic Reconnect)	Focused on sustainable healing practices during the pandemic; creation of a *Digital Healers' Repository*.
2023 – 10th International Congress, Manipur (Imphal)	IBSD, Govt. of India	Strengthened collaboration between SFE-India, IBSD, and local healers; introduced *Community Knowledge to Clinic* translational framework.

- ***Traditional Healers Meet:*** **program organized by Society for Ethnopharmacology, India during Annual congress and convention of SFE – success stories**

Some Glimpses of Traditional Healers meet during the 12th International Congress of Society for Ethnopharmacology, India 2025 (SFEC 2025)

Theme: "*Traditional Healthcare Practices - Exploring Ancestral Medicine*"







Focus & Objectives:

- Explore ancestral and community-based healing systems.
- Bridge traditional knowledge and contemporary science.
- Promote validation, recognition, and integration of traditional healing practices.
- Encourage knowledge sharing between generations of practitioners.
- Strengthen the role of ethnomedicine in the national healthcare framework.

- *The meet successfully celebrated the heritage of traditional medicine.*
- *Reinforced the importance of traditional knowledge in achieving sustainable health and economic growth.*

Some Glimpses of Traditional Healers meet cum exhibition of Traditional Medicine during the 11th International Convention of SFE, India 2024 (SECON 2024)

Theme: "*Bioeconomy from Bioresources: Promoting Traditional Resources of NER for Viksit Bharat*"



- Focused on showcasing traditional knowledge systems and their role in sustainable healthcare.
- Aimed to bridge traditional wisdom and modern science.
- Promoted the bioeconomic potential of traditional medicine from the Northeastern Region (NER) of India.
- Over 50 traditional healers participated from various NER states
- Enhanced awareness of traditional health systems in the academic and public domain.

- *The meet successfully celebrated the heritage of traditional medicine.*
- *Reinforced the importance of traditional knowledge in achieving sustainable health and economic growth.*





Some Glimpses of Traditional Healers meet during the 11th International Congress of Society for Ethnopharmacology, India 2024 (SFEC 2024) at CSIR-IIIM in Jammu, India











- *Reinforced the importance of traditional knowledge in achieving sustainable health and economic growth.*
- *The meet successfully celebrated the heritage of traditional medicine.*

- The Traditional Healers' Conclave was one of the most significant and inspiring segments of the congress.
- Focused on exploring ancestral medicine and linking traditional wisdom with scientific innovation.
- Reflected SFE India's mission of "Globalizing Local Knowledge and Localizing Global Technology."Served as a dynamic platform for dialogue between traditional healers and researchers.

Some Glimpses of Traditional Healers meet during the 10th Convention of Society for Ethnopharmacology November 28-30, 2023 at CSIR - NEIST, Jorhat, Assam, India.









- *Reinforced the importance of traditional knowledge in achieving sustainable health and economic growth.*
- *The meet successfully celebrated the heritage of traditional medicine.*

- The Traditional Healers' Conclave was one of the most significant and inspiring segments of the convention
- Focused on exploring ancestral medicine and linking traditional wisdom with scientific innovation.
- Reflected SFE India's mission of "Globalizing Local Knowledge and Localizing Global Technology."Served as a dynamic platform for dialogue between traditional healers and researchers.

Traditional Healer's Meet Program

Traditional Healers Meet @ 10th World Ayurveda Congress 2024 - Dehradun, India



Traditional Healers Meet @ISESFEC 2023 at IBSD, Imphal, Manipur, India



Ethnopharmacology Conclave
8th WAC & AROGYA Expo – 2018 ,
Gujarat University, Ahmedabad





Ethnopharmacology Concalve @7th World Ayurveda Congress -2016, Science City, Kolkata







7th World Ayurveda Congress & Arogya Expo 2016

International Ethnopharmacology Conclave on

"Ethnopharmacology, Ethno-medicine and Traditional Health Practices: Learning from the Nature: Tradition to Innovation"





December 3-4, 2016

Science City, Kolkata, India

























Program Overview: Traditional Healers' Meet 2025

The Traditional Healers' Meet 2025 is structured to encourage meaningful dialogue between ancestral knowledge holders and the modern scientific community. The program blends storytelling, scientific presentation, live demonstrations, and policy dialogue to create an immersive learning experience that honors India's healing heritage while aligning with contemporary research priorities.

Engagement Formats

- **Plenary Talks & Case Presentations** – Contextual insights from eminent scientists and traditional practitioners.
- **Healer–Scientist Dialogues** – Moderated exchanges enabling cross-learning.

Guests, Speakers and Panelists



Dr Mahesh Dadheech
Chief Executive Officer,
National Medicinal Plants Board (NMPB)



Dr. B.V. Sharma
Director, Anthropological Survey of India
Government of India
Kolkata, India



Dr. Narayanam Srikanth
Deputy Director General
CCRAS, Ministry of AYUSH, Govt of India
New Delhi

Dr Raghu Arackal
Deputy Director General (Ayush)



Dr. Subhra Chakraborty
Former Director,
National Institute for Plant Genome Research



Dr. Charu Lata
Principal Scientist, Head, Traditional Knowledge Division
Editor, Indian Journal of Traditional Knowledge
(CSIR–NIScPR), New Delhi, India



Dr. Sharad Srivastava,
Chief Scientist
CSIR-National Botanical Research Institute
Lucknow, India



Dr. Prakash R Itankar
Coordinator, Nagpur Local Chapter, SFE &
Professor, Dept. of Pharmaceutical Sciences
RTM Nagpur University, Nagpur, India



Dr. Pramod HJ
Coordinator, Belagavi Local Chapter, SFE &
Professor, Dept. of Pharmacognosy & Phytochemistry.
KLE University, Belagavi, India



Prof. Sayeed Ahmad
Organizing Secretary, SECON 2025
Centre of Excellence in Unani Medicine
Jamia Hamdard, New Delhi – 110062, India



Dr. Amit Kar
Secretary
Society for Ethnopharmacology
Kolkata, INDIA

Dr. Heena Tabassum
Indian Council of Medical Research (ICMR)



Dr Debprasad Chattopadhyay
Coordinator, Traditional Healers' Program
Society for Ethnopharmacology, India



Dr. Subhash C. Mandal
EC Member, SFE-India



Mr. Amitava Das
Society for Ethnopharmacology
Kolkata, INDIA



Prof. Pulok Kumar Mukherjee
Founder, Society for Ethnopharmacology, India
Chairman, Scientific Services, SECON 2025

Traditional Healers for all over India

Mr. Awdhesh Kumar Kashyap Traditional Healer Usalapur, Chattisgarh	**Mr.Mahendra Singh Parihar** Traditional Healer **Udaipur,** Rajasthan
Mr. Vaidya Shridhar Desai Traditional Healer Karnataka	**Mrs. Pratapibai Guni** Traditional Healer Udaipur**,** Rajasthan
Mr. Vd. Sukhalal Pansari Traditional Healer Jharkhand	**Mr. Santilal Guni** Traditional Healer **Udaipur,** Rajasthan
Mrs. Dropadi Devi Traditional Healer Jharkhand	**Mr. Akhilesh Dubey** Traditional Healer Ghoradungri, Madhya Pradesh
Mr.Sushil Upadhyay Traditional Healer Jabalpur, Madhya Pradesh	**Mr. Balram Dhurve** Traditional Healer Ghoradungri, Madhya Pradesh
Mr. Vd. Anup Sarkar Traditional Healer Kolkata, West Bengal	**Dr. Vijay Chaurasia** Traditional Healer Katni, Madhya Pradesh
Mr. Vd. Savitabrata Das Traditional Healer Kolkata, West Bengal	**Mr. Vaidya Santanu Kumar** Traditional Healer Kantabanji**,** Odisha
Mr. Nandaji Ramji Chalakh Traditional Healer	**Mr. Sankirttan Majhi** Traditional Healer

Nagpur, Maharashtra	Kantabanji, Odisha
Mr. Prakash N Urkude Traditional Healer Nagpur, Maharashtra	**Mr. Arun Azad** Traditional Healer Bulandshahr Uttar Pradesh
Mr Samelal Yadav Traditional Healer Usalapur, Chattisgarh **Dr Adil Ahmad,** Aurveda Practitioner, Mumbaij	**D S Manjunath Challakere** Traditional Healer Karnataka **Dr M Shahid Malik** Unani Practitioner, Aligarh
Dr Mobashir Khan A&U Practitioners IUF **Hakeem Abdul Qayyum** Traditional Healer New Delhi **Hakeem Murtuza,** Traditional Healer New Delhi **Moulana Mohd Haroon** New Delhi **Hakeem Nooruddin** New Delhi **Mr Wasi Ahmed Qureshi** New Delhi **Vaidya Santanu Kumar** Traditional Healer Odisha **Savara Jakkiyo**	**Hafiz Abdul Malik** Traditional Healer Ishati Malegaon **Hakeem Faisal** Traditional Healer Tamil Nadu **Hakeem Nooruddin,** **New Delhi** **Moulana Mohd Haroon** New Delhi **Hakeem Yacoub** **Shri Ramniwas Verma** Traditional HealerAmarkanthak **Brother Monson Kuriakose** **Arika Sanyasirao**









SOCIETY FOR ETHNOPHARMACOLOGY (SFE)

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Affiliated to:

International Society for Ethnopharmacology

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Industry Connect - Business Meet

"Indian Botanicals for Global Markets –
Challenges & Opportunities"

In the memory of "Dr. Muhammed Majeed"

October 30, 2025

Organized by:

SOCIETY FOR ETHNOPHARMACOLOGY
Shaktigarh, Jadavpur, Kolkata, India
www.ethnopharmacology.in

Jamia Hamdard University
New Delhi, Delhi, India
www.jamiahamdard.edu

12th International Convention

Society for Ethnopharmacology
(SECON 2025)
October 30-31, 2025
www.bnpl.org.in

Website: wwwiethnopharmacology.in



Dr. Muhammed Majeed: A Life of Vision, Science, and Service

(A Special Tribute from SFE, India through the i-Connect Program: in his Memory)

Society for Ethnopharmacology India
www.ethnopharmacology.in

The passing of Dr. Muhammed Majeed is a profound loss to the global scientific community, especially for those of us in the field of ethnopharmacology. His visionary work and unwavering dedication to natural and traditional medicine will continue to inspire generations of researchers and practitioners. The Society for Ethnopharmacology, India, deeply acknowledges Dr. Majeed's invaluable contributions. In his memory, the Society has been organizing a series of commemorative programs to honour his legacy. Through this article, we aim to highlight some of his remarkable contributions, his longstanding association with our Society, and his deep passion for natural product-based drug development. Above all, we remember him for his enduring love for humanity and his commitment to the betterment of society at large.

In 2024, following the sad demise of Dr. Muhammed Majeed, a visionary leader, pioneering entrepreneur, and steadfast supporter of ethnopharmacological research, the Society for Ethnopharmacology, India (SFE-India) paid a heartfelt tribute by dedicating that year's special program on Industry Connect Program: Business Meet was held during SECON-2024 at Gangtok, Sikkim, India. In this Program, more than 30 industries join and share their views for promotion and development of herbal products. This special program was a profound reflection of Dr. Majeed's immense contributions to the advancement of traditional medicine, the global promotion of scientifically validated herbal products, and his unwavering support for bridging the gap between academia and industry. Recognizing his deep and lasting association with the Society and his transformative impact on natural product science, the SFE, India dedicate this i-Connect programs in the memory of Dr. Muhammed Majeed SECON 2025. Through this gesture, the Society affirms its dedication to advancing the vision that Dr. Majeed so passionately championed: integrating traditional knowledge systems with modern science for the betterment of global health.

Dr. Muhammed Majeed was a pioneer in translating Indian Traditional systems of Medicine including Ayurveda, Unani, and Siddha with modern scientific interventions for development of validated health solutions and that is where we had the opportunity to get connected with him from Jadavpur University since 2003. The entrepreneurial spirit within Dr. Majeed truly ignited with the incorporation of Sabinsa Corporation in New Jersey in 1988. Later on in 1991, he established Sami Labs Limited (now known as the Sami-Sabinsa Group Limited - SSGL) in Bengaluru, India with a state-of-the-art research and manufacturing facility.

Dr. Muhammed Majeed, the visionary founder of the Sami-Sabinsa Group, established a longstanding and impactful association/collaboration with Prof. Pulok K. Mukherjee since 2003, which grew stronger from 2005 onwards with the international conference on herbal Medicine, organized by the School of Natural Product Studies (SNPS), Jadavpur University, Kolkata. His active support and guidance significantly shaped academic discourse on herbal drug discovery, quality control, and sustainable practices.

Dr. Majeed's partnership with SNPS nurtured evidence-based research in natural medicine, aligning with the institute's academic goals. Dr. Majeed has also supported scientific

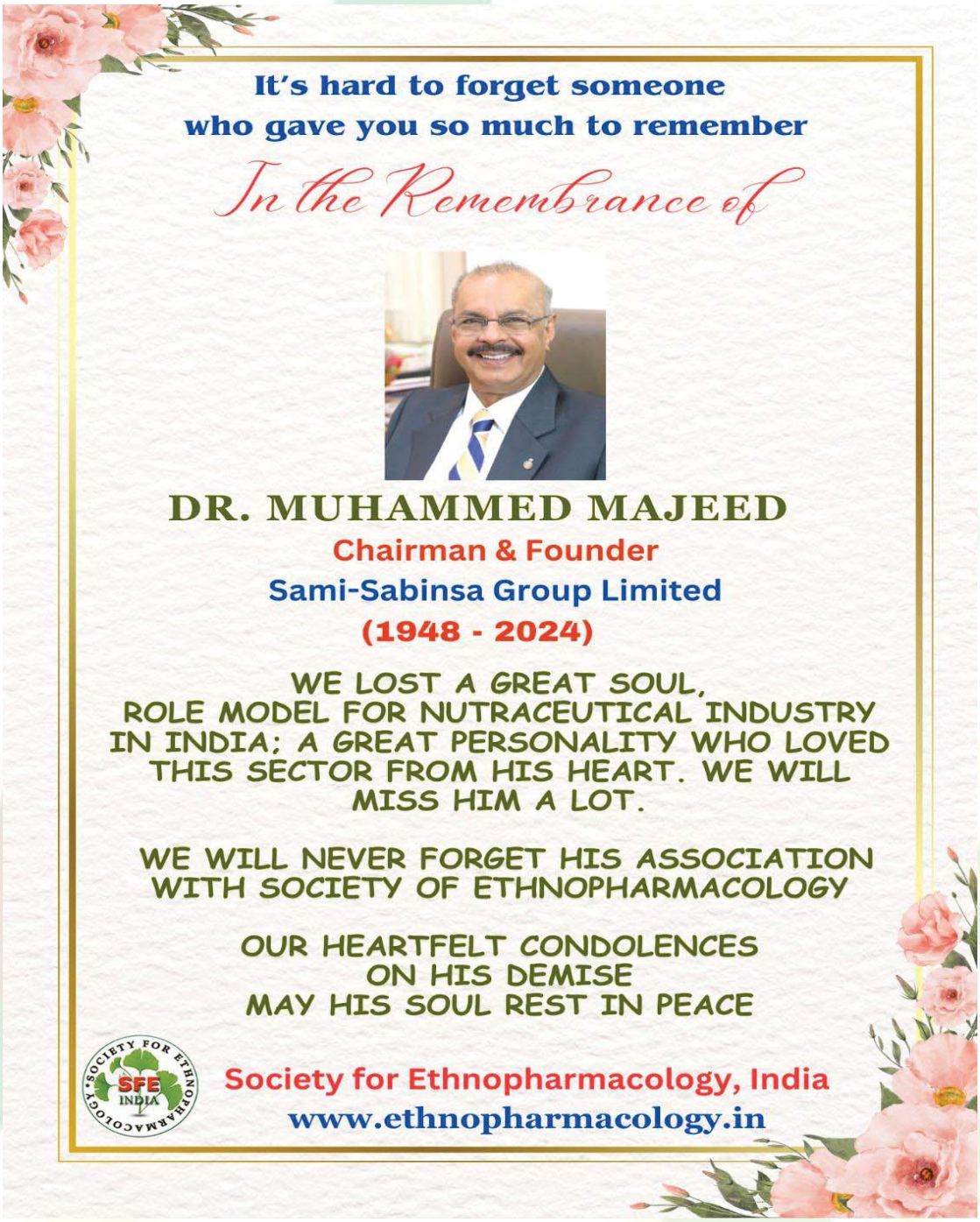
societies, and conferences highlighting traditional medicine and natural product Research. Most notably Dr. Majeed actively involved with the Society for Ethnopharmacology, India (SFE-India) for collaborative science and inspired researchers to explore India's rich ethnobotanical heritage with scientific rigor for the development of ethno-entrepreneurship through organizing different National, International events.

Society for Ethnopharmacology, India is working with the mission of dissemination of knowledge for the development of ethnopharmacology and medicinal plant research and vision of "Globalizing Local Knowledge; Localizing Global Technologies". We had the distinct privilege of knowing Dr. Majeed personally and professionally, and his visionary approach to natural products research has had a lasting impact on the Society for Ethnopharmacology, India (SFE-India). As one of our strongest supporters and well-wishers, Dr. Majeed was instrumental in advancing the mission of SFE-India to promote the scientific validation and global recognition of traditional medicine, as well. Under his visionary leadership, Sami-Sabinsa Group became an active partner in several of SFE-India's national and international programs, encouraging the dissemination of quality research, fostering young talent, and creating a bridge between traditional healing practices and modern pharmacological validation. As we remember Dr. Majeed, we also carry forward his vision: to make natural, evidence-based healthcare accessible to all. On behalf of the family of Society for Ethnopharmacology, India, we offer this tribute in deep respect and heartfelt remembrance of a man whose work will continue to inspire generations.



Figure 1. i-Connect: Business Meet during the SECON 2024 on 15th November 2024

The Society for Ethnopharmacology, India (SFE-India) will always remember Dr. Majeed for his visionary contributions in bridging traditional knowledge systems with modern science. His unwavering support and encouragement greatly advanced our mission to explore and validate nature- and tradition-based therapeutics. Dr. Majeed's ideas and inspirations knew no bounds. His commitment to promoting India's rich heritage of traditional medicine through collaborative research, capacity building, and entrepreneurship development has left an indelible mark. Through our collective efforts, we aim to honour India's heritage, harness the power of modern science, and build a resilient, healthy, and prosperous nation.



The Society for Ethnopharmacology, India (SFE India) and the Organizing Committee of SECON 2025 extend their sincere gratitude to Sami-Sabinsa Group Limited for their support to the i-Connect Program.

SAMI-SABINSA GROUP



Prof. Pulok K. Mukherjee, PhD, FRSC
Founder Society for Ethnopharmacology (SFE-India)

"Science gives vision to tradition, and tradition gives roots to science."

It is with great pleasure that I extend a warm welcome to all participants of the Industry Connect – Business Meet on "Indian Botanicals for Global Markets: Challenges & Opportunities," organized by the Society for Ethnopharmacology (SFE-India) and hosted by the Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi.

India is globally recognized for its extraordinary diversity of medicinal plants, herbs, and traditional healing systems that form the foundation of Ayurveda, Unani, Siddha, and other indigenous medical traditions. The Indian botanical sector holds immense promise to contribute to global herbal, nutraceutical, and functional food markets. Yet, this opportunity comes with complex challenges ensuring quality and safety standards, fulfilling regulatory requirements, enabling sustainable sourcing of bioresources, managing efficient supply chains, and protecting intellectual property. Addressing these challenges strategically is essential to transform India's traditional medicine resources into globally competitive, evidence-based products.

The *i-Connect* Program is not merely an event; it is a movement inspired by the conviction that India's heritage of healing can shape the medicine of tomorrow. When we established SFE-India in 2013, our dream was to build a scientific bridge that honors centuries of traditional wisdom while upholding the rigor of modern validation. Over the years, SFE-India has grown into a vibrant community of scientists, innovators, entrepreneurs, and students who together have reimagined ethnopharmacology as a force for innovation, sustainability, and economic empowerment. Since its inception, SFE-India has been dedicated to promoting ethnopharmacology, integrating traditional knowledge with modern scientific approaches, and facilitating collaborative research and innovation. Through its national and international conferences, workshops, policy dialogues, and industry–academia partnerships, the society has strengthened India's position in the global landscape of natural products and herbal research.

The Centre of Excellence in Unani Medicine, Jamia Hamdard, provides a fitting setting for this Industry Connect a confluence of academic excellence, translational research, and industry engagement driving meaningful outcomes for all stakeholders. This initiative marks a significant step toward bridging traditional knowledge systems, scientific research, and global business opportunities in herbals, nutraceuticals, and dietary supplements. It also represents a milestone in our mission to align India's traditional wisdom with modern innovation and evidence-based development.

The *i-Connect* Business Meet embodies this vision of transforming dialogue into collaboration and collaboration into enterprise. From the first *i-Connect* in Imphal to the present gathering in New Delhi, each edition has strengthened this bridge, connecting farmers to formulators, researchers to regulators, and start-ups to investors. This Industry Connect is designed as a

comprehensive platform for academia, industry stakeholders, entrepreneurs, policymakers, and regulatory authorities to deliberate on shared challenges, exchange knowledge, and forge collaborations. Through expert sessions, case studies, and networking opportunities, participants will gain practical insights into market trends, global regulations, clinical validation, and commercialization strategies. The meet will also provide guidance on leveraging research, innovation, and evidence-based validation to position Indian botanicals competitively in the international arena.

i-Connect 2025 continues this legacy under the theme “Indian Botanicals for Global Markets – Challenges and Opportunities.” It emphasizes sustainability, biodiversity conservation, and responsible bioresource utilization ensuring that the growth of India’s botanical sector remains both ethical and ecological. Discussions will explore quality assurance, clinical research, intellectual property, regulatory compliance, and market access, enabling innovators and entrepreneurs to build products that are authentic, safe, and scientifically validated.

Moreover, the meet highlights the vast potential emerging from global demand for natural and safe healthcare solutions — herbal therapeutics, nutraceuticals, dietary supplements, and functional foods. It encourages all stakeholders to adopt modern analytical techniques, standardization protocols, and quality control systems while preserving the authenticity and cultural heritage of Indian medicine. By fostering collaboration, innovation, and sustainability, this initiative seeks to enhance India’s global footprint in the botanical and herbal sector and drive bioeconomic growth.

This year, we dedicate the meet to the late Dr. Muhammed Majeed, whose pioneering contributions to the herbal industry exemplify how vision, perseverance, and ethical entrepreneurship can globalize Indian science. I am confident that the Industry Connect – Business Meet will generate valuable insights, strategic partnerships, and new pathways for innovation, ultimately contributing to India’s emergence as a global leader in high-quality, scientifically validated botanicals and herbal products. This platform also offers an invaluable opportunity for participants to network, share experiences, and co-create solutions for the evolving challenges and opportunities within the herbal sector.

On behalf of SFE-India, I express my heartfelt appreciation to all collaborators, industry leaders, participants, and the organizing team at Jamia Hamdard for their commitment in making this initiative a success. Together, let us harness the potential of Indian botanicals to drive innovation, ensure sustainability, and elevate India’s global standing in traditional medicine and ethnopharmacology.

Let this gathering remind us that our greatest strength lies in collaboration. By aligning scientific credibility with cultural integrity, India can lead the world in developing safe, effective, and sustainable natural-product innovations. Let us globalize local knowledge and localize global technologies for a healthier, sustainable world.

— Prof. Pulok K. Mukherjee
Founder, Society for Ethnopharmacology (SFE-India)



Prof. Sayeed Ahmed
Organizing Secretary,
SECON 2025
Jamia Hamdard, New Delhi



Dr. C K Katiyar
Vice President, Society for
Ethnopharmacology INDIA
& Chairperson *i-Connect* SFE

It gives us great pleasure to welcome all distinguished guests, industry leaders, researchers, entrepreneurs, and policymakers to the Industry Connect - Business Meet on the theme "Indian Botanicals for Global Markets- Challenges & Opportunities", organized as a part of SECON 2025. This event is being held in cherished memory of Dr. Muhammed Majeed, a visionary scientist, entrepreneur, and pioneer in promoting Indian botanicals on the global stage.

The Industry Connect - Business Meet aims to provide a vibrant platform for dialogue between academia, industry, and policy stakeholders to identify key opportunities and challenges in the global botanical trade. India's biodiversity and heritage of traditional medicine represent an immense reservoir of therapeutic potential. However, realizing this potential requires collaborative efforts in areas such as quality standardization, regulatory harmonization, intellectual property protection, and sustainable sourcing practices.

Dr. Majeed's lifelong dedication to translating the wisdom of traditional Indian medicine into scientifically validated, globally accepted herbal products continues to inspire generations of researchers and innovators. His legacy exemplifies the bridge between traditional knowledge and modern science demonstrating how Indian botanicals can lead the way in developing sustainable, evidence-based healthcare solutions for the world.

This Meet seeks to encourage strategic partnerships that promote innovation, investment, and ethical commercialization of herbal products derived from India's rich flora. It is also an opportunity to explore how traditional wisdom, when coupled with cutting-edge research and advanced technology, can lead to globally competitive natural products that contribute to both human health and economic growth.

In remembering Dr. Muhammed Majeed, we honor his vision of a world where nature and science coexist in harmony transforming India into a global leader in the nutraceutical and phytopharmaceutical sectors. His contribution continues to light the path toward a future where Indian botanicals achieve their rightful place in global healthcare and trade.

We extend our heartfelt welcome to all participants and wish that this Industry Connect - Business Meet fosters meaningful collaborations and paves the way for a sustainable and globally recognized Indian botanical industry.

— Prof. Sayeed Ahmed
Centre of Excellence in Unani Medicine, Jamia Hamdard, New Delhi

— Dr. C K Katiyar, Vice President, Society for Ethnopharmacology INDIA
& Chairperson *i-Connect* program

Society For Ethnopharmacology (SFE-India)

The Society for Ethnopharmacology (SFE-India) is a not-for-profit scientific organization established in 2013 under the West Bengal Societies Registration Act (1961). It is officially affiliated to the International Society for Ethnopharmacology (ISE), Switzerland. For more details please visit: www.ethnopharmacology.in

Vision & Mission

- Vision: *To globalize local knowledge and localize global technologies,* fostering sustainable development and ethical innovation in traditional medicine.
- Mission: To promote the scientific validation, documentation, and dissemination of traditional medical knowledge and to strengthen India's leadership in the global herbal industry by creating frameworks for research, regulation, and responsible commercialization.

Core Objectives

- **Scientific Advancement** – Encourage interdisciplinary research in ethnopharmacology, pharmacognosy, phytochemistry, and translational herbal sciences.
- **Knowledge Dissemination** – Organize international and national conventions, thematic symposia, and training programs to bridge academia and industry.
- **Capacity Building** – Empower young scientists, students, and entrepreneurs through mentorship, scholarships, and skill-development initiatives.
- **Ethical Standardization** – Advocate for quality, safety, and efficacy standards aligned with global guidelines.
- **Sustainability & Biodiversity** – Promote conservation and sustainable utilization of medicinal and aromatic plants (MAPs).
- **Entrepreneurial Ecosystem** – Facilitate innovation, incubation, and start-up creation based on validated ethnomedicinal knowledge.

National Footprint and Global Engagement

From its headquarters in Kolkata, SFE-India coordinates 18 regional chapters and more than 2,000 active members across India. These chapters collaborate with universities, AYUSH and other government organizations, research laboratories, NGOs, and industries to promote training, research, and societal outreach. Internationally, SFE-India partners with organizations and universities in the USA, Europe, and Asia, enabling exchange programs, collaborative projects, and participation in ISE's global conferences. Through these networks, the Society advances India's role as a knowledge partner in global ethnopharmacology, aligning indigenous traditions with modern scientific frameworks.

International Society for Ethnopharmacology (ISE)

The International Society for Ethnopharmacology (ISE) was established in 1990 and is headquartered in Switzerland. It serves as a worldwide network of scientists, researchers, health-care professionals, and policy leaders dedicated to advancing knowledge on traditional medicines, natural products, and ethnobiological resources.

ISE's vision is to foster responsible, ethical, and evidence-based use of traditional medical knowledge through interdisciplinary research and global cooperation. ISE is dedicated to the study of the pharmacological actions of plants, animals, insects, and other organisms used in medicines of indigenous and modern, past and present cultures. The society encourages cultural respect, sustainability, and benefit-sharing between knowledge holders and scientific institutions.

The major objective of the ISE is to promote Ethnopharmacology as a scientific field of research. The society is dedicated to the exchange of information and understandings about people's use of natural products and their bio-prospecting. For more details please visit: www.ethnopharmacology.org

Jamia Hamdard University

Founded in 1989 under the visionary leadership of Hakeem Abdul Hameed, Jamia Hamdard (Deemed to be University) has emerged as one of India's foremost centers of excellence in health sciences, traditional medicine, and biomedical research.

The Centre of Excellence in Unani Medicine (Pharmacognosy & Pharmacology) at Jamia Hamdard, New Delhi, is a premier hub for advanced research and innovation in Unani medicine. Supported by the Ministry of AYUSH, Government of India, the Centre focuses on the standardization, validation, and scientific evaluation of Unani formulations and natural products.

It integrates traditional wisdom with modern pharmacological approaches to ensure evidence-based healthcare solutions. Through collaborative research, training, and technological advancements, the Centre continues to strengthen the global recognition of Unani medicine as a safe, effective, and sustainable healthcare system. For more details please visit: www.jamiahamdard.ac.in.

The SFE, India *i-Connect*: Business Meet

The *i-Connect* business was conceived by SFE-India in 2023 as a strategic initiative to bridge the long-standing divide between academic research and industrial application in ethnopharmacology and traditional-medicine sciences. Its founding vision was to ensure that the vast body of Indian research on medicinal plants and formulations could be translated into scalable, globally compliant products and technologies. The program aligns with national priorities articulated in *Viksit Bharat* and *Atmanirbhar Bharat Abhiyan*, supporting India's emergence as a leader in the herbal and natural-product bioeconomy.

Our Mission & Vision

Mission

To create a collaborative ecosystem that connects academia, industry, policymakers, and entrepreneurs accelerating the translation of traditional medicine and ethnopharmacological knowledge into scientifically validated, commercially viable, and globally competitive innovations. Through shared values of integrity, inclusiveness, and sustainability, *i-Connect* nurtures partnerships that transform India's botanical wealth into evidence-based healthcare solutions for the world.

Vision

To position India as a global hub for traditional-medicine-based innovation and bio-entrepreneurship fostering a sustainable bioeconomy that aligns traditional wisdom with cutting-edge research, digital technology, and international standards. We envision a future where every medicinal plant cultivated, every formulation developed, and every product exported carries the stamp of scientific validation, ethical sourcing, and Indian excellence.

Strategic Pillars of the Vision

Pillar	Description	Outcome
Evidence	Promote rigorous pharmacological, preclinical, and clinical validation of herbal formulations.	Strengthened scientific credibility and acceptance worldwide.
Entrepreneurship	Empower start-ups and MSMEs with access to mentorship, funding, and regulatory guidance.	Creation of scalable business models rooted in ethnopharmacology.
Sustainability	Encourage biodiversity conservation, fair trade, and green chemistry.	Ecological balance and farmer empowerment.
Globalization	Align Indian herbal products with WHO, EU, and USFDA regulatory pathways.	Expansion of India's herbal export footprint.

Education	Build next-generation expertise through training and cross-disciplinary collaboration.	Skilled human capital driving future innovation.

Evolution and Impact

Each successive edition has expanded the scope and influence of the program:

- ***i-Connect* 2023 (Imphal, Manipur):** Initiated regional bio-enterprise development and highlighted North-East India's biodiversity.
- ***i-Connect* 2024 (Jammu & Sikkim):** Fostered collaboration between CSIR labs, academia, and industries on phytopharmaceutical development.
- ***i-Connect* 2025 (Belagavi):** Focused on start-up incubation, MSME support, and rural herbal entrepreneurship.
- ***i-Connect* 2025 (New Delhi):** Marks the program's national consolidation under SECON 2025 bringing together **policy, science, and business** under one unified theme: *"Indian Botanicals for Global Markets – Challenges & Opportunities."*

Strategic Objectives of *i-Connect*

1. **Bridge Academia and Industry:** Convert laboratory knowledge into validated commercial products.
2. **Encourage Entrepreneurship:** Foster start-ups rooted in traditional medicine and local innovation.
3. **Promote Evidence-Based Practices:** Strengthen research quality, reproducibility, and data transparency.
4. **Enhance Regulatory Readiness:** Guide industries through AYUSH and FSSAI compliance frameworks.
5. **Advance Sustainability:** Link herbal supply chains to biodiversity conservation and fair-trade models.
6. **Facilitate Global Competitiveness:** Enable Indian companies to meet EU, USFDA, and WHO standards.

Why it Matters

India possesses one of the richest repositories of ethnopharmacological knowledge in the world, yet a significant portion remains underutilized. The *i-Connect* platform empowers stakeholders to transform this intellectual capital into socioeconomic assets generating employment, encouraging local innovation, and ensuring global recognition for Indian botanicals. Through dialogue, collaboration, and strategic action, *i-Connect* demonstrates how science, policy, and enterprise can converge to build a future where traditional wisdom fuels sustainable modern industry.

Industry Connect - Business Meet

In the memory of beloved "Dr. Muhammed Majeed"

"Indian botanicals for global markets Challenges & Opportunities"

October 30, 2025 (11:00 AM onwards)

Auditorium (Nano building 3rd floor) JAMIA HAMDARD, New Delhi
11:00 AM – 01:30 PM



Prof. Rabinarayan Acharya
Director General, CCRAS
Ministry of AYUSH, New Delhi



Dr. Koustubha Upadhyaya
Adviser (Ay.) Ministry of AYUSH
Govt of India, New Delhi



Dr. Ravindra Singh
Director
Food Safety and Standards Authority of India
New Delhi, India



Sh. Anil Mehta
Director, Regulatory Compliance
Food Safety and Standards Authority of India,
New Delhi



Dr. Ajit Kumar Shasany
Director
CSIR- National Botanical Research Institute (CSIR-NBRI)
Lucknow, India

Dr. Mohammad Khalid
Dept of Ayush,
NCT of Delhi



Dr Debashish Panda,
Joint Adviser (Ayurveda), Ministry of AYUSH,
Govt. of India, New Delhi



Prof. Pulok K. Mukherjee
Founder, SFE-India & Chairman, Scientific Services, SECON 2025

"Indian botanicals for global markets Challenges & Opportunities"



Prof. Ikhlas Khan
Director
National Center for Natural Products
University of Mississippi, USA



Dr. Roy Upton
Executive director, and editor of the American Herbal Pharmacopoeia (AHP)



Dr. Anju Majeed
Director & Sr. Scientist
Sami Sabinsa Group
Bengaluru, INDIA



Shri. Ranjit Puranik
MD & CEO
Shree Dhootapapeshwar Ltd.
Mumbai, MH, India



Prof. Domenico Delfino
Associate Professor
University of Perugia, Perugia, Italy



Prof. Hongjie ZHANG
Chair Professor in Chinese Medicine
Honk Kong Baptist University, Hong Kong



Dr. U V Babu
Head-R&D
Himalaya Drug Company
Bangalore, India



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Vice President – Agri Biotechnology
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New Delhi, India



Dr. R Govindrajan
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Kapiva, New Delhi



Dr. Ashok BK
Senior Research Scientist
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Bangalore, India



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Associate Professor
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University of East London, UK



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Patanjali Ayurved Limited
Dhanpura, Haridwar, Uttarakhand



Dr. Baidyanath Mishra
Head- R&D (Healthcare)
Dabur India Limited,
Ghaziabad, Delhi NCR, India



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General Secretary of the Indian Pharmaceutical Association (IPA)



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Dr. MA Nambi
Research Coordinator
Care Keralam ,
Thissur, Kerala, India



Mr Zahid
Owner of Khojati Herbal



Dr Mateeullah Majeed
founder and CEO of
Maqs Remedies



Dr Salman Khalid
Managing Director of Fehmina Herbals



Dr. Irena Choma
Faculty of Chemistry
University of M. Curie-Skłodowska
Lubin, Poland



Dr. Subhra Devi
Meira Foods
Imphal, Manipur, India



Prof. Fang-Rong Chang
Professor
Kaohsiung Medical University
Kaohsiung, Taiwan



Mr. Hitesh Patel
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K Patel Phyto Extraction Pvt. Ltd
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Mr Mansoor Ali
Chief sales and Marketing officer
Hamdard



Dr. Aboli Girme
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Senior Vice President
Zeon Lifesciences Ltd



Dr Mohammed Kamil
Director General
Lotus Holistic Health Institute
Abu Dhabi, UAE



Dr Arun Gupta
Managing Director
Ayuswasth Ltd.
Faridabad, India



Mr Anand Sharma
Corporate Head
Eureka
Sonipat, Haryana, India



Dr Gaurav Gupta
consultant orthopedic surgeon (specializing in arthroscopic surgery) Fortis



Dr Nazish Islahi
Founder of Islahi Dawakhana



Dr. Atul Jadhav
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Dr Sanjay Sharma
National Sales & Customer Manager Hindustan Unilever Ltd



Dr Sateesh Chauhan
Vice president of Avitech Nutrition



Mr Mohd Arif
Managing director of Rex remedies



Mr Abdul Wahid Khan
Vice President at BIS Research National Institute of Pharmaceutical Education



Mr Amandeep Singh
Founder & CEO of Amaara food and Wellness pvt Ltd



Mr Nabeel Anwar
General secretory of Drugs Laboratories



Mr Arjun Vohra
CEO of Avitech Nutrition



Mr Mohsin Dehlvi
CEO of Dehlvi Group of Companies



Mr Hakeem Ghulam Mohiuddin
CEO of Simla pharmacy



Mr Mohd Naushad
Founder of Auliya Herbals

Mr Mohammed Amjad Ali
Faiz, Dawakhana Faiz Unani

Dr Asim Akhatar
General Practitioner,General Physician and General Surgery & Gasteroenterology

Mr Mohammed Jalees
Managing Director of Limra Remedies

Mr Mohd Sadiq Babla
Managing Director of IMC Unani

Mr Hakeem Arbab Uddin
Director of bv sadar Laboratories

Mr Mudassir Jamal
Founder of Bakhshi and CO. Kolkata

Mr Amit Varma
Co-founder of Ayurfresh Green

Mr S Muneer Azmat
Owner of NEW ROYAL PRODUCTS

Mr Sahil Khan
Managing Director of Atiya Herb

Dr Shahid Bux,
Shafin Herbal Care

Mr Akshay Charegaonkar,
Anchrom, Mumbai

Dr Arun Srivastava,
J-Amada Remedies

Mr Shakeel Jameel
Managing Director of Sana Herbals Private Limited

Mr Shahroz

Dr Khalid Md. Saifullah,
Naturoveda Organics Pvt. Ltd.

Hakeem M. Kashif Zakai,
Neelam Dawakhana

Dr Sanjay Nipanikar

Dr Gaurav Sharma

Dr Arun Srivastava,
J-Amada Remedies

Mr Anwar Ali Khan,
Ahmed and Company

Mr Shahroz Khan & Rishab Awasthi,
Ideal Natural Extract

Dr Arun Srivastava,
J-Amada Remedies

Mr Aijaz Ahmed 'Aijazi,
Naaz Herbal Pharmacy

Mr Sayed Samar Ahmed,
Mega Impex, UAE

Mr Animesh Katiyar,
Fur Ball Story

Mr Parvez Ahmed Khan,
Rahat Herbal Care

Hakeem Uzair Baqai,
Baqai Health Care

Mr Shaikh Intekhab Alam,
Advanced Pakiza Unani Pune LLP

Mr Intekhab Alam,
Zilaxo

Mr Yasmanil Usmani, Herbo Drugs & Pharmaceuticals

Mr Maqbool Hasan,
Nature & Nurture Healthcare

Mr Shahroz Khan & Rishab Awasthi,
Ideal Natural Extract

Verticals

Stalwarts of herbal industries in India will share their knowledge and experience on the following verticals:

Vertical 1: Extract Manufacturers & Exporters

Raising India's Standards in Herbal Extraction and Global Trade

India ranks among the world's top five producers of botanical extracts. However, inconsistent quality standards, limited traceability, and insufficient clinical validation continue to hinder export growth. This vertical unites leading extract manufacturers, analytical chemists, and regulatory experts to establish a national blueprint for quality, sustainability, and global competitiveness.

Strategic Context

Indian companies export over 600 types of botanical extracts to more than 120 countries. With the global nutraceutical market projected to exceed USD 500 billion by 2027, India's ability to supply scientifically authenticated, sustainably sourced extracts will determine its strategic position in the global herbal economy.

Core Objectives

- Advance quality and standardization of herbal actives.
- Strengthen India's export capabilities through global certifications (GMP, ISO, USFDA).
- Encourage innovation in advanced extraction technologies.
- Promote collaborations for value-added, clinically backed ingredient development.
- Build stronger linkages between manufacturers, marketers, and global buyers.
- Foster sustainability and traceability across the extract supply chain.

Vertical 2: Medicinal & Aromatic Plant (MAP) Cultivation and Sustainable Supply

Empowering Farmers, Sustaining Nature

Over 80 % of raw materials used by India's herbal industries are still sourced from the wild. This vertical focuses on sustainable cultivation, ethical trade, and farmer empowerment through cooperatives, digital traceability, and inclusive supply-chain development.

Strategic Context

By enabling structured MAP cultivation, India can ensure biodiversity protection while strengthening rural livelihoods. The vertical aims to build resilient, vertically integrated supply chains linking cultivators to industries.

Core Objectives

- Build resilient, vertically integrated supply chains.
- Enhance value for primary collectors, farmers, and marginalized communities.
- Promote contract farming, buy-back mechanisms, and bioresource sustainability.
- Foster training, joint ventures, and women-empowerment initiatives.
- Reduce dependence on wild collection through planned cultivation.
- Address bottlenecks in infrastructure, planting material, and post-harvest stages.
- Advocate for government support for domestic and export growth.
- Form a *National MAP Task Force* to engage central and state agencies.

Vertical 3: Start-Up & Entrepreneurship Development

Translating Research into Enterprise

India's academic ecosystem generates thousands of herbal research outputs annually, yet few reach commercialization. This vertical nurtures ethno-entrepreneurs by connecting innovators with investors, mentors, incubators, and policymakers.

Core Objectives

- Organize entrepreneur-focused panels and networking mixers.
- Bridge the gap between product innovation and technology scalability.
- Strengthen compliance education for herbal start-ups.
- Promote scientist-founder collaborations for translational success.

Vertical 4: Manufacturing of Ayurveda, Siddha & Unani (ASU) Drugs

Modernizing Tradition through Quality and Compliance

The ASU sector forms the backbone of India's traditional medicine industry. This vertical focuses on harmonizing classical formulation wisdom with modern quality management, digital traceability, and global regulatory readiness.

Core Objectives

- Strengthen supply-chain integrity and raw-material traceability.
- Promote Good Agricultural and Collection Practices (GACP).
- Facilitate compliance with export regulations and documentation.
- Discuss emerging trends and challenges in formulation development.
- Enable funding, cluster formation, and technology transfer.
- Encourage commercialization of validated herbal products.
- Safeguard IP rights and traditional knowledge heritage.

Vertical 5: Nutraceuticals, Functional Foods & Ayurveda Āhār

Nutrition Meets Tradition for Preventive Health

India's nutraceutical sector is expanding at over 20 % CAGR, driven by growing consumer awareness and faith in natural remedies. This vertical integrates Ayurvedic dietary principles with modern food and nutrition science to create evidence-based, preventive-health solutions.

Core Objectives

- Strengthen scalable infrastructure for herbal and natural-product manufacturing.
- Establish Ayurveda Āhār as a key pillar in preventive healthcare.
- Utilize codified Ayurvedic knowledge in product development.
- Leverage traditional ingredients and food-based formulations.
- Advance bioavailability and formulation technology.
- Develop guidelines for health claims aligned with global standards.

Vertical 6: Medical & Regulatory Affairs of Herbals

Building Trust through Evidence and Ethics

This vertical strengthens confidence in herbal medicine through robust clinical validation, pharmacovigilance, and regulatory convergence. It emphasizes the role of science, ethics, and transparency in earning global trust for Indian botanicals.

Core Objectives

- Clarify regulatory pathways for herbal and traditional medicine products.
- Strengthen medical-affairs practices in ethnopharmacology-based products.
- Establish clinical-trial design frameworks suitable for herbals.
- Enhance regulatory documentation and intellectual-property protection.

What Awaits You at *i-Connect* 2025

Build Industry–Academia Partnerships

Experience India's most vibrant interface between science and enterprise. *i-Connect* serves as a dedicated bridge linking researchers, innovators, and key players from the herbal, nutraceutical, and pharmaceutical sectors. Through purposeful dialogue and collaboration, it transforms laboratory discoveries into market-ready solutions that meet global standards.

Expected Outcomes:

- Joint R&D and technology-transfer initiatives
- Industry-supported validation and standardization programs
- Collaborative pathways for clinical research and commercialization

Learn from Top Industry Experts

Engage with leading panelists and thought leaders from over fifteen prestigious Indian and international organizations across herbal pharmaceuticals, nutraceuticals, biotechnology, and regulatory affairs. These experts will share insights on innovation pipelines, evolving market dynamics, and global best practices—helping participants understand how science and business converge in the herbal domain.

Key Learnings:

- Case studies on successful herbal and natural-product ventures
- Comparative insights into global quality and pharmacopoeial standards
- Strategies for scientific communication and evidence synthesis

Unlock Ethno-Entrepreneurship Opportunities

The program is a launchpad for innovators and start-ups seeking to translate traditional wisdom into sustainable enterprises. Participants gain access to investor networking, incubation support, and founder–scientist collaborations that promote ethical, evidence-based entrepreneurship.

Highlights:

- Dedicated Start-up Pavilion and mentorship clinics
- Interactive investor roundtables and pitch sessions
- Workshops on intellectual property, funding access, and regulatory readiness

Explore Specialized Verticals

Engage with domain experts across six focused verticals—from extract manufacturing and MAP (Medicinal and Aromatic Plant) cultivation to ASU (Ayurveda–Siddha–Unani) manufacturing, nutraceutical innovation, start-up development, and regulatory affairs. Each vertical offers targeted discussions, case studies, and collaboration opportunities tailored to participants' professional interests.

Focus Areas:

- Quality and sustainability in herbal supply chains
- Innovation in nutraceutical formulations and Ayurvedic Āhār
- Regulatory compliance and international market access strategies

Gain National and Global Exposure

Affiliated with the International Society for Ethnopharmacology (ISE), *i-Connect* attracts delegates, entrepreneurs, researchers, and policymakers from across India and abroad. It offers unmatched visibility within international forums on herbal research and bio-trade, enabling participants to forge global partnerships and enhance their professional stature.

Key Gains:
- Inclusion in the SFE-India × ISE global collaboration network
- Opportunities for cross-border research, training, and fellowships
- Exposure to CSR alliances and sustainable bio-trade initiatives

Contribute to National Missions

Aligned with Viksit Bharat and Atmanirbhar Bharat, *i-Connect* champions sustainable development, biodiversity conservation, and inclusive growth within India's herbal bioeconomy. It highlights how traditional medicine can advance national objectives in healthcare innovation, rural livelihood creation, women's empowerment, and circular-economy models.

Opportunities for Impact:
- Participation in policy dialogues with AYUSH, FSSAI, and CSIR
- Collaboration on white papers and strategic recommendations
- Contribution to the *National Roadmap for Indian Botanicals 2030*

Advance Your Career and Network

Whether you are a student, researcher, clinician, or industry professional, *i-Connect* 2025 provides unparalleled opportunities for mentorship, skill enhancement, and professional visibility. Build lasting relationships with key leaders, engage in collaborative projects, and join curated networking sessions designed to accelerate both career and personal growth.

Benefits:
- Direct mentorship from academic and industry experts
- Recognition for innovation and research excellence
- Access to exclusive career-building and collaboration platforms

Access Global Thought Leaders

Learn from distinguished international scholars and practitioners who will share visionary insights on the evolving future of herbal and traditional medicine. Their sessions will explore regulatory harmonization, clinical research design, quality assurance, and the integration of traditional knowledge into contemporary healthcare.

Insights to Gain:
- Emerging trends in global herbal markets
- Scientific frameworks for standardization and validation
- Pathways to enhance the global credibility of Indian botanicals

A Movement Beyond a Meeting

i-Connect 2025 is more than a business meet; it is a mission-driven movement to empower India's herbal sector, enhance its global competitiveness, and transform ancient wisdom into sustainable, evidence-based healthcare solutions.
This platform stands as a catalyst for innovation, policy advancement, and entrepreneurship, positioning India at the forefront of ethnopharmacology and natural-product sciences.

Join us to collaborate, innovate, and grow together toward a future where Indian botanicals become a cornerstone of global health and sustainable prosperity.

Impact & Legacy of Past *i-Connect* Events

From Regional Dialogue → National Framework → Global Recognition

Since its inception in 2023, the *i-Connect* Program of the *Society for Ethnopharmacology, India (SFE-India)* has grown from a modest regional initiative into India's foremost industry–academia bridge for ethnopharmacology and herbal innovation. Each edition has contributed distinct insights together forming the backbone of SFE-India's translational-science mission.

Evolution of *i-Connect*: A Chronological Journey

i-Connect Program: Business meet, ISE SFEC 2023
22nd International Congress ISE & 10th International congress SFE

Theme: Bioeconomy from Bioresources – Development of Entrepreneurship



Panel lists: Industry leaders and experts from 15 renowned companies including foreign experts in ethnopharmacology and healthcare participated as panelists.

Focus Areas: Bioeconomy of northeast region, Ethnopharmacology and herbal drug development, Entrepreneurship and regulatory insights.

February 25, 2023
Manipur, Imphal, India

Academia – Industry collaboration for the development of value-added product/process/technologies

11th International Congress of Society for Ethnopharmacology, India (SFEC 2024)

Theme: *"Development of Phytochemical Drugs - Tradition to Translational"*







Panelists: Experts from more than 20+ industries including foreign guests have joined this program to share their insights for better Industry – academia collaborations.

Focus Areas: Phytomolecule enriched drugs, traditional knowledge, research commercialization, and Industry-Institute Partnership

February 16, 2024
CSIR-IIIM, Jammu, India

i-Connect Program During SECON 2024

"Dr. Muhammed Majeed Memorial Session"

11th Convention of Society for Ethnopharmacology, India & International Conference (SECON 2024)

Theme: *Industry experts discuss innovation, research, and collaboration in ethnopharmacology and herbal medicine.*





Panelists: Industry leaders from more than 27 reputed industries have joined this program and shared their opinion in fostering industry academia collaborative efforts.

Focus Areas: Traditional knowledge inspired drug development, extraction techniques, research commercialization, and regulatory insights.

November 15-16, 2024
Chintan Bhawan, Gangtok, Sikkim

Industry-Academia partnership Program During SFEC 2025

12th International Congress of Society for Ethnopharmacology, India (SFEC 2025)



Theme: Ethno-Entrepreneurship with Natural products for Atmanirbhar Bharat

Panelists: Industry leaders from more than 15 reputed industries have joined this program and shared their opinion in fostering industry academia collaborative efforts.

Focus Areas: Traditional knowledge inspired drug development, extraction techniques, research commercialization, and regulatory insights.

March 06, 2025
Belagavi, Karnataka, India

From Seeds of Knowledge to a Sustainable Future

The *i-Connect* 2025 Business Meet represents the culmination of years of collective learning under the Society for Ethnopharmacology, India (SFE-India). It embodies the transition from isolated research efforts to an integrated, multidisciplinary ecosystem that unites science, policy, and commerce for the betterment of humankind. This edition, hosted at Jamia Hamdard University, brings together over 1,000 delegates, 50 industries, and 25 international experts, symbolizing India's growing role as a global knowledge partner in herbal medicine. The event's outcome documents including, *"The National Roadmap for Indian Botanicals 2030"* and the *"Green Extraction Charter 2025"*, will serve as guiding references for policy, academia, and enterprise in the years ahead.

"The spirit of i-Connect is not confined to conferences; it lives in collaborations that continue long after the event has ended."

We celebrate the synergy of traditional wisdom, scientific integrity, and entrepreneurial courage. Together, these values will enable India to build an herbal ecosystem that is globally competitive, ethically grounded, and economically empowering.



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Society for Ethnopharmacology
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SFE India and the SECON 2025 Organizing Committee sincerely thank the following organizations for their valuable support to the i-Connect program.

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SOCIETY FOR ETHNOPHARMACOLOGY
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SOCIETY FOR ETHNOPHARMACOLOGY (SFE)

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Affiliated to:

International Society for Ethnopharmacology

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Society for Ethnopharmacology, Kolkata is registered under West Bengal Society Registration Act 1961

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About Jamia Hamdard

The history of Jamia Hamdard begins with the establishment of a small Unani clinic in the year 1906 by Hakeem Hafiz Abdul Majeed, one of the well-known practitioners of Unani System of Medicine of his time. Hakeem Hafiz Abdul Majeed had a vision of making the practice of Unani Medicine into a scientific discipline so that Unani medicines could be dispensed in a more efficacious manner to patients. He gave the name "Hamdard" to his venture which means "sympathy for all and sharing of pain". His illustrious son, Hakeem Abdul Hameed, carried forward the philosophy and objectives of Hamdard in independent India. Even at the time of partition of India in 1947, Hakeem Abdul Hameed was dreaming of setting up a complex of educational institutions which would concentrate on highlighting the contribution of Islam and Islamic culture to Indian civilization and development of Unani medicines for curing diseases.

Our Vision

To provide international quality higher education and undertake cutting-edge research in the fields of social, natural science and technology and particularly promote study of modern and traditional medicine systems, especially Unani-tibb, encompassing a holistic and integrative approach to healthcare and to meet societal education needs of underprivileged Indian communities.

Our Mission

a) To promote and advance the cause of higher education through modern methods of teaching and advanced research in such branches of knowledge as the Jamia Hamdard may continue to develop core-competence for and as may be in consonance with the emerging needs of India in general and underprivileged communities in particular.
b) To co-operate, collaborate and associate with national and international organizations and institutions in any part of the world having mission wholly or partly similar to those of Jamia Hamdard and as per the provision of the UGC regulations in place from time to time.
c) To provide avenues for higher education leading to excellence and innovations in such Branches of knowledge as may be deemed fit primarily at under-graduate, post-graduate and doctoral levels, fully conforming to the concept and idea of the Jamia Hamdard.

Glimpse of Jamia Hamdard Campus



ABOUT SPER

The School of Pharmaceutical Education & Research is one of the most prestigious institutions of Pharmacy Education in India, has been ranked as No.1 among Pharmacy in National Institutional Ranking Framework (NIRF) in the years 2017, 2019, 2020, 2021, 2022 & 2025 and Ranked as No. 2 in 2018 & 2023 by the Ministry of Education, Govt. of India, among the Pharmacy Institutions of India.

Established in the year 1972 as Hamdard College of Pharmacy, affiliated to the University of Delhi with D. Pharm. and B. Pharm. and in 1982 upgraded to M Pharm and Doctorate programs. Named as Faculty of Pharmacy with the establishment of Jamia Hamdard in 1989, presently known as School of Pharmaceutical Education & Research (SPER). The school is approved and recognized by All India Council of Technical Education (AICTE) and Pharmacy Council of India (PCI).

The school offers Undergraduate (D. Pharm., and B. Pharm.), Postgraduate and Doctoral program in Pharmaceutics, Pharmaceutical Chemistry, Pharmacology, Pharmacognosy, Quality Assurance, Pharmaceutical Analysis, Pharmacy Practice and Pharmaceutical Biotechnology). In addition, offers Ph.D. in Pharmaceutical Medicine a unique, first in country collaborative program being run in collaboration with Sun Pharmaceutical Industries Ltd. The school at present enrolls more than 1000 students.

The school has collaborations both from academic and research institutions. Industry sponsored projects are also being executed for companies like Sun Pharma, Dabur Research foundation, Jubilant Life Sciences, AIMIL Pharmaceuticals, Dolphin International, Fermish Clinical Technology, GBC, Beijing, China and Ultimax Health, USA etc.

The school is research driven institution where most of the Departments are extensively involved in basic and advanced research activities, which is signatory of >2500 publications with > 40000 citations and >75h index with various books and patents. All the departments at present are receiving support under DST-FIST program and Special Assistance Program (SAP) of University Grants Commission (UGC) at DRS Phase I and Phase II levels. Research activities within all the departments of SPER are well-funded and in the last 5 years, the departments have received research grants over from various funding agencies such as CSIR, DST, ICMR, UGC, AICTE, DRDO, BIRAC, DBT, CCRAS and CCRUM.

Thrust areas of research include: Drug targeting through nanomedicine, Herbal drug technology and standardization, Metabolomics, Computer aided drug design, Design and synthesis of new chemical entities & natural product chemistry, Design and synthesis of antidiabetic and anticancer agents, Neuropharmacology and Cardiovascular pharmacology.

The school has a well-established central instrumentation facility (CIF) with modern and sophisticated instruments like cryogenic Transmission electron microscope (TEM), LC-MS, NMR, HPLC, HPTLC, DSC, UV-VIS spectrophotometer, FT-IR, AFM, etc. Facility for interdisciplinary research namely flow cytometry, confocal microscopy, western blot analysis and electrophoresis, wet lab synthesis,

Microwave-assisted organic synthesis (MAOS), cell line studies and other cutting-edge techniques are also available.

The school is active in organizing national/international conferences, seminars, symposia, faculty development programs and workshops covering all the facets of pharmaceutical sciences thereby offering a holistic development to our students and faculty. The e-PG Pathshala (an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC) modules have been prepared to provide high quality, curriculum-based, interactive e-content in various subject areas of Pharmaceutical Sciences by faculty of SPER.

Activities like blood donation camp, health camp, awareness programs dealing with safe use of medication, antibiotic awareness, smoking cessation, role of pharmacist as a health care provider are being done on regular basis.

Different scholarships/fellowships are available for needy and meritorious students for all the programs. The Ph.D. scholars and GPAT qualified M. Pharm students are funded by various government funding agencies in the form of projects or fellowships.

About CoE BNPL

The Centre of Excellence in Unani Medicine CoE (Pharmacognosy and Pharmacology) is a state-of- the-art research facility at the School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi. CoE in Unani Medicine is funded by the Ministry of AYUSH, Government of India, and is dedicated for conducting advanced scientific investigations on Traditional Unani Medicine UnderAyurswasthyaYojana Scheme. The Centre maintains valuable research collaborations with renowned industries, including Hamdard, Dabur, Aimil, Universal Biotech Ltd., Transformative Learning Solutions Pvt Ltd, DolcasBotanosys Pvt Ltd, Tulip Lab Pvt. Ltd. India, Avitech Nutrition Pvt. India, AyuSwasthPvt. Ltd. Additionally, we have established collaborative partnerships with educational institutions both within India and abroad, including NCNPR at the University of Mississippi (USA) and the University of Khartoum (Sudan), as well as St Petersburg University, Russia, etc. CoE in Unani Medicine hosts over 25 research scholars, including postdoctoral fellows, Ph.D. candidates, and master's students. With ongoing projects worth more than 15 crores, it has successfully acquired modern sophisticated equipment through project grants. Additionally, a vast collection of over 500 costly reference standards and 350 preserved raw materials are invaluable to our research endeavors.

CoE offers a range of facilities, including: GC-MS with ECD and Head Space Online Library, SCFE (Supercritical Fluid Extractor), Flash Chromatography, HPTLC (High- Performance Thin-Layer Chromatography), ICP-MS (Inductively Coupled Plasma Mass Spectrometry), Stability Chamber, Zebrafish Housing System, Fume Hoods, BSL-3 (Biosafety Level 3) Laboratory, Biosafety Cabinet, Laminar Flow Hood, Microscopy, Software Tools: Biorender, Mass Fragmenter, XL-Stat, GraphPad Prism. Conference Hall with Seating for 80 Attendees Equipped with Digital Audio/Visual Projector and high-definition Video Cameras for presentations and recordings and we have also on-site cafeteria to cater. These facilities significantly enhance our center's capacity for advanced research, analysis, and collaborative activities.

VISION

To provide highest quality cutting-edge research in the field of traditional Indian medicine especially Unani, encompassing a holistic and integrative approach to healthcare to meet societal needs by utilizing modern concepts of drug development

MISSION

- Development of a world class accredited laboratory for strengthening of research on AYUSH (Unani) Medicine and Food supplements.
- Development of a Center for Training and Research on AYUSH drugs and food products for their quality control, preclinical evaluation and for certification.
- Development of a Center for excellence in quality analysis of AYUSH drugs for quality product development at par with the global consumer needs.

Website link of CoE: https://www.bnpl.org.in/

SOCIETY FOR ETHNOPHARMACOLOGY

"Globalizing local knowledge and localizing global technologies"

23/3 Shaktigarh, Jadavpur, Kolkata 700032

Website: www.ethnopharmacology.in

Activities of Society for Ethnopharmacology, India (Year: 2024-2025)

11.1. About Society:

After the grand success of the 12th International Congress of International Society for Ethnopharmacology (ISE), organized by the School of Natural Product Studies, Jadavpur University, Kolkata in February 2012, the Society for Ethnopharmacology was constituted in 2012 under the visionary leadership of Prof. Pulok Kumar Mukherjee. The Society is extremely grateful to Late Dr. APJ Abdul Kalam, former President of India, for his inspiration and support since its inception. The Society for Ethnopharmacology, India (SFE-India) is a registered society under the West Bengal Society Registration act and affiliated to the International Society for Ethnopharmacology (ISE), Switzerland. Society for Ethnopharmacology, India (SFE-India) was constituted in 2013 by the eminent academicians, researchers, industrialists and others with the vision of providing an environment for knowledge sharing among industrialists, researchers, students, healthcare practitioners, decision-makers and others interested in promotion of Ethnopharmacology and medicinal plant. The Society is extremely grateful to Late Dr. A.P.J. Abdul Kalam, former President of India, for his inspiration and support since its inception.



The mission of the society is promotion and development of traditional medicine and medicinal plants through dissemination of knowledge and development of collaboration and cooperation with its vision on:

"***Globalizing local knowledge and localizing global technologies***"

The society organizes conferences, seminars, symposiums, workshops etc. in different parts of India and abroad for discussion and sharing knowledge on different issues for cultivation, production, quality evaluation, safety, clinical studies, biological screening and several other issues of natural product research. The Society helps in forming bridge between the academia and industry for developing cost effective natural remedies. Presently the Society has several local chapters with dynamic coordinators for individual local chapters and members across the country. Society of Ethnopharmacology, India (SFE-India) is dedicated for the dissemination of knowledge and information through different educational programs throughout India.

To accomplish its mission and vision, the society has 16 local chapters in different regions of India with active leadership of coordinators. The society has organized several national and international events throughout the country since its inception. SFE, India has so far organized over 60 scientific programs including its 11 International Congress, 10 national conventions, 18 traditional healers meet, 08 business meet: Industry connect (i-connect) program and several capacity building and training programs. To explore traditional practices, SFE has taken several initiatives in establishing a global platform to explore and disseminate ethnopharmacological knowledge for the development of ethnic healthcare practices. SFE has been working to provide an ideal platform to establish the linkage between academia and industries for benefit sharing and promotion of start-ups based on the development of herbal medicinal products through the Industry Connect program. This will help to promote Ethno-entrepreneurship.

11.1.1. The major activities of the society are:

- Dissemination of knowledge for promotion and development of Ethnopharmacology and medicinal plants.
- Provide environment for knowledge sharing among stake holders interested in Ethnopharmacology
- Traditional medicine inspired drug discovery and promotion of Traditional Medicine
- Organize conference, seminars, symposiums, workshops, capacity building and training
- International and National collaboration for promotion and development of TM and medicinal plant research.
- Promote Industry-Academia interaction, development of Start-ups & Ethno-entrepreneurship
- Organize *i-connect: Business Meet program* for entrepreneurship development
- Recognize outstanding contribution through different Awards
- Promoting Medical pluralisms to develop inclusive healthcare strategies
- Conducting research in the area of Ethnopharmacology and traditional healthcare.

11.2. Details of the local chapter coordinators of SFE-India:

The society has established multiple local chapters to aid in the dissemination of knowledge. SFE local chapters are situated in different regions from India including Belgaum, Bhopal, Bhubaneswar, Delhi, Gujarat, Guwahati, Imphal, Jammu, Jorhat, Lucknow, Mangalore, Mumbai, Mohali, Mysuru, Nagpur, Pune and others with active leaderships of the local chapter coordinators.

11.3. Membership of Society for Ethnopharmacology:

Over the past few years, the number of active members in SFE India has witnessed a remarkable surge, signaling a growing and engaged community. This increase reflects the organization's success in fostering meaningful connections and providing valuable resources to its members. SFE India's commitment to promoting ethnopharmacology and knowledge-sharing about traditional medicine has attracted a diverse range of individuals, contributing to the expansion of its active membership base. The organization's emphasis on creating a supportive and collaborative environment has been a key factor in sustaining this positive trend. As more professionals recognize the benefits of being part of SFE India, the community continues to thrive, exemplifying a vibrant network that is well-connected and dedicated to advancing shared goals in the field.

11.4. SFE Annual Awards:

To recognize the outstanding contribution in the area of medicinal plant research and Ethnopharmacology, the Society has instituted several awards which are conferred during the International congress of the society every year. Details of the award have been mentioned below:

a) SFE - *Lifetime Achievement Award*
b) SFE - *Outstanding International Ethnopharmacologist Award*
c) SFE - *Outstanding National Ethnopharmacologist Award*
d) SFE - *ZANDU Award for "Best Research on Plant Drugs"*
e) SFE - *Outstanding Service Award*
f) SFE - *T. Sen Oration Award*
g) SFE - *Herbal Industry Leader Award*
h) SFE – *Traditional Healers Award*
i) SFE - *Special Recognition Award*
j) SFE - *Outstanding Local Chapter Award*
k) SFE - *Best publication in Ethnopharmacology and Traditional Medicine research Award*
l) SFE - *Young Ethnopharmacologist Award*
m) SFE - *Young Researcher Award*
n) SFE - *Best Poster Presentation Award*

11.5. Activities of SFE (2023-2025)

The society has organized several seminars, webinars, conference etc. throughout the country since its inception. Some specific activities of the Society for Ethnopharmacology, India its different local chapters are as follows:

11.5.1. Special program on "Bioeconomy to Nutrieconomy: Promoting Food as Medicine", during Bharat Nutraverse Expo 2025 at New Delhi on September 04, 2025

Bharat Nutraverse Expo 2025, a flagship initiative under the Bharat Global Health Expo, 2025 was organized by Shellac Export Promotion Council (SHEFEXIL) at New Delhi during September 04-06, 2025. During this mega event a unique special program was organized on September 04, 2025 by the Society for Ethnopharmacology, India on the theme of "Bioeconomy to Nutrieconomy: Promoting Food as Medicine." It was inaugurated by Shri Piyush Vedprakash Goyal, Hon'ble Minister of Commerce & Industry, who highlighted the

government's commitment to innovation and growth in the nutraceutical sector. Prof. Ajay Kumar Sood, Principal Scientific Advisor to the Government of India, also graced the occasion, reinforcing national efforts toward advancing nutraceutical research and innovation. The session was chaired by Prof. Pulok Kumar Mukherjee, Jadavpur University and Founder of the Society for Ethnopharmacology, India. In his keynote address, Prof. Pulok Kumar Mukherjee, Jadavpur University, chaired the session, emphasizing the paradigm shift from a bioeconomy to a nutrieconomy, where food and nutrition serve as powerful tools for disease prevention, wellness, and sustainable healthcare. Deliberations highlighted India's potential to lead the global nutraceutical movement by combining traditional knowledge systems like Ayurveda, Siddha, and Sowa Rigpa with modern biotechnology. Discussions focused on food as medicine, global collaborations, integration of omics technologies, and sustainable nutraceutical value chains.

Experts highlighted the need for regulatory harmonization, scientific validation of traditional formulations, and public-private-academic partnerships (PPAP) to strengthen innovation and commercialization under Make in India and Atmanirbhar Bharat initiatives. The session also underlined eco-responsible sourcing and rural empowerment through nutraceutical crop cultivation for health, sustainability, and economic growth.



Some glimpses of the technical session Bioeconomy to Nutrieconomy: Promoting Food as Medicine held on 04 September 2025 during the Bharat Nutraverse Expo 2025

11.5.2. 12th International Congress of the Society for Ethnopharmacology, India (SFEC 2025) organized at KLE College of Pharmacy, Belagavi, Karnataka, India during March 06-08, 2025

The 12th International Congress of the Society for Ethnopharmacology, India (SFEC 2025) was organized from March 6–8, 2025, at the KLE Centenary Convention Centre, Belagavi, Karnataka. This prestigious international event was jointly hosted by KLE College of Pharmacy, KLE Academy of Higher Education and Research (KAHER), and the Society for Ethnopharmacology (SFE), India, in association with the ICMR-National Institute of

Traditional Medicine (ICMR-NITM), Belagavi. The central theme, “Ethnopharmacology: Integrating Traditional Health Practices and Contemporary Medical Science”. This event was attended by over 650 participants from 16 different countries all over the globe. Over three days, SFEC 2025 featured keynote, plenary, and panel sessions covering diverse topics—metabolomics-based quality control of herbal medicines, regenerative medicine, integrative therapeutics, antimicrobial resistance, and sustainable innovations in natural products. Panel discussions like “Ethno-entrepreneurship for Atmanirbhar Bharat” and “Innovative Product and Process Technologies from Botanicals” provided a platform for policy experts, entrepreneurs, and academicians to explore avenues of herbal industry innovations. A major highlight was the Traditional Healers’ Meet, focusing ancestral knowledge dissemination, strategies for preservation and scientific validation of indigenous practices. Scientific sessions included oral and poster presentations, featuring over 150 posters and numerous oral papers under categories such as phytochemistry, pharmacognosy, pharmacology, and clinical applications. A concurrent exhibition was also hosted with the involvement of 22 reputed organizations, showcasing advancements in herbal product research. This congress reaffirmed India’s pivotal role in advancing ethnopharmacology through science-led innovation bridging traditional and modern medicine integrative approach to global health.



Inauguration and lighting of the inaugural lamp during SFEC 2025 at Belgavi, India



Inauguration of Conference proceedings of SFEC 2025 at Belgavi, India



Glimpses of the SFE Award Ceremony during the SFEC 2025 at Belgavi, India



Traditional Healers' Meet during SFEC 2025 at Belagavi, India



Dignitaries, Speakers of SFEC 2025 at Belagavi, India



Valedictory Program of the 12th International Congress of SFE, (SFEC 2025)

11.5.3. 11th International Convention of Society for Ethnopharmacology organized during November 15-16, 2024 at Gangtok, Sikkim

The 11th Convention of the Society for Ethnopharmacology and International Conference on "Bioeconomy from Bioresources: Promoting Traditional Resources of NER for Viksit Bharat" (SECON-2024) was organized by Institute of Bioresources and Sustainable Development (IBSD) and the Society for Ethnopharmacology (SFE), held during November 15-16, 2024, at Chintan Bhawan, Gangtok, Sikkim. The event brought together over 400 delegates, including scientists, traditional healers, industry leaders, and policymakers from more than 15 countries emphasizing the importance of bioresources in fostering a sustainable bioeconomy. This event included 15 scientific plenary sessions, a traditional healers' meet, an industry connect program, and a special session by the Royal Society of Chemistry. These sessions explored topics like ethnopharmacology in drug discovery, sustainable cultivation of medicinal plants, traditional healthcare practices, and the application of artificial intelligence in bioresource management and development. Poster presentations, flash talks, and technical sessions provided a platform for knowledge sharing and nurturing the expertise of different renowned scientist across the globe. This Convention featuring 125 posters, 40 oral presentation and 44 flash talks. The event highlighted collaboration between modern science and traditional knowledge, emphasizing entrepreneurship and biomanufacturing to transform the bioeconomy of India specially the Northeast region.





Inauguration of the Convention @SECON2024



i-Connect: Business Meet @ SECON 2024



Exhibition at Gangtok, Sikkim @ SECON 2024



Convention (SECON 2024) at Gangtok, Sikkim, India

11.5.4. International conference on "Indian Medicinal Plants in Drug Discovery: Tradition, Science & Innovation" held on January 21-22, 2025, at Jadavpur University, Kolkata.

The International Conference on "Indian Medicinal Plants in Drug Discovery: Tradition, Science & Innovation," was organized by School of Natural Product Studies, Jadavpur University, Kolkata during January 21-22, 2025, at Jadavpur University, Kolkata. The conference featured 02 keynote lectures, 18 plenary lectures, 65 poster presentations and 35 oral presentations. This prestigious event brought together over 250 participants, including stalwarts from academia, industry, policymaking, and traditional healthcare practitioners, representing different states of India and 03 different countries. The conference was played an ideal platform for scientific discussion, distribution and propagation of ideas among professionals, and traditional healers towards drug development from Indian Medicinal Plants with modern scientific intervention to bridge modern science with ancient traditional wisdom. SFE, India is very much thankful to Prof. Pallab Kanti Haldar, EC member of the Society for Ethnopharmacology, for his significant contributions to organizing this event.





Inauguration of International Conference at Jadavpur University, Kolkata



Award distribution



Valedictory Program

11.5.5. National Conference on Antimicrobial resistance organized during April 04-05, 2024 at Science City, Kolkata

The Antimicrobial Resistance Conference (AMRC) 2024, held on April 4-5, 2024, in Kolkata, India, focused on combating antimicrobial resistance (AMR) through India's bioresources. Jointly organized by the Society for Ethnopharmacology (SFE), ICMR-NICED, and IBSD, it attracted over 300 delegates from diverse fields to address the growing threat of antimicrobial resistance (AMR). It brought together experts to explore innovative strategies, leveraging India's rich bioresources. Key figures like Prof. Padmanabhan Balaram and Prof. Pulok K. Mukherjee emphasized the urgency of addressing AMR. This event focused on exploring bioresources for developing safe and efficacious next-generation antimicrobials. Key topics included therapeutic interventions against resistant pathogens, medicinal plants as potential antimicrobial agents, and infection prevention in healthcare. Eminent speakers delivered lectures on innovative approaches to AMR management, including targeting bacterial efflux pumps and using natural products as bacterial pump inhibitors. The conference featured scientific sessions on bioresources, innovative antimicrobials, and infection control, as well as panel discussions on bioresource utilization and policy aspects. The event fostered collaboration between academia, industry, and traditional healers, laying the groundwork for future AMR research and policy initiatives for the development of new-generation antimicrobials. The conference featured 60 poster presentations and 15 oral presentations. With over 300 participants, including researchers, healthcare professionals, and industry leaders, this conference served as a robust platform for knowledge-sharing and collaboration. This conference highlighted the potential of bioresources to combat AMR by integrating traditional knowledge with modern science and successfully laid the foundation for impactful collaborations and innovative solutions to tackle this global health challenge.



Inauguration of the Conference (AMRC 2024)



Participants of the Conference (AMRC 2024)



Participants at the Conference @AMRC 2024

11.5.6. 11th International Congress of Society for Ethnopharmacology organized during February 16-18, 2024 at CSIR-IIIM, Jammu, India

The 11th International Congress of the Society for Ethnopharmacology, held from February 16-18, 2024, at CSIR-IIIM, Jammu, focused on "Ethnopharmacology for the Development of Phytopharmaceuticals." Jointly organized by the Society for Ethnopharmacology and CSIR-IIIM, the event explored medicinal plants, traditional remedies, and their modern healthcare applications. The event highlighted the rich diversity of medicinal plants and indigenous knowledge, focusing on their integration into modern healthcare. The Congress was inaugurated by Dr. Jitendra Singh, Union Minister of State (I/C) for Science & Technology, along with Dr. N. Kalaiselvi, Director General of CSIR, and Prof. Pulok K. Mukherjee, founder of SFE & Director, BRIC-IBSD, Prof. Marco Leonti, Secretary, International Society for Ethnopharmacology. The Congress featured 12 keynote lectures, 78 plenary sessions, and 165 oral presentations across three days. Topics included bioprospecting of plants, traditional knowledge integration, and phytopharmaceutical development. The sessions were chaired by 60 experts from academia and industry.

A highlight was the Traditional Healers' Conclave, where more than 100 practitioners from across India shared knowledge on folklore medicine. The i-Connect program served as a business meet to foster academia-industry collaboration. The congress was attended by 1,520 delegates and 84 speakers from 18 countries, delivering keynote lectures and participating in 78 plenary sessions. Key themes included traditional knowledge, intellectual property rights, bioeconomy, and phytopharmaceutical development through integration of cutting-edge research.



Inauguration of SFEC 2024



Guests @ SFEC 2024



Traditional Healers Meet @ SFEC 2024



IIIM Jammu @ SFEC 2024

11.6. Introducing Fellow of the Society for Ethnopharmacology (FSFE)

The Society for Ethnopharmacology (SFE) is proudly introduce the Fellow of SFE (FSFE) from this year onwards. The introduction of this fellowship marks a milestone in SFE's journey. This distinguished fellowship has been instituted to honor and recognize eminent professionals and scientists from India and abroad, who have made outstanding and sustained contributions to the advancement of ethnopharmacology, traditional medicine, and allied sciences.

11.6. Special initiative – "SFE-Jigyasha – a popular scientific writing competition"

This year onwards, the Society for Ethnopharmacology also introduced a popular scientific writing competition for the graduate, post graduate and PhD students in the field of ethnopharmacology and allied field. This unique scientific writing competition provides a creative platform to the young minds to express their scientific understanding and storytelling abilities. Through this effort, SFE seeks to nurture scientific communication skills among emerging scholars and inspire broader public interest in this field, as well.

11.7. Special program on "I-connect: Business Meet"

The Society for Ethnopharmacology organizes the "i-connect: Business meet program" during the Annual International convention. This unique event session will be highlighting on the current scenario for the promotion and development of herbal industries. This program also provides the ideal platform to establish the linkage between academia and industry for benefit sharing and promotion of start-ups based on the development of herbal medicinal products.

11.8. Special program on "Traditional Healers' Meet"

To preserve, promote and protect traditional healthcare practices, the Society for Ethnopharmacology (SFE), India, has been organizing a Special Session on "Traditional Healers' Meet" in different conferences including Annual Convention and Congress every year. This unique initiative aims to recognize the invaluable contribution of traditional healers, folk practitioners, and indigenous knowledge holders, who have praticing ancient healing wisdom through generations. It brings together traditional practitioners, researchers, academicians, and policymakers to exchange knowledge, share experiences, and discuss ways to integrate traditional healing systems into contemporary healthcare frameworks. Through this initiative, the Society aims to empower traditional healers, promote evidence-based validation of their practices, and create sustainable pathways for integrating traditional healthcare systems into the national health

11.9. Special Issues of reputed Journals published with the help of SFE:

A Special issue on "Reimagine Ethnopharmacology: Globalization of Traditional Medicine" has been developed by the Society for Ethnopharmacology, India and published in the Journal of Ethnopharmacology Elsevier Science, USA. This special issue has been made based on the scientific deliberations made in the International Ethnopharmacology Congress and Bioresource Conclave (ISE-SFEC 2023), Imphal, India under the editorship of Prof. Pulok K Mukherjee, Founder SFE.

11.10. Newsletter of SFE:

The society is publishing the Newsletter regularly in different aspects for development and promotion of medicinal plants and Ethnopharmacology involving the members of the society. We are very much excited by the keen interest of our members of SFE from a diverse number of institutes and industries throughout the country to share the knowledge in this regard. With our limited strength, esteemed efforts and keen interest of our members we have been working for the promotion and development of medicinal plants and ethnopharmacology in various ways.

We cordially invite you all to join SFE-India in our efforts of "Globalizing local knowledge: localizing global technologies" for a healthier tomorrow, capitalizing the very rich heritage and culture that is so ethnic, so ancient and yet so Indian.

Executive Committee Member



Mr. Birendra K Sarkar
President



Prof. Pulok K Mukherjee
Founder



Mr. Indraneel Das
Vice-President



Dr. C. Katiyar
Vice-President



Dr. Amit Kar
Secretary



Mr. Amitava Das
Treasurer



Prof. Pallab Kanti Haldar
EC Member



Dr. Subhash Chandra Mandal
EC Member



Dr. Bishnu Pada Saha
EC Member



Dr. Kakali Mukherjee
EC Member



Prof. Sanmoy Karmakar
EC Member



Dr. Debprasad Chattopadhyay
EC Member



Mr. Anjan Saha
EC Member

SFE Local Chapter Coordinators



Dr. Rajesh Singh Pawar
Bhopal Local Chapter



Dr. Pramod HJ
Belgaum Local Chapter



Dr. Sayeed Ahmad
Delhi Local Chapter



Dr. Chandana Barua
Guwahati Local Chapter



Dr. Alka Mukne
Mumbai Local Chapter



Prof. K. Mruthunjaya
Mysuru Local Chapter



Dr. P R Itankar
Nagpur Local Chapter



Dr. Sathiyanarayanan L.
Pune Local Chapter



Dr. Nanaocha Sharma
Eastern Himalaya Local Chapter



Dr. Jatin Kalita
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SOCIETY FOR ETHNOPHARAMCOLOGY, INDIA
SFE ANNUAL AWARDS – 2025

To recognize the outstanding contribution in the area of Ethnopharmacology and medicinal plant research, the Society for Ethnopharmacology, India has instituted several awards. The society received several Nominations for the annual awards 2025. We are happy to confer these awards to those who have made potential contribution in this area.

SFE - Lifetime Achievement Award – 2025

"Sibeswar Saha Memorial Award" – which has been instituted in the memory of Sri Sibeswar Saha by the society.



Dr. Shekhar C. Mande, is a renowned structural and computational biologist whose pioneering work has greatly advanced molecular biology, and computational approaches. His ground breaking research has provided critical insights into protein-protein interactions and tuberculosis biology. Dr. Mande has held esteemed positions, including Director General of the Council of Scientific and Industrial Research (CSIR), India, and Secretary of the Department of Scientific and Industrial Research, Ministry of Science and Technology. He also served as the Director of the National Centre for Cell Science, Pune. Currently, he is a Distinguished Professor at Savitribai Phule Pune University, Chair of the Governing Board of the National Council of Science Museums. Dr. Mande has received numerous accolades, such as the Shanti Swarup Bhatnagar Prize for Science and Technology (2005), Aryabhatta Medal of the Indian National Science Academy (2021), and Bharat Asmita Award (2019). An elected fellow of the Indian National Science Academy and Indian Academy of Sciences.

Based on his outstanding contribution for the promotion of ethnopharmacology and medicinal plant research, the Society for Ethnopharmacology, India is honored to confer the "SFE Lifetime Achievement Award - 2025" to Dr. Shekhar C. Mande.

SFE - Outstanding International Ethnopharmacologist Award-2025

"Pranab Banerji Memorial Award" - instituted by the Society for Ethnopharmacology.



Dr. Ikhlas Khan, Director of the National Center for Natural Products Research (NCNPR) and the FDA Center of Excellence at the University of Mississippi, is celebrated for his outstanding contributions to the research and development of natural products. His pioneering work has redefined global approaches to the standardization, quality assurance, and safety of herbal products. Dr. Khan has made significant advancements in analytical fingerprinting and bioanalytical techniques with a prolific academic career spanning over 840 research publications and numerous invited lectures. Dr. Khan's remarkable achievements have earned him numerous prestigious honors, including the University of Mississippi Distinguished Professor Award (2018), Wiley Award (2018), Qihuang International Prize (2017), and the Varro E. Tyler Prize (2011).

Based on the outstanding contribution of Dr. Ikhlas Khan, Society for Ethnopharmacology, India is honoured to confer him the "SFE - Outstanding International Ethnopharmacologist Award - 2025"

SFE-T. Sen Oration Award – 2025

This award is instituted by society in the memory of Prof. Tuhinadri Sen, who was a very active member of the Society for Ethnopharmacology, India.



Dr. Ajit Kumar Shasany is the Director of CSIR–National Botanical Research Institute (NBRI), Lucknow, with over three decades of distinguished research in plant molecular biology, functional genomics, and biotechnology. He has authored 151 research papers (h-index 44), holds 127 patents (including 51 US patents), and developed 47 plant varieties. A Fellow of INSA, NASI, and NAAS, he pioneered the complete genome sequencing of "Tulsi" and has led impactful initiatives for tribal welfare through aromatic plant cultivation under CSIR Aroma Mission. His leadership integrates scientific innovation with societal and industrial applications.

Considering his contribution in the field ethnopharmacology and traditional medicine, Society is honored to confer Dr. Ajit Kumar Shasany with the "SFE-T Sen Oration Award - 2025".

SFE- Outstanding Service Award – 2025

"Pratim Banerji Memorial Award" – this award has been instituted by Society for Ethnopharmacology supported by Parker Robinson Pvt. Ltd., Kolkata, in memory of beloved president of SFE-India Dr. Pratim Banerji.



Dr. Koustubha Upadhyaya is a key figure in India's Ministry of AYUSH, holding the position of Adviser (Ayurveda). With deep expertise in Ayurveda and Dravyaguna (the study of Ayurvedic medicinal plants), his work focuses on policymaking and regulation within the field of traditional Indian medicine. Dr. Upadhyaya is committed to integrating AYUSH into mainstream healthcare and insurance, improving quality standards, and fostering collaboration between research institutions and the industry. One of his key contributions has been the integration of AYUSH treatments into mainstream healthcare systems. He was instrumental in providing valuable insights for the regulatory guidelines released in 2016, a significant milestone that aligned AYUSH treatments with insurance offerings. Dr. Upadhyaya has also consistently championed higher standards within the AYUSH industry.

For his outstanding contribution for Medicinal Plant Research and for development and promotion of the Society for Ethnopharamcology, India, the Society for Ethnopharmacology, India is honored to confer Dr. Koustubha Upadhyaya the "SFE- Outstanding Service Award – 2025"

"SFE - Special Recognition Award- 2025"

- instituted by the society for Ethnopharmacology.



Prof. Sayeed Ahmad, is working in Department of Pharmacognosy and Phytochemistry, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi as Professor since 2005. He is also Director of Center of Excellence in Unani Medicine (Pharmacognosy and Pharmacology) and Head Department of Food Technology, Jamia Hamdard, New Delhi. He has published above 300 peer reviewed papers in national and international journals, and authored three books. Prof. Sayeed Ahmad, coordinator, Delhi Local Chapter, SFE and organizing secretary of the 12th International Convention of SFE, India (SECON 2025). Prof. Sayeed has been working a lot for the promotion and development of SFE-India through different activities of Local Chapter to achieve the mission of the society.

For the outstanding contribution of Delhi local chapter and contribution towards development & promotion of the Ethnopharmacology; SFE-India is honored to confer the "SFE - Special Recognition Award - 2025" to Prof. Sayeed Ahmad.

SFE- Traditional Healers Award – 2025

"Sudharani Mukherjee Memorial Award" – this award has been instituted by Society for Ethnopharmacology supported by Prof. Pulok Kumar Mukherjee.



Raj Vaidya Shridhar Desai is a renowned traditional folk healer from Joida, Uttara Kannada, having 30 years' experience in holistic healing with traditional practices. He is a founding member of the Karnataka State Healers Association, and collaborated with the Ministry of AYUSH and various academic institutions. He received multiple awards, including the Best Achiever Award (2023) for his contributions to traditional medicine. For his contribution for promotion and development of traditional healing practices, the Society for Ethnopharmacology, India is honored to Raj Vaidya Shridhar Desai the "SFE- Traditional Healers Award - 2025"



Vaidya Awadhesh Kumar Kashyap, a traditional healer from Bilaspur, Chhattisgarh, has over 23 years of experience in indigenous healing practices rooted in local ethnomedicine. He continues to contribute to the preservation and promotion of folk medicine and natural healing traditions. For his contribution for promotion and development of traditional healing practices, the Society for Ethnopharmacology, India is honored to Mr. Awadhesh Kumar Kashyap the "SFE- Traditional Healers Award - 2025"

SFE - Herbal industry leader award -2025

"Dr. Shivaji Rao Kadam Award- 2025"- this award has been instituted by Society for Ethnopharmacology supported by the Society for Ethnopharmacology Pune Local Chapter.

Shree Dhootapapeshwar Limited (SDL) is a Good Manufacturing Practice (GMP) certified Ayurvedic pharmaceutical company based in India with a long history of manufacturing traditional medicines, established in 1948. SDL manufactures a wide range of Ayurvedic healthcare products under its "Om Healthcare" brand. Its products include classical Ayurvedic formulations like Rasakalpa, Guggulkalpa, and Asav, as well as modern dosage forms like tablets and capsules. This company is GMP certified and following quality control protocols for both traditional Ayurvedic standards with modern analytical techniques.

Recognizing the contribution and outstanding business practice on promotion and development of medicinal plants and natural products, Society for Ethnopharmacology, India is honoured to confer the SFE - Herbal industry leader award "Dr. Shivaji Rao Kadam Award 2025" to Shri. Ranjit Puranik, Managing Director, Shree Dhootapapeshwar Limited.

SFE-Best Publication Award-2025

"Dr. Subodh Chandra and Mamata Mukherjee Memorial Award"- best publication in Ethnopharmacology and Traditional Medicine Research Award



Dr. Narayan Prasad Yadav is a Senior Principal Scientist at CSIR–Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, with expertise in herbal formulation, phytopharmacology, nanomedicine, and plant-based drug delivery. He has authored over 76 research papers**,** 20 patents**,** and several book chapters. He is the recipient of the ICMR Biomedical Scientist Award (2017) and multiple CSIR recognitions, Dr. Yadav's research bridges traditional medicine and modern therapeutic technologies. Based on his research paper on entitled "Development and characterization of fennel oil-loaded alginate polymeric beads for larvicidal activity against *Aedes agypti*, *Anopheles stephensi*, and wild mosquito larvae", Society for Ethnopharmacology, India is happy to confer the "SFE-Best Publication Award 2025" to Dr. Narayan Prasad Yadav.



Dr. Mridula Singh holds a Ph.D. in Pharmaceutical Sciences from the National Institute of Pharmaceutical Education and Research (NIPER), Mohali, specializing in natural products and phytochemistry. With over eight years of research and industrial experience, her expertise includes isolation and characterization of plant metabolites, analytical method development. She has published more than 10 research publication. and holds a patent. Based on his research paper on entitled "An alkaloid enriched fraction from *Murraya koenigii* (L.) Spreng. Leaves ameliorate HFD-induced obesity and metabolic complexities in C57BL/6J mice", the Society for Ethnopharmacology, India is happy to confer the Society for Ethnopharmacology, India is happy to confer the "SFE-Best Publication Award 2025" to Dr. Mridula Singh.

SFE – Jigyasa 2.0. Award 2025
"Shri Sekhar Dutt Memorial Award"

This year onwards, the Society for Ethnopharmacology also introduced a popular scientific writing competition for the graduate, post graduate and PhD students in the field of ethnopharmacology and allied field. This unique scientific writing competition provides a creative platform to the young minds to express their scientific understanding and storytelling abilities. Through this effort, SFE seeks to nurture scientific communication skills among emerging scholars and inspire broader public interest in this field, as well.



Ms Mini Gupta
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Ms. Megha Tonk
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Ms. Srinaya Ghosh
Pursuing M.Tech
Indian Institute of Technology, Bombay
B.Sc in Zoology Banaras Hindu University
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Honorary Fellow of the Society for Ethnopharmacology, India (FSFE)- 2025

The Society for Ethnopharmacology (SFE) is proudly introduce the Fellow of SFE (FSFE), a honor and recognition to the distinguished professionals contributed immensely in the advancement and promotion of ethnopharmacology, traditional medicine, and related disciplines. The society received several Nominations for the Fellow in 2025. These Fellows have been elected for their potential in this area.

Prof. Upadhyayula Suryanarayana Murty
Director
National Institute of Pharmaceutical Education and Research
(NIPER-Guwahati)
Katamur, Changsari, Guwahati
Assam 781101, INDIA
E-mail: director@niperguwahati.ac.in; murtyusn@gmail.com

Prof. USN Murthy is the Director of the National Institute of Pharmaceutical Education and Research (NIPER), Guwahati. With a Ph.D. in Zoology from Osmania University, he is a renowned expert in vector-borne disease management, computational biology, bioinformatics, and public health. Dr. Murty has made pioneering contributions to infectious disease modeling, natural product research, and pharmaceutical innovation. He has authored numerous high-impact research papers, book chapters, and edited volumes, including *Appropriate Technologies for Northeast India*. His interdisciplinary work bridges biomedical sciences and computational tools, significantly advancing pharmaceutical education and translational health research in India.

Fellow of the Society for Ethnopharmacology, India (FSFE)- 2025



Dr. N. Zaheer Ahmed
Director General
Central Council for Research in Unani Medicine (CCRUM)
Ministry of AYUSH, Govt. of India
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Dr. N. Zaheer Ahmed is the Director General, Central Council for Research in Unani Medicine (CCRUM), Ministry of Ayush, Government of India, is a distinguished expert in Unani Medicine (Moalejath – General Medicine). He has made pioneering contributions in evidence-based validation, phytochemical standardization, and clinical evaluation of Unani formulations. With over 150 research publications and 19 granted patents, several transferred to industry, Dr. Ahmed has advanced drug development and safety studies in traditional medicine. He played a key role in developing SOPs for Hijamah (Cupping Therapy), Standard Treatment Guidelines for major disorders, and contributed to WHO's ICD-11 for Unani terminology. Under his leadership, CCRUM achieved NABH and NABL accreditations and established global collaborations with institutions in Iran, South Africa, and Tajikistan.

Dr. N. Srikanth
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Dr. N. Srikanth is Deputy Director General of the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush, Government of India. With over three decades of experience, he is a distinguished scholar in Ayurveda, ethnopharmacology, and integrative medicine. His pioneering work includes clinical evaluation of Ayurveda-based interventions such as AYUSH-64 for COVID-19, development of standard treatment guidelines, and promotion of evidence-based traditional medicine. Dr. Srikanth has authored over 650 research publications, 200 books and monographs, and led translational research integrating Ayurveda with modern healthcare to advance global recognition of Indian traditional medicine.



Dr. Arvind Saklani
Vice President – Agri Biotechnology
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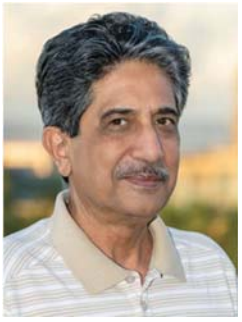
Dr. Arvind Saklani, D.Phil., is an eminent ethnobotanist and biodiversity expert with over 39 years of R&D experience in industry and government organizations. He currently serves as Vice President (Agri Biotechnology) at Sami-Sabinsa Group Ltd., Bangalore. His research focuses on Indian biodiversity, medicinal plants, ethnomedicines, and sustainable bioresource development. A former professor at NIPER Mohali, Dr. Saklani has contributed significantly to ethnopharmacology, nutraceutical innovation, and biodiversity conservation. He has authored two books, over 40 research papers, and holds several patents. A Fellow of multiple scientific societies, he is also a panel member of India's Nutra Task Force under the Principal Scientific Advisor.



Dr. Tapan K Mukherjee
Former-Scientist
CSIR–National Institute Of Science Communication and Policy Research (CSIR–NIScPR)
Former Editor, CSIR-IJTK
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Dr. Tapan K Mukherjee was the scientist in CSIR – National Institute of Science Communication and Information Resources (NISCAIR), New Delhi after completing studies from Rajasthan University, Jaipur, Rajasthan. Dr Mukherjee served as an Editor, Medicinal & Aromatic Plants Abstracts (MAPA), and Indian Journal of Traditional Knowledge published by CSIR-NISCAIR, New Delhi. Dr Mukherjee was also associated with Traditional Knowledge Digital Library (TKDL) since its inception to create the Digital Library of Indian Traditional Knowledge systems for defensive protection through IPR. Dr Mukherjee has experience of more than 35 years of in Science Editing, Research, writing scientific articles, Preparing Presentations and reports. Dr. Mukherjee is also the advisor, Society for Ethnopharmacology, India. Dr. Mukherjee is the Fellow of Indian Botanical Society.

Invited Lectures



Dr. Ikhlas Khan is the Director of the National Centre for Natural Products Research (NCNPR), Director of the FDA Centre of Excellence, Research Professor, as well as Professor in the Dept of Pharmacognosy at the National Centre for Natural Products Research at the University of Mississippi. Additionally, he is the Director for Sino-US TCM Research Centre; Dict., Centre for Research of Indian Systems of Medicine (CRISM); a visiting Professor at Hunan University of Chinese Medicine, China; an Adjunct Professor, Chinese University of Hong Kong; visiting professor for King Saud University, Saudi Arabia; Soochow University, and Heilongjiang University of Chinese Medicine, China. He received a D. Litt (Honoris Causa) from University of Hamdard, Delhi, India 2012; a B.S. in Chemistry in 1980 and a M.S. in Organic Chemistry in 1982 from the Aligarh Muslim University in Aligarh, India. Dr. Khan then received a Ph.D. in Pharmacy from the Institute fuer Pharmaceutische Biology in Munich, West Germany in 1987 and postdoctoral studies at Swiss Federal Institute of Technology (ETH) Zurich. Dr. Khan began his career with the University of Mississippi in 1992 as a research scientist. He became a Research Assistant Professor in 1995, and was promoted to Research Associate Professor and Director of the FDA program in 2001, Assistant Director of NCNPR in Oct. 2002, Professor in July 2005, to Associate Director in 2015 and most recently to Director in 2017. Dr. Khan's primary research interests include analytical fingerprinting for standardization of herbal products, and bio-analytical approaches to improvement of product quality and safety. Dr. Khan has authored or co-authored over 840 original research articles, publications, or reviews. He has been an invited speaker at numerous events. Dr. Khan serves as reviewer for several journals. Dr. Khan is the recipient of numerous awards, including: most recently he was awarded the "Waters' Lifetime Achievement Award 2025" ; "USP Award for Outstanding Contribution to the Standards FY23"; "Sheikh Zayed International Award for TACM 2022"; "University of Mississippi's Distinguished Professor, 2018"; "The Wiley Award, Association of Official Agricultural Chemists International, 2018"; "Qihuang International Prize of China Association of Chinese Medicine, 2017"; "Outstanding Contributions in TCM Analysis & Quality Standards, 2017"; "Mark Blumenthal Herbal Community Builder Award, 2017"; "Cumberland Pharmaceuticals, Inc. Research Award, 2016", "UM Distinguished Researcher Award, 2016", "IASTAM Zandu International Award for Excellence in Field of Ayurvedic and/or Natural Products", 2015, "Outstanding Contribution in Natural Product Research", Water's Corporation, given at the ICSB 2013, "The Cntr for Food Safety and Applied Nutrition" (CFSAN) Dict.'s Special Citation Award, 2012; the Varro E. Tyler Prize, the American Society of Pharmacognosy, 2011; the Nutrition Business Journal Education Award, 2011; and many more.

JH/SECON2025/KS-1

Bridging Tradition and Science: Strategies to Overcome Quality and Safety Challenges in Herbal Medicine

Ikhlas Khan

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Herbal medicines and products are gaining popularity worldwide, but they face significant challenges related to quality, safety, and scientific credibility. Although people often assume these natural remedies are safe, they frequently aren't standardized, so the amount of active ingredients can vary a lot from one batch to another. On top of that, issues like the addition of unlisted synthetic drugs, contamination with things like heavy metals and pesticides, and mistakes in identifying the right plants can create serious health risks, including dangerous side effects and unexpected interactions with other medications.

To tackle these problems, a multi-disciplinary approach that relies on solid scientific evidence is needed. Some necessary steps include: 1) Creating shared international rules to make sure companies follow strict standards for growing, collecting, and making herbal products. 2) Using modern but appropriate technologies to carefully control quality and confirm what's really in each product. 3) Spending more on research and clinical trials to clearly show what works, what doesn't, and how safe these products are. 4) Setting up strong, open systems to track and report any adverse effects from herbal medicines worldwide.

By combining traditional wisdom with modern science—and ensuring that herbs are produced safely and thoroughly checked—we can unlock the benefits of herbal medicine while also protecting people's health.



Dr. Domenico Vittorio Delfino, Physician, pharmacologist and pharmaceutical biologist with over 30 years of academic, clinical, and research experience. I graduated in Medicine and Surgery from the University of Perugia (1986) and earned a PhD in Experimental Medicine from Sapienza University of Rome. I began my international career as a Research Associate in Radiation Oncology at the University of Pittsburgh Cancer Institute (1991–1994), establishing a strong transatlantic scientific collaboration. Since 1995, I have served as a University Researcher in Pharmacology, and since 2001 as an Associate Professor at the University of Perugia. I have held several teaching leadership roles, including Chair of the Bachelor's Degree Program in Nursing in Foligno (2012–2021 and since 2024), and, since 2023, Director of the Master's Program in Physiotherapy for Musculoskeletal and Rheumatologic Disorders. In 2021, I transitioned from Pharmacology (BIO/14) to Pharmaceutical Biology (BIO/15), strengthening my commitment to ethnopharmacology. I am President of the International Society of Ethnopharmacology (ISE), where I have served as a member of the Board of Directors since 2021. I participate in the EU COST Action CA21151 on haplo-selected iPSCs and obtained National Scientific Qualification as Full Professor of Pharmacology in 2023. My scientific output includes 106 peer-reviewed publications, 6 book chapters, and 2 conference proceedings. I am Associate Editor of the Journal of Clinical Medicine, Vietnam Journal of Chemistry, and Istanbul Journal of Pharmacy. I have delivered 91 international scientific presentations and chaired the Scientific Committee of the Festival of Traditional Medicine (2016–2021). As a certified Clinical Pharmacologist, I collaborate on Phase 1 clinical trials in hematology and oncology, and coordinate international projects with institutions in over 10 countries. I combine scientific rigor, clinical expertise, and intercultural dialogue to innovate pharmacology and traditional medicine.

JH/SECON2025/KS-2

Cucurbitacin D from Elaeocarpus hainanensis: Bridging Traditional Medicine and Molecular Oncology through ZNF217 Modulation in NPM1-Mutated Acute Myeloid Leukemia

Domenico Vittorio Delfino

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Traditional medicinal plants have long served as a source of bioactive compounds with therapeutic potential, and their integration into modern molecular research continues to unveil novel anticancer agents. Elaeocarpus hainanensis, traditionally used in Asian ethnomedicine, contains cucurbitacin D, a tetracyclic triterpenoid known for its diverse pharmacological activities. In this study, we explored the effect of cucurbitacin D on NPM1-mutated acute myeloid leukemia (AML), a high-risk subtype with limited therapeutic options. Our findings demonstrate that cucurbitacin D significantly downregulates the oncogene ZNF217, a transcriptional regulator implicated in leukemogenesis and treatment resistance.

This modulation was associated with reduced leukemic cell proliferation, enhanced apoptosis, and restoration of tumor suppressor pathways. By linking a plant-derived natural product with a well-defined oncogenic target, this work illustrates the concordance between ancient knowledge and modern biomedical innovation. The study not only highlights cucurbitacin D as a promising lead compound for targeted AML therapy but also reinforces the relevance of ethnopharmacological resources in addressing contemporary challenges in oncology.



Prof. Shah Alam Khan, Ph.D., is Professor and Head of the Department of Pharmaceutical Chemistry at the College of Pharmacy, National University of Science and Technology, Muscat, Oman. With over 25 years of academic and research experience across India, Saudi Arabia, Oman, the USA, and the UK, he has made distinguished contributions to medicinal chemistry, drug design, phytochemistry, and ethnopharmacology. He has authored over 200 peer-reviewed research articles, 19 book chapters, and one edited book, with 10,700+ citations (h-index 44), and is consistently listed among the world's top 2% scientists (Stanford/Elsevier, 2021–2024). His research focuses on synthetic and natural product-based drug discovery, particularly targeting neurodegenerative, cancer, and inflammatory disorders. Prof. Khan has successfully led 16 funded research projects worth over $200,000 USD, and holds two Australian innovation patents and an Indian copyright. He serves as Associate Editor for *Frontiers in Chemistry* and *Future Integrative Medicine*, and is a reviewer for numerous international journals. Recipient of the Best Professor in Pharmacy (Oman 2023) and NU Best Researcher Award (2020–21), he has delivered 25+ invited talks at international conferences and institutions worldwide. Prof. Khan continues to inspire through his research leadership, mentorship, and dedication to advancing global pharmaceutical education and innovation.

JH/SECON2025/KS-3

Inhibitory effects of natural plant products on Cholinesterase activity: A rational approach for the development of anti- Alzheimer drugs

Shah Alam Khan

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Alzheimer's disease (AD) is among the most complex and devastating neurodegenerative disorders, representing a leading cause of dementia in the aging population. Despite decades of research, the precise pathophysiological mechanisms underlying AD remain incompletely understood, posing significant challenges for effective therapeutic development. Current pharmacological interventions provide only symptomatic relief. In recent years, natural products have emerged as promising candidates due to their multi-targeted neuroprotective properties, structural diversity, and favourable safety profiles. In this study, we systematically investigated 25 bioactive natural compounds found in medicinal plants native to Oman. Their molecular properties, drug-likeness, pharmacokinetic behaviour, and toxicity profiles were comprehensively evaluated using advanced cheminformatics approaches. Three lead compounds demonstrated optimal pharmacokinetic characteristics and compliance with drug-likeness criteria. These compounds were further subjected to in vitro assays, including antioxidant activity, cytotoxicity assessment, and inhibitory potential against acetylcholinesterase (AChE). To complement experimental findings, molecular docking studies were conducted, providing mechanistic insights into the binding interactions of the lead compounds with target enzymes. Our integrated in silico and in vitro analyses highlight the therapeutic promise of Omani medicinal plants as a source of novel anti-Alzheimer agents. The identified lead compounds warrant further preclinical evaluation as potential candidates for the development of safe and effective AD therapeutics.



Dr. Yuet Patrick Chiu, an independent scholar and pharmaceutical historian, has extensively researched the cross-cultural networks and exchanges that integrated Ayurvedic, Persian, and Southeast Asian botanicals, minerals, and animal-derived products into Chinese pharmacy. His work explores the remarkable transmission of remedies like the Triphala elixir, Chaulmoogra oil, myrrh, sandalwood, and turmeric from India to China since antiquity.

This talk delves into the fascinating history of how these exotic materia medica became incorporated into the Chinese pharmaceutical tradition. Chiu also discusses the latest research on the anti-cancer properties of turmeric. He is one of the two editors-in-chief of *the Handbook of History of Pharmacy in Asia*, with a section authored by leading Indian academics, practitioners and scientists of pharmacy.

JH/SECON2025/KS-4

Exotic Materia Medica and Chinese Pharmacy: A Journey of Two Millenia

Yuet Patrick Chiu

Hong Kong Society for The History of Pharmacy, Hong Kong Sar

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Professor Irena Choma graduated from the Faculty of Chemistry at Maria Curie-Skłodowska University in Lublin, Poland, in 1981. She obtained her PhD in 1990 and her habilitation in 2009. She has been associated with the University since the beginning of her scientific and teaching career, from the position of assistant professor to full professor. For many years, she has been conducting research on food quality assessment, specializing in the chromatographic analysis of antibiotic residues in milk, mainly using thin-layer chromatography combined with direct bioautography (TLC-DB). In recent years, she has been using TLC-DB and effect-directed analysis (EDA) to evaluate the biological activity of plant components and pharmaceutical plant preparations. Prof. Irena Choma is a member of the International Scientific Committee of HPTLC and editor of the Journal of Planar Chromatography – Modern TLC. She has been invited to lecture at numerous international conferences on chromatography.

JH/SECON2025/KS-5

Antioxidant properties and TLC bio-profiling of various cultivars of *Actinidia arguta*

Irena Maria Choma,

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Actinidia arguta, known as hardy, small, or mini kiwi, belongs to the genus *Actinidia* Lindl. (family Actinidiaceae), which also includes A. deliciosa (green kiwi) and *A. chinensis* (golden kiwi). *A. arguta* is highly tolerant to cold (down to -30°C), making it an attractive alternative to kiwi for cultivation in Europe. *A. arguta* has many health-promoting properties (anti-inflammatory, anti-cancer, anti-diabetic, anti-bacterial, and antioxidant). For this reason, and also because of its small size (similar to gooseberries) and thin, edible skin, *A. arguta* fruit is considered a "super snack." Currently, there are many cultivars of *A. arguta* with different biological profiles and sensory properties. TLC biological profiling of different cultivars of *A. arguta* fruit and shoots was performed to compare their composition and biological properties.



Dr. Tanveer Alam was born in Bijnor, India on 21st Jan. 1974. He received his Ph.D. Degree in the field of Natural Product Chemistry from Jamia Hamdard, New Delhi, India in 2000. From Nov. 2000 to Sept. 2001, he was a Post-Doctoral Fellow at School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi, India and worked on synthesis of water-soluble derivatives of Silymarin. Upon completion of his education, he started his career as an Executive-R&D in a Flavor & Fragrances Company and afterwords he served as General Manager & Head-R&D in different National & Multinational Natural Products Industries. Dr. Alam has more than 25 years of R&D and teaching experience in the field of Natural Products Chemistry. He has been worked as an Associate Professor in Eritrea Institute of Technology, State of Eritrea, and Scientist in Natural & Medical Sciences Research Center, University of Nizwa, Sultanate of Oman. He is Ph.D. supervisor at JJT, University, Rajasthan, India, faculty member at The Pan African University Institute of Life and Earth Sciences, *PAULESI*, Ibadan University, Ibadan, Nigeria, and BioNatural Healing College, California, USA. He is Advisory Board Member and consultant in Pharma & Natural Food Colors Industries. He is also a Member of Editorial Boards and Referee for more than fifty National & International Journals. He has published more than 70 research papers in different National & International Journals. He got one industrial patent on Natural Food Color (Anthocyanin). Since February 2023, *Dr. Alam* is working as a Lead Researcher at Sabanci University Nanotechnology Research and Application Center (SUNUM), Istanbul, Republic of Turkey.

JH/SECON2025/KS-6

Natural Food Colors: Sources, Stability, Formulations, and Their Applications

Tanveer Alam

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A color additive is any substance that imparts color to a food, drug, cosmetic, or to the human body. Color additives include both synthetic substances and substances derived from natural sources like plants and animals. Pigments of plant origin are attaining more importance worldwide as a potential source of natural food colors for their versatility and so as to avoid a number of human diseases caused by synthetic colors. They come from a variety of sources, such as fruits, vegetables, seeds, leaves or minerals. Natural food colors are manufactured by physical and chemical methods. The main issue with natural food colors is their stability. The natural food colors are stabilized by emulsification and microencapsulation techniques. These natural food colors are safe for consumption according to the FDA and are labeled as "exempt colors". This work presents chemical characteristics of prevalent pigments, including anthocyanins, carotenoids, betalains, and chlorophylls. The possible applications and hues (warm, cool, and achromatic) of currently used natural pigments, are also discussed.

JH/SECON2025/KS-7

The ınfluence of feeding of yellow pigments (2% Xanthophylls) on egg yolk color for age-related macular degeneration (AMD)

Tanveer Alam

Background: This work addresses a major public health issue, namely Age-related Macular Degeneration (AMD), the leading cause of vision loss in people over 50, for which beneficial effects of several nutrients such as omega-3 polyunsaturated fatty acids such as DHA or xanthophylls such as lutein have been demonstrated.

Objectives: The aim of this work was to develop a method for preparing the water-soluble and stable microencapsulated xanthophyll. To evaluate the effect of the daily consumption of feed enriched with lutein/zeaxanthin on eggs yolk.

Methods: The project involves a multidisciplinary approach combining natural compound extraction, nanoparticle formulation and determination/characterization process. Lutein & xanthophylls were extracted and purified from marigold petals, then co-encapsulated with Tween 80 into nanosized emulsion. Different groups of egg laying hen were fed corn-soy diets supplemented with different dose of xanthophyll (lutein & zeaxanthin). After 30 days, eggs were collected and assayed for xanthophyll (lutein & zeaxanthin). Yolks were separated from albumen and egg yolk color was evaluated by the Roche Yolk Colour Fan (RYCF) score (15 = dark orange; 1 = light pale). The hunter values for lightness (L^*), redness (a^*), and yellowness (b^*) in egg yolks also were determined using the X-Rite Color i5 Benchtop Spectrophotometer. The quantitative analysis of lutein and zeaxanthin in samples was performed using a reverse phase system of HPLC.

Results: The assayed lutein content of the various experimental diets agreed reasonably well. Diet had no effect on egg production, egg weight, feed intake, or shell quality. In experiment, as the lutein content of the diet increased, there was an increase ($P > 0.01$) in lutein content in the egg's yolk.

Conclusion: In conclusion, feeding diets containing 2% Xanthophylls to laying hens improves egg yolk color with no negative effects on laying performance and other egg quality.

Key words: Age-related macular degeneration (AMD); Enriched egg; Lutein; Xanthophylls; Yolk



Dr Mukhlesur Rahman is an Associate Professor (Reader) in Pharmaceutical and Natural Products Chemistry and also Subject Area Head of Pharmaceutical and Chemical Sciences at the University of East London (UEL). He developed both BSc (Hons) Pharmaceutical Science and MSc Pharmaceutical Science courses at the University of East London. He is a Senior Fellow of the Higher Education Academy (SFHEA), Fellow of both the Royal Society of Chemistry (FRSC) and the Royal Society of Biology (FRSB). Dr Rahman's research focuses on anti-infective drug discovery from natural sources. His research interests include bioassay directed isolation, purification and identification of antibacterial metabolites from medicinal plants and microbes as well as the synthesis of their analogues. He has been working on numerous medicinal plants from different parts of the world for the isolation and characterization of bioactive metabolites from a variety of structural classes including anti-MRSA compounds and efflux pump inhibitors. In order to confirm the structures of the compounds of natural products, Dr Rahman exploits high field NMR spectroscopy and mass spectrometry. He has also carried out ethnopharmacological surveys to explore the traditional plants that are being used to treat infections. He has published 99 research articles (h-index 38; citation over 4,100) in peer review journals and attended several international conferences as plenary and invited speaker. He supervised PhD and MRes students, postdoctoral research fellows and professional fellows at the University of East London. His current postdoctoral fellows and PhD and MRes students are focusing on the characterization of anti-infective and anticancer compounds from medicinal plants and propolis. At the University of East London, he leads the Medicines Research Group and the Schoolwide research seminar series. Previously at Liverpool John Moores University when he worked as a Senior Lecturer, he led the Phytochemistry and Phytotherapy section the Centre for Natural Products Discovery. In 2022, he received the Society for Ethnopharmacology (Affiliated to the International Society of Ethnopharmacology) SFE-Annual Award: T. Sen Oration Award 2021 in recognition of international research profile with significant research contribution to Ethnopharmacology and Natural Products Chemistry. He has been recognised as top 2% researcher in the world since 2022.

JH/SECON2025/KS-8

Antimicrobial metabolites from medicinal plants and propolis

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Antimicrobial resistance (AMR) is one of the greatest health threats of our time. As harmful bacteria become resistant to commonly used antibiotics, treating infections becomes harder, more expensive, and more dangerous, specially for vulnerable communities. Although enormous number of antibiotics were discovered to treat various infectious diseases, microorganisms having the capability to mutate can resist the antibiotics. Such antimicrobial resistance has increasingly become huge global problem. Self-medication and irrational uses of antibiotics in some developing countries have made the situation even worse. During the COVID pandemic, the clinical uses of antibiotics to treat secondary infections could have contributed to AMR. If no appropriate action is taken into consideration, it has been predicted that

AMR will be number one killer by 2050 with approximately 70 million deaths per year. Therefore, scientists are carrying out research to search for novel and safer antimicrobial agents from natural sources to tackle the terrible issue of AMR. This presentation will outline the role of traditional medicine and propolis in drug discovery using bioassay directed isolation and identification approaches. Compounds to be highlighted during the presentation represent diverse chemical classes such as alkaloids, phenolics, acylphloroglucinols, flavonoids and isoflavnoids, lignans and terpenoids. Some compounds mainly acylphloroglucinols exhibited strong antibacterial activities against a panel of clinical isolates of Methicillin resistant Staphylococcus aureus (MRSA). The presentation will also cover total synthesis of a natural acylphloroglucinol and a series of its analogues.



Dr. Saif Ahmad received his master's degree in Organic Chemistry (1998) from MJP Rohilkhand University, Bareilly, UP, India. He joined Department of Biotechnology at Hamdard University, New Delhi to pursue his Ph.D. under Prof. MZ Abdin. After receiving his Ph.D. degree, he sought post-doctoral training in Neuroscience research, joined Dr. Fakhrul Islam's lab in the Toxicology department at Hamdard University where he worked in the field of neurodegenerative disorders. Later he moved to USA and joined Dr. Laxman Gangwani's lab as Postdoctoral Research Associate at the University of Massachusetts Medical School, Worcester, MA where he started working on Spinal Muscular Atrophy (SMA), a motor neuron disorder. In 2007, he moved to the Medical College of Georgia, Augusta University, USA with Dr. Gangwani where he continued working on SMA before joining the Department of Ophthalmology as junior faculty under Prof. Gregory I. Liou. In 2012, He joined as an Associate Professor of Biological Sciences at King Abdulaziz University, Jeddah, KSA. In 2015, he returned to the United States and rejoined Dr. Gangwani's lab at Texas Tech University for Health Sciences, El Paso, Texas, USA as a Research Scientist prior moving to the Barrow Neurological Institute in Phoenix, AZ, USA and currently he is working as an Associate Professor of Neurobiology. His lab working on complement proteins cascade in Stroke and other cerebral ischemic conditions. He is affiliated as faculty with Creighton School of Medicine (Phoenix, AZ), Phoenix Veteran affairs (Phoenix, AZ) and Subharti University (UP, India). He has received, as PI, several prestigious fundings including NIH R01, USA Department of Defense (DoD), AAC, BNF etc. Dr. Saif has published more than 50 research articles in peer reviewed international journals and have presented his research findings in several International meetings.

JH/SECON2025/KS-9

Role of Natural products in neurodegenerative disorders

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Natural products offer a promising, though still largely preclinical, approach to neurodegenerative disorders by targeting key pathological mechanisms like inflammation, oxidative stress, and protein aggregation, with potential benefits in conditions such as Alzheimer's, Stroke, TBI and Parkinson's diseases. While certain natural compounds, such as those found in Sesamum indicum, Boswellia serrata, Red grapes, Curcuma longa etc. have shown promise in preliminary studies, challenges remain in their clinical efficacy, bioavailability, and safety, necessitating further human research. In our study, we selected a natural compound name AKBA (Boswellia serrata) to see its effects in animal model of traumatic brain injury. We found AKBA treatment significantly reduced brain inflammation.



Dr. Seyedeh Mahnaz Karimi is an Assistant Professor in the Department of Traditional Pharmacy, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. She earned her Ph.D. in Traditional Pharmacy (2018–2024) from Tehran University of Medical Sciences and her Pharm.D. (2008–2013) from Mashhad University of Medical Sciences. Her research focuses on the osteoprotective activity of natural products, isolation of bioactive compounds, formulation of traditional herbal medicines, and nanoparticle-based drug delivery systems. Dr. Karimi has led and contributed to multiple funded projects, including those supported by NIMAD, and has authored several peer-reviewed publications in *Journal of Traditional and Complementary Medicine*, *Journal of Biological Regulators and Homeostatic Agents*, and *Journal of Agricultural and Food Research*. She also serves as Director of International Affairs at her faculty, reflecting her strong commitment to academic leadership and international collaboration. Her scientific contributions bridge traditional Persian medicine and modern pharmaceutical sciences, with a special emphasis on the evidence-based validation and modernization of natural therapies.

JH/SECON2025/KS-10

Advances in Drug Delivery Systems for Natural Products: Trends, Challenges and Future Prospects

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Natural products hold significant therapeutic promise; however, their clinical efficacy is often limited by challenges such as low solubility, poor bioavailability, and chemical instability. The development of advanced drug delivery systems is crucial to overcome these obstacles. Sometimes, traditional drug delivery approaches in natural products, despite their high therapeutic potential, are limited due to inefficient absorption, non-specific distribution, and enzymatic degradation. To overcome these limitations, novel delivery technologies like lipid-based and polymeric nanoparticles, along with engineered implants have become a pivotal area of research to accelerate systemic drug delivery to the specific target site, maximizing therapeutic efficacy and minimizing off-target accumulation in the body and systemic adverse effects. Although extensive in vitro and in vivo studies support the efficacy and safety of these nanoparticle-based systems, their path to clinical implementation remains fraught with challenges, including complex design and manufacturing processes. This review provided a comprehensive insight into the evolution of drug delivery systems. It explored the limitations of natural products, their current status when combined with nanotechnology. Furthermore, it discussed the associated challenges and future directions for improving performance and clinical translation. By ensuring therapeutic agents reach their intended targets efficiently and safely, advanced drug delivery stands as a cornerstone of modern pharmaceutical science, poised to revolutionize therapeutic intervention.



Dr. Alka Ahuja is a Professor of Pharmaceutics and Assistant Dean for Academic Affairs at the College of Pharmacy, National University of Science and Technology, Muscat, Oman, which operates in academic partnership with West Virginia University, USA. A Gold Medalist from Panjab University, Chandigarh, Dr. Ahuja possesses over 40 years of teaching and research experience at Jamia Hamdard, India and the National University, Oman. She has established a renowned school of research in mucoadhesive and nanotechnology-based drug delivery systems and has led over 20 major research projects funded by agencies such as ICMR, UGC, DST, AICTE, and MoHERI (Oman). Her work has been cited in the seminal reference text *Bioadhesive Drug Delivery Systems: Fundamentals, Novel Approaches and Development* (Marcel Dekker Series). With over 250 research publications and 12 authored books, Dr. Ahuja's research has received more than 12,000 citations. She has supervised over 100 theses across graduate and doctoral levels, delivered invited lectures worldwide, and received numerous honors including the AICTE Career Award for Young Teachers, Asian Education Leadership Award, and Global Education Leadership Award. As a visionary academic leader, Dr. Ahuja continues to advance pharmaceutical sciences through innovative research, mentorship, and global academic collaboration.

JH/SECON2025/KS-11

Formulation and Characterization of Quercetin-Enhanced Nanoformulation Containing Boswellic Acid and Resveratrol for Colon Cancer Therapy

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Introduction: Phytoconstituents have shown antioxidant and relative oxygen generation capacities, highlighting their potential in cancer management. The present research was conducted on three selected phytoconstituents (AKBA, Resveratrol, and Quercetin). A significant limitation of absorption and bioavailability blemishes the interesting pharmacological properties of all these phytochemicals. To overcome these pharmacokinetic shortfalls, nano formulation approaches were used by incorporating quercetin, a well-documented bioenhancer with additional therapeutic properties, into a combinatorial formulation (3X).

Methodology: The process involved two steps in encapsulating AKBA, resveratrol, and quercetin in the lipid formulation namely formulation of AKBA liposomes and 3X Formulation. Particle size estimation, encapsulation efficiency, chemical characterization, permeation and kinetics pattern were studied. The study was supported by Biocompatibility and toxicity analysis of 3X formulations, invitro study in cancer cell lines HT29 and apoptosis assay.

Results: The two-step formulation process was successful, resulting in a stable, nanostructured 3X lipid-based formulation that combined the phytoconstituents AKBA, resveratrol, and quercetin. The SEM images indicated the spherical shape of the formulation and the particle size in the range of 100-200 nm, which was further reconfirmed by the zeta potential value. The PDI values depicted the size distribution of the liposomes. Encapsulation efficiency showed 90% for AKBA, whereas resveratrol and quercetin showed 80% and 75%, respectively. Permeation and kinetics pattern indicated super case II transport from a planar structure. Hemocompatibility test showed negligible lysis of red blood cells at different concentrations. Fish Toxicity test showed that Zebrafish were found to be extremely tolerant of the 3X formulation at concentrations as high as 100,000 µg/mL for up to 24 hours. MTT assay result highlighted that 3X formulation was more effective than the drug mix in attrition of two types of CRC cells, Caco 2 and HT 29.

Conclusion: The two-step formulation process successfully led to the development of a stable, nano-structured 3X lipid-based delivery system containing AKBA, resveratrol, and quercetin. This method demonstrated a promising strategy for enhancing the bioavailability and co-delivery of lipophilic and polyphenolic nutraceuticals.



Dr. Hongjie Zhang is currently a Chair Professor at the School of Chinese Medicine, Hong Kong Baptist University. He obtained his Ph.D. in phytochemistry in 1994, and became a faculty member at the Kunming Institute of Botany, the Chinese Academy of Sciences from 1991 to 2002. From 2003 to 2011, he was a research faculty member at the College of Pharmacy, University of Illinois Chicago. Since December of 2011, he has been a faculty member at Hong Kong Baptist University. With over 30 years of research experience, Dr. Zhang specializes in the identification, analysis, synthesis, and biological evaluation of small molecules. His work has resulted in the publication of more than 190 peer-reviewed papers and the granting of over 40 patents. Professor Zhang's current research focuses on drug discovery and development from natural resources, as well as the formulation of botanical dietary supplements from herbal medicines. He is particularly interested in identifying natural lead compounds from plants native to the Lingnan region of China and developing dietary supplements from traditional herbal medicines targeting various diseases and pathogens, including cancer, HIV, SARS-CoV, HCV, influenza viruses, Ebola/Marburg viruses, athlete's foot fungi, tuberculosis, dental bacteria, and cancer chemoprevention.

JH/SECON2025/KS-12

Discovery of Broad-Spectrum Antiviral Lignans from Justicia Plants by Targeting Host V-ATPase

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The ongoing threat of viral pandemics highlights the urgent need to discover novel antiviral agents with broad-spectrum efficacy. Plant-derived lignans, known for their diverse structures and wide range of biological activities, represent promising candidates for the development of such agents. Podophyllin resin, extracted from Podophyllum species and rich in podophyllotoxin-related lignans, was first successfully used as a topical treatment for HPV-induced venereal warts in 1942. Since then, more than 700 antiviral lignans have been identified from plants, many exhibiting activity against various viruses. Our research has shown that Justicia species contain unique arylnaphthalene-type lignans (ANLs), which display broad-spectrum antiviral efficacy against a variety of viruses, including HIV, coronaviruses such as SARS-CoV-2, influenza viruses such as H5N1, flaviviruses like dengue and Zika, vesicular stomatitis virus, and Ebola virus. Further investigation revealed that the antiviral effects of these ANL compounds are primarily attributable to their inhibition of host V-ATPase, thereby targeting a key host pathway essential for viral replication. This host-directed mechanism suggests a promising strategy for the discovery and development of robust broad-spectrum antiviral drugs. This work is supported by the Research Grants Council of the Hong Kong Special Administrative Region, China (HKBU12103021), and the Innovation and Technology Commission of Hong Kong Special Administrative Region, China (GHP/206/22GD).



Dr. Zahoor Ahmad Shah is a Professor in the Department of Medicinal and Biological Chemistry and serves as the Associate Dean for Graduate Education and Research at the University of Toledo's College of Pharmaceutical Sciences. His research focuses on the development of novel neuroprotective agents to combat neurodegeneration associated with stroke and other cerebrovascular disorders. Dr. Shah's laboratory has identified and characterized a novel small molecule cofilin inhibitor that has shown remarkable therapeutic potential in preclinical models of hemorrhagic stroke, traumatic brain injury (TBI), and Alzheimer's disease. With an extensive publication record in the areas of brain injury, cognitive impairment, neuroinflammation, and the molecular mechanisms underlying neuroprotection, Dr. Shah's work bridges fundamental neuroscience and translational biomedical research. Dr. Shah's Research has been funded by the National Institute of Health and the American Heart Association.

JH/SECON2025/KS-13

Perspectives on the Beneficial Effects of Ginkgo biloba in Neurological and Cerebrovascular Disorders

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Ginkgo biloba extract, commercially available as the standardized formulation EGb 761®, contains ginkgolides, bilobalide, and flavonoids—each contributing unique therapeutic actions that together define its pharmacological profile. Studies have identified specific effects of its constituents: ginkgolide A exhibits anxiolytic properties, ginkgolide B shows promise in managing migraine with aura, bilobalide reduces ischemia-induced glutamate excitotoxicity, and quercetin displays antihypertensive activity, among others. These pharmacological benefits have also been demonstrated in the complete EGb 761 formulation, leading to its clinical evaluation in cognitive impairment, dementia, and various cardiovascular and cerebrovascular conditions. Our laboratory has extensively documented the protective and restorative effects of EGb 761 in stroke and cerebrovascular diseases, supporting its potential as a preventive and complementary approach to conventional medicine. Based on our findings, EGb 761 can be regarded as a safe and promising alternative for the prevention of neurological disorders, including Alzheimer's disease–related dementia.



Professor Mohammad Kamil: Ph.D.; D.Sc. Chartered Chemist (London); Fellow of Royal Society of Chemistry London, is Head TCAM Research, Zayed Complex for Herbal Research & Trad.Medicine, DHL&ME- DOH, Abu Dhabi, UAE .A recipient of Common Wealth Award-London; Convention Award of Chemical Society-India; Association of Common Wealth Universities -London; and Global award on Unani Medicine and various other prestigious honors & awards. Worked as in charge of Drug lab. MoH India, Professor at Jamia Hamdard University,. More than 350 papers and abstracts in reputed journals and international conferences are at his credit; chaired a no. of International Scientific sessions and presented invited talks as plenary and invited speaker at various International conferences / symposia. Associated with publication of many books; Author of a book besides five/six chapters in different books; Research work cited widely in books e.g. Advance in research, Chapman and Hall, London, New York; Melbourne; Studium Press, USA, UNIDO-Italy.

JH/SECON2025/KS-14

From Traditional Knowledge to Pharmaceutical and Phyto-Pharmaceutical Products- with special Reference to Quality Control and Standardization

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Many studies have shown that medicinal plants and traditional herbal medicines can effectively treat certain diseases and often have fewer side effects than conventional medicine. This paper discussed the importance of traditional knowledge systems and their integration into modern healthcare. The innumerable and enormous challenges making the global herbal market unsafe have led a great concern, and continued work in this direction has been carried out earlier and is still going on. Although the therapeutic applicability of traditional herbal medicines has been demonstrated throughout history, several concerns about their safety and efficacy are raised regularly. This talk is an attempt to enlighten pharmacists, physicians, manufacturers, researchers, consumers, and stakeholders in herbal medicines on the dire need to establish quality standards at each and every stage, i.e., from the birth of the medicinal plant to its clinical application. The study includes from cultivation, source & period of collection; identification; storage; chemical composition; Pharmacological study to clinical approach. Chemical standardization, safety evaluation studies, and fingerprinting revealed the quality & safety of the plants, and HMP is clearly ascertained for the public health safety. In the present paper, an attempt has also been made for a sequential study of the Quality Control of Medicinal Plants and Herbal Medicinal Products (HMP), starting from the birth of the medicinal plants to their clinical approach, with special reference to maintaining standardization at every stage, as well as employing such parameters in ensuring the safety of the global herbal market. Awareness to the public with the adulterated Chemicals in the TCIM (herbal/unani drugs) from the Phosphodiesterase-5 inhibitors (PDE-5), steroids, PPD, and other undeclared chemicals,

Keywords: Standardization; Quality control studies; cultivation, chemical standardization, substitution and adulteration, fingerprinting.



Prof. Mojibur R. Khan is a Professor in the Life Sciences Division at the Institute of Advanced Study in Science and Technology (IASST). He earned his Ph.D. from the College of Life Sciences, University College Dublin (UCD), Ireland, in 2006, and an MSc in Agricultural Biotechnology from Assam Agricultural University, Jorhat, in 2002. After completing six years of postdoctoral research at UCD, he returned to India in 2011 as a recipient of the prestigious Ramalingaswami Fellowship from the Department of Biotechnology (DBT), Government of India. His doctoral research was supported by a fellowship from the Department of Agriculture, Food and Fisheries (DAFF), Government of Ireland, and his postdoctoral work was funded by Enterprise Ireland and Science Foundation Ireland (SFI).Prof. Khan's research focuses on healthy ageing, the gut microbiome, fermented foods, and probiotics. Prof. Khan and his team conducted the earliest microbiome study on the Indian tribal communities. His team has characterised 132 potential probiotics from fermented foods of the north east India and has entered into Industrial collaboration with Bharat Biotech Int. Ltd for clinical trials. He has published over 70 peer-reviewed international research papers and has 21 patents. As a principal investigator, he has led six research projects. Beyond academia, Prof. Khan is committed to fostering rural entrepreneurship by promoting ethnic fermented foods and beverages among tribal communities through scientific interventions. He has facilitated the formation of six Self-Help Groups (SHGs) and supported the filing of five Geographical Indications (GIs).Currently, Prof. Khan serves as the Head of the Life Sciences Division and the B.R. Ambedkar Centre for Community Empowerment (BRACE) at IASST. He has mentored nine postdoctoral fellows, supervised 16 Ph.D. students, and guided five MSc projects. Additionally, he actively participates in IASST's science awareness programs, engaging school students in underprivileged rural communities to inspire scientific curiosity and learning.

JH/SECON2025/KS-15

Traditional fermented food as ethno medicine: a source of next generation probiotics for healthy ageing.

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The human gut microbiome is influenced by traditional dietary habits such as fermented foods and beverages (FFBs). The northeast of India is home to diverse ethnic groups with diverse FFBs. Traditional FFBs are known to harbour potential probiotics with diverse health beneficial effects. Ever since the Russian Nobel laureate Dr. Elie Metchnikoff (1907) proposed that healthy bacteria found in fermented dairy products may promote healthy aging, there has been search on microbes that may confer longevity.

Our group has identified few potential probiotic bacteria from the FFBs of the northeast India with anti-ageing properties. The bacterium *Lactplantibacillus plantarum* JBC5 demonstrated a 27.81% increase in the life span of the model organism *Caenorhabditis elegans* accompanied by the hallmarks of healthy aging by providing improved immunity against pathogenic infections, increased learning ability and memory, gut integrity, and oxidative stress tolerance. In contrast, it significantly reduced the accumulation of body fat and inflammation. Another bacterium *Levilactobacillus brevis* MKAK9, or its heat killed cells or its exopolysaccharides (EPS) also demonstrated similar anti-ageing properties in *C. elegans* that was found to be via modulation of insulin-like signaling (IIS) pathway mediated by a microRNA, mir-243 through a DAF-16-dependent mechanism that also promoted protein ubiquitination (Proteostasis), immune and antioxidative responses. These potential bacteria are being taken forward for pre-clinical and clinical studies with an industry partner for development of commercial formulations.



Dr. Nishikant A. Raut is a distinguished Professor in the Department of Pharmaceutical Sciences at Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, India. With 22 years of professional experience, Dr. Raut has made significant contributions to the field of pharmaceutical sciences. Dr. Raut completed his undergraduate studies at Nagpur University in 2000 and earned his master's degree in Pharmaceutical Chemistry in 2002. He achieved his Ph.D. in Pharmaceutical Sciences from RTM Nagpur University in 2010. Furthering his academic journey, Dr. Raut pursued post-doctoral research at the College of Pharmacy, University of Illinois at Chicago, USA, under the prestigious Raman Post-Doctoral Fellowship awarded by the University Grants Commission, Government of India, during 2016-2017. His expertise spans various domains including Natural Products, Medicinal Plants and Phytopharmaceuticals, Pharmaceutical Analysis, and Solubility Enhancement of Pharmaceuticals. In collaboration with Dr. Gail Mahady, he investigated the effects of resveratrol and anthocyanins in novel transgenic medaka lines specifically developed for osteoporosis research. Dr. Raut has an impressive publication record, with numerous articles in national and international journals, book chapters, and three books published with Elsevier. He holds three granted and six published patents. His research endeavours have been supported by several federal funding agencies, amounting to a total of ₹5.75 Crore. Dr. Raut has supervised over 48 postgraduate and 14 Ph.D. scholars. He was honoured as the "Best Researcher" for the year 2020 by RTM Nagpur University. During the COVID-19 pandemic, Dr. Raut played a crucial role as Co-Principal Investigator (Research) and served as the Nodal Officer of the COVID-19 Diagnosis Centre at RTM Nagpur University, which conducted over 125,000 RT-PCR tests, aiding the government's efforts to combat the virus. He also and served as the Director of Innovation, Incubation at RTMNU. As the Director of the Department of Lifelong Learning and Extension, Dr. Raut revitalized the department, launching numerous skill-based and need-based courses in alignment with NEP-2020. He has initiated over 150 courses under the Jeevan Shikshan Abhiyan, more than 50 courses under the Continuing Education Program, and 18 skill-based courses as per Section 112 of the Maharashtra Public University Act 2016.

JH/SECON2025/KS-16

Ethnopharmacology and Integrative Healthcare: Evidence-Based Validation of *Narayan Tail* as a Model for Global Harmonization of Traditional Formulations

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Ethnopharmacology serves as a scientific bridge between ancient healing wisdom and modern medical innovation, offering an opportunity to integrate traditional systems such as Ayurveda into global healthcare frameworks. As nations increasingly recognize the therapeutic value of traditional medicines, there is a growing emphasis on developing evidence-based, standardized, and regulatory-compliant formulations.

This talk presents *Narayan Tail*, a classical Ayurvedic medicated oil prepared from sesame oil and 33 medicinal herbs, as a model for the scientific validation and global positioning of traditional formulations. Through a comprehensive evaluation involving pharmacognostic authentication, physicochemical testing, and advanced analytical tools—HPTLC, FTIR, and LC-MS—the formulation was standardized, and key bioactive compounds such as quercetin, diosgenin, β-sitosterol, and linoleic acid were identified. In vitro studies demonstrated potent antioxidant and anticancer activity, reinforcing the therapeutic claims documented in classical texts.

The findings underscore the relevance of evidence-based ethnopharmacology in validating traditional medicines, ensuring quality, safety, and efficacy in line with international regulatory trends. By harmonizing traditional wisdom with modern scientific rigor, such validated formulations can contribute significantly to global integrative healthcare systems and foster international acceptance of AYUSH-based interventions.



Dr Sanjeeb Kumar Sahoo, Scientist G at the Institute of Life Sciences, Bhubaneswar, India since 2005. He received his M.Sc. degree in 1994 and Ph. D in 1999 from the University of Delhi, Delhi. He served as a JSPS Postdoctoral fellow at the Department of Microbiology, School of Medicine, Kumamoto University, Kumamoto, Japan from 1999-2001. This was followed by a four-year postdoctoral fellowship at the Nebraska Medical Centre, Omaha, USA from 2001-2005 including a 2 years' fellowship from American Heart Association.

Scientific Contributions include over more than 130 peer reviewed research papers including review articles and book chapters in leading scientific journals of the utmost quality in this field, such as Biomaterials, Future Nanomedicine, Molecular Pharmaceutics, Cancer Research, International Journal of Cancer, Journal of Controlled Release and many more. Dr Sahoo has been granted 4 US patents; one EU patent on Nanotechnology based targeted drug and gene delivery. He is one of the experts in the field of Nanotechnology based drug delivery system mainly in the field of Cancer. Recently, one of the patented technology have been transferred to a Pharmaceutical company in India for commercialization. Dr Sahoo is having h-index 61 and i10-index 106 (Total Citations 23032 through Google Scholar). Dr Sahoo's name has figured in the list of influential researchers of the world released by a US-based firm Clarivate Analytics on the basis of Citations in 2018. Only 10 scientists, including Dr. Sahoo from India, made it to the list of 4000 researchers of the world.

Dr Sahoo has also been featured as one of the top 2% scientists in the world in the field of Pharmacology and Toxicology (year 2020, 2021, 2022, 2023, 2024 and 2025) in a study by Prestigious Stanford University, USA based on the databases of Standardized Indicators, Composite Citation Index, h-index, co-authorship adjusted HM-index and Citations to papers in different authorship positions. Scientific and Professional Activities includes, Editorial board member of Current Nanomedicine, Clinical & Experimental Pharmacology, Nanomedicine (future medicine), Serving Section Editor (cancer section) of Current Pharmaceutical Biotechnology and members of different scientific organizations.

JH/SECON2025/KS-17

Nimbolide based nanomedicine inhibits cancer progression and metastasis by targeting cancer stem-like cells in triple-negative breast cancer (TNBC)

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Triple-negative breast cancer (TNBC) harbors a high percentage of cancer stem-like cells (CSCs) that significantly contribute to relapse and metastasis leading to poor prognosis. Advancements in different treatment modalities mainly reduce primary tumor growth; however, cancer metastasis remains the greatest clinical challenge. Recently, phytochemicals garnered significant attention as potent anti-cancer agents due to their safety profile, and "privileged scaffold" structure, which renders them to interact and target several oncogenic pathways simultaneously for targeting CSCs. In this context, we have

investigated nimbolide (Nim), a limonoid triterpenoid that exhibited potent anti-CSCs effects, but poor pharmacokinetics and low bioavailability limit its therapeutic application. So, to enhance its therapeutic potential, Nim encapsulated PLGA nanoparticles (Nim NPs) was formulated and evaluated its therapeutic index in *in vitro* and *in vivo*. Paclitaxel (PTX), a clinically approved first-line chemotherapy used for breast cancer treatment kills only bulk cancer cells but not CSCs, which leads to metastasis in the long run. Recent studies reported that PTX activates Toll-like receptor-4 (TLR4) pathway in tumor cells, elevating systemic pro-inflammatory cytokines in patients, leading to an enriched CSCs population responsible for local or distant metastasis. Thus, combined treatment of potent anti-CSCs agents with chemotherapeutics can be a promising approach against metastatic cancer. *In vitro* studies indicated that a non-toxic dose of PTX-induced ALDH+ population and TLR4 expression in TNBC-derived CSCs. Further, combined treatment of PTX with Nim/Nim NPs inhibited several inherent characteristics of CSCs as compared to monotherapy at a lower dose. Mechanistically, we found that PTX-activated TLR4 downregulated by Nim/Nim NPs leading to the inhibition of downstream MAPKs and NF-kB signaling pathway responsible for metastasis. Next, *in vivo* results demonstrated that the combination of PTX with Nim/Nim NPs showed enhanced anti-tumor and anti-metastatic efficacy in preclinical models (Zebrafish and orthotopic / lung metastatic mice xenograft). Overall, these findings provide a proof of concept that combinational treatment of a clinically approved chemotherapy PTX with Nim-based phytonanomedicine can inhibit metastasis by regulating TLR4-MAPKs- NF-kB signaling axis in CSCs to achieve a better clinical outcome.



Dr Sharad Srivastava has more than 27 years of research experience in the diversified areas of plant sciences and has made significant contributions, specifically in t he area of bio-prospection and development of scientifically validated herbal products to cater to societal needs, quality control of crude drugs/products, identification of QPM for farmers and industries. He has developed pharmacopoeial standards for more than 150 single herbs and also identified biomarkers for their quality control, which are published in the official gazette of The Ayurvedic Pharmacopoeia of India and the Indian Pharmacopoeia. He has also made a noteworthy contribution to the identification of quality planting material (QPM) for various high-value medicinal plants, which serves as a lead source of quality raw material (QRM) for herbal industries. For this contribution, NMPB and IPC have signed MoUs with CSIR-NBRI to translate his outcomes to industries and farmers. Dr Srivastava has over 227 research papers with a cumulative impact factor of 330.23; authored 10 books, and has 36 patents to his credit. 20 of his patented products have been commercialised to industry, namely- URO-05, a product for kidney stones, Anti-tick herbal phyto-formulation, Anti-dandruff hair oil, Herbal hand Sanitiser, Herbal Decongestant spray and Ayurvedic immune Booster Cold drop, Herbal Lipstick, Fruit-Based Fermented Health Drink, Herbal Anti-Cough Syrup, Anticigarette herbal formulation as an antidote to tobacco, BGR-34, an antidiabetic herbal formulation. This has raised INR 2.00 Cr (approx.) as license fee and around 7.50 Cr recurring royalty for the institute. He was honoured with the "Young Scientist Award" from the Government of UP in 2010. "Saii Ratna Samman" – 2012 from Saii Group of Institutions. Winner of Dr. PD Sethi award in various categories. He is involved with various premier scientific and regulatory bodies of the Government of India, like Niti Aayog, NMPB, AYUSH, DST, DBT, ICAR, DSIR, SMPB, CODEX, MeIT, FSSAI, APEDA, TRIFED, IPC, etc., as a member of expert committees, scientific panels and task forces for evaluation and monitoring of various schemes and implementation of S&T regulatory frameworks. He is a fellow of various prestigious scientific societies, namely, Fellow of the Royal Society of Chemistry, London, UK (FRSC), Society of Ethnobotanists, Society of Ethnopharmacology and Life member of the National Academy of Sciences (India), etc.

JH/SECON2025/KS-18

Translating Nature's Pharmacy: Industrial Challenges and Emerging Opportunities in Harnessing Medicinal Herbs

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Medicinal herbs have long served as a cornerstone of traditional healthcare systems, offering a rich repository of bioactive compounds with therapeutic potential. As interest in natural products surges across pharmaceutical, nutraceutical, and cosmetic industries, the need to translate these botanical resources into scalable, standardized, and efficacious solutions has become increasingly urgent. This article explores the current landscape of medicinal herb utilization, emphasizing the industrial challenges associated with sustainable sourcing, standardization, extraction technologies, regulatory compliance, and quality control. In parallel, it highlights emerging opportunities driven by advances in location-specific cultivation strategies, green extraction methods, metabolomics, and artificial intelligence for the discovery and formulation of compounds. By addressing both technical and regulatory hurdles and aiming to bridge the gap between traditional knowledge and modern industry, we pave the way for more effective and sustainable harnessing of nature's pharmacy.



Dr. Ahmad Ali is currently working as Associate Professor in the Department of Life Sciences, University of Mumbai, Mumbai, India. Earlier he worked in the National Institute of Pharmaceutical Education and Research (NIPER). He studied at Jamia Hamdard, New Delhi and University of Mumbai obtaining his M. Sc. and Ph. D. degree in Biochemistry and Life Sciences respectively. He has over 18 years of teaching and research experience. Presently he is heading the Molecular Biochemistry Laboratory in the Department where he is supervising MSc and PhD students. His areas of research are Protein and DNA Biochemistry with special contributions on Glycation of biomolecules, DNA damage, therapeutic potential of natural products in metabolic disorders. He has also made significant contributions in the area of artificial sweeteners and their role in the process of glycation. Cyanobacterial systems are another thrust area in his lab where researchers are exploring various applications of these organisms in the field of bioremediation, cosmetics and health benefits. He has received several extramural grants from Government and private funding agencies. He has collaborators from National and International laboratories. He is also a recipient of EMBO Travel Grant to attend European Molecular Biology Organization (EMBO) Research Course and CSIR Travel grant to attend International conference. He is serving as the Reviewer and member of Editorial board of various international journals like Chemosphere, Frontiers in Plant Sciences and Microbiology, Glycobiology, International Journal of Biological Macromolecules, and other journals of Elsevier, Frontiers, Springer etc. He has contributed more than 100 research articles in peer-reviewed national and international journals. He is also author of one book and more than 40 book chapters from Springer, Taylor & Francis and Elsevier publishing houses. He has presented his work in many international and national conferences as Invited Speakers and Resource persons. He has also worked as a Member of the organizing committee for many of these conferences. He was invited by the University of Debrecen, Hungary as Visiting Faculty and University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania on a Erasmus Mobility Program in 2024. Recently he also visited King Saud University to strengthen the ongoing collaborative projects and mentoring students for their Research projects.

JH/SECON2025/PP-19

Therapeutic potential of UNIM-H, a polyherbal Unani formulation targeting oxidative stress and chronic inflammation

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Background: Arthritis is a progressive inflammatory disorder of the joints that contributes significantly to chronic pain, disability, and a difficult quality of life. Aims/Objectives: The current study assesses the bioactive profile and anti-arthritic effectiveness of UNIM-H, a polyherbal Unani formulation that includes *Aloe barbadensis* Mill., *Chrysanthemum indicum*

L., *Commiphora mukul* Engl., *Convolvulus scammonia* L., *Ipomoea turpethum* L. and *Merendera persica* Boiss.

Methods: High-performance thin-layer chromatography profiling was performed to identify the pharmacologically relevant bioactives. The anti-inflammatory properties of UNIM-H were tested using carrageenan-induced paw oedema and cotton pellet granuloma models, Results: High-performance thin-layer chromatography profiling revealed pharmacologically relevant bioactives such as aloe-emodin, colchicine, quercetin and guggulsterone Z, indicating promising therapeutic applications. The anti-inflammatory properties of UNIM-H were tested using carrageenan-induced paw oedema and cotton pellet granuloma models, and it showed significant decreases in paw swelling and granuloma development, equivalent to the standard treatment indomethacin. In CFA-induced arthritic rat models, UNIM-H dramatically reduced paw volume and arthritis severity ratings. The enzyme-linked immunosorbent test (ELISA) showed significant reduction of pro-inflammatory cytokines (TNF-α, IL-1β, IL-2, IFN-γ and PGE_2) and increased production of anti-inflammatory cytokines (IL-10 and IL-4), indicating high immunomodulatory action. **Conclusion**: Collectively, these data provide scientific evidence to support UNIM-H's therapeutic promise as a safe and effective natural therapy for arthritis and other chronic inflammatory disorders.



Dr. Raghavender Medishetti is a Pharmacologist and Molecular Biologist with expertise in CRISPR-based genome engineering and zebrafish disease modelling. His research bridges pharmacology, toxicology, and molecular genetics to understand disease mechani sms and identify therapeutic strategies. At the Center for Innovation in Molecular and Pharmaceutical Sciences, Dr. Medishetti has established several transgenic and knock-in zebrafish lines modeling cancer, muscular dystrophy, and neurodevelopmental disorders. His notable contributions include CRISPR-mediated *MET* exon 14 deletion models, MiniCoopR-based *BRAF* V600E expression in melanoma, and generation of zebrafish platforms to investigate kinase inhibitor toxicities and drug resistance. He has also developed zebrafish models for Duchenne Muscular Dystrophy, Fragile X syndrome, and Autism Spectrum Disorder. Dr. Medishetti's research has been published in reputed journals such as *European Journal of Human Genetics*, *Journal of Biochemical and Molecular Toxicology*, and *STAR Protocols*. He is a recipient of the ICMR-SRF Fellowship, Rajnibhai V. Patel Innovative Thesis Award, and Best Poster Award at the Indian Zebrafish Investigators Meeting. His work continues to advance the application of zebrafish in translational pharmacology and precision medicine.

JH/SECON2025/PP-20

Zebrafish Models in AYUSH Research: Integrating Pharmacology, Toxicology, and Disease Modelling

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The zebrafish (Danio rerio) has become an invaluable vertebrate model bridging traditional AYUSH research with modern biomedical science. Its genetic and physiological similarity to humans, transparent embryos, and rapid development allow real-time visualization of organ-specific responses to herbal formulations and bioactive compounds. In pharmacological studies, zebrafish enable the assessment of therapeutic efficacy, dose–response relationships, and molecular mechanisms of AYUSH-based interventions. In toxicology, they serve as a sensitive system for evaluating developmental, hepatic, cardiac, and neurobehavioral toxicity using established biomarkers and imaging assays. Furthermore, zebrafish disease models for inflammation, metabolic disorders, neurodegeneration, and liver injury provide translational insight into the mechanisms of action of traditional remedies. Emerging tools such as CRISPR/Cas9 genome editing and fluorescent reporter lines enhance their utility for mechanistic and safety evaluations. This workshop highlights the integration of zebrafish models into AYUSH research pipelines for evidence-based validation and global acceptance of traditional therapeutics.



Dr. Emdad Hossain is currently serving as an Associate Professor in the Department of Pharmaceutical Technology at Jadavpur University, Kolkata. Before joining Jadavpur University, he worked as Principal and Professor at the Pharmacy College in Azamgarh, Uttar Pradesh, India. He completed his M. Pharm. and Ph.D. from Jadavpur University, Kolkata, India. He has been engaged in teaching and research related to Natural Products Studies for the past twenty-five years. He has published more than 23 research and review papers in several reputed, peer-reviewed, and high-impact international journals, along with one conference proceeding, one editorial, twenty-five book chapters, and six edited books. He has presented more than 83 research papers at various international and national conferences. He is a life member of several renowned associations. He is the Editor-in-Chief of the *International Journal of Advanced Research in Pharmacy & Education*, *Global Academic Journal of Pharmacy and Drug Research*, and the associate editor of *Bioequivalence & Bioavailability International Journal*, *Indian Journal of Research in Pharmacy & Biotechnology*, as well as an editorial board member of twelve other Indian and international journals. He is an active reviewer for several Elsevier, Springer-Nature, and Taylor & Francis journals. He has also delivered numerous lectures in various refresher courses, national, and international conferences in India and abroad. He has been awarded the Best Teacher Award (2002), Jewel of India Award (2014), Young Performer Award (2015), Best Faculty Award (2018), Shikshak Shri Award (2018), Bharat Ratna Dr. Abdul Kalam Gold Medal Award (2018), Nirali's Pharma Recognition Award (2019), Best Researcher Award (2019), Best Educationist Award (2019), Rastriya Vidya Gaurav Gold Medal Award (2019), and SAS Best Principal Award (2020), Prof. M. L. Schroff Pharma Recognition Award (2025) along with many other accolades.

JH/SECON2025/PP-21

Utilization of anthelmintic medicinal plants for future medication in Indian context

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Helminth infections (helminthiasis) remain a major public health challenge in India, particularly in rural and socioeconomically disadvantaged regions. These parasitic diseases affect mammals including humans, birds, and fish, leading to malnutrition, anemia, and developmental impairments especially in children. Globally, over one-third of the population is estimated to contract helminths at least once in their lifetime, with the highest prevalence in developing countries. The growing resistance to conventional synthetic anthelmintics, coupled with limited access in remote areas, underscores the urgent need for safe, affordable, and sustainable alternatives. India, endowed with immense biodiversity and a strong foundation in traditional medical systems like Ayurveda, Siddha, and Unani, offers a valuable reservoir of plant-based anthelmintic resources. Plants such as *Azadirachta indica*, *Butea monosperma*, *Cassia occidentalis*, *Embelia ribes*, *Punica granatum* have demonstrated significant anthelmintic efficacy. Their bioactive phytoconstituents, including alkaloids, flavonoids, tannins, and saponins act

through mechanisms such as neuromuscular blockade and metabolic disruption of parasites. Scientific validation through phytochemical profiling, in vitro/in vivo models, and clinical trials is essential for their integration into modern pharmacotherapy. Utilizing these botanicals not only supports WHO's traditional medicine strategies but also promotes sustainable healthcare and phytopharmaceutical development in India. Future research should focus on standardization, dosage optimization, and safety evaluation to translate traditional plant remedies into evidence-based, clinically approved therapeutics.
Keywords: Helminthiasis, medicinal plants, traditional medicine, phytochemicals, parasitic infections.



Dr. Munish Garg is presently working as Professor, Department of Pharmaceutical Sciences, Maharshi Dayanand University, Rohtak having more than 25 years of professional experience. Additionally, he is holding the position as Founder Director, University Institute of Pub lic Health Sciences. He has completed his tenure as Head, Department of Pharmaceutical Sciences and Dean, Faculty of Pharmaceutical Sciences. He has previously worked as Assistant Director, All India council for Technical Education, New Delhi, then Ministry of Human Resource and Development, Govt of India.
His research area is Quality control, standardization and bio-prospection of Medicinal Plants. Besides, he is presently working towards preventive health, community health strategies and initiatives to reduce burden on healthcare system. He has more than 100 publications, 4 patents, 3 books and financial grant of more than 3.0 Crores from different Government funding agencies to his credit. He is Guest Editor of the reputed International Journals. He has supervised more than 50 PG and 20 PhD scholars. He is in the panel of experts in several Govt bodies like Pharmacy Council of India, AICTE, UGC, NAAC, DST etc. for the finding project evaluation, approvals and Institutional accreditation.

JH/SECON2025/PP-22

Policy Integration of Ethnopharmacology in Public Health and AYUSH Programs

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Ethnopharmacology—the study of traditional medicinal knowledge and its pharmacological applications—plays a vital role in strengthening community health systems and promoting evidence-based traditional medicine. Integrating ethnopharmacology into public health and AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy) programs can create a bridge between indigenous wisdom and modern healthcare frameworks. Such integration ensures the scientific validation of local remedies, conservation of medicinal biodiversity, and empowerment of traditional healers. Policy-driven support for documentation, standardization, and safe utilization of ethnomedicinal knowledge can enhance preventive and primary healthcare delivery in rural and tribal areas. By aligning ethnopharmacological insights with national health initiatives such as the National Health Mission and National AYUSH Mission, India can achieve holistic, accessible, and culturally relevant healthcare. This talk explores the strategies, challenges, and opportunities in policy integration for creating an inclusive, evidence-based, and sustainable healthcare model.



Dr. L. Sathiyanarayanan is presently holding the position as Vice Principal, and Associate professor in Pharmaceutical Chemistry, at Bharati Vidyapeeth Deemed to be University, Poona College of Pharmacy, Pune, Maharashtra, India. He graduated from The Tamilnadu Dr MGR Medical University Chennai, Tamilnadu, and completed PhD from Bharati Vidyapeeth Deemed University, Pune, India. His area of research interest is natural product research including herbal drug standardization, herb-drug interaction studies and exploring role of natural products in neuroprotection. He has published over **100** research papers in peer reviewed international journals and national journals and presented more than **80** papers, delivered more than 75 invited lectures in various conferences. He is the recipient of various research projects from various funding agencies including UGC, DST, National Medicinal Plant Board-Department of Ayush and AICTE, AICTE Entrepreneursip Development Cell grant, seminar grant, travel grant from UGC, AICTE and various Industrial projects. He received several awards including, **APTI Pharmacy Teacher of the award 2023**, **The Best Researcher Award 2013** from Bharati Vidyapeeth Deemed University, **IASTAM Baityanath award 2019 from IASTAM India**, **'Career award for young teacher'** (Rs. 10.5 Lakh) from the All India Council of Technical Education, New Delhi, India, **Dr. P.D sethi award of merit** 05 times in the year 2011, 2012 and 2017and 2023 **SFE India Best local chapter award** 2020, and **SFE India Special recognition award** 2021. His international visits include Switzerland, UK, Germany, Greece, Australia and Bangladesh. He was chairman Board of study, Bharati Vidyapeeth Deemed to be University, Co-ordinator for Society of Ethnopharmacology-Pune Local Chapter, Life member - Association of Pharmacy Teachers of India, Indian Pharmaceutical Association (IPA), IASTAM India, Vice President, IPA Pune local branch, and approved research guide for PhD and PG students of Bharati Vidyapeeth Deemed University. He is serving as an Associate editor for the Pharm. Methods journal, and editorial board member of some journals and reviewer for several international journals.

JH/SECON2025/PP-23

Unlocking the Health Potential of Bee Products: Scientific Advances Toward a Healthier Future

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Bee-derived substances such as honey, propolis, bee pollen, and royal jelly have long been valued in traditional medicine for their diverse health-promoting properties. Contemporary scientific investigations have begun to decode the intricate biochemical profiles and pharmacological actions of these natural materials, offering promising avenues for enhancing human health and wellness. This presentation will provide a comprehensive overview of recent studies conducted in our research facilities, focusing on the therapeutic efficacy and nutraceutical potential of bee products. We will examine the spectrum of bioactive constituents found in these natural agents and highlight their functional roles in disease prevention and health maintenance. Key topics will include the scientific and regulatory challenges related to product standardization, quality assurance, and the broader implications of integrating bee products into sustainable and evidence-based healthcare models. The session will also address how these nature-derived resources can be leveraged for the development of innovative, eco-friendly therapeutic options. By presenting cutting-edge research findings, this talk aims to foster interdisciplinary collaboration and encourage continued exploration into the untapped benefits of bee products for advancing global health.



Dr. Arulmozhi S., a distinguished academic serving in the Department of Pharmacology and as the IQAC Co-ordinator at Bharati Vidyapeeth's Poona College of Pharmacy, Pune. With 21 years of teaching experience, her research is focused on the scientific validation of traditional medicines for treating Alzheimer's, neurodegenerative disorders, and inflammatory and metabolic diseases. Her significant contributions to the field are reflected in 76 research papers published in national and international journals with a cumulative impact factor of 87.8 and an h-index of 18, 2 granted patents and 6 filed patents. She is a prolific researcher who has successfully managed research grants to the tune of ₹2.30 Crores, completing 3 major projects, with 1 ongoing, alongside 23 industrial collaborations. Her excellence has been recognized with prestigious accolades, including the AICTE's Career Award for Young Teachers (2012), AICTE's Lilavati Award (2020) and the APTI Pharmacy Woman of the Year (2024). A committed mentor, she has guided 60 PG and 6 PhD scholars and actively contributes to academic governance as a Board of Studies member for several universities in Pune.

JH/SECON2025/PP-24

Ethnopharmacological validation of virgin coconut oil as a neuroprotective agent

Arulmozhi S

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Background: Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by cognitive decline and memory loss, with limited therapeutic options.
Cocos nucifera L. (coconut) is a plant with significant nutritional and medicinal value in traditional systems of medicine. Virgin Coconut Oil (VCO), known for its antioxidant and anti-inflammatory properties, presents a promising ethnopharmacological candidate for neuroprotection. This study aimed to evaluate the neuroprotective efficacy of VCO using integrated *in silico* and *in vivo* approaches in an okadaic acid (OKA)-induced AD model in rats.
Methods: A network pharmacology study was conducted to identify the potential molecular targets of VCO in AD. For the *in vivo* validation, neurodegeneration was induced in male Wistar rats via intracerebroventricular (ICV) injection of OKA. Animals were subsequently treated with VCO (1, 5, and 10 g/kg, p.o.) or the standard drug donepezil (2 mg/kg). The therapeutic effects were assessed using behavioral tests for spatial and recognition memory, biochemical analysis of brain antioxidant and pro-inflammatory markers, and histological evaluation of the hippocampus. Gene expression analysis was performed using RT-PCR.

Results: The *in silico* analysis predicted that VCO targets core proteins such as HSP90AA1, ERN1, MTOR, INSR, and MAPK9, acting primarily through the IRE1/JNK signaling pathway. In the *in vivo* model, VCO treatment significantly improved performance in behavioral tests, indicating enhanced spatial, social, and short-term memory. Biochemical analysis revealed that VCO administration enhanced antioxidant defenses and reduced levels of pro-inflammatory cytokines. Histopathological examination confirmed that VCO mitigated neuronal loss and reduced the formation of neurofibrillary tangles (NFTs). Furthermore, VCO downregulated the expression of MAPK9, MTOR, and ERN1.
Conclusion: The findings provide a strong scientific rationale for the ethnopharmacological use of Virgin Coconut Oil as a neuroprotective agent. Its efficacy in the OKA-induced AD model is likely mediated through the modulation of the IRE1/JNK signaling pathway, leading to reduced inflammation and oxidative stress, and the preservation of neuronal architecture.



Dr. Prakash Rambhauji Itankar, Professor & Head, Pharmacognosy Section Department of Pharmaceutical Sciences, Director, Technology and Energy Park Former Associate Dean (Science) Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur (India)
Professional Experience • Total Experience: 28 years and 4 months • Academic: 22 years • Industrial: 6 years ¬ Research and Academic Contributions • Patents: 2 Granted | 8 Filed • Industry-Based Research Projects: 47 • Research Guidance: • M. Pharm: 111 guided • Ph.D.: 10 awarded, 8 pursuing • Publications: 118 research papers • Invited Lectures: 156 ¬ Awards and Recognitions 1. Ethnopharmacology Outstanding Service Award (2015) – Society for Ethnopharmacology, India 2. Mahatma Fule Lifetime Achievement – Anandibai Joshi Award (2015) for services in health 3. Outstanding Local Chapter Award (2018) – Society for Ethnopharmacology, Dhaka University, Bangladesh 4. Best Teacher Award (2018) – Rashtrasant Tukadoji Maharaj Nagpur University 5. Research Excellence Recognition (2021–22) – IQAC, RTM Nagpur University 6. Dronacharya Award (2022) – Nagpur District Chemists and Druggists Association 7. Kamdhenu Panchagavya Aushadhi Anusandhan Samman (2023) – Govigyan Anusandhan Kendra, Devlapar 8. Shri K. M. Parikh IASTAM Award (2024) – IASTAM, India 9. Samaj Gaurav Award (2024) – Jain Sewa Samiti 10. Shradhey Moropant Pingale Goseva Puraskar (2025) – Govigyan Sanshodhan Sanstha, Pune ¬ Key Areas of Expertise • Natural Product Research and Drug Development • Panchagavya-based Formulation Research • Phytochemistry and Ethnopharmacology • Pharmacopoeial Standardization and Safety Studies • Academic and Industrial Research Collaboration • Entrepreneurship Development in Natural Medicines • Bridging Traditional Knowledge with Modern Science ¬ Research Interests • Natural product drug discovery • Scientific validation of traditional medicines • Standardization and mechanism-based studies on Panchagavya formulations

JH/SECON2025/PP-25

Bridging Tradition and Science: Panchagavya-Based Healing and the Revitalization of India's Indigenous Health Systems

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India's indigenous medical systems embody a vast repository of empirical wisdom that harmonizes human health with nature's rhythms. Among these, Panchagavya-based formulations—derived from cow-derived substances such as milk, curd, ghee, urine, and dung—represent a unique therapeutic heritage deeply embedded in the country's traditional and tribal healing practices. Despite their long-standing use and reported efficacy in managing diverse ailments, these remedies have often remained on the periphery of modern healthcare due to limited scientific validation and regulatory recognition.

This study explores the scientific foundations, pharmacological relevance, and integration potential of Panchagavya-based traditional medicines within contemporary healthcare frameworks. Through extensive fieldwork, ethnopharmacological documentation, and laboratory analyses, the research identifies critical success cases where Panchagavya formulations have demonstrated antimicrobial, immunomodulatory, and wound-healing properties. It also examines ongoing collaborative models between researchers, traditional healers, and policy institutions aimed at establishing quality standards and evidence-based acceptance.

The findings reveal that scientific validation and standardization of Panchagavya-based medicines not only enhance credibility but also strengthen the socio-economic fabric of rural and tribal communities who sustain this knowledge. The study proposes a three-tier integration model—documentation, validation, and dissemination—supported by inclusive policy frameworks and interdisciplinary research networks.

Revitalizing Panchagavya-based practices offers a sustainable pathway toward holistic healthcare, blending traditional wisdom with modern science. This approach ensures equitable healthcare access, fosters biocultural conservation, and reaffirms India's position as a global leader in integrative medicine. By bridging the epistemological gap between indigenous and modern systems, the study envisions a scientifically empowered traditional medicine framework that nurtures both health and heritage.



Prof. Nawal Kishore Dubey, Department of Botany, Banaras Hindu University, Varanasi, Visiting Fellow, University of Iri, South Korea under INSA Exchange (1991). Tokyo University of Pharmacy and Life sciences, Tokyo, Japan under INSA-JSPS Exchange Programme, (1996). INSA visiting fellow CFTRI, Mysore, (1995). Invited Professor University De French, Besancon, France (1997), Kings College, London. under INSA-Royal Society Exchange Programme for three months (2001); Coordinator: Applied Microbiology , BHU (2012-2015)
Awards/Honours: BHU Smrity Roy Memorial Gold Medal for Best Teacher of Institute of Science, 2014; IPS Prof. M.J. Narsimhan Academic Merit Award, 1982; ISCA Young Scientist Award of Indian Science Congress Association, 1985; BHU Malviya Memorial Award, 1986; Fellow: National Academy of Sciences (FNASc), Allahabad, 2014; National Academy of Agricultural Sciences, India, 2018 (FNAAS) , Indian Botanical Society, 1990; Indian Phytopathological Society, 2011; Member, Executive Council, Indian Botanical Society, 2014-17; Member, Executive Council, Mycological Society of India 2014-17, TOP REVIEWER Award (2011)Elsevier International Journal of Food Microbiology ,2011, Member Project Advisory Board , Fondazione Cariplo, Italy(2014-2015) Ministry of Education and Science Astana, Republic of Republic of Kazakhstan (2014-2015) Scientific Research _FNRS (F R S – F N R S), Belgium, (2018-2019) ; Session Coordinator –9th International Congress of Plant Pathology (ICPP 2008) Torino, Italy; Subject Editor, Proceeding of the National Academy of Sciences, India Section: B Biological Sciences (2016 - 2018) **Patents** : Granted :03 **Fellow**: National Academy of Sciences (FNASc), Allahabad, 2014 National Academy of Agricultural Sciences, India, 2018 **Papers Published**: 261 **Books Published**: 10

JH/SECON2025/PP-26

Indian Traditional Knowlcdge on Medicinal Plants : A Miraculous and Sustainable Approach Towards Health Sccurity

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All life forms depend on nature for their crucial requirements like shelter, food and cloth, besides nature also provided beautiful surprise of medicinal wealth that not only support sustainability of man but also assist to grow, develop and survive against several diseases and sufferings. Allopathic medicines are comparatively costly and also induces alarming negative impacts on health. The problems of emerging diseases with drug resistance, latency, and reactivation along with the shorter life span of most of the synthetic drugs have directed scientists to look into the treasure chests of nature to find out and explore the plant based metabolites for the management of diverse diseases including viral diseases On contrary, plant based medicines due to their inexpensive, safer and body system friendly nature , are highly preferred by both urban and rural people all over the world. People use ethnomedicines since antiquity. Therapeutic potency of ethnomedicines is due to its phytochemical composition that strongly suggests

them as future promising candidate for novel drug formulation. Further, in present time due to resurgence of prime attention of medicos towards ethnotherapeutant there is tremendous requirement for bioprospection of medicinal plants at global level in order to discover efficient drug against chronic diseases owing to their casy availability and safety paradigm. Ethnomedicinal plants are boon of nature to mankind as its diverse bioactive components composition along with their broad therapeutic actions provide extensive opportunity to discover novel lead drug molecule against many deadly discases. Due to lack of knowlcdge regarding trading potential of medicinal plants they are not properly utilized by governmental entreprencurs and only restricted to the tribal healers. Therefore, proper scicntific validation and documentation are needed in order to properly utilize and discover botanical drugs against several chronic diseases. Utilization, promotion and preservation of ethnomedicinal treasure would be one of the crucial action to attain several SDGs effectively. .Historically, there are several ethnomedicines that have revolutionary contributed to the discovery of miraculous drugs in western medicinal system contributing to meet the health care need of society. Hence, integration of ethnobotany and pharmacology support patenting and novel drug discovery would ultimately leads to boost the pharma industries at global level contributing to enormous enhancement of capital of concerned countries. In addition, marginalized ethnic tribes life style would be also secured as they are supported by the ethnomedicine based international projects. Ethnomedicinal heritage plays crucial role in the drug development in modern medicinal system to combat against several chronic diseases. Several plant based active principles like atropine, digoxin and morphine have become lead compounds based on which ifferent novel synthetic drugs such as acetylsalicylate (analgesic drug) that is based on the active principle of Salix bark .Amalgamation of ethnomedicinal system with western medicinal system along with incorporation of nanotechnology leads to the future era of medicinal system to effectively combat health problems. In addition, efficacy, economical viability and safety dimension ensure it as crucial strategy to meet sustainable development goal -3. . Plant secondary metabolites are inspirational molecules for the drug discovery. There are so many more therapeutic phytochemicals present in nature that need to be explored and scientifically validated.



DR. G. Prakash Yoganandam, M. Pharm, Ph.D., PGDCA, Department of Pharmacognosy, College of Pharmacy, Mother Theresa Post Graduate & Research Institute of Health Sciences, ACADEMIC QUALIFICATIONS Qualification Specialization Class / % of marks Month & Year of Passing Ph. D Faculty of Pharmacy Thesis is highly commended College/University DEC'2016 Sri Ramachandra University, Porur Chennai-600 116. PGDCA Computer Science I Class / 76.25% DEC' 2017 Alagappa University Karaikudi, Tamil nadu M.Pharm Pharmacognosy I Class / 91.25% MAR'2007 MMC, Madurai/ The TN Dr.MGR Medical University, Chennai-600 032 B.Pharm Pharmacy I Class / 80.12% APR'2004 MMC, Madurai/ The TN Dr.MGR Medical University, Chennai-600 032 D. Pharm Pharmacy I Class / 76.56% OCT'2000 MMC, Madurai/ Directorate of Medical Education, Chennai-600 010 1 ACADEMIC & RESEARCH EXPERIENCES (18 yrs) Name of Institution Name of the University Position held Period of Work Kamalakshi Pandurangan College of Pharmacy, Thiruvannamalai. Tamil Nadu The TN Dr. MGR Medical University, Chennai-32 Assistant Professor February 2006 to October 2007 SRM College of Pharmacy, SRM University, Kattankulathur. Tamil nadu SRM University Kancheepuram Dist-603203 Assistant Professor October 2007 to July 2011 Mother Theresa Post Graduate and Research Institute of Health Sciences, A Govt. of Puducherry Institution, Puducherry Pondicherry University-605 006 Assistant Professor July 2011 to till date AREA OF INTEREST 1. Herbal Drugs Standardization using Official guidelines 2. Formulation, evaluation and modernization of polyherbal formulation 3. Phyto-Pharmacological screening (In-silico, in-vitro, in-vivo and ex-vivo) of herbal drugs and its formulation 4. Major area of research is towards Antidiabetic and Anticancer.

JH/SECON2025/PP-27

Formulation development, characterization and evaluation of *Crossandra infundibuliformis(L.) Nees* Ethosomes: A Novel Approach for Enhanced Anti-Inflammatory Drug Delivery

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Introduction: Inflammation is a significant global health concern, with conventional treatments often leading to adverse side effects. This study focuses on the formulation development, characterization and evaluation of ethosomes developed from the leaves and flowers of *Crossandra infundibuliformis (L.) Nees* for their potential anti-inflammatory properties. Ethosomes, lipid-based vesicular carriers, enhance the transdermal delivery of therapeutic agents, overcoming the limitations of traditional topical applications.

Materials and Methods: The plant material was collected, extracted using ethanol-water mixtures, and incorporated into ethosomal formulations using lecithin. Characterization techniques such as particle size analysis, zeta potential measurement, transmission electron microscopy (TEM), and entrapment efficiency were employed to ensure the stability and effectiveness of the formulations. Anti-inflammatory potentials was assessed by insilico and invitro protein denaturation and HRBC membrane stabilization methods. Statistical analysis using graph prism pad was used for predicting the exact findings.

Results and Discussion: The average particle size of leaf ethosomes was found to be 345.6 nm, while flower ethosomes measured 457.1 nm. The zeta potential values were -27.0 Mv and -23.4 mV for leaf ethosomes and flower ethosomes respectively, indicating moderate stability. The entrapment efficiency was 48.17% ± 0.4 for leaf ethosomes and 45.4% ± 0.2 for flower ethosomes. The results of pharmacological screenings demonstrated that both leaf and flower ethosomes exhibited significant anti-inflammatory potential, with leaf-based ethosomes showing slightly higher entrapment efficiency.

Conclusion/Recommendations: The study highlights the potential of *Crossandra infundibuliformis* ethosomes as a novel, natural and effective alternative for managing inflammation, paving the way for further in vivo and clinical investigations.

Keywords: *Crossandra infundibuliformis*, Inflammation, Molecular docking, Protein denaturation assay, Ethosomes



Dr Charu Lata is Principal Scientist and Head of the Traditional Knowledge Division at CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR), New Delhi. She is the Editor of the Indian Journal of Traditional Knowledge, and Coordinator of the National initiative **SVASTIK** on "Communicating India's Scientifically Validated Traditional Knowledge to the Society". Dr Lata is also an Associate Professor (Honorary position) at Academy of Scientific and Innovative Research (AcSIR). Dr Lata pursued Doctor of Philosophy from National Institute of Plant Genome Research (NIPGR) and Jawaharlal Nehru University (JNU), New Delhi in foxtail millet genomics. Later, she joined ICAR-NIPB (erstwhile NRCPB), New Delhi as INSPIRE Faculty Fellow, and then as a Scientist at CSIR-NBRI, Lucknow from where she moved to CSIR-NIScPR, New Delhi in 2019. After moving to CSIR-NIScPR she is focusing on policy research and communication in traditional knowledge. Dr Lata is a recipient of some of the prestigious national and international awards including Associate Fellow of INSA 2025, Associate of the Indian Academy of Sciences (IASc) [2019-2022] and Fellow of the International Society for Environmental Botanists 2021. She has also been the recipient of Young Scientist awards by INSA (2014) and NASI (2012), INSPIRE Faculty Award 2011, Jawaharlal Nehru Award for Outstanding Doctoral Thesis Research 2013, SERB Women Excellence Award 2014, Indo-Australia EMCR Fellowship 2017, and SERB Early Career Research Award 2018. She is a Member of the National Academy of Sciences India (NASI) since 2015, and Founding Member of the Indian National Young Academy of Science (INYAS) [2015-2020]. She has been consecutively listed for four years as world's top 2% scientists in Plant Sciences by Stanford University, USA. She has edited 03 books and has authored more than 80 original articles in various peer reviewed high impact SCI Journals and books with >6100 citations, h-index 33, and i-10 index 45.

JH/SECON2025/PP-28

Traditional Health Practices: Documentation, Validation and Commercialization

Charu Lata

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Traditional knowledge Systems are valuable assets in the form of knowledge, know-how, skills and practices accumulated by indigenous communities through observation of nature and their interaction with the environment. India boasts of a rich S&T heritage in diverse domains. Indian Systems of Medicine (ISMs) and traditional health practices, from the ancient to the present-day, have traversed a very long path and have been significantly influencing and impacting majority of the population. For example, Ayurveda, the ancient Indian System of Medicine, has been prevalent in India since centuries and is widely used even today. Similarly several indigenous communities possess knowledge related to harvesting and preparing herbs, as well as knowledge on their medicinal use. These indigenous peoples

and local communities in addition to using herbal medicines, have also been using it as a source for generating income.

Today, with unique health challenges of the 21st century, interest in Traditional medicines (TM) is undergoing a revival. Even World Health Organization (WHO) is giving importance to monitoring health trends as a core function with emphasis on TM. Further, new drug development is expensive, risky and also a time taking process. Traditional knowledge on medicinal plants can accelerate the potential therapeutic development process. However, there are challenges related to the practice of TM such as misappropriation of such knowledge, and/or inappropriate use of TM/practices which can lead to negative effects, and therefore, their documentation and scientific validation as well as formulating stringent regulatory guidelines for ascertaining their efficacy and safety is the need of the hour. It is important to grasp traditional knowledge within an interdisciplinary and interconnected context to understand the challenges of defining and validating TMs, as well as ensuring adequate access and benefit sharing mechanism in place for the traditional healers. There is a need to understand the validity of indigenous and traditional knowledge in culturally sensitive manners too.

There have been several initiatives in India towards protecting, preserving and propagating traditional knowledge. The Council of Scientific and Industrial Research (CSIR), has led the efforts for documentation, protection and communication of Indian traditional knowledge through its various initiatives including the Traditional Knowledge Digital Library (TKDL), publication of the reputed Indian Journal of Traditional Knowledge, and through the nationwide programme branded as 'SVASTIK' to communicate scientifically validated Indian traditional knowledge to the society. This talk emphasizes the significance of traditional health practices, their documentation, validation and commercialization for sustainable development.



Dr. Sitesh C Bachar is serving as a Professor in the Department of Pharmacy, University of Dhaka, Bangladesh. He also served as Pro-Vice Chancellor (academic), Dean of the Faculty of Pharmacy, and HOD of Pharmacy, University of Dhaka. Before joining the Department of Pharmacy, he received his B.Pharm (Hons) and M.Pharm degrees from the University. Professor Bachar was awarded PhD in Pharmacy from Jadavpur University, Kolkata, India. Dr. Bachar is a well-recognized medicinal chemist with particular expertise in synthesizing indan-based anti-inflammatory, analgesic, plant growth regulatory compounds, and structure-activity studies. He is an outstanding medicinal chemist with a pharmacy educational background. He also possesses unique expertise in the isolation, purification, quantitative and pharmacological evaluation of Bangladeshi traditional and herbal medicines and their quality control. As an academician and experienced in hospital and clinical pharmacy practice and management Dr. Bachar has established clinical and hospital pharmacy practices in Bangladesh, actively participated in the implementation of pharmacovigilance activities and engaged in the reduction of antimicrobial resistance (AMR) in the community. Dr. Bachar is actively involved in clinical research for the development of vaccine and biosimilars in Bangladesh including bioequivalence studies. Experience more than 35 years in research and education, Dr. Bachar has had the opportunity to publish several publications in high-impact international journals in the area of clinical, medicinal, and natural products chemistry. His research works have been published in several national and international reputed peer reviewed journals. His total number of publications is more than 140. Dr. Bachar is actively involved in clinical research for the development of an mRNA vaccine candidate in Bangladesh developed by Globe Biotech Ltd, Bangladesh, and also conducting bioequivalence studies of Bangladeshi generic products (small molecules and biosimilars) at home and abroad. Dr. Bachar was the Organizing Secretary of the first-ever International Conference on Ethnopharmacology and Ethnomedicines (ISE-SFEC 2018) held in Bangladesh on January 13-15, 2018, in association with the International Society for Ethnopharmacology (Switzerland) and Society for Ethnopharmacology India.

JH/SECON2025/KS-29

Tradition of "Traditional Medicine" - Bangladesh Perspectives

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History of medicine has its roots in ancient times dating before the birth of Christ. Since then, medicine has changed significantly, especially in the 20th and 21st centuries. Evidence-based allopathic medicine has largely supplanted traditional medicine. Ayurvedic and Unani medicine have a long history throughout the Indian subcontinent, including Bangladesh. Despite the fact that these procedures

flourished for centuries, they were prohibited and relegated to folk medicine throughout the colonial era. We need to concentrate on rediscovering this important medical legacy now, maybe before it's too late. Nonetheless, there is growing recognition of the necessity of integrating traditional medicine with contemporary treatment. In the continuing development of integrative medicine, both Ayurveda and Unani, as knowledge systems that invented a holistic and personalized approach to healthcare, have the ability to continue being innovative, dynamic, and highly valued. It is now time- demanding to do further work, such as research and developing appropriate policies for the pharmaceutical industry.

Keywords: Traditional medicine; history; Bangladesh; policy for pharmaceutical industry, Ayurveda, Unani, modern medical practice, fatty liver



Dr. Proma Khondkar is a Lecturer in Pharmaceutical Analysis within the School of Life Sciences at the University of Westminster, London. She holds a PhD from Glasgow Caledonian University and previously worked as a Research Associate at the UCL School of Pharmacy. She is a Fellow of the Higher Education Academy (FHEA) and a professional member of both the Royal Society of Chemistry (MRSC) and the Royal Society of Biology (MRSB). With a strong background in Pharmaceutical Sciences, her research interests span pharmaceutical analysis, natural products, microbiology, antimicrobial resistance (AMR), and public health, with a particular focus on epidemic threats. She has published more than 40 peer-reviewed publications in high-impact journals. She has been honoured with the Jack Petchey Foundation Leadership award in recognition of her exceptional encouragement and motivation of young people, earning her the title of an 'Outstanding Leader.

JH/SECON2025/KS-30

Safety concerns and mycotoxin detection in herbal medicines

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Dr USN Murty is the Founder Director of National Institute of Pharmaceutical Education and Research Guwhati since 2016, after completion of 32 years of successful R& D career at CSIR IICT Hyderabad. He did his PhD from Osmania University (1990) and started his research career in WHO Centre Pondicherry in 1981 followed by Central Sericultural Research and Training Institute (CSR&TI) Mysore in 1983. He joined in CSIR-IICT in 1984 as a Scientist B rose to the level of Chief Scientist and Head Biology Divn. His research interests are Biotechnology, Bioinformatics and Public Health. He published more than 170 research papers in peer reviewed journals, contributed 10 chapters and edited three books. 15 scholars received PhDs under his supervision and another two are working for doctoral programs. He is the recipient of many awards to name few WHO/TDR, German Research Foundation, US Defense, ICMR Biomedical Research award and ICMR Biomedical Research award. Dr Murty is visiting professor in York University Canada, University of Hyderabad. He was holding the various positions in his career like Project Director and Dean of National Institute of Pharmaceutical Education and Research Hyderabad and Director (Of□ciating) NIPER Mohali. Under his leadershipNIPER-G has seen tremendous success, where it is the only □rst institute to get the rare recognitions by having three National Centres like 1) National Centre for Pharmaco engineering (State-of-the-art-facilities) funded by Drugs & Pharmaceutical Research Programme (DPRP), DST, Govt. of India, 2) North-Eastern Societal Aspect for Translational (NEST) Phytopharmaceutical/Herbal Research Incubation Center under BioNEST Scheme funded by BIRAC, DBT, Govt. of India and 3) Centre of Excellence (CoE) for Tribal Welfare from Ministry of trial Affairs, Govt. of India

JH/SECON2025/KS-31

PRIP – A real mining for phytopharmaceuticals development in India

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Dr Sanjay Jachak, Professor and former Head, Department of Natural Products, NIPER, Mohali having 30 years teaching and research experience. His research expertise on Phytopharmaceutical and Nutraceutical/Functional Food Development, AYUSH medicines, Ethnopharmacology of Indian medicinal plants, Standardization of herbal drugs and formulations, Phytochemical analysis, Discovery of anti-diabetic and anti-obesity natural products, Discovery of natural product inhibitors of bacterial efflux pumps, Discovery of anti-inflammatory natural products empolying COX-2, microsomal Prostaglandin E Synthase-1 (mPGES-1), cytokines (TNF-α, IL-1α, IL-1β and IL-6) as targets, Medicinal Chemistry and synthesis of natural products, Application of Novel Drug Delivery systems (Phytosomes, Nanoparticles, SMEDDS etc.) to herbals and herbal bioactives. He published more than 125 research papers in international journal repute (**h-Index: 41, i10-Index: 75 as per Google Scholar Citations, Total citations: 6037 (as on 10-10-2025).** Developed **'Immunebooster Herbal Tea'** in 2021 during COVID-19 pandemic. He received Indian Rs 70 Million grants from CSIR, Deptt. of AYUSH and DBT, Govt. of India and received various awards such as **World's Top 2% Indian Scientists rankings- 2025, 2024**: area- **Medicinal and Biomolecular Chemistry,** released by Standford University, USA and published on **21st September 2025, 4th October 2023 by Elsevier; September 2022 and in November 2020, PharmInnova, Ahmedabad: Best PhD thesis Award as Research Guide**, **May 2017,** Most cited paper award, Bioorganic Medicinal Chemistry Letters, 2005-2008, Research Fellowship, Austrian Academic Exchange Service, Vienna, Austria from 1995-1998. Guided 14 Ph.D. and 134 Master students

JH/SECON2025/KS-32

Nutraceuticals and Phytopharmaceuticals: A Paradigm Shift in Herbal Drug Technology

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A paradigm change in global healthcare is being marked by the renewed interest in traditional systems of medicine like Ayurveda, Siddha, and Unani, which thrust an emphasis on illness prevention and overall well-being. These traditional systems form the foundation of nutraceuticals and phytopharmaceuticals, which are becoming more and more popular as safer substitutes for traditional medications, particularly in light of worries about adverse effects of synthetic medications. In the management of chronic disorders including obesity, diabetes, and neurodegenerative diseases, as well as in fight against oxidative stress, nutraceuticals—bioactive substances derived from food sources—have shown great promise [1]. The Food Safety and Standards Authority of India (FSSAI), which oversees nutraceutical sector in India, enforces stringent regulations for formulation, labelling, and marketing in order to protect consumer safety. In order to supplement this, the Drug Controller General of India (DCGI) developed phytopharmaceutical category in 2015, emphasizing standardized formulations made from single plant that contain variety of bioactive substances.

Recent research at NIPER Mohali evaluated 102 plant extracts for anti-obesity potential, highlighting efficacy of curry leaf (*Murraya koenigii*) [2] and liquorice (*Glycyrrhiza glabra*) [3]. Additional superfoods such as turmeric [4] and chia seeds [5], enhanced through nanotechnology, further underscore therapeutic promise of functional foods. This talk will explore evolving landscape of herbal drug technology, the regulatory pathways for nutraceuticals and phytopharmaceuticals in India, and emerging research driving innovation in plant-based therapeutics. The integration of traditional knowledge with modern science presents transformative opportunity for preventive healthcare and natural drug development.



Dr. Mohammad Mansoor Ansari a student of Phytochemistry, currently working as a Vice President R&D at Sami Sabinsa Group with a demonstrated history in health wellness and fitness industry. Vast (>20 years) experience in Natural Products development, Skilled in troubleshooting in the Scale up and production of commerical batches. Proficient in isolation and characterization of chemical constituents from Botanical sources using advance chromatographic and spectroscopic techniques, particularly NMR and HRMS. Hold a Ph.D in Botany from Hamdard University specialising in Pharmacognostical and Phytochemical studies for the Standardization of traditional plant drugs.

JH/SECON2025/KS-33

From Traditional Medicinal Plants: Insights from Sami-Sabinsa Group

Mohammad Mansoor Ansari, Anju Majeed, Arvind Saklani, Beena Bhat,
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Traditional medicinal plants have served as the cornerstone of healthcare for millennia, embodying ancient wisdom passed down through generations across diverse cultures. However, the integration of these natural remedies into contemporary pharmaceutical markets demands rigorous standardization to ensure safety, efficacy, and reproducibility. This view explores the paradigm of "Ancient Wisdom, Modern Standards," focusing on the systematic development of standardized products from traditional medicinal plants. We at Sami Sabinsa, delineate key processes including ethno-pharmacological validation, phytochemical profiling using advanced analytical techniques such as high-performance thin layer chromatography (HPTLC), high-performance liquid chromatography (HPLC), nuclear magnetic resonance (NMR), mass spectrometry, and the establishment of good manufacturing practices (GMP) compliant protocols. Case studies from Ayurveda, and other indigenous herbal systems illustrate successful transitions from empirical knowledge to evidence-based products, such as standardized extracts of ***Piper nigrum*** (Black pepper) for bioavailability enhancement, ***Withania somnifera*** (Ashwagandha) for general wellness, ***Cyperus rotundus*** (Nagarmotha) for obesity, ***Nigella sativa*** (Black cumin) for respiratory health & general wellness and ***Boswellia serrata*** (Gum olibanum) for anti-inflammatory and & supplement for joint health. Challenges including variability in plant sourcing, bioactive compound stability, and regulatory hurdles are addressed by viable process development and continuous process modifications as required. Ultimately, this approach bridges the gap between heritage and innovation, fostering sustainable product development that honours traditional insights while adhering to modern scientific and ethical standards, thereby enhancing global access to reliable phyto-medicines.



Dr. Arvind Saklani, is working with Sami Labs, Bangalore as a Vice President, Agri Biotechnology. He has over 33 years of experience in identifying novel and potent plants for developing nutraceuticals and phyto-pharmaceuticals and in bioresources development and cultivation of medicinal plants. He did his post-graduation in Botany from Garhwal University in 1986 and Ph.D. from CSIR-National Botanical Research Institute, Lucknow in 1992. He has served as Assistant Professor, Natural Products at National Institute of Pharmaceutical Education and Research (NIPER), Mohali and Assistant Director at Piramal Life Sciences, Mumbai. Dr Saklani is a biodiversity specialist and well-known ethnobotanist in India and has spent over 1200 days in Indian forests and among tribals for ethnobotanical and botanical explorations. In 1994, he worked in Amazonian forests, Brazil to study the tribal usage of medicinal plants common in India and Brazil through UNDP program. He developed a plant extract library representing 2900 plant species occurring in India, which resulted several NCAs for obesity, in□ammation, cancer, in□uenza and herpes. Dr Saklani has published 40 papers in reputed journals, 2 books and 4 patents. Two of his publications crossed 350 Google scholar citations. He has guided several post-graduate and 2 PhD students and is a reviewer of 12 national and international scienti□c journals and an Editorial board member of 3 journals. He has several awards to his credit including 'Merit of Excellence Award' at Johns Hopkins University, Rockville, MD, USA, 'Academic Excellence Award' by Indian Botanical Society, 'B.N. Mehrotra Medal' and 'S. K. Jain Medal' by Society of Ethnobotanists and 'Talented Scientist Award and Medal' by SV University. He is a Fellow of Society of Ethnobotanists, India Association of Angiosperm Taxonomy, and Association for Plant Taxonomy,

JH/SECON2025/KS-34

Medicinal plants cultivation, sustainable supply of quality-assured raw materials and integrated supply chain

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Quality medicinal plants raw materials are essential for R&D, bioresource-based drug discovery, standardization, production, and export in the AYUSH and nutraceutical sectors. However, challenges such as accurate taxonomic identification, quality planting materials, environmental factors, cultural practices, technical know-how, sourcing from genuine suppliers, contaminations and adulterations, market volatility, regulatory shifts, and logistics persist. The sector, particularly AYUSH, depends heavily on wild resources, while the nutraceutical industry uses both cultivated and wild species. A multi-tiered supply chain involving collectors, processors, and vendors ensures material flow, but requires value addition, vertical integration, contract farming, and fair benefit sharing with upstream custodians. Strengthening this chain through strategic joint ventures, women's empowerment, training, and livelihood support for marginalized communities is crucial. Emphasis must be placed on reducing wild collection pressure, resolving cultivation and post-harvest bottlenecks, and increasing government support. AI technology platforms can significantly enhance every stage of the medicinal plants' cultivation and supply chain. The formation of a dedicated Task Force is recommended to engage with central and state agencies for sustainable growth of the sector and global competitiveness.



Prof Ajit Kumar Shasany, FNA, FNASc, FAAS, working as Director, CSIR-NBRI, Lucknow; Earlier Director, ICAR-NIPB and CEO DBT-Biotechnology Park. Also Worked as Head, Biotechnology Division and International Scientific Collaboration Division of CSIR-CIMAP. Worked as convener of IORA- RCSTT coordination Center for Medicinal and Aromatic Plant (Indian Ocean Rim Association) consists of 23 member countries and 9 dialogue partners.

***Academic*:** First Class throughout career, 8.12 /10.00, 8.81/ 10.00, 4.00/4.00 in BSc, MSc and PhD respectively. Dr Kumud Bora award for highest OGPA in MSc (Ag Biotechnology), Prof Deveswar Pathak award for highest OGPA in MSc (Agriculture) and Merit Medal in PhD (Molecular Biology and Biotechnology).

***Teaching and course designing*:** Teaching different courses at Academy of Scientific and Innovative Research (AcSIR) as Professor and outstanding professor, Member of Senate (AcSIR), and Chairman to design the course curriculum in Agriculture. Also, member of board of studies and designated professor of several Universities. Taught Molecular Biology and biotechnology courses at ICAR-IARI. In addition, Chaired the implementation of B Tech Biotechnology course at ICAR-IARI as the Director of ICAR-NIPB.

Scientific strength:

- Significant scientific achievements as reflected in 151 research publications (**with 7081 citations, cumulative IF >400, and h-index 44**). Significantly contributed to the intellectual property **portfolio with 127 patents** with **51 US Patents**. Developed **47 plant varieties** and guided more than **60 MSc and 20 PhD Students**. Analyzed more than 900 accessions from 40 different plant species for genetic diversity estimation, evolutionary relationships and marker identification. My core scientific strength is Medicinal and Aromatic plants and Metabolic Engineering.
- Elected **Fellows** of the National Academy of Agricultural Sciences (**NAAS**), National Academy of Sciences, India (**NASI**), Indian National Science Academy (**INSA**)", International Society of Environmental Botanists (**ISEB**), elected Honorary Member of the Plant Tissue Culture Association (**PTCA**) 2024 and Member, Indian Chamber of Food and Agriculture U.P State Agriculture Council.
- Complete genome and transcriptome sequencing of **"Holy basil"** ***Ocimum sanctum*** **(Tulsi)** as the first medicinal plant genome solely from India. Not only the research focus is on metabolic engineering in medicinal and aromatic plants for increased phytomolecules, but also for determining the efficacy and mechanism of action for novel uses, leading to different product formulations having economic/commercial importance. Biodiversity asses and utilization.
- Contributed in the discovery of **108-Petal Lotus "Namoh-108"** and transferred the agrotechnology to 4 Startups. The products from Lotus includes Perfume from petal, mood lifting tea, apparel from the lotus thread, health drink from lotus rhizome.
- Have three **US patents on medicinal use of cow urine**.
- Worked to investigate inherent **science involved in Ayurveda by analyzing the diverse plants recommended for Dosha balancing**.
- Awarded with many distinguished prizes and recognitions viz., **CSIR Technology Prize for Biological Sciences and Technology** (1999) for the development of early maturing disease and pest-resistant menthol mint which **enabled India to achieve the first position in mint oil and menthol** production pushing China to second place.

- The **second CSIR-Technology Awards** in Biological Sciences for the development and commercialization of anti-malarial drug plant *Artemisia annua* technology package facilitating industrial growth, societal health and rural prosperity; and substituted 30% import of artemisinin.
- **The third CSIR Technology Award** (Certificate of Merit) in biological sciences on *Ocimum* related to the livelihood enhancement of Farmers.

***Societal Outreach*:** Engaged in dissemination of Mint technology (Uttar Pradesh), Geranium technology in (Uttarakhand), Artemisia technology (Uttar Pradesh) and Aromatic plant technology (Odisha) for rural economic upliftment and livelihood enhancement. One of the main achievements was to strategize and implement Mint technology to make India the highest producer of mint oil and menthol boosting the export potential pushing China to second Place. **Leading the CSIR-Floriculture Mission covering >500 ha area in seven states** of the country namely Uttar Pradesh, Tamil Nadu, West Bengal, Karnataka, Madhya Pradesh, Odisha and Bihar. Also, **lead the Aroma Mission in the country in 22 districts of Odisha**. This has resulted in the livelihood enhancement of farmers and entrepreneur development. The work in aspirational District Nabarangpur was also recognized as **Pushpangadan Biodiversity Access and Benefit Sharing Award-2022** (Distinguished Scientist) by Paplu Pushpangadan Charitable Society.
***Technology Transfer*:** Catalyzed conceptualizing, mentoring, leading and some time as team member, transferring about **35 Technologies to different Industrial houses, entrepreneurs and start-ups**.
***New Facilities*:** Catalyzed different facilities at ICAR NIPB (Central facility lab for students), at CSIR NBRI (Fragrance laboratory, Heritage Park, Fragrance Park at Lucknow, renovation of the National Botanic Garden). In Delhi led the development of Amrit biodiversity Park with a record time of 2 years.

JH/SECON2025/KS-35

Plants for *Dosha Samanam*: How similar these are

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According to Ayurveda, each person has a unique mind-body constitution type (*Prakriti*) and defined by three *doshas* - *Vata, Pitta* and *Kapha* (Mol Biol Rep DOI 10.1007/s11033-012-2400-7). A balance among the three *doshas* is necessary for a healthy body and disease conditions are caused by the imbalance in them. Specific plant tissues collected in season (temporal and spatial) are prescribed to cure *dosha*- imbalances, but the plants prescribed for an imbalance belong to taxonomically diverse taxa, making it difficult to validate for any similarity. Hence, genomics, transcriptomics and metabolomics analysis were carried out for these plants with specific *Dosha samanam* characters. For proving / disproving the hypothesis, cDNA-AFLP, specific expression subset analysis (SESA), HPTLC, HR MS were carried out on the defined active tissues. Although, a distinct pattern of transcripts was not observed across all the plants in a particular *dosha* group, some commonalities were obtained which need further characterization towards searching for the elusive similarity among plants of the same group. In metabolomics analysis some similarity in secondary metabolites were observed in *Vata Samanam* plants. All these will be discussed in this lecture. Rigorous Scientific analysis will definitely lead to capture the elusive similarity which is vital for future validation.



Prof. (Dr.) Sidharth Mehan, Ph.D., M.Pharm (Pharmacology), is a distinguished professor in the Division of Neuroscience within the Department of Pharmacology at ISF College of Pharmacy, Moga, Punjab, India. This institution is recognized as one of the country's premier centers for pharmaceutical education and research. Dr. Mehan bri ngs over 15 years of academic, research, and administrative expertise to his role. Dr. Mehan was awarded two significant grants from the Indian government. The first grant was for excellence in idea innovation from the Ministry of Micro, Small & Medium Enterprises (MSME), Government of India, amounting to INR 18.5 lakh. The second grant, valued at INR 37 lakh, was awarded by the Department of Science & Technology (DST-SERB CRG) for core research in diagnosing and preventing motor neuron diseases. In the past five years, Dr. Mehan's lab has undertaken eleven ongoing national and international research consultancies, with a total cost exceeding one crore. He has published over 125 research and review articles in reputable international journals. Dr. Mehan's research spans translational neuroscience, pharmacology, molecular neurobiology, and drug discovery. His compelling presentations at national and international conferences underscore his proficiency in communication and oratory skills. To date, he has supervised 64 M.Pharm research projects and four doctoral theses. Additionally, he has been engaged in animal welfare and social initiatives for 17 years. Dr. Mehan has received numerous awards for his research papers at national and international conferences. He contributes as a member or leader in various national and international pharmaceutical and clinical therapeutic committees. He serves as an editor and editorial board reviewer for several reputed journals and magazines. Dr. Mehan is also the author of various international book chapters.

JH/SECON2025/OP-36

Multiple Sclerosis (MS): Challenges, diagnostic approaches, and therapeutic solutions in neurodegeneration research

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Multiple Sclerosis (MS) is a complex neurodegenerative condition characterized by the progressive damage to myelin sheaths and nerve fibers within the central nervous system, leading to symptoms such as muscle weakness, impaired coordination, fatigue, and cognitive dysfunction. Despite decades of research, the absence of definitive diagnostic biomarkers, the heterogeneous nature of the disease, and the lack of universally effective treatments remain major challenges. Insights from emerging research into neurological diseases, as highlighted by Mehan et al., offer promising opportunities to address these hurdles through innovative approaches to molecular diagnostics and therapeutic interventions. Recent studies by Mehan and co-workers have identified shared mechanisms between MS and other neurodegenerative complications, including oxidative stress, neuroinflammation, mitochondrial dysfunction, and dysregulated cellular and molecular signaling pathways, such as Nrf2/HO-1;

Glutaminase/Glutamate/NMDAR; Erk/MAPK, BDNF/TrkB; AC/cAMP/PKA/CREB; ETC complex I-V/Mitochondrial ETC-COQ10; IGF-1/GLP-1; JAK-STAT-3/PPAR-Gamma, and PI3K/Akt/mTOR. These pathways, which are implicated in myelin damage, axonal loss, and immune dysregulation, may also have relevance to MS. Therapeutic modulators, including natural compounds such as guggulsterone, 4-hydroxy-isoleucine, icariin, apigenin, oleanolic acid, solanesol, forskolin, oleanolic acid, caffeic acid phenyl ester, acetyl-11-keto-beta boswellic acid, and others, have demonstrated neuroprotective and immunomodulatory potential in preclinical models of neurodegeneration, as reported by Mehan and coworkers. These findings may provide new avenues for therapeutic innovation in MS research. However, significant challenges persist. The heterogeneity of MS complicates the identification of universal biomarkers, and individualized approaches to treatment are urgently needed. Leveraging advanced molecular diagnostic tools, such as cerebrospinal fluid and blood serum biomarkers, and targeting specific signaling pathways at earlier stages of disease progression may offer solutions for early diagnosis and personalized therapeutic interventions. This discussion will explore how these insights into neurodegenerative research can be applied to MS, providing a framework for addressing its challenges and improving outcomes for individuals and families affected by the condition.

Keywords: Multiple Sclerosis (MS); Neurodegeneration; Molecular Diagnostics; Therapeutic Modulators; Oxidative Stress and Neuroinflammation; Cellular Signaling Pathways



Dr. Pramod J. Hurkadale, Professor, Department of Pharmacognosy, KLES College of Pharmacy, Belagavi, Karnataka, India has completed his B. Pharm degree from Kuvempu University, Shivamogga obtained his M. Pharm degree with distinction from Rajiv Gandhi University of Health Sciences. Bangalore. He has been awarded Ph.D. in Pharmaceutical Sciences from Rajiv Gandhi University of Health Sciences, Bengaluru under AICTE sponsored quality improvement program and also Diploma in Clinical Research from Catalyst Clinical Services Ltd, New Delhi. Dr. Pramod has put-up Twenty-Two years of teaching and research experience in UG, PG and guided 10 scholars for their Ph. D programs under KLE University. He has published and presented research papers in national and international journals/conferences and authored a book in Elsevier publishers, CBS publishers and book chapter in Studium Press, USA. He also been invited as speaker for international conferences at Malaysia, South Africa, Dubai, Brunei, Singapore, Thailand, Srilanka, Nepal, Egypt, Saudi Arabia, Bangladesh and Japan. He has been awarded Best of the Batch Award from Zydus-Indon Cadila Health Care Ltd, Ahmedabad, Best Paper in International & National Conferences and Best Teacher Award. He is also the Member for various professional bodies APTI, ISP, SFE, KSPC etc.

JH/SECON2025/OP-37

Confluence of Eras: Aligning Ancient Heritage with Modern Therapeutics

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The integration of traditional medicine with modern therapeutic systems represents a vital frontier in the evolution of global healthcare. Traditional medical systems such as Ayurveda, Siddha, Unani, and Traditional Medicine embody centuries of empirical wisdom, offering holistic approaches to health, disease prevention, and wellness. Modern therapeutics, grounded in molecular biology, pharmacology, and clinical sciences, emphasizes evidence based precision, reproducibility, and standardization. The convergence of these two paradigms—the ancient and the modern—offers a unique opportunity to build a complementary and sustainable model of healthcare. The importance of harmonizing traditional wisdom with contemporary scientific validation is to foster dialogue on integrating ethnopharmacological knowledge with modern research methodologies, including advanced chromatographic, spectroscopic, and bioassay-guided techniques for the discovery and standardization of bioactive compounds. The focus also extends to the ethical documentation of traditional knowledge, conservation of medicinal biodiversity, and the development of regulatory frameworks ensuring safety, efficacy, and quality. Through interdisciplinary collaboration among traditional healers, biomedical researchers, and pharmaceutical innovators, this confluence aims to transform ancient insights into scientifically validated therapeutic options. Such alignment not only bridges the gap between heritage and innovation but also contributes to the emergence of a holistic healthcare paradigm—one that respects cultural legacy while advancing modern scientific excellence for global well-being.

Keywords: Biodiversity, Confluence, Conservation and Traditional



Dr. Amit Kar is currently working as Project Scientist III at the Institute of Bioresources & Sustainable Development (BRIC-IBSD), Imphal, India. His research focuses on the evidence-based validation of traditionally used medicinal plants, especially chemical and therapeutic validation to develop safe and efficacious alternative therapeutics with modern scientific approaches. Dr. Kar's research emphasizes marker analysis, standardization metabolomics-based marker profiling together with bioprospecting of herbs and herbals for various biological activities, including anti-microbial, antiviral, Immunomodulatory and metabolic-related disorders. His work also involves metabolomics-driven system biology and network pharmacology analysis to understand the mechanism-based inhibition potential of traditional medicine. This research approach will help develop new technologies and botanical-based alternative products for improved healthcare. Dr. Kar has an impressive academic record, with 64 research and review papers and 15 book chapters to his credit. His work has garnered 2250 citations, an h-index of 25, and an i-10index of 44. His contributions have greatly advanced the understanding and value addition of Indian medicinal plants, promoting their integration into modern therapeutic systems. He has served as a Executive Editor of the Journal of Ethnopharmacology, Consulting editor, Pharmacological Research – Natural products and editorial board member of CSIR-Indian Journal of Traditional Knowledge.

JH/SECON2025/OP-38

Scientific exploration and validation of North East Indian Plant Bioresources for Metabolic Disorders – An evidence based approach

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The rich biodiversity of North East India is a treasure of traditional used medicinal plant-based therapies for the management human wellbeing. The indigenous communities of this region have long relied on these bioresources for their healthcare needs, preserving a vast repository of ethnobotanical knowledge. However, validation of these traditional practices/medicinal plant/derived formulation are the need of the hour to establish its therapeutic claim. This study aims to bridge this gap by integrating therapeutic and chemical validation of traditionally used plant bioresources from North East India to develop healthcare alternatives to manage human wellbeing.

Traditionally used medicinal plant/formulation/ preparation were subjected to therapeutic validation through bioassays to explore the pharmacological activities. Simultaneously, chemical validation was performed using advanced chromatographic and spectroscopic techniques to understand the phytochemical basis of these traditional traits. We have documented traditional healthcare practices of different district of Manipur, Meghalaya and Sikkim and found several plant based extract which are used traditionally to manage metabolic related disorder including diabetes and obesity. To evaluate the therapeutic activity related to diabetes and obesity, we have performed different in-vitro enzyme inhibition model. To understand the phytochemical basis, UPL-Q-ToF-MS was also performed.

The findings revealed several promising plant bioresources with significant therapeutic efficacy, supported by the presence of bioactive secondary metabolites. These validated bioresources were further been explored for the development of value-added products, including herbal formulations, nutraceuticals, through translational research approach.

Short Lectures

JH/SECON2025/SL-1

High performance thin layer chromatography analysis of seed extracts of Tudri Surkh (*Cheiranthus cheiri*)

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ABSTRACT

Background: Tudri surkh (*Cheiranthus cheiri*) is a perennial herb belonging to family Brassicaceae and is used widely in Unani system of medicine for various ailments including Renal insufficiency. Seeds of *Cheiranthus cheiri* are aphrodisiac and also helps to expel black bile (*Sauda*) from the body. The present study was therefore, designed to analyze the HPTLC finger printing profile of steroids, glycosides and terpenoids for hydroalcoholic and ethanolic extracts of seeds of Tudri surkh (*Cheiranthus cheiri*).

Objective: To develop the high-performance thin layer chromatography (HPTLC) finger print profile of hydroalcoholic and ethylalcohol extracts of seeds of Tudri Surkh (*Cheiranthus cheiri*)

Methods: Chromatographic technique was used for separation of components from hydroalcoholic and ethylalcohol extracts of seeds and HPTLC was carried out using CAMAG HPTLC system equipped with Linomat V applicator, and WinCATS software.

Results: HPTLC profiling of the extract confirm the presence of various phytochemicals. At 640 nm HPTLC finger print of hydroalcoholic extract revealed 16 components with Rf=0.05-0.94 while ethylalcohol extracts revealed 19 components peaks with Rf=0.07 to 0.96. Well separated and compact greenish, yellow and pink bands were visualized using anisaldehyde sulphuric acid reagent.

Conclusions: We conclude that HPTLC fingerprint profiling of seed extracts of Tudri Surkh (*Cheiranthus cheiri*) reveals presence of various compounds and can be utilized as a marker for standardization and proper identification of the plant material to be used for preparation of traditional drugs.

Keywords: Unani, Tudri Surkh, *Cheiranthus cheiri*, HPTLC, Standardization

JH/SECON2025/SL-2

To evaluate the antithrombocytopenic potential of the bioactive extract derived from *Psidium guajava* L.

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ABSTRACT

Background: *Psidium guajava* L. (family Myrtaceae) has long been used in traditional medicine due to its known analgesic, anti-inflammatory, antimicrobial, hepatoprotective, and antioxidant properties.

Aim: To evaluate the antithrombocytopenic potential of the bioactive extract derived from *Psidium guajava* L.

Methodology: The resulting extract was then subjected to fractionation using solvents of increasing polarity—hexane, DCM, n-butanol, and water to isolate the most active fractions exhibiting platelet-enhancing potential. LC-MS, HPTLC and pharmacological evaluation, was performed.

Result: The different fractions was get on the basis of polarity of solvents hexane, dichloromethane (DCM), n-butanol, and water. Four major fractions were obtained: hexane (7.31%), DCM (7.31%), n-butanol (36.59%), and aqueous (45.74%). Among these, the n-butanol and aqueous fractions demonstrated the highest biological activity. *In vivo* antithrombocytopenic evaluation indicated that the aqueous fraction increased platelet counts by 166%, followed by the crude extract (14.83%) and the n-butanol fraction (8.57%). HPTLC of the aqueous fraction identified seven compounds with different Rf values. LC–MS analysis of the aqueous fraction revealed twelve compounds with different retention times (Rt) values. Similarly, the *n*-butanol fraction yielded thirteen compounds with different Rt values.

Conclusion: The result of our study has scientifically justified that the traditional use of *PG* enriched fraction in the management of thrombocytopenic disorders. The result showed that the aqueous fraction of *PG leaves* possess platelet enhancing activity, which may have contributed to its significant anti-thrombocytopenic properties.

Keywords: HPTLC, LC-MS, Thrombocytopenic activity, Fingerprinting.

JH/SECON2025/SL-3

Role of Unani system of medicine in the promotion of health and well-being of patients living with HIV/AIDS: A scientific review

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ABSTRACT

Introduction: Acquired immunodeficiency syndrome (AIDS) is a disease caused by an infection with human immunodeficiency virus (HIV). As per the World Health Organization, it's projected that by the end of 2024, around 40.8 million individuals worldwide will be living with HIV, and an estimated 630,000 people will have died due to AIDS-related causes. Ancient Unani literature does not refer to HIV/AIDS. Nonetheless, the clinical manifestations associated with contemporary HIV/AIDS have been documented as distinct ailments and were managed by ancient Unani physicians through various treatment modalities. So far, there have been no research studies conducted to scientifically validate the effectiveness of Unani management practices in enhancing health and well-being in patients with HIV/AIDS, as outlined in Unani medicine. Consequently, this review is intended to explore the existing literature concerning the role of the Unani System of Medicine in the promotion of the health and well-being of patients living with HIV/AIDS.

Materials and Methods: All the compiled information was sourced from electronic databases, including Google Scholar, PubMed, Medline, Scopus, as well as classical Unani literature.

Results and Discussion: The review of literature showed that HIV/AIDS is a complex disease, as each clinical symptom during its progression is linked not only with *Sū'-i-Mizāj* (Morbid temperament) but also with *Sū'al-Tarkīb* (Structural impairment) and *Tafarruq al-Ittiṣāl* (Loss of continuity) affecting different parts of the body, and these signs and symptoms do not manifest in individuals with a healthy immune system. The ancient Unani physicians have managed these clinical signs and symptoms, as well as the underlying weakness of *Ṭabī'at* (Medicatrix naturae), by practicing moderation in *Al-Asbāb al-Sitta al-Ḍarūriyya* (Six essential factors), utilizing various medications to alleviate symptoms and enhance immunity, and employing appropriate *Ghidhā'* (Diets) of different *Kayfiyāt* (Properties) and *Kammiyat* (Quantity), along with *Tadbīr* (Regimens).

Conclusion: The Unani management modalities can be added along with the conventional treatment modalities as the Unani system promises not only systematic relief but also immune enhancement and improvement in quality of life in PLW HIV/AIDS.

Key words: AIDS; HIV; Immune enhancement; *Mizaj*; *Tabiyat*

JH/SECON2025/SL-4

Screening of antidepressant- like effect of a polyherbal formulation

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ABSTRACT

Background: Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self worth, disturbed sleep or appetite, low energy and poor concentration. The treatment outcomes of depression are not satisfactory. In Unani classical texts, depression is not mentioned as an individual disease entity rather it is mentioned as a symptom or group of symptoms of *Malankholia* (Melancholia). A classical formulation Khameera Gauzaban Sada (KGS) has been prescribed by the Unani physicians for the various ailments viz. *Malankholia, Saudawi Amraz, Dimaghi Amraz*, *Khafkan, Zaufe-basr* etc.

Objective: Most of its ingredients reported to possesses antidepressant potential but no systematic scientific study has been carried out so far. Beside this, KGS is a semi-solid preparation containing sugar which is a major obstacle to use it in patients in the present scenario. Hence, a comparative study has been designed to compare the anti-depressant effect of KGS and its other new dosage form i.e. hydroalcoholic extract (HAEKGS) and aqeous extract (AqEKGS) using Behavioural and Pharmacological model.

Methodology: The doses of KGS and its two new dosage form are 1700 mg/kg, 24.4 mg/kg and 39.26 mg/kg, respectively given for a period of 14 days. Statistical comparison was done by one-way ANOVA followed by Tukey's multiple comparison tests.

Observations: The obtained results showed that all the three forms have a protective role in combating depression. All the test drugs significantly reduced the immobility time and significantly increased the climbing and swimming time as compared control group in behavioural model. Similarly, in pharmacological model; all the test drugs significantly reduced the akinesia, ptosis and produces reversal of hypothermia as compared to control.

Conclusion: These findings suggested that the test drugs possess anti-depressant like effect.

Keywords: Depression, unani, formulation, FST, Reserpine

JH/SECON2025/SL-5

Deciphering the cellular immunotherapeutic potential of natural products in metastatic colorectal cancer (mCRC)

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ABSTRACT

Introduction: The rising of Colorectal Cancer (CRC) cases in the human population is cause of concern. Conventional therapy has shown critical organ damage, dose-limiting toxicities, and risk of resistance and recurrence. Existing chemotherapy has deleterious impact on immune cells which are fighting against the Cancer.

Materials and Methods: The aim of this study was evaluation of natural products in advanced stages of CRC induced in rats with focus on targeting disease aggressiveness and metastasis. We investigated the immune cells activating and other vital anticancer properties of hydroalcoholic extract of Tinospora cordifoilia stems and aqueous extract Solanum nigrum leaves in Sprague Dawley rats at two different doses (low dose; 50 mg/kg, high dose; 100 mg/kg). CRC was induced with 1,2 dimethyl hydrazine for 20 weeks. Chemopreventive and therapeutic potentials of test drugs evaluated based on lymphocyte counts (CD4+ T cells, CD8+ T cells, NK cells) with flow cytometry. Cachexia, diarrhoea, hematology, Interleukin-6 and 12, tumor necrosis factor-alpha, cancer stem cells, adenocarcinoma, metastasis evaluated at the end of the 27th and 32nd weeks by comparing different groups statistically ($P<0.05$).

Results and Discussion: All blood and tissue-based markers have shown significant difference ($p<0.05$) in between the animals sacrificed at the end of the 27th weeks and end of 32nd weeks for 5-FU treatment. The results were further supported by network pharmacology domain.

Conclusion: Prophylactic, therapeutic and synergistic application of natural products halts the carcinogenesis while therapeutic treatment prevented metastasis due to its immunomodulation, anti-proliferative, mucoprotective, signaling pathways (Wnt/β-catenin, and NF-κB and cytokines) regulation.

Keywords: Natural product, Immune cells, Cancer stem cells, cytokines, metastasis, colorectal cancer

JH/SECON2025/SL-6

Reviving ancient healing: Integrating traditional herbs into modern therapeutics for menopause

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ABSTRACT

Menopause marks a significant physiological transition in a woman's life, often accompanied by distressing symptoms such as hot flashes, mood swings, osteoporosis, and metabolic changes. While Menopausal hormonal therapy (MHT) remains a conventional approach, its associated risks have prompted a resurgence of interest in traditional herbal remedies known for their safety and holistic benefits. This present study explores the integration of ancient herbal wisdom with modern pharmaceutical technology through the development of nanoherbal formulations (ethosomal gel) for menopause management. Drawing from time-honoured botanicals used in traditional systems, the research focuses on enhancing the compliance, safety, and effectiveness of the herb using nanotechnology approach. By bridging the gap between traditional medicine and contemporary pharmaceutics, this work exemplifies a concordant approach that integrates tradition while embracing scientific innovation. The findings underscore the potential of nano-herbal therapeutics to offer safer, more effective alternatives for menopausal care, paving the way for evidence-based integration of traditional knowledge into modern healthcare systems.

JH/SECON2025/SL-7

Genus *Ocimum* L. from Eastern India: chemotaxonomic markers for species identification

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ABSTRACT

Introduction: *Ocimum* Linn. of family Lamiaceae, collectively called as basil, is a large, diversified and the most popular genus of economically useful and high medicinal and aromatic importance. It is highly valued for its therapeutic properties in indigenous as well as modern pharmacological system. The presence of vast morphological as well as chemical variability has created taxonomic confusion in the genus which designates a large number of species, varieties and chemotypes.

Materials and Methods: Among the 150 accessions of basil species collected from Eastern India, six species studied were *O. americanum, O. africanum, O. basilicum* (*O. basilicum var. pilosum*), *O. gratissimum, O. kilimandscharicum* and *O. tenuiflorum.*

Results and Discussion: Compositional analysis of essential oils of *Ocimum* species by Gas Chromatography-Mass Spectrometry (GC/MS) and GC/FID has revealed a comprehensive diversity in the oil components and different chemotypes have been observed. *O. basilicum* germplasm showed all accessions were (*E*)-methyl cinnamate rich chemotype (64.2% - 75.1%); while *O. citriodorum* showed citral rich chemotypes having high contents of geranial (27.4% - 45.9%) and neral (21.4% -38.9%). *O. americanum* accessions showed camphor rich chemotype (41.9% - 51.2%); while *O. gratissimum* were eugenol rich chemotype (50.7% - 76.8%). Eugenol and methyl eugenol-rich two chemotypes were identified in *O. tenuiflorum* germplasm.

Conclusion: These aroma compounds found in Basil species are of high value and are traded in the international essential oil markets. Thus, diversity in basil provides great opportunity for developing it as important crop for industrial use.

Key words: *Ocimum species,* essential oils, chemotypes, chemical profiling

JH/SECON2025/SL-8

Investigation of phenolics from leaves of *Zanthoxylum armatum* DC for value addition and pharmacological actions

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ABSTRACT

Background: Zanthoxylum is one of the important genus comprising 250 species of plant. It belongs to Rutaceae family. The plants of this genus are distributed mainly in Southeast Asia, Himalayas and China. It contains number of phytochemical constituents like flavonoids, alkaloids, lignans, essential oil, glycosides, and coumarin. The species have been reported for many biological activities including antimalarial, hepatoprotective, anti-viral, antiproliferative, antibacterial, antifungal, analgesic and antioxidant. It is considered as important medicinal plant along with economic, cultural, aesthetic and religious significance.

Aim/Objectives: Phytochemical investigation of *Z. armatum* leaves and evaluation of their osteogenic potential of its phytoconstituents and their possible value addition.

Method: The leaves of *Z. armatum* DC was collected from the different parts of Uttarakhand, India and its ethanolic extract was prepared using the maceration technique. Different phytoconstituents were isolated from crude chloroform fraction, such as Asarinin, Umbelliferone etc. The Osteogenic activity of compounds in term of Alkaline Phosphatase (ALP) was performed using mouse calvarial osteoblast cells which showed potential osteogenic activity.

Results: In this study, the phytochemical investigation of *Z. armatum* leaves was performed which resulted in the isolation of ten phytomolecules. We explored the potential osteogenic activity of ethanolic extract and its individual phytoconstituents of the plant. All the phytoconstituents presented significant osteogenic activity.

Conclusion: The present study explored the phytochemical investigation of *Z. armatum* leaves and its osteogenic activity.

Keywords: Osteogenic, Phytoconstituent, Flavanoids, Umbelliferone

JH/SECON2025/SL-9

Phytotherapies for Acne vulgaris: A critical evaluation of clinical evidences

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ABSTRACT

Background: Acne Vulgaris, a chronic inflammatory skin condition affecting over 650 million people worldwide, often requires prolonged treatments with conventional therapies that may have adverse effects, such as antibiotic resistance and hormonal imbalances. Phytotherapies, leveraging bioactive compounds from medicinal plants, offer promising complementary or alternative treatments. This systematic review critically evaluates clinical evidence supporting efficacy and safety of phytotherapies' in the management of acne vulgaris.

Objective: To evaluate the efficacy and safety of phytotherapies in the management of acne vulgaris through a systemic review and meta-analysis of randomized controlled trials (RCTs).

Methods: A comprehensive literature search (PubMed, Scopus, Web of Science) yielded 30 randomized controlled trials (RCTs) and 20 observational studies examining 25 phytotherapeutic agents including:

- Tea Tree (*Melaleuca alternifolia*): containing terpinen-4-ol, exhibiting antimicrobial and anti-inflammatory properties
- Aloe Vera (*Aloe barbadensis*): rich in aloin, possessing anti-inflammatory, antioxidant, and wound-healing effects
- Turmeric (*Curcuma longa*): containing curcumin, demonstrating anti-inflammatory, antioxidant, and antimicrobial activities
- Green Tea (*Camellia sinensis*): containing catechins, exhibiting antioxidant and anti-inflammatory properties
- Ginger (*Zingiber officinale*): containing gingerol, demonstrating anti-inflammatory and antioxidant effects

Results: Meta-analysis revealed:

- Significant reductions in acne severity (mean difference: -2.35, 95% CI: -3.41 to -1.29)
- Improved skin hydration (mean difference: 1.87, 95% CI: 0.65 to 3.09)
- Reduced inflammation (mean difference: -1.42, 95% CI: -2.25 to -0.59)
- Topical botanicals showed greater efficacy than oral formulations ($p < 0.01$)
- Combination therapies demonstrated enhanced effects ($p < 0.05$)

Evidence Grading:

- Moderate to high evidence (Grade B-C) for Tea Tree oil's efficacy in reducing acne severity (50-60% reduction)
- Strong evidence (Grade A) for Aloe Vera's anti-inflammatory and wound-healing properties
- Emerging evidence (Grade C) for Turmeric and Ginger's anti-inflammatory and antioxidant effects

Phyto-chemical analysis: Terpenes, flavonoids, and phenolic acids were identified as key bioactive compounds with synergistic effects between phytochemicals and conventional treatments.

Conclusion: This critical evaluation underscores the potential of phytotherapies and provides a foundation for the therapeutic potential of medicinal plants in acne management, emphasizing their potential to reduce antibiotic use and resistance, minimize hormonal imbalances and promote skin health and well-being. Further, healthcare professionals, researchers, and academicians will find this comprehensive review invaluable in informing evidence-based approaches about phytotherapies for holistic management of acne vulgaris.

Keywords: Acne vulgaris, phytotherapy, herbal medicine, natural remedies, alternative medicine, clinical evidence

JH/SECON2025/SL-10

Therapeutic application of Katan (*Linum usitatissimum* Linn) in Respiratory disorders

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ABSTRACT

Recent scientific studies have increasingly focused on the Unani System of Medicine, particularly for offering numerous time-tested therapeutic agents. Among them, *Katan* (*Linumusitatissimum* Linn.), commonly known as flaxseed, has been extensively used in the Unani system for managing various respiratory ailments since antiquity. Classical Unani texts describe *katan* as *mohallil-i-awrām* (anti-inflammatory), *munaffith-i-balgham* (expectorant), *mulaṭṭif* (attenuant), and *munḍij*(concoctive), recommending its use in diseases such as *nazlawazukām* (catarrh and coryza), *su'ālraṭb*(productive cough), *iltihab al-shu'ab* (bronchitis), *ḍīq al-nafas* (dyspnoea), and *rabw* (asthma). The seeds and their mucilage contain a variety of bioactive compounds such as alpha-linolenic acid, lignans, mucilage polysaccharides, and flavonoids, all of which contribute to its medicinal effects. Contemporary research supports the idea that flaxseed may modulate immune responses, preserve mucosal integrity, and reduce airway inflammation. Its rich lipid and phytochemical profile is believed to facilitate airway dilation and bolster immune health, offering therapeutic potential for conditions like asthma and chronic obstructive pulmonary disease (COPD). Clinical evaluations have affirmed the safety and efficacy of flaxseed, and Unani formulations featuring *Katan* continue to show promising results for managing chronic respiratory disorders.

Katan's established roles as a *munḍij-i-balgham*(concoctive of phlegm) and *mohallil-i-awrām*(anti-inflammatory), along with its proven benefits in respiratory conditions, highlight the ongoing value of classical Unani knowledge in modern healthcare. The present paper highlights the therapeutic applications of Katan in respiratory disorders as documented in classical Unani literature and corroborated by experimental and clinical evidence. Interdisciplinary research is necessary to standardiseKatan-based formulations, elucidate their molecular mechanisms, and verify their safety, efficacy, and affordability as phytotherapeutic options for respiratory health.

Keywords: *Katan*, *Linum usitatissimum*, flaxseed, Unani medicine, respiratory disorders, anti-inflammatory, COPD, asthma.

JH/SECON2025/SL-11

Ethnopharmacology and drug discovery: From folk medicine to modern therapeutics

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ABSTRACT

Background: Ethanolopharmacology is related to scientific study of medicinal plant uses in traditional healthcare. In order to find new medications and treatments, this multidisciplinary area explores traditional knowledge, examines the phytochemicals, and carries out scientific research to evaluate modes of action and medicinal uses of phytoconstituents. Discovery of several drugs, including anticancer, anti-inflammatory, and antimicrobial agents are dependent on traditional folk medicines in indigenous practices.

Objectives: Through an examination of methodological developments, translational challanges, and the incorporation of multidisciplinary techniques for sustainable therapeutic development, this study seeks to examine the important role of ethnopharmacology in modern drug discovery.

Methods: Using databases including PubMed, Scopus, and Web of Science, a thorough literature review was carried out (2010–2025). Ethnopharmacology, folk medicine, phytoconstituents, bioassay-guided fractionation, drug discovery for natural products, and sustainable treatments were among the keywords.

Results: The discovery of bioactive substances like artemisinin, paclitaxel, and galantamine as a result of ethnopharmacological research shows the clinical value of traditional knowledge. High-throughput screening, molecular docking, metabolomics, and green nanotechnology are some of the contemporary methods that have sped up the confirmation and improvement of herbal leads. Though, issues related to phytoconstituents such as standardization, pharmacological data repeatability, intellectual property rights, and biopiracy concerns still exist.

Conclusions: Ethnopharmacology remains a basis of drug discovery, converting folk medicine into scientifically validated therapeutics. The future lies in multidisciplinary collaboration, ethical frameworks, and advanced biotechnological tools that can reveal the therapeutic potential of traditional medicine for global health.

Keywords: Ethnopharmacology, Folk medicine, Natural product drug discovery, Phytoconstituents, Translational therapeutics

JH/SECON2025/SL-12

Plant-based proteins: Nutritional potential, functional applications, and future prospects

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ABSTRACT

Introduction: With the rising global demand for sustainable, nutritious, and environmentally friendly food systems, plant-based proteins have emerged as a promising alternative to animal-derived proteins. They not only contribute to food security but also offer health benefits, reduced carbon footprint, and support ethical dietary choices. The present review focuses on the nutritional quality, functional attributes, and industrial applications of plant-based proteins.

Materials and Methods: The review is based on secondary data collected from scientific journals, research reports, and industry publications. Emphasis was placed on sources of plant proteins (legumes, cereals, oilseeds, pulses, and novel sources like algae), their extraction and processing methods (protein isolation, extrusion, fermentation), and comparative evaluation with animal proteins in terms of digestibility, amino acid profile, and functionality.

Results and Discussion: Plant proteins show considerable promise in human nutrition due to their rich bioactive compounds, essential amino acids (though often limited in lysine or methionine), and lower allergenicity compared to animal proteins. Processing advancements such as enzymatic modification, fermentation, and extrusion have significantly improved their texture, flavor, and bioavailability. Furthermore, their applications in meat analogues, dairy alternatives, bakery, and functional foods demonstrate wide consumer acceptance. Challenges remain regarding digestibility, off-flavors, and achieving complete amino acid balance, but technological innovations are addressing these gaps.

Conclusion/Recommendation: Plant-based proteins are central to the future of sustainable diets and food innovation. Future research should focus on enhancing nutritional quality through protein complementation, novel processing technologies, and fortification strategies. Collaborative efforts between academia and industry are vital for accelerating consumer acceptance and ensuring global food security.

Keywords: Plant-based proteins; Functional foods; Protein digestibility; Sustainability; Food innovation

JH/SECON2025/SL-13

Reverse pharmacology as a pathway for natural medicines: Way forward

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ABSTRACT

Introduction: Reverse pharmacology (RP) has emerged as a transdisciplinary paradigm that inverts the classical path of drug discovery. Instead of beginning in the laboratory and progressing to clinical studies, RP starts with clinical observations and traditional use, then moves to mechanistic validation and standardization.

Materials and Methods: The study integrates information from the previous studies retrieved from various scientific databases such as PubMed, Science direct, Google scholar, etc along with the findings of original research conducted by the research scholars of CoEUM.

Results and Discussion: RP process includes documentation of experiential knowledge, observational studies, mechanistic research, quality standardization, and clinical validation. Success stories include Ashwagandha for stress and anxiety, Curcumin for inflammation and cancer, Guduchi for immunomodulation, and Artemisinin, a Nobel Prize-winning antimalarial. Despite its promise, RP faces challenges such as variability in formulations, standardization hurdles, need for robust clinical trials, and regulatory harmonization.

Future directions should emphasize personalization of natural medicine, integrating genomic, metabolomic, and systems biology insights with traditional concepts. This convergence allows genotype-phenotype mapping and AI-driven prediction of individual responses, moving toward precision phytotherapy.

Conclusion/Recommendation: In conclusion, RP represents a new frontier in medicine by uniting traditional wisdom with modern science. Its evolution toward personalized, evidence-based natural therapies has the potential to redefine global healthcare.

Keywords: Reverse Pharamcology, traditional medicine, precision medicine, genomics

JH/SECON2025/SL-14

Dexamethasone loaded *in-situ* gel of gellan gum and chitosan for treatment of dry eye disease

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ABSTRACT

Introduction: Dry eye disease (DED) is a multifactorial disorder of the ocular surface characterized by inflammation and tear film instability. Conventional eye drops are limited by poor precorneal retention and rapid drainage. To overcome these limitations, a thermoresponsive in situ gel system containing gellan gum and chitosan was developed for the sustained ocular delivery of dexamethasone, aiming to enhance residence time and therapeutic efficacy in the treatment of DED.

Materials and Methods: A 2-factor, 3-level central composite experimental design was employed to optimize the in situ gel formulation, using concentrations of gellan gum and chitosan as independent variables. Gelation temperature, gelation time, and spreadability were taken as dependent variables. The optimized formulation was evaluated for in vitro drug release, ex vivo corneal permeation, and ocular irritation. The drug release kinetics were analyzed using various mathematical models to determine the release mechanism.

Results and Discussion: The optimized gellan gum–chitosan in situ gel showed rapid gelation at physiological temperature with good spreadability, ensuring ease of ocular application. It provided sustained release of dexamethasone compared to conventional eye drops. Enhanced corneal permeation was observed due to prolonged precorneal retention and mucoadhesive properties. The release followed the Higuchi model with Fickian diffusion, indicating diffusion-controlled drug transport. Biocompatibility studies confirmed the formulation was non-irritant and safe for ocular use. Overall, the gel offers a promising strategy for effective and sustained management of dry eye disease.

Conclusion/Recommendation: The developed gellan gum–chitosan based in situ gel of dexamethasone provides a promising strategy for improving therapeutic efficacy and patient compliance in the management of dry eye disease by ensuring sustained drug release and enhanced ocular retention.

Keywords: Dexamethasone; in situ gel; gellan gum; chitosan; dry eye disease; ocular drug delivery system.

JH/SECON2025/SL-15

AI-powered drug discovery: Transforming the future of pharmaceutical research

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ABSTRACT

Traditional medicine (TM) has long demonstrated effectiveness in treating a wide range of diseases and continues to play a vital role in improving global health. However, the conventional drug development process remains a lengthy, high-cost, and high-risk endeavor, involving multiple stages such as molecular target identification, active compound screening, lead optimization, and clinical validation. Recent advancements in Artificial Intelligence (AI) are transforming this process by enabling faster, more precise, and cost-efficient drug discovery. AI-driven systems can analyse vast volumes of biomedical and clinical data, identify hidden patterns, and predict potential drug–target interactions with remarkable accuracy. Through machine learning algorithms and predictive modelling, AI accelerates candidate selection, optimizes lead compounds, and enhances the design of preclinical and clinical trials. Furthermore, AI-powered simulations facilitate the evaluation of drug efficacy and safety before laboratory testing, significantly reducing trial-and-error experimentation. By integrating AI with pharmaceutical research, the industry can achieve better resource utilization, reduced attrition rates, and improved success in developing safe and effective therapeutics. Thus, the convergence of AI and traditional drug discovery represents a paradigm shift toward a faster, data-driven, and more reliable approach to modern pharmaceutical innovation.

Keywords: Traditional Medicine, Artificial Intelligence, Drug Discovery, Machine Learning, Drug Development Efficiency.

JH/SECON2025/SL-16

Tropical Fruits: Bridging Ethnomedicinal Wisdom and Modern Nutraceutical Innovation- A Comprehensive Review of Prebiotic-Probiotic Synergies and Therapeutic Applications

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ABSTRACT

Introduction: Tropical fruits are botanically diverse and culturally significant, long valued in traditional medicine systems for their health-promoting benefits. With growing scientific interest, these fruits are increasingly recognized as natural sources of prebiotics and probiotics, showing promise in managing digestive disorders, metabolic diseases, and immune dysfunction. Traditional applications range from fermented beverages and preserves to medicinal preparations, demonstrating their extensive use in health and nutrition.

Materials and Methods: A comprehensive literature review was conducted through multiple electronic databases, including PubMed, Google Scholar, Science Direct, Web of Science, Scopus etc. with emphasis on recent literature (2015–2025). Search terms included tropical fruits, traditional medicine, prebiotics, probiotics, gut microbiota, fermented fruits, phytochemicals, functional foods, and nutraceuticals. Additional sources comprised ethnobotanical records and indigenous medicine literature

Results and Discussion: Ethnobotanical findings confirm widespread traditional use of tropical fruits in formulations like sarbat (fermented beverages), murabba (preserves), pickles, and various therapeutic remedies. Modern phytochemical investigations have identified bioactive compounds such as oligofructans, resistant starches, inulin, polyphenols, flavonoids, carotenoids, and other specialized metabolites with strong prebiotic potential. These compounds facilitate the selective growth of beneficial gut bacteria especially *Lactobacillus*, *Bifidobacterium*, and *Faecalibacterium* and boost the production of short-chain fatty acids vital for gut barrier function and immune modulation. Clinical investigations indicate health benefits including improved digestion, enhanced immunity, glycemic and lipid profile regulation, and cardiovascular protection. Innovative processing approaches such as controlled fermentation, encapsulation, ultrasound-assisted extraction, and modified atmosphere packaging optimize the preservation and delivery of these bioactives, increasing the efficacy and shelf life of fruit-derived functional foods and probiotic beverages.

Conclusion/Recommendation: Tropical fruits serve as a bridge between ancient ethnomedical heritage and contemporary nutritional science, offering significant potential as prebiotic and probiotic sources for functional food and therapeutic development. The integration of traditional knowledge, bioactive-rich fruit matrices, and advanced processing technologies presents sustainable strategies to combat modern health challenges while supporting cultural continuity and environmental stewardship. Further translational studies and clinical trials are recommended to validate and expand the functional applications of tropical fruits in human health and disease prevention.

Keywords: Tropical fruits, ethnomedicine, prebiotic, probiotic, nutraceuticals, gut microbiome, phytochemicals

JH/SECON2025/SL-17

From fruit to remedy: How *Terminalia catappa* shields via triple modulator action in diabetic retinopathy

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ABSTRACT

Introduction: Diabetic retinopathy is one of the most prevalent microvascular complications arising from chronic diabetes, and its progression cannot be halted by glycemic control alone. As a result, there is growing interest in exploring additional therapeutic strategies that can prevent or delay such complications. Among these, herbal remedies have gained attention for their multifaceted biological activities.

Materials and Methods: *Terminalia catappa,* a medicinal plant known for its anti-inflammatory, antioxidant, anti-hyperglycemic, and anti-angiogenic properties, presents a promising candidate. The present study investigated the therapeutic efficacy of hydroalcoholic fruit extract of *Terminalia catappa* on streptozotocin-induced diabetic retinopathy in rats. A chronic diabetic model was established using streptozotocin, and rats were treated orally with *Terminalia catappa* extract at doses of 20, 30, and 40 mg/kg, as well as with the standard drug glibenclamide (10 mg/kg). Retinopathy progression was assessed through lenticular and fundus imaging, along with arteriole and venule tortuosity indices. Retinal tissue was analyzed at 12 weeks for oxidative, angiogenic, and inflammatory biomarkers, along with histopathological examination.

Results and Discussion: Results demonstrated that *T. catappa* significantly reduced blood glucose levels in a dose-dependent manner and improved cataract grades, with the highest dose showing marked clarity in lenses by the eighth week. It also significantly reduced vascular tortuosity and modulated oxidative stress, angiogenesis, and inflammation in retinal tissues.

Conclusion: These findings suggest that *Terminalia catappa* effectively attenuates the pathophysiological features of diabetic retinopathy through multiple mechanisms, highlighting its potential as a therapeutic agent in the management of diabetes-induced retinopathy.
Keywords: *Diabetic Retinopathy; Terminalia catappa; Oxidative Stress; Inflammation; Angiogenesis*

JH/SECON2025/SL-18

Therapeutic insights into pregnenolone sulphate: dual in-silico and in-vivo evaluation against CB1-mediated diabesity

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ABSTRACT

Introduction: The global prevalence of diabesity, a combination of obesity and diabetes, is increasing rapidly due to metabolic dysfunction and chronic inflammation. The endocannabinoid system, particularly the CB1 receptor, plays a vital role in regulating energy balance and glucose metabolism. Overactivation of CB1R contributes to obesity and insulin resistance. Pregnenolone sulphate, a neurosteroid with anti-inflammatory and metabolic effects, may modulate CB1R activity. This study investigates its molecular docking and pharmacological potential against high-fat diet–induced diabesity in mice.

Objectives: CB1 receptor antagonism modulates the endocannabinoid system, thereby alleviating various pathological manifestations of diabesity. The present study aimed to evaluate Pregnenolone sulphate, for its pleiotropic activity on CB1R—alone and in combination with AM251 (a selective CB1 receptor antagonist)—in a high-fat diet (HFD)-induced diabesity model in C57BL/6 mice.

Materials and Methods: The CB1 receptor antagonistic potential of Pregnenolone sulphate was assessed through molecular docking studies using the Maestro 11.4 program (Schrödinger Inc., USA). The compound was evaluated in HFD-fed animals for various parameters including anthropometric indices, neurobehavioral activity, hyperglycemia, dyslipidemia, oxidative stress, and inflammatory cytokines, and compared with the effects of AM251 alone and in combination treatments.

Results: Compared with AM251, treatment with Pregnenolone sulphate significantly reduced food intake, body weight, diabetic biomarkers, dyslipidemia, oxidative stress, and pro-inflammatory cytokine levels. Additionally, Pregnenolone sulphate did not cause any notable changes in neurobehavioral parameters such as anxiety or depression.

Conclusion: Preliminary *in silico* findings indicate that Pregnenolone sulphate exhibits strong CB1 receptor antagonistic interaction without inducing neurobehavioral alterations. Furthermore, its therapeutic potential in diabesity may be attributed to its ability to attenuate oxidative stress, normalize lipid metabolism, and suppress pro-inflammatory cytokine release.

Keywords: Endocannabinoid system, CB1 antagonist, AM251, Pregnenolone sulphate

JH/SECON2025/SL-19

Unani Medicine and Evidence-based Practice: Building Bridges for Global Health

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ABSTRACT

Traditional systems of medicine, including Ayurveda, Unani, Siddha, Traditional Chinese Medicine, and diverse indigenous healing practices, represent centuries of accumulated wisdom in understanding health, disease, and therapeutics. These systems emphasize holistic care, individualized treatment, and harmony with natural principles. In recent years, advances in biomedical sciences have created new opportunities to explore, validate, and integrate this ancient knowledge within the framework of modern healthcare. This emerging concordance is evident in pharmacological investigations of medicinal plants, standardization of formulations, and the rediscovery of lifestyle-based regimens for the prevention of chronic diseases. Modern research has confirmed bioactive compounds in several classical remedies, providing mechanistic insights into their therapeutic actions. At the same time, traditional practices such as dietary regulations, regimens for mental well-being, and preventive care resonate strongly with contemporary concepts of personalized medicine and health promotion. The integration of traditional wisdom with modern scientific rigor is giving rise to innovative healthcare models that are evidence-based, cost-effective, and sustainable. Despite these advances, significant challenges persist, including the need for rigorous clinical validation, quality control, harmonized regulations, and the protection of intellectual property. Furthermore, bridging epistemological differences between holistic traditions and reductionist scientific approaches requires mutual respect and interdisciplinary collaboration. This paper explores the evolving synergy between traditional and modern paradigms of medicine, highlighting case studies of successful concordance and identifying future directions for research, policy, and practice. By fostering dialogue between ancient wisdom and contemporary science, the aim is to develop integrative healthcare strategies that address global health challenges while preserving cultural heritage.

Keywords: Traditional Medicine, Integrative Healthcare, Evidence-based Validation, Pharmacological Insights

JH/SECON2025/SL-20

Development of pharmacoepoeial standards for *Zygophyllum creticum* through HPTLC, macromorphological and cytomorpholigal studies

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ABSTRACT

Background and Objective: *Zygophyllum creticum* is popularly used in Ayurvedic system of medicine for its various plant parts. Traditionally, it has been used in the treatment of asthma, bronchitis, anti-pyretic, anti-inflammatory, diarrhea, IBS, diabetes, digestive issues and skin disorders in Ayurveda. It is also major ingredient of few important AYUSH formulations. The present investigation involves the macromorphologial, cytomorphological, microchemical, physicochemical evaluation and HPTLC studies of *Zygophyllum creticum* root.

Aims and Objectives: Laying down the Pharmacoepoeial Standards of traditional Ayurvedic herbs

Materials and Methods: The external root morphology was observed and studied. Thin sections were taken from dried mature root. Whereas powdered plant material was used for determination of physicochemical parameters such as pH value, loss on drying, ash values, extractive values and HPTLC.

Results: Macromorphologial, cytomorphological, microchemical, physicochemical and HPTLC studies were carried out and reported.

Conclusion: The present study is, therefore, an effort to give a detailed account on its pharmacognosy and HPTLC study. These observations will help in proper authentication and standardization of the drug and also to check adulteration in the raw drug.

Keywords: Ayurveda, Pharmacognosy, Dhanvyasa, Microscopy, Physicochemical, HPTLC

JH/SECON2025/SL-21

The role of *Moringa oleifera* in human lactation: A systematic review on clinical trials

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ABSTRACT

Background: *Moringa oleifera* is a traditional galactagogue in many Asian and African cultures. While nutritionally rich, clinical evidence on its efficacy in enhancing milk production, composition, and hormonal regulation remains inconsistent.

Objective: To systematically evaluate the effectiveness of *Moringa oleifera* supplementation on lactation outcomes in human mothers.

Materials and Methods: Following PRISMA guidelines, major databases and trial registries were searched for RCTs or quasi-experimental studies comparing Moringa oleifera with placebo, no treatment, or other galactagogues in healthy postpartum women.

Results: Ten studies (eight RCTs and two quasi-experimental) met the inclusion criteria. Supplementation with *Moringa oleifera* leaf powder (500–900 mg/day for 3–11 days) increased breast milk volume in four RCTs, while a quasi-experimental study reported a 76% increase after 20 days of daily 200 ml moringa leaf soup. Serum prolactin level increased significantly in one RCT but not in another. Improvements in milk protein, fat, carbohydrate, and vitamin A content were observed in one quasi-experimental study; however, another RCT found no significant effect on milk vitamin A and only a limited increase in carotenoid concentration. One RCT reported that exclusive breastfeeding rates at six months in the moringa group met WHO targets. Three studies demonstrated significant infant growth benefits, including weight gain and length. No adverse effects were reported.

Conclusion: *Moringa oleifera* appears to be a safe, affordable, and potentially effective galactagogue that may enhance lactation outcomes. However, robust, well-designed trials are needed to confirm its efficacy and its role as a sustainable intervention for breastfeeding support, particularly in resource-limited settings.

JH/SECON2025/SL-22

Arwāḥ and bioenergetics: Exploring the parallels between Unani vital forces and mitochondrial function

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ABSTRACT

Introduction: In Unani medicine, *Arwāḥ* (vital spirits) are regarded as subtle, life-sustaining entities governing respiration, circulation, energy balance, and vitality. These concepts, though ancient, intriguingly parallel modern understandings of cellular bioenergetics, particularly mitochondrial function.

Materials and Methods: This conceptual study reviews Unani classical texts—such as Ibn Sina's *Al-Qānūn fī al-Ṭibb*—in comparison with contemporary literature on mitochondrial physiology. Core themes analyzed include energy transformation, oxygen utilization, and stress adaptation.

Results and Discussion: The analysis reveals striking parallels: *Arwāḥ* were described as carriers of life energy, resonating with the role of mitochondria in ATP generation. Unani perspectives on fatigue, stress, and vitality mirror mitochondrial dysfunction in modern physiology. The bridging of these frameworks opens avenues for exploring lifestyle disorders, aging, and personalized healthcare through an integrative lens.

Conclusion/Recommendation: Reinterpreting *Arwāḥ* in light of bioenergetics not only validates Unani physiological insights but also provides a promising framework for translational research and integrative medicine. This concordance encourages collaborative studies to address modern health challenges.

Keywords: Arwāḥ, Unani medicine, mitochondria, bioenergetics, vitality, personalized medicine

JH/SECON2025/SL-23

Neuroprotective effects of bacosides on scopolamine-induced memory deficits in rodents: A preclinical study

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ABSTRACT

Alzheimer's disease is a progressive neurodegenerative disorder characterized by memory loss and cognitive decline. Scopolamine-induced dementia in rodents is a validated model for studying potential memory-enhancing compounds. Bacosides, derived from Bacopa Monnier, are known for their antioxidant and neuroprotective properties.

Aim & Objective: To evaluate the neuroprotective and memory-enhancing effects of Bacoside-A and Bacoside-B in scopolamine-induced cognitive impairment in rodents.

Methods: Adult Wistar rats were divided into five groups: control, scopolamine, scopolamine + Bacoside-A, scopolamine + Bacoside-B, and scopolamine + donepezil. Drug solutions were administered intraperitoneally. Behavioral assessments included the Novel Object Recognition (NOR) and Morris water maze tests. Brain homogenates were analyzed for catalase (CAT), superoxide dismutase (SOD), and acetylcholinesterase (AChE) activity.

Results & Discussion: Bacoside-treated groups showed a significant improvement ($p < 0.01$) in discrimination index and escape latency compared to the scopolamine group. Enhanced antioxidant enzyme activity and reduced AChE levels were observed, indicating modulation of cholinergic pathways and oxidative stress reduction. These results suggest that bacosides improve memory and protect against neurodegeneration in this preclinical model.

Conclusion: Bacoside-A and Bacoside-B exhibit promising neuroprotective and memory-enhancing properties through antioxidant and cholinergic mechanisms. Their potential as therapeutic agents for Alzheimer's and related cognitive disorders warrants further investigation.

Keywords: Bacoside-A, Bacoside-B, scopolamine-induced dementia, Alzheimer's disease, acetylcholinesterase inhibition, oxidative stress, memory enhancement.

JH/SECON2025/SL-24

Acne Vulgaris: Phytotherapeutic perspectives for its management

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ABSTRACT

Introduction: *Acne vulgaris* is a common dermatological disorder characterized by follicular hyperkeratinization, excess sebum production, microbial colonization, and inflammation. Conventional treatments, though effective, are often limited by side effects and long-term use. Phytotherapy, particularly polyherbal formulations, has emerged as a safer, integrative approach, combining antimicrobial, anti-inflammatory, antioxidant, and gut-modulating effects. Traditional Indian preparations, such as SAFI syrup, exemplify this holistic approach.

Materials and Methods: A total of 250 individuals were screened for a 90-day study of SAFI syrup; 213 were excluded based on eligibility, and 3 for abnormal baseline labs. Thirty-four participants with moderate to severe acne received SAFI syrup. Clinical assessments, liver and renal function tests (ALT, AST, creatinine, BUN), neutrophil counts, and gut health indices were monitored at baseline and during follow-up.

Results and Discussion: SAFI syrup was well tolerated, with no significant changes in liver or renal markers ($p>0.05$). Neutrophil counts decreased significantly ($p=0.04$), indicating reduced systemic inflammation. Acne severity improved markedly by day 90 ($p<0.001$), with several participants achieving complete clearance. Gut health scores also improved ($p<0.001$), supporting the role of gut-skin axis modulation. These findings align with the theoretical phytotherapeutic mechanisms of polyherbal formulations, addressing both local dermatological lesions and systemic contributors to acne.

Conclusion: Polyherbal interventions, such as SAFI syrup, offer a safe and effective integrative approach to acne vulgaris. By modulating inflammation, supporting gut health, and improving skin outcomes, phytotherapy provides a holistic framework for sustainable acne management. Further studies are recommended to validate these findings and explore long-term benefits.

Acne vulgaris is one of the most prevalent dermatological disorders, with a complex pathophysiology involving increased sebum production, microbial colonization, inflammation, and hormonal influences. Conventional treatment options, though effective, are often associated with side effects and limitations in long-term use, leading to growing interest in alternative and complementary approaches.

Phytotherapy, which utilizes bioactive plant-derived compounds, offers a promising and holistic perspective for acne management. Herbal medicines are increasingly being recognized for their antimicrobial, anti-inflammatory, antioxidant, and detoxifying properties. Polyherbal formulations, in particular, combine synergistic actions of multiple botanicals to address both local skin manifestations and systemic contributors. Traditional Indian preparations such as SAFI syrup exemplify this approach, with reported benefits extending beyond acne reduction to improvements in gut health and systemic inflammatory markers. Such formulations are believed to modulate immune responses, restore gut-skin balance, and support detoxification processes, thereby offering broader therapeutic benefits than symptom-directed conventional treatments. Phytotherapeutic approaches to acne vulgaris represent an integrative and patient-friendly alternative to standard therapies. By targeting multiple pathogenic pathways, polyherbal formulations hold potential not only for improving dermatological outcomes but also for enhancing overall systemic health. Further scientific validation and clinical trials are warranted to strengthen the evidence base, but current insights highlight their role as a sustainable and complementary option in acne management.

Keywords: Acne vulgaris, Polyherbal formulation, SAFI syrup, Clinical efficacy, Safety

JH/SECON2025/SL-25

Dry needling or corticosteroid injections for musculoskeletal conditions: A systematic review

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ABSTRACT

Introduction: Nowadays, both dry needling and corticosteroid are emerging topics to treat various conditions. The aim of this systematic review is to critically analyze the literature to compare dry needling and corticosteroid injections for treatment of musculoskeletal conditions.

Method: This systematic review was conducted according to PRISMA guidelines. Various different databases were used to search relevant articles using Cochrane handbook for systematic review of interventions and different keywords. Articles were collected altogether and selected on the basis of eligibility criteria. The final sets of articles were selected after complete screening.

Result: Initially 131 articles were selected for reviewing. On the basis of eligibility criteria and availability of full text articles 9 articles were selected. Out of which only 7 articles were selected for review. Study quality assessment was done via PeDro and risk of biasing was done via RoB2.

Conclusion: DN is superior over CS injection in treating various musculoskeletal conditions.

Keywords: Dry needling and corticosteroid injection and injuries and tendinitis and musculoskeletal conditions or dry needling or corticosteroid injection.

JH/SECON2025/SL-26

Parachlorophenylalanine and DSP-4 induced oxidative stress in 6-Hz Psychomotor seizures in mice

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ABSTRACT

Introduction: Oxidative stress has been implicated in the pathophysiology of epilepsy, with neurotransmitters such as serotonin (5-HT) and noradrenaline (NA) playing a crucial role in modulating seizure-induced oxidative changes. The present study aimed to evaluate the involvement of oxidative stress in 6-Hz induced psychomotor seizures under conditions of 5-HT and NA depletion, and to assess the protective effect of sodium valproate (SVP).

Materials and Methods: Swiss albino mice were subjected to 6-Hz psychomotor seizures following depletion of 5-HT with parachlorophenylalanine (PCPA) and NA with DSP-4. Animals were divided into groups (n=8) receiving PCPA, DSP-4, SVP alone, or their combinations (pre- and post-treatments). Oxidative stress markers including malondialdehyde (MDA), glutathione (GSH), and superoxide dismutase (SOD) were estimated in cortical and hippocampal tissues. SVP was used as a reference antiepileptic drug.

Results and Discussion: 6-Hz seizures significantly increased MDA levels and decreased GSH and SOD in cortex and hippocampus compared to controls. Pretreatment with SVP normalized these oxidative stress parameters, while post-treatment was less effective, especially in DSP-4–treated groups. Depletion of 5-HT and NA further aggravated oxidative stress, suggesting their protective role against seizure-induced free radical generation. SVP exerted a beneficial modulatory effect on oxidative stress markers.

Conclusion/Recommendation: The findings demonstrate that neurotransmitter depletion enhances seizure-induced oxidative stress, increasing seizure susceptibility. SVP shows a protective effect by restoring antioxidant balance, supporting its potential role in managing pharmacoresistant seizures where oxidative stress contributes to pathology.

Keywords: Epilepsy; 6-Hz psychomotor seizures; oxidative stress; serotonin; noradrenaline; sodium valproate

JH/SECON2025/SL-27

Utilization of *Nigella Sativa* seed oil in management of neoplasm

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ABSTRACT

Background: *Nigella sativa,* referred to as black seed or Kalonji, have been evidenced to be rich in bioactive components, particularly thymoquinine, along with alkaloids, flavonoids, terpenoids, saponins, and fixed oils contributing to its multifaceted pharmacological effects.

Objective: To see the effect of cold pressed oil expressed from *N. sativa* seeds in management of breast cancer along with its quality control parameters.

Methodology: To provide the interpretations, Pharmacognostic assessments have been carried out, into the macroscopic, miscroscopic and physicochemical characteristics of *N. sativa*, ensuring standardization and quality control for its biomedical applications. Data was collated from Google, Pub Med and repository of Library of CCP.

Results and Discussion*: In vitro* and *in vivo* studies outlined the anticancer potential of *N. sativa*, with thymoquinone demonstrated to exert cytotoxic, pro-apoptotic and anti-proliferative properties against several cancer cell lines. The mechanisms were found to had impact on core molecular networks such as NF-κB, STAT3, MAPK, PI3K/Akt, and p53, leading to apoptosis induction, inhibition of tumour growth, suppression of metastasis and reduction of oxidative stress. Moreover, the formulations such as nano-emulsions and silver nano-particles synthesized from herbal extracts found to enhance anticancer efficacy.

Conclusion: Bioassay-guided fractionation, chromatographic profiling, and cytotoxicity assays were optimized and the outcome were expected to validate herb as a potent anticancer agents, offering cost-effective and safer alternatives.

Keywords: *Nigella sativa,* thymoquinone, anticancer activity, molecular pathways, nano-formulations

JH/SECON2025/SL-28

Artificial Intelligence (AI) guided approach to phytochemical screening and therapeutics

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ABSTRACT

Introduction: Artificial intelligence is a great blessing to mankind in the form of technical tools to screen and analyze phytopharmaceuticals. The advanced algorithms include emphasizing upon virtual screening, molecular modeling and network pharmacological aspects. Right from beginning at authenticating the flora to its bioactive evaluation, the tools play a pivotal role to impart benefits to researchers, practitioners, and the rest of stake holders.

Material and Methods: The optimization of phytopharmaceuticals from natural sources leads to exploring a novel drug domain with great hope and possibilities to cure the diseases with more specificity. To accelerate the objective of the presentation we are to explore the applications of AI-driven approaches for phytochemical research, AI-aided in silico screening of phytochemicals for different ailments and disorders, AI-aided structure elucidations etc. AI – driven tools such as machine learning (ML) and deep learning (DL) are known to process very complicated and relevant datasets and information from high throughput spectroscopical techniques like UV, NMR, MS, IR, and chromatographic outcomes to expedite the elucidations of novel compounds.

Results and Discussions: AI integration is certainly a significant breakthrough to address the phytopharmaceuticals based therapeutics where global challenges like AMR, and other chronic life-threatening diseases are to be kept on priorities.

Conclusion: AI is applied on Data integration and Analysis, Virtual screenings and Molecular Modeling, Prediction and Optimization, and Drug discovery acceleration. Apart from the ease of application of AI driven tools the probabilities of modern technical challenges can never be ruled out which include Data availability, Experimental validation, and multi-omics integration.

Keywords: Artificial intelligence, Phytochemical screening, Phyto-pharmaceuticals

JH/SECON2025/SL-29

Impact of sleep deprivation and circadian disruption on brain function: Neuroprotective roles of Khamira-e-Gaozaban sada and curcumin

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ABSTRACT

Background: Sleep is a vital physiological process regulated by the circadian rhythm, controlling hormone release, metabolism, and brain activity. Only about 35% of adults obtain good, restorative sleep. Sleep deprivation and disruption of the light/dark cycle adversely affect brain health.

Objective: To evaluate the effects of chronic sleep deprivation and dim light at night on brain function and assess the neuroprotective potential of curcumin and Khamira-e-Gaozaban sada (KGS) a Unani formulation.

Methodology: Mania was induced in Swiss Albino mice by chronic sleep deprivation, followed by oral treatment with KGS (50 and 100 mg/kg). Behavioral tests and brain histopathology were conducted. In a separate experiment Swiss Albino mice were exposed to dim light (5 lux) at night for three weeks. Curcumin was administered to test its neuroprotective effects. Behavioral, biochemical, molecular, and histological analyses were performed.

Results: KGS reduced hyperlocomotion and preserved spatial memory, with reduced ischemic brain changes in sleep-deprived mice. Dim light exposure impaired cognitive and non-cognitive behaviors, increased oxidative stress, downregulated hippocampal proteins (BDNF, Synapsin II, DCX), CREB, SIRT1 mRNAs, and neurodegeneration-associated miRNAs. Neuronal damage was observed histologically. Curcumin significantly reversed these effects.

Conclusion: Sleep deprivation and circadian disruption and induce oxidative stress and neurodegeneration impairing brain function. KGS and curcumin demonstrate neuroprotective potential, supporting the role of traditional medicine in managing sleep-related cognitive disorders.

Keywords: Sleep deprivation, Circadian rhythm, Khamira-e-Gaozaban sada, Curcumin, Neuroprotection

JH/SECON2025/SL-30

Viruses as hidden drivers of bioactive compound variation in medicinal plants

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ABSTRACT

Introduction: Secondary metabolites such as phenolics, flavonoids, alkaloids, and terpenoids are fundamental determinants of the therapeutic efficacy of medicinal plants. Emerging evidence suggests that plant viruses can influence the biosynthetic pathways of these metabolites, leading to qualitative and quantitative variations in bioactive compounds that ultimately affect the medicinal properties and pharmacological potential of the host plant.

Aims/Objectives: This study aims to explore the current knowledge to elucidate how viral infections alter host metabolic pathways, gene expression, and secondary metabolite profiles, thereby affecting the therapeutic efficacy and phytochemical consistency of medicinally important plants.

Methods: A systematic literature survey was conducted using major scientific databases and indexing platforms. Studies reporting viral effects on medicinal plant metabolism, secondary metabolite accumulation, and related biosynthetic pathways were analyzed to synthesize current understanding.

Result: Evidence shows that viral infections can both enhance and suppress key metabolites, with effects often linked to altered expression of enzymes in biosynthetic pathways. Phenolics and flavonoids exhibit variable accumulation, while alkaloids and terpenoids are differentially impacted, highlighting targeted metabolic reprogramming rather than general stress responses.

Conclusion: Viruses act as significant drivers of bioactive compound variation, affecting the medicinal potential of plants. Recognizing these interactions informs metabolic engineering, optimized cultivation, and strategic use of plant-derived therapeutics.

Keywords: Plant viruses, Modulator, Secondary metabolites, Metabolic engineering, Plant-derived therapeutics.

JH/SECON2025/SL-31

Exploring herbal remedies for skin disorders: A synergy of tradition and science

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ABSTRACT

Background: It has been observed in the last few decades; researchers are focusing on phytopharmaceuticals for the treatment of almost all types of skin ailments. A number of skin problems such as Acne, Alopecia, Infectious skin problems, Chronic Venous Insufficiency, Dermatitis, Hyperhidrosis, Pruritus, Psoriasis, Scabies, Skin Cancer (melanoma and carcinoma), Vitiligo, Superficial Wounds and Burns etc. are still a great challenge to provide accurate and effective treatment.

Aims/Objectives: The goal of the present study was to systematically present the recent scientific studies carried out on medicinal plants and already isolated phyto-chemicals in the treatment of skin diseases using scientific databases (PubMed, Web of Science, and Scopus, etc.).

Methods: In the present study, an attempt has been made to highlight the main biologically active phytochemicals that may be utilized as lead molecules in the process of new drug development and to formulate new dosage forms for different dermatological problems.

Conclusion: In this way, the compiled studies will surely be a good source of information to the researchers and academicians who are engaged in working on medicinal plants, phyto-chemicals, their evidence-based promising role, mechanism of action, and future prospects in order to treat various skin ailments.

Keywords: Herbal remedies, Skin disorders, phytopharmaceuticals, scientific database, traditional medicines

JH/SECON2025/SL-32

Formulation and in vitro characterization of lipid hybrid nanoparticles encapsulating olaparib poly (ADP-Ribose) polymerase (PARP) enzyme inhibitor for the targeted delivery to colorectal cancer

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ABSTRACT

Introduction: A number of poly (ADP-ribose) polymerase (PARP) inhibitors have been recently approved for clinical use in BRCA-mutated and other cancers. Among them, Olaparib is a selective and potent antagonist of PARP enzymes, specifically PARP1 and PARP2. However, the clinical utility of PARP inhibitors is often limited by off-target toxicity and the emergence of drug resistance during prolonged treatment, thereby necessitating the development of more efficient and targeted drug delivery systems. Nanomedicine-based strategies, such as nanoparticle formulations of small-molecule inhibitors, have shown significant potential by improving solubility and bioavailability, reducing systemic toxicity, enhancing tumor-specific delivery, and overcoming drug resistance.

Materials and Methods: In this study, Olaparib-loaded lipid hybrid nanoparticles (LHNPs) with colon-targeting specificity were formulated using an emulsification-evaporation method. The optimized formulation contained 56 mg DMG-PEG, 250 mg PLGA, 50 mg egg lecithin, and 125 mg Pluronic F127. Morphological characterizations were carried out using transmission electron microscopy (TEM) at Sultan Qaboos University, Muscat, Oman. Other in vitro evaluations were performed at the National University of Science and Technology, Muscat, Oman.

Results and Discussion: TEM analysis revealed nanoparticles with a smooth elliptical surface and an average size of 380 nm, while the zeta potential was determined as −26.8 mV, indicating good colloidal stability. In vitro drug release studies were performed using a Franz diffusion cell with bovine intestinal membrane as the diffusion barrier. The LHNPs demonstrated a slower and sustained drug release pattern, with 85% cumulative release of Olaparib over 72 hours, compared to 92% release observed for the pure drug within the same time frame. Importantly, release kinetics analysis confirmed that the drug release from LHNPs followed the Higuchi model, suggesting diffusion-controlled release from the nanoparticle matrix. The sustained release profile indicates the potential of LHNPs to maintain prolonged therapeutic drug levels while reducing dosing frequency and minimizing systemic toxicity.

Furthermore, preliminary toxicological assessments were conducted using zebrafish as an in vivo model. The LHNP formulation was found to be safe, showing no observable signs of toxicity or developmental abnormalities, thereby supporting its biocompatibility for further preclinical evaluation.

Conclusion: In conclusion, the development of hybrid nanoparticles loaded with Olaparib for targeted colon delivery demonstrates promising potential based on the in vitro results. These findings suggest that the nanoparticles could serve as an effective drug delivery system for colon cancer therapy. However, due to legal constraints, certain critical studies—such as cell line experiments and in vivo animal studies—were not conducted, which limits the ability to fully validate the therapeutic efficacy and safety of the nanoparticles in more complex biological systems. Despite these limitations, the positive outcomes observed thus far provide a strong foundation for further research. Therefore, it is highly recommended that future studies focus on completing the missing in vivo and cell-based experiments to confirm the therapeutic potential and safety profile of these hybrid nanoparticles for clinical applications.

Keywords: Lipid Hybrid Nanoparticles, Olaparib, Colon cancer, Toxicological studies

JH/SECON2025/SL-33

Development of (−)-epigallocatechin-3-gallate-loaded folate receptor-targeted nanoparticles for prostate cancer treatment

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ABSTRACT

Prostate cancer (PCa) continues to be a significant clinical challenge that requires innovative and effective treatment strategies. We developed polymeric nanoparticles (NPs) loaded with epigallocatechin 3-gallate (EGCG) and coupled with folic acid (FA), enabling them to bind to both the human folate receptor alpha (FOLR1) and the prostate-specific membrane antigen (PSMA+) in a prostate cancer model. After performing preliminary computational studies on the molecular recognition of the NP ligands binding to the FOLR1 active site, we synthesized a biocompatible block copolymer, PLGA–PEG–FA, to create EGCG-targeted nanoparticles (EGCG-T-NPs). The resulting NPs were characterized using various analytical techniques, and we assessed their anticancer efficacy through several experiments in a 3D culture using the PC3 and 22Rv1 cell lines. Our results indicated a significant reduction in spheroid size with the use of EGCG-T-NPs, particularly in PSMA+ (22Rv1) cells. The targeted NPs notably enhanced the antiproliferative activity of EGCG against the PCa cell lines, especially towards the PSMA+ cells, which are known to express higher levels of FOLR1. We did not observe significant alterations in reactive oxygen species formation in either cell line. However, we documented noticeable changes in mitochondrial depolarization (15%) and polarization (18%) in response to EGCG-T-NPs compared to the control group in 22Rv1 cells. Additionally, treatment with EGCG-T-NPs resulted in an increased number of dead apoptotic cells in the 22Rv1 spheroids. Overall, our findings validate the hypothesis that these targeted nanoparticle prototypes significantly enhance the cellular uptake of the EGCG payload in PCa cells, thus substantially enhancing its antitumor efficacy.

JH/SECON2025/SL-34

Authentication of bala and Indian senna using Sequence Characterized Amplified Regions (SCAR) markers

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ABSTRACT

Background: Adulteration of medicinal plants threatens the safety and efficacy of herbal medicines. Traditional methods of authentication are influenced by environment, subjectivity and are time consuming. In contrast, molecular markers like Start Codon Targeted polymorphism (SCoT), CAAT-Box Derived Polymorphism (CBDP) based Sequence Characterized Amplified Regions (SCARs), and DNA barcoding offer precise, unparallel, and unambiguous authentication of genuine medicinal plants.

Aims/Objectives: The main objective of this study is to develop SCAR markers for the authentication of the genuine bala (*Sida cordifolia* L.) and Indian senna (*Senna alexandrina* Mill.) against a background of adulterants/substitutes. These include *Sida cordata*, *Sida rhombifolia*, *Sida acuta*, *Abutilon indicu*m (as adulterants of bala), and *Cassia fistula*, *Senna occidentalis, Senna sophera* and *Cassia tora* (as adulterants of Indian senna).

Methods: Genomic DNA isolated from bala and Indian senna and their adulterant species were subjected to CBDP and SCoT based SCAR PCR. The polymorphic bands were identified, eluted and cloned in a T/A vector (pGEM-T Easy). The recombinants plasmid clones were confirmed by PCR and restriction analysis. The confirmed clones were then sequenced and the initial SCoT and CBDP sequences were then extrapolated into sequence-specific SCAR markers specific for bala, Indian senna and their adulterant species.

Results: Sequence-specific SCAR markers have been developed for fool-proof authentication of bala, Indian senna and their adulterants.

Conclusion: SCAR markers facilitated authentication of bala, Indian senna and their adulterant species, thus safeguarding consumers and the herbal industry from adulteration and substitution.

Keywords: Bala, Indian senna, adulteration, authentication, SCARs.

JH/SECON2025/SL-35

Unveiling the secret of Labda-8(17),12,14-trien-19-oic acid and karanjin as anti-prostate cancer agents

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ABSTRACT

Background: Nowadays, there has been a significant surge in the research of anticancer agents derived from plants due to their perceived safety and efficacy. Labda-8(17),12,14-trien-19-oic acid and karanjin obtained from fruit extract of *Cupressus sempervirens* and *Pongamia pinnata*, respectively, have demonstrated promising potential as an anti-prostate cancer effects.

Aims/Objectives: The aim of our studies was to investigate the anti-prostate cancer properties of two bioactive compounds labda-8(17),12,14-trien-19-oic acid and karanjin against human BPH-stromal cells and androgen-insensitive PCa cells, respectively.

Methods: Cell viability was evaluated by MTT assay whereas flow cytometry analysis was utilized for the study of cell cycle arrest and apoptosis in targeted cell lines. Validation of mRNA expression was done through RT-PCR. In addition, molecular markers, ROS and mitochondrial membrane potential were also assessed.

Results: Analysis of results identified that labda-8(17),12,14-trien-19-oic acid (IC_{50} = 37.5 µM for human BPH-stromal cells) and karanjin (IC_{50}: 40.0 µM for PC-3 cells) exhibited potent anti-prostate cancer activity. In molecular mechanism, labda-8(17),12,14-trien-19-oic acid significantly inhibited activation (phosphorylation) of Stat-3 in BPH-stromal cells and prevented transactivation of androgen sensitive KLK3/PSA and TMPRSS2 genes in LNCaP cells whereas karanjin was found to enhance the ROS (84.24% at 30-50 µM), induced apoptosis, and arrested cell cycle at G2/M phase.

Conclusion: Our findings underscore that how labda-8(17),12,14-trien-19-oic acid (IC50 = 37.5 µM for human BPH-stromal cells) and karanjin inhibit the prostate cancer. Further, in-vivo investigations are warranted to explore their anticancer effect and to develop a novel drug towards clinical trial against prostate cancer.

Keywords: Labda-8(17),12,14-trien-19-oic acid, Karanjin, Cupressus sempervirens and Pongamia pinnata, Anti-prostate Cancer activity, MTT assay, RT-PCR method

JH/SECON2025/SL-36

Ethnomedicinal relevance of AYUSH-Unani medicinal plants of Andhra Pradesh

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ABSTRACT

Background: Ethnobotanical study of plants is very important in understanding the culture of the tribal population which has been residing nearby the forest areas for ages and utilizing the indigenous flora of the Indian Systems of Medicine (ISM) for therapeutic purposes. Thus, we attempted the study to document the folk-medicinal uses of the Ayush-Unani medicinal plants and their role in the treatment of different diseases by the prominent tribal population of Andhra Pradesh.

Aims: The study was aimed at making an inventory of the Ayush-Unani medicinal plants in the study area and recording the method of drug preparation, formulation and its mode of administration for various ailments.

Materials and Methods: The survey was carried out in different durations of field trips from 2019 to 2024 to collect the data from 110 local inhabitants (traditional healers, tribal vaidya and elder people) through questionnaire-based interviews. The data were recorded into a synoptic table comprising of the Unani medicinal plants, the parts used, therapeutic indications, and modes of administration. Different ethnobotanical indices, including Relative Importance (RI), Relative Frequency Citation (RFC), and Use Value (UV), were calculated.

Results: A total of 60 species of Ayush-Unani medicinal plants (herbs, climbers, shrub and trees) belonging to more than 33 families and nearly 84 folk-medicinal claims covering 38 disease conditions including; diabetes, dysentery, fever, fractured bones, hematochezia, hematuria, laxative, mouth ulcers, oedema, piles, rheumatic pains, ringworm infections, eczema, insomnia, were recorded.

Conclusion: Systematic documentation of the Ayush-Unani medicinal plants in the Andhra region showed that the area is rich in plant diversity, having impactful ethnomedicinal values. The tribals of the area have significant knowledge about the use of medicinal plants to cure many ailments. The results of the study indicate that carrying out subsequent pharmacological and phytochemical investigations followed by validation could lead to new drug discoveries of plant origin.

Keywords: Ethnopharmacology, Ayush-Unani, medicinal plants, tribal population, Folk-medicinal claims

JH/SECON2025/SL-37

Determination of brain tonic potential of AYUSH formulations using *in-vitro, in-vivo* and metabolomic approaches

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ABSTRACT

Introduction: Traditional AYUSH formulations have long been utilized as "brain tonics" to promote cognition, memory, and overall mental well-being. Among them, Itrifals, a class of polyherbal preparations, are traditionally acclaimed for their neuroprotective properties. Despite their widespread use, the molecular mechanisms underlying their therapeutic efficacy remain largely unexplored. Therefore, the present study aimed to evaluate the brain-tonic potential of selected Itrifal formulations through an integrated *in-vitro, in-vivo*, and metabolomic approach, providing experimentally validated insights into their neuroprotective mechanisms. Additionally, sugar-free dosages were prepared of respective Itrifals to provide non-sugar alternatives without compromising the therapeutic efficacy.

Materials and methods: The study undertook quality control studies including the simultaneous quantification of bioactive markers using developed HPTLC method. The *in-vitro* assessment included acetylcholinesterase inhibitory activity and anti-oxidant activity. *In-vivo* determining the neuroprotective potential of Itrifal against scopolamine induced learning and memory impairment. Neurobehavioral parameters were assessed using morris water maze test and spontaneous alternation behaviour. The biochemical estimation using acetylcholinesterase inhibition, amyloid beta (Aβ) estimation, oxidative stress markers, and anti-inflammatory markers were also carried out followed by histological and immunohistological analysis. Furthermore, *in-vivo* pattern recognition of IMD metabolites, identified through UPLC-MS/MS analysis in serum were conducted to gain further insights.

Result: The present investigation has reported new HPTLC method development for simultaneous quantification and validation of gallic acid, and ellagic acid as reference markers. The drug treatment significantly mitigated the increased latency (escape latency and transfer latency) and increased % dwell time as compared to the scopolamine treated group in a dose dependent manner. The treatment with medium and high dose significantly attenuated the elevated biochemical markers, restored the antioxidant enzyme level (SOD), and regulated the expression of proinflammatory cytokines (TNF α, and IL-6) in brain tissue showing comparable results to that of standard piracetam. The neuroprotective effects of selected Itrifal were supported by its ability to inhibit acetylcholinesterase activity and mitigate amyloid beta accumulation, comparable to that of standard. The *in-vivo* pattern recognition analysis revealed presence of 27 metabolites, out of which 20 metabolites were identified and 07 metabolites were unidentified at different time intervals.

Conclusion: *Itrifal Muqawwi Dimagh* (IMD and its sugar free dosage) demonstrated neuroprotective properties by supporting overall brain function through multiple mechanisms including anti-oxidant, anti-inflammatory, AChE inhibition and anti-amyloidogenic pathways. This suggests that IMD and its sugar-free dosage holds promising potential as a neuroprotectant.

Keywords: Itrifals, Oxidative stress, Neuroinflammation, Amyloid beta, Acetylcholinesterase inhibition, *in-vivo* pattern recognition studies.

JH/SECON2025/SL-38

From traditional rehabilitation to modern outlook: Addition of balance training to conventional pulmonary rehabilitation protocols in COPD

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ABSTRACT

Background: Pulmonary Rehabilitation (PR) has long been recognized as the traditional standard of care for patients with Chronic Obstructive Pulmonary Disease (COPD). It emphasizes endurance and strength training to improve functional capacity and quality of life. However, COPD patients also suffer from impaired balance, reduced muscle strength, and higher fall risk, with balance shown to be nearly 50% poorer compared to age-matched peers. Despite its established role, traditional PR does not include a structured balance training component. Hence, the present systematic review was conducted to understand the impact of targeted balance interventions to PR in COPD.

Objective: To evaluate whether the addition of balance training program to conventional pulmonary rehabilitation results in superior improvements in balance among COPD patients.

Methodology: Databases including PubMed, Scopus, and Cochrane were searched (2001–2024) using relevant MeSH keywords. Randomized controlled trials (RCTs) involving COPD patients undergoing PR with added balance training were included. Two reviewers independently screened the studies, and methodological quality was assessed using the PEDro scale.

Results: Eight RCTs met the inclusion criteria. The integration of balance training with traditional PR demonstrated significantly greater improvements in balance than PR alone. Secondary benefits included increased exercise capacity, enhanced walking tolerance, and better six-minute walk distance (6MWD). Balance programs were well tolerated by patients with moderate to severe COPD.

Conclusion: For improvement of balance in COPD patients, an addition of a specific component for balance training may be considered in the Conventional pulmonary rehabilitation protocol.This combined approach enhances functional outcomes and reduces fall risk, underscoring its value in clinical practice.

Keywords: Pulmonary rehabilitation, COPD, Balance

JH/SECON2025/SL-39

Safūf-e-Qaranfal mediated biogenesis of nanocomposites towards antibiotic-resistance in medically important ESKAPE bacteria

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ABSTRACT

Background: Antibiotic resistance among ESKAPE pathogens poses a critical global health threat. Traditional Unani formulations, such as *Safūf-e-Qaranfal*, are rich in phytoconstituents with significant antimicrobial potential. Integrating such remedies with nanotechnology offers a novel approach to enhance their efficacy and delivery, there by opening new avenues for combating resistant infections.

Aims/Objectives: The study aimed at synthesizing *Safūf-e-Qaranfal*-mediated Ag-ZnO nanocomposites using green chemistry and evaluate their antibacterial potential against MDR pathogens.

Methods: Ag-ZnO nanocomposites were synthesized via green-mediated hydrothermal and co-precipitation approaches, with *Safūf-e-Qaranfal* serving as a reducing and stabilizing agent. Characterization was performed using UV–Vis, FTIR, XRD, SEM, TEM, and DLS. Antimicrobial efficacy was assessed against *Staphylococcus aureus*, *Bacillus cereus*, *Klebsiella pneumoniae*, *Escherichia coli*, and MRSA through agar well diffusion and broth microdilution assays.

Results: UV–Vis spectroscopy confirmed nanoparticle formation with a stable SPR peak at 427 nm. FTIR analysis indicated phytoconstituents acting as capping and stabilizing agents, while XRD patterns confirmed crystalline hexagonal wurtzite ZnO with characteristic Ag peaks. SEM revealed uniformly dispersed spherical nanostructures with minimal agglomeration, and DLS showed an average hydrodynamic diameter of 85–120 nm with low polydispersity, confirming stability. Antibacterial studies demonstrated strong activity of the polyherbal Ag-ZnO nanocomposite, particularly against MRSA (28 ± 0.36 mm; MIC: 0.625 mg/mL) and *B. cereus* (26 ± 0.0 mm; MIC: 0.625 mg/mL). Nanocomposites consistently outperformed crude extracts despite lower concentrations.

Conclusion: *Safūf-e-Qaranfal*-mediated Ag-ZnO nanocomposites exhibit stable nanoscale morphology and significant antibacterial efficacy against MDR pathogens. Integrating Unani phytotherapy with nanotechnology offers a promising strategy to address antibiotic resistance.

Keywords: Antibiotic resistance; ESKAPE pathogens; *Safūf-e-Qaranfal*; Ag-ZnO nanocomposites; green synthesis

JH/SECON2025/SL-40

Integration of academia across different systems of medicine

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ABSTRACT

As the world continues to outspend on the health care without improving much on the health outcomes, understanding this disproportional growth has been critical for acknowledging the need for changes in healthcare structure and processes. This emerging area of interest in health care has led the movement of comprehensive integrative medicine and holistic medicine. The integration of Ayurveda, Yoga, Unani, Siddha, and Homeopathy (AYUSH) with modern medicine is proposed to cater to the need for more personalized and effective approach in healthcare.

However, the foundation of this integration lies in the integration of academia across the different systems of medicine. Integrated teaching has been emphasised by academicians as it helps in relevant learning and understanding of a topic in more effective manner. To strengthen the integrative medicine approach, various models for integration of medical teaching need to be proposed and studied for effective implementation. This would require complex systems change and management across multiple organisational boundaries. Many aspects of the medical education have already been altered by the introduction of competency-based education (CBE), inter-professional education (IPE), and the large-scale application of information technology (IT).

The onus lies on the pioneers of education and the young academicians and researchers to develop a range of solutions to address the increasing pressures on medical education system, with the aim of maintaining focus on improving quality of health care. The way forward is the transformation of medical education system with innovative curriculum implemented in a phased manner. This would translate to drafting defined topics of common interest among different disciplines followed by the medical conditions with treatment dilemmas which would be dealt passionately by the subject experts irrespective of their medicine system background.

However, this novel initiative would face various challenges like interdisciplinary coordination, planning and motivation of faculty which need to be addressed. To conclude the effectiveness and success of integrated teaching in the global and AI assisted world, will rest on the mode and time of implementation, and the will of the academicians across different medicine systems.

JH/SECON2025/SL-41

Translational Development of NCE 14a: From Predictive Pharmacokinetics and Molecular Docking to Colon-Targeted Nanoparticles for Colorectal Cancer Therapy

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JH/SECON2025/SL-42

Synergistic nephroprotection of *Cinnamomum zeylanicum* and *Piper cubeba*: Metabolite profiling and wfficacy in cisplatin-induced renal injury

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ABSTRACT

Introduction: Cisplatin (CP) is a widely used chemotherapeutic drug, but its nephrotoxicity limits clinical utility. Traditional medicinal plants such as *Cinnamomum zeylanicum* (CZE) and *Piper cubeba* (PCE) possess phytoconstituents with potential nephroprotective activity. The objective of the present study was to investigate the acute toxicity, metabolite profiling, and nephroprotective efficacy of CZE, PCE, and their combinations against CP-induced renal damage.

Materials and Methods: Methanolic extracts of CZE and PCE were standardized by HPTLC using cinnamaldehyde and piperine as markers, and bioactive compounds were identified by UPLC-MS. Acute oral toxicity was assessed in Wistar albino rats using a single high dose (2000 mg/kg), monitoring mortality and clinical signs for 14 days. Nephroprotective activity was evaluated in CP-induced nephrotoxic rats (7 mg/kg, i.p.), using CZE (300 mg/kg), PCE (400 mg/kg), and their combinations (0.5:1, 1:0.5, and 0.5:0.5 ratios). Kidney and liver function markers, oxidative stress, inflammatory and apoptotic markers, along with histopathological and immunohistochemical changes, were analyzed.

Results and Discussion: UPLC-MS profiling revealed nephroprotective phytoconstituents: cinnamaldehyde, cinnamic acid, quercetin, and rosmarinic acid in CZE, and piperine, cubebene, caffeic acid, and embelin in PCE. Acute toxicity studies confirmed that both extracts were safe at 2000 mg/kg. Cisplatin administration significantly altered biochemical, oxidative, inflammatory, and histological markers of nephrotoxicity. Pretreatment with CZE, PCE, and their combinations improved kidney and liver function, reduced oxidative and inflammatory stress, and restored normal histoarchitecture. Among treatments, the CZE + PCE combination (150 + 200 mg/kg) demonstrated superior nephroprotective efficacy compared to single extracts, with results comparable to standard α-ketoanalogue.

Conclusion: The study confirms that CZE and PCE possess significant nephroprotective potential, with combination therapy exerting synergistic effects through pooling of multiple bioactive constituents. These findings highlight the ethnopharmacological importance of both plants and support further in silico and clinical studies for their development into potential therapeutic formulations against kidney disorders.

Keywords: *Cinnamomum zeylanicum*; *Piper cubeba*; Nephroprotection; Cisplatin; UPLC-MS; Combination therapy

JH/SECON2025/SL-43

Phytochemical, Quality, Safety screening studies, DSR, HPTLC, GC-MS profiling of *Lavandula stoechas* L. arial parts samples and their pharmacological medicinal potential values

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ABSTRACT

Background: Ensuring the quality and safety of herbal medicines through drug standardization (DSR), quality control (QC), and quality assurance (QA) remains a major challenge, particularly for authenticating and differentiating adulterants in aromatic herbaceous plants. *Lavandula stoechas* L. (LSL), known as Jarub-e-Dimagh or Ustukhuddus in the Unani system of medicine, has long been used as a brain stimulant and nervine tonic for neurological disorders, insomnia, amnesia, melancholia, stress, anxiety, depression, and vertigo.etc.

Aim / Objectives: This study aims to evaluate the DSR, HPTLC, and GC-MS fingerprint's profiles of the arial part of plant drug and extracts of LSL.

Methods: The QC and DSR with the safety toxicity studies as heavy metal, aflatoxins, pesticide residues analysis, HPTLC and GC-MS analysis of the various extracts of LSL were carried out and performed using standard. The safety studies of the tested drug samples of different microbes, hazardous, toxins and MBPCC were also investigated.

Results: The DSR, QC. properties of LSL have shown that all the parameters were within the permissible limits. The HPTLC fingerprint profile of the various extract's exhibited various peaks under UV 254 nm, under UV 366 nm and V-S reagent, visible light region and showed various greater number of spots. A solvent system containing Toluene: Ethyl acetate: Formic acid (7.6: 2.4: 0.01) ratio was utilized for qualitative HPTLC analysis to assure the presence of various active components. The GC-MS analysis confirmed and illustrated the presence of various MBPCC. as camphor, linalool, α-cardinol etc. in LSL arial parts.

Conclusions: The DSR, QC. findings revealed that the test herbal drug LSL was free from adulterations. The phyto and physicochemical constants, HPTLC, and GC-MS profiles of LSL can be essential data in the future. This herb's extracts may treat and cures in insomnia, amnesia, melancholia diseases, stress, anxiety, depression.

Keywords: L S L (*Lavandula stoechas* L.), DSR, QC, HPTLC, GC-MS fingerprint's profiles, MBPCC (Major Bioactive Phytochemical Compounds).

JH/SECON2025/SL-44

Investigation for the therapeutic efficacy of Olive Vinegar in comparison to miglitol in the diabetic foot ulcer (DFU) *in-vivo* model

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ABSTRACT

Prevalence of diabetic neuropathy stands as a hall mark for diabetes mellitus, with chronic hyperglycaemia-induced damage to peripheral nerves. Such co-morbidities significantly increase the risk of developing diabetic foot ulcers (DFUs). The underlying pathology relates to the critical alteration of the cellular redox state termed as the "Redox Code". The redox imbalance affects various transcription factors such as NF-κB and AP-1, skewing the healing process towards persistent inflammation and fibrosis by excessive secretion of pro-inflammatory cytokines (e.g.Bcl-2, Kappa). All the chronic microvascular complications of diabetes mellitus, such as retinopathy, nephropathy, and neuropathy represent a triad, which not only impair organ function but also predispose patients to secondary conditions such as diabetic foot ulcers (DFUs).

This study highlights the therapeutic efficacy for a well marketed ayurvedic formulation of Olive Vinegar in comparison to novel anti-diabetic drug Miglitol on the Streptozocin induced type-2 diabetes mellitus foot ulcer Wistar Rat model. The experimental design majorly includes the induction of diabetes, ulcer creation, and treatment interventions, followed by biochemical, histological, qualitative and quantitative wound-healing assessments.

In parallel with the oral route administration both the Miglitol-and the Olive Vinegar extract-loaded hydrogel were found to be safe and non-irritant for dermal application which synergised the diabetic wound treatment. Here, the dual-route treatment with Olive Vinegar extract significantly resulted in the accelerated wound healing index, in comparison to the standard treatment Miglitol. This may be attributed to the polyphenolic compounds (oleuropein, hydroxytyrosol, oleocanthal) that enhance antioxidant defences, reduce oxidative stress, and support collagen synthesis which further improves the normal wound healing cascade

Keywords: Type 2 Diabetes Mellitus, Diabetic Neuropathy, Diabetic foot ulcers (DFU), Olive Vinegar extract-loaded hydrogel formulation, Redox code.

JH/SECON2025/SL-45

Development and evaluation of a multicomponent delivery system for periodontal affliction

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ABSTRACT

Introduction: The complex pathophysiology of periodontitis suggested that the promising amelioration could only be envisaged with the multi-component system consisting of antibiotic and host modulating agents.

Materials and Methods: Doxycycline and hydroxyapatite adsorption composite loaded nanoparticles of sodium alginate-chitosan along with celecoxib were encapsulated inside the PLGA microcapsules. Further these developed microcapsules and minocycline were dispersed in an in-situ gel containing antibiofilm agent of natural origin. The in-situ gel was suitably optimized, characterized, and was then subjected to bioactivity assessment at three levels i.e antibiofilm efficacy study, cell viability study and in-vivo studies.

Results and Discussion: The in-situ gel was duly developed by cold press method and further nano-encapsulating microcapsules, minocycline, and antibiofilm agents were loaded into it. The system was found to be shear thinning in nature, can be easily applied, showed good bio adhesion and gel formation at 37.5° C. In-vitro release study conducted on simulated GCF confirms the sequential drug release up-to 22 days. Also, stability studies conducted at 5 ± 3°C for a period of 6 months ensure the stable nature of in-situ gel. For antibiofilm efficacy study, promising results in terms of reduced MBIC and MBEC values were observed with the optimized formulation. Also, increased % viability of NIH3T3 cells and hPDL cells was observed upon treatment with the in-situ gel. In in-vivo study as well, a significant improvement in disease conditions was observed upon treatment with optimized in-situ gel in terms of CFUs, tooth mobility, gingival index, pocket depth and alveolar bone loss.

Conclusion/Recommendation: Henceforth, the developed system demonstrated its supremacy for periodontal drug delivery and disease amelioration.

Keywords: Host modulation; antibiofilm agent; sequential drug delivery system; nanoencapsulating microcapsules; periodontotherapy

JH/SECON2025/SL-46

Artificial intelligence and traditional medicine: A physiotherapy-oriented approach to innovative rehabilitation

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ABSTRACT

Background: Physiotherapy emphasizes functional recovery and holistic health, while traditional medicine offers time-tested remedies for pain management and wellness. Artificial intelligence (AI) provides a platform to analyze, validate, and integrate traditional knowledge into modern rehabilitation practice. This fusion presents new opportunities for enhancing evidence-based physiotherapy interventions through innovative, culturally rooted approaches.

Aims/Objectives: This study aims to examine how AI can systematize traditional medicine knowledge and translate it into physiotherapy-oriented rehabilitation strategies for musculoskeletal, neurological, and pain-related conditions.

Methods: A narrative review of literature was conducted focusing on AI applications in physiotherapy, data mining of traditional medicine practices, and integrative rehabilitation models. Clinical case applications were analyzed to identify the role of AI-informed traditional approaches (e.g., herbal compresses, therapeutic oils, movement practices like yoga) within physiotherapy protocols.

Results: AI-enabled analysis has shown promise in identifying bioactive compounds and traditional interventions that support pain reduction, anti-inflammatory responses, and tissue recovery. When integrated into physiotherapy programs, such approaches have been associated with improved functional outcomes, patient adherence, and personalized rehabilitation planning. Additionally, predictive AI models can guide safe combinations of physiotherapy techniques with traditional practices, reducing risks of adverse interactions.

Conclusion: The integration of AI, physiotherapy, and traditional medicine creates a forward-looking model of rehabilitation. It enables physiotherapists to design evidence-informed, culturally sensitive, and personalized care pathways that optimize recovery and quality of life.

Keywords: Physiotherapy, Artificial Intelligence, Traditional Medicine, Rehabilitation, Integrative Care

JH/SECON2025/SL-47

Formulation development, characterization and evaluation of *Crossandra infundibuliformis* (L.) Nees Ethosomes: A novel approach for enhanced anti-inflammatory drug delivery

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ABSTRACT

Introduction: Inflammation is a significant global health concern, with conventional treatments often leading to adverse side effects. This study focuses on the formulation development, characterization and evaluation of ethosomes developed from the leaves and flowers of *Crossandra infundibuliformis (L.) Nees* for their potential anti-inflammatory properties. Ethosomes, lipid-based vesicular carriers, enhance the transdermal delivery of therapeutic agents, overcoming the limitations of traditional topical applications.

Materials and Methods: The plant material was collected, extracted using ethanol-water mixtures, and incorporated into ethosomal formulations using lecithin. Characterization techniques such as particle size analysis, zeta potential measurement, transmission electron microscopy (TEM), and entrapment efficiency were employed to ensure the stability and effectiveness of the formulations. Anti-inflammatory potentials was assessed by insilico and invitro protein denaturation and HRBC membrane stabilization methods. Statistical analysis using graph prism pad was used for predicting the exact findings.

Results and Discussion: The average particle size of leaf ethosomes was found to be 345.6 nm, while flower ethosomes measured 457.1 nm. The zeta potential values were -27.0 Mv and -23.4 mV for leaf ethosomes and flower ethosomes respectively, indicating moderate stability. The entrapment efficiency was 48.17% ± 0.4 for leaf ethosomes and 45.4% ± 0.2 for flower ethosomes. The results of pharmacological screenings demonstrated that both leaf and flower ethosomes exhibited significant anti-inflammatory potential, with leaf-based ethosomes showing slightly higher entrapment efficiency.

Conclusion/Recommendations: The study highlights the potential of *Crossandra infundibuliformis* ethosomes as a novel, natural and effective alternative for managing inflammation, paving the way for further in vivo and clinical investigations.

Keywords: *Crossandra infundibuliformis*, Inflammation, Molecular docking, Protein denaturation assay, Ethosomes

JH/SECON2025/SL-48

Drugs based alternative systems of medicine

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ABSTRACT

A number of systems of medicine have been existing and prevailing for a long such as Ayurveda, Acupressure, Acupuncture, Unani, Tibetan medicine, Chinese traditional medicine, Naturopathy, Allopathy and Homeopathy etc. Though each system has its own, identity, merits and contribution, however, no system is able to provide complete solutions for all types of sufferings in human and animals. Systems of medicine other than the conventional (Allopathy) are generally called as alternative systems of medicine. Out of all these, the Ayurveda, Siddha Medicine, Unani Tibbi, Tibetan Medicine, Chinese Traditional Medicine and Homeopathy are particularly known for treatment based on the use of respective drugs as single agent or compounded formulations. Each alternative system follows unique methodology for developing its therapeutic agents from natural sources such as minerals, plants and animals. Drugs described in alternative systems of medicine are not only used for human health care but are significantly applied in veterinary medicine as well. Proponents of these systems claim successful treatment of various disease of human and animals. The attempt to acquire knowledge as a whole will provide scope for development of effective and economical remedies in order to fulfil the need of human health care and veterinary purpose to ensure animal welfare.

Keywords: Alternative, Traditional, Therapeutic agents, Remedies

JH/SECON2025/SL-49

Potential role of *Cinnamon tamala* as a medical food ingredient in diabetes control

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ABSTRACT

Introduction: Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from defects in insulin secretion, insulin action or both. The main objective of the study was to identify bioactive compounds from *Cinnamon tamala* that could mitigate hyperglycaemia and alleviate the diabetes-associated complications.

Materials and Methods: The *C. tamala* leaves were obtained from local market of Delhi. The phenolic content, anthocyanin content and antioxidant capacity were investigated by different assays. In addition, the α-glucosidase inhibitor activity was also evaluated. Further, TLC-bioautography was developed to probe α-glucosidase inhibitor and antioxidant metabolites.

Results and Discussion: The drug indicated a significant higher polyphenolic content and has improved scavenging properties at concentration-dependent manner. The CTO inhibits the α-glucosidase activity with IC_{50} value 61.56 µg/ml. The antioxidant and antidiabetic capability could be attributed to the active compounds and phenolic fractions present in the drug. Eugenol was identified as medicinally important ingredient for diabetes.

Conclusion/Recommendation: Our study throws a light on *C. tamala* as hypoglycemic and required further scientific evaluation to exploit its potential as hypoglycemic therapies. The study will strengthen the possibility of new drug discovery using the *C. tamala* in diabetes management.

Key words: Diabetes; *Cinnamon tamala*; TLC-bioautography; α-glucosidase inhibitor; antioxidant

JH/SECON2025/SL-50

Calibration and simultaneous quantification of bioactive compounds in *Bixa orellana* through High-Performance Thin Layer Chromatography

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ABSTRACT

Background: *Bixa orellana* (family Bixaceae) is a traditionally used medicinal plant for many ailments.

Method: Ferulic acid, apigenin, and caffeic acid were all quantified simultaneously in *B. orellana* utilizing the High-Performance Thin Layer Chromatography (HPTLC) method. Using toluene: ethyl acetate: formic acid (7: 2.5: 0.5) as the mobile phase, a methanolic extract of the plant was applied to an HPTLC silica gel 60 F254, 20×10 (Mark) plate to separate and quantify the detected bioactive components. Well-resolved bands at R_f ferulic acid (0.59 ± 0.02), apigenin (0.54 ± 0.02), and caffeic acid (0.44 ± 0.03) in *B. orellana* are provided by the used mobile system.

Result: A densitometric absorption mode was used to calibrate and quantify ferulic acid, apigenin, and caffeic acid at 319nm. The International Conference on Harmonization's (ICH) standard guidelines were followed in the validation of the HPTLC method. For ferulic acid, apigenin, and caffeic acid, the devised method was calibrated and verified in the concentration range of 100-500µg/spot. By using the DPPH and deoxyribose assays, the antioxidant capacity of B. orellana was also assessed to correlate with the function of the identified markers. According to the data analysis, *B. orellana* fruit extract shows the highest and most promising antioxidant potential when compared to *B. orellana* bark and stem extract.

Conclusion: This study demonstrates that the developed method is reliable, efficient, practical, and approachable, and it may be utilized as a tool for the systematic quality evaluation and standardization of *B. orellana.*

Keywords: *Bixa orellana*, HPTLC, Ferulic acid, Apigenin, and Caffeic, *Invitro*.

JH/SECON2025/SL-51

Nanocarrier-phytoconstituent synergy: A sustainable approach for Next-Generation therapeutics

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ABSTRACT

Background: The management of chronic neurological and oncological disorders remains a significant challenge due to poor drug solubility, limited bioavailability, and inadequate site-specific targeting. Recent advances in nanotechnology-based delivery systems provide sustainable solutions to these limitations, offering improved therapeutic outcomes while reducing systemic toxicity. Importantly, the integration of phytoconstituents with synthetic drugs has emerged as a promising strategy, leveraging the natural antioxidant and protective properties of herbal agents to complement conventional therapy.

Aim: This study emphasizes the potential of nanocarrier-based systems in enhancing therapeutic efficacy, with a special focus on the synergistic role of phytoconstituents in novel drug delivery.

Illustrative Studies: Nanocarrier-based formulations have been widely investigated for their ability to enhance drug delivery, sustain release, and improve site-specific targeting. Incorporating phytoconstituents within such systems has shown additional advantages, including antioxidant, anti-inflammatory, and protective effects that complement synthetic drugs. Different nanoplatforms—such as liposomes, spanlastics, and nanostructured lipid carriers—have demonstrated improved permeation, higher entrapment efficiency, and better therapeutic performance compared to conventional formulations. These outcomes highlight the versatility of nanocarrier–phytoconstituent approaches in addressing diverse therapeutic challenges across multiple disease areas.

Conclusion: The integration of phytoconstituents with modern nanocarrier platforms offers a sustainable and effective therapeutic strategy. By combining the bioactivity of natural agents with the precision of nanotechnology, such systems hold translational potential for managing complex diseases and align with the vision of SECON 2025 to advance safe, effective, and sustainable pharmaceutical innovations.

Keywords: Nanocarriers, Phytoconstituents, Lipid Carriers, Sustainable drug delivery, Translational medicine.

JH/SECON2025/SL-52

Assessment of the Panchasakar Churna for its standardization

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ABSTRACT

Introduction: Panchasakar Churna is a traditional Ayurvedic formulation composed of *Cassia angustifolia* Vahl. leaf, *Terminalia chebula* Retz. fruit, *Zingiber officinale* Rosc. rhizome, *Foeniculum vulgare* Mill. fruit, and *Saindhava lavana* (Rock salt). This product is renowned for its therapeutic efficacy in addressing digestive and gastrointestinal disorders. The study aimed to develop robust standardization and fingerprint profiling methods for Panchasakar Churna.
Materials and methods: Advanced chromatographic techniques, including Thin-Layer Chromatography (TLC) and High-Performance Liquid Chromatography (HPLC), were utilized to analyze and establish fingerprint profiles for the chemical constituents of Panchasakar Churna. This process involved extraction, macroscopic and microscopic evaluations, and the assessment of physicochemical parameters such as ash values, moisture content, and extractive values (alcohol and water soluble).
Results and discussion: The analysis revealed significant variability in the chemical composition of different batches, underscoring the need for stringent quality control measures. Key findings included variations in total ash value, which ranged from 26.5% in F1 to 89.39% in M2, and water-soluble ash values up to 71.47% in F1. The highest alcohol- soluble extractive content was found in M1 (12.54%), with the highest water-soluble content also in M1 (45.66%). Moisture content varied across formulations, with the lowest in F4 (5.94%). Additionally, variations in flow properties, including tapped and bulk densities, impacted the Hausner ratio and angle of repose. F6 exhibited the highest total phenolic content followed by F1 suggesting significant antioxidant potential. Microscopic analysis identified distinctive profiles: F1 contained Senna (trichrome and parenchyma), Ginger (starch granules), Fennel (reticulate parenchyma), and Myrobalan (cellular fragments and cork cells). F2 had Senna (parenchyma), Ginger (fiber), and Fennel (reticulate parenchyma), while F3 featured Ginger (fiber) and Myrobalan (cork cells). F4 included Senna parenchyma and starch granules) and Ginger (starch granules), F5 had Senna (vascular bundles) and Myrobalan (cork cells), and F6 contained Senna (vascular bundles and parenchyma), Ginger (starch granules), and Myrobalan (cork cells). Marketed samples M1 and M2 exhibited Senna, Ginger, Myrobalan, and Fennel in M1, and Senna, Ginger, and Myrobalan in M2.
Conclusion: The study created standardized chromatographic fingerprints for Panchasakar Churna, ensuring batch consistency and adherence to global standards, enhancing its credibility as a safe and effective therapy.
Keywords: Panchasakar Churna, Ayurvedic medicine, Standardization, Fingerprint profiling and Quality control

JH/SECON2025/SL-53

Internet gaming disorder and gender: Insights for modern behavioral health from traditional concepts of balance

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ABSTRACT

Background: Internet Gaming Disorder (IGD) has emerged as a new-fangled problem challenging mental health, behavior regulation, and life balance. Balance, moderation, and general well-being have been underlined by traditional systems of medicine for centuries as prerequisites to sustaining mental and physical health. In the case of new-fangled disorders like IGD, such perspectives shed an effective understanding of prevention and management.

Aims/Objectives: To study the prevalence and gender correlation of internet gaming disorder among university students.

Materials and Methods: A correlational study was done among 100 university students, 50 males and 50 females. Inclusion criteria were used to screen the participants, and written informed consent was obtained. The demographic variables were also assessed. The Internet Gaming Disorder Scale-20 (IGD-20) was employed to measure symptom severity.

Results: The results showed a high correlation between IGD-20 scores and gender, and the males scored much higher ($r = 0.742$).

Conclusion: Through this study, it was found that 4% of the sample were presumably suffering from IGD according to the IGD-20, and the males showed significantly more symptoms. These findings can be viewed from the viewpoint of traditional medicine, where imbalance, overactivation, and over-involvement disrupt mental order and social functioning. The integration of principles of conventional medicine, such as control of lifestyle, health through self-control, and mind-body exercises, can provide prevention and restoration techniques for modern behavioral health conditions like Internet Gaming Disorder.

JH/SECON2025/SL-54

Revitalizing traditional medicine through qbd-guided naringin-loaded nanosponges for colon cancer therapy

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ABSTRACT

Introduction: The present work aimed to fabricate and optimize naringin-loaded nanosponges (NGNS) using a 3^2 CCFD to ensure effective targeting of the colonic region for sustained-release formulation.

Materials and Methods: Particle size (nm, Y_1), % EE (%, Y_2), and cumulative drug release at 24 hours (%, Y_3) were dependent variables, and Eudragit RS-100 (X_1) and PVA (X_2) were independent variables in the preparation of NGNS utilizing the ultrasonication-assisted solvent evaporation method. ATR-FTIR, SEM, zeta sizer, DSC, XRD, yield percentage, and stability investigations were used to evaluate the optimized NGNS batch. HT-29 colon cancer (CC) cells were also subjected to cell apoptosis, cell cycle arrest, and cytotoxicity tests.

Results and Discussion: PS of 228.17 ± 5.46, PDI of 0.31 ± 0.01; ZP of -10.05 ± 1.1 mV; % EE of 85.67 ± 2.06; % drug content of 96.12 ± 1.03; and cumulative drug release at 24 hours were all displayed by the optimized NGNS batch. A spherical, porous structure was visible in the SEM pictures. DSC and ATR-FTIR analyses verified that there were no noteworthy interactions among the constituents. Studies on cytotoxicity showed that the improved batch had a dose-dependent effect on HT-29 CC cells. Additionally, 95.1% of CC cells underwent optimal NGNS batch-induced apoptosis in a live state, 3.2% in an early stage, 0.7% at a late stage, and 1.0% in a necrotic state. The cell cycle was inhibited by the improved batch of NGNS in G1 by 67.14%, S by 12.73%, and G2 by 11.41 percent. In comparison to pure naringin and disease control, histopathological analysis verified a substantial decrease in tumor cells in albino rats.

Conclusion: According to the findings, NGNS may be a viable nanocarrier technology that could improve oral bioavailability and aid in the treatment of colorectal cancer.

Keywords: Nanosponges; Quality by Design; Colon cancer; Naringin; nanomedicine; gastrointestinal cancer

JH/SECON2025/SL-55

Restoring metabolic balance through Unani dietary regimens

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ABSTRACT

Background: Metabolic disorders involve a wide range of conditions resulting from disturbances in the body's metabolic processes, often related to dysfunctions of the liver, endocrine glands or metabolism disorder. In Unani medicine, such disorders are interpreted as the result of disturbances in the formation and disbalance of Akhlat (humours), primarily due to faulty digestion and impaired hepatic functions.

Objectives: To elucidate the role of Diet (ghiza) in the causation, prevention, and management of metabolic disorders through the Unani perspective and highlight dietary principles for restoring metabolic balance.

Methods: A comprehensive review of classical Unani literature and modern evidence was conducted to analyze the etiopathogenesis of metabolic disorders. Main emphasis was kept on hepatic function, Quwāt-e-dāfi'a (expulsive faculty), and the role of burudat (coldness) of the liver leading to formation of akhlāt khām (immature humours).

Results: Improper dietary intake and lifestyle changes interrupt normal digestion, leading to accumulation of immature humours. Correct dietary regimens emphasizing balanced temperament, moderation, and proper food combinations can enhance hepatic function and improve metabolic efficiency.

Conclusion: Diet plays an essential role in the prevention and management of metabolic disorders. Unani dietary principles focusing on moderation, individualized temperament (mizāj), and digestive health offer a holistic approach for maintaining metabolic equilibrium.

Keywords: Diet, Humours, Temperament, Prevention

JH/SECON2025/SL-56

Bridging Ayurveda and nanomedicine: Polyherbal silver nanoparticles as cardioprotective and pro-angiogenic agents

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ABSTRACT

Introduction: Cardiovascular diseases (CVDs) remain the leading cause of mortality, and COVID-19 complications have further aggravated these conditions through myocardial injury, inflammation, and thrombotic risks. This underscores the need for therapies that provide cardioprotection via multiple mechanisms. Conventional drugs have limitations such as side effects, poor compliance, and limited regenerative potential, while herbal remedies, though cardioprotective, often show inconsistent efficacy. Green nanotechnology offers enhanced stability, bioavailability, and synergistic effects when combined with polyherbal extracts.

Aims and Objectives: To synthesize, characterize and standardize polyherbal silver nanoparticles (AgNPs) using *Terminalia arjuna, Glycyrrhiza glabra,* and *Albizia lebbeck* extracts and comparative *in-vitro* and *in-vivo* bio evaluation of the extracts and silver nanoparticles for cardioprotective activity.

Materials and Methods: Aqueous extracts were employed for green synthesis of AgNPs. Characterization was carried out using UV-Vis, FTIR, XRD, SEM, TEM, EDAX, ICP-AES and DLS. *In vitro* assays included cytotoxicity, CAM angiogenesis, and antioxidant. *In vivo* cardioprotective evaluation was performed in isoproterenol-induced myocardial infarction in Wistar rats.

Results and Discussion: AgNPs (10–50 nm) exhibited spherical morphology, sustained release, and high stability. Cell viability exceeded 90%. CAM assay revealed significant pro-angiogenic activity ($p < 0.001$). *In vivo*, low-dose AgNPs (10 mg/kg) effectively reduced oxidative stress, lowered troponin-I, improved VEGF, normalized ECG, and restored hemodynamic parameters, with histopathology confirming reduced necrosis and neovascularization. Interestingly, higher doses (100 mg/kg) showed no additional benefit, suggesting a dose-sensitive therapeutic window.

Conclusion: Polyherbal AgNPs provide a safe, stable, and synergistic integrative strategy for cardiovascular protection, exemplifying ancient–modern concordance through nanomedicine.

Keywords: Polyherbal silver nanoparticles, cardioprotection, pro-angiogenic effect, dose optimization.

JH/SECON2025/SL-57

Epidemiology, etiology, ethnopharmacology, and clinical challenges in cardiovascular diseases: An overview and future perspectives

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ABSTRACT

Introduction: Cardiovascular diseases (CVDs) remain the foremost cause of global mortality, responsible for nearly 19.8 million deaths in 2022, of which about 85% were due to myocardial infarction and stroke. The burden is particularly high in low- and middle-income countries. The post-COVID-19 era has further intensified the epidemiological landscape, as survivors exhibit elevated risks of myocarditis, arrhythmias, thromboembolic events, and hypertension within weeks of recovery. These developments underscore the urgent need for integrative preventive and therapeutic approaches.

Materials and Methods: A narrative review approach was employed, synthesizing data from WHO reports, systematic reviews, and peer-reviewed publications retrieved from NCBI and PubMed Central. The analysis focused on global epidemiology, risk factors, post-COVID cardiovascular sequelae, ethnopharmacological interventions, and clinical translation challenges.

Results and Discussion: Behavioural factors such as tobacco use, poor diet, and physical inactivity, along with metabolic disorders like hypertension, dyslipidemia, and diabetes, remain the dominant etiological drivers of CVDs. Recent evidence indicates significantly increased cardiovascular risks among post-COVID survivors. Ethnopharmacological agents, including *Terminalia arjuna*, *Withania somnifera*, curcumin, resveratrol, and quercetin, exhibit antioxidant, anti-inflammatory, endothelial-protective, and anti-fibrotic properties. However, their clinical translation is hindered by issues of standardization, bioavailability, and evidence-based validation.

Conclusion: Integrating ethnopharmacological insights with modern cardiovascular research presents a promising strategy to reduce CVD burden, particularly in post-pandemic populations. Rigorous mechanistic studies, controlled clinical trials, and regulatory harmonization are essential to ensure efficacy, safety, and global acceptance of plant-based cardioprotective therapies.

Keywords: Cardiovascular diseases, Ethnopharmacology, Post-COVID cardiovascular risk, Phytochemicals, Clinical challenges.

JH/SECON2025/SL-58

An integrative study of temperament-specific susceptibility to stress-related emotional symptoms in premenstrual syndrome

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ABSTRACT

Background: Premenstrual syndrome (PMS) is characterized by recurring emotional and physical symptoms during the luteal phase of the menstrual cycle, with stress recognized as a major exacerbating factor.

Aims/Objectives: This study investigates the influence of psychosocial stress on emotional PMS symptoms—such as mood swings, irritability, and anxiety—across different Unani temperaments (Mizaj).

Methods: A total of 119 participants were assessed using standardized temperament classification, the Anxiety-Depression-Stress Scale (ADSS), and a structured menstrual symptom evaluation. Temperament-specific variations in emotional PMS symptoms were analyzed.

Results: Logistic regression identified temperament as the strongest predictor of emotional PMS symptoms. Safrāwī (choleric) women demonstrated significantly higher odds of irritability, tension, and mood swings compared to Balghamī (phlegmatic) women (B = +2.68, p = 0.005).

Conclusion: While stress levels were moderately correlated with overall PMS severity, they did not independently predict emotional symptoms once temperament was considered. These findings suggest temperament is the dominant determinant of emotional PMS vulnerability, with stress acting as an amplifier. Integrating Unani and modern perspectives underscores the importance of temperament-based, personalized interventions in managing PMS.

Keywords: Premenstrual syndrome, Stress, Temperament, Mizaj, Emotional symptoms, Unani medicine.

JH/SECON2025/SL-59

Clinical Pharmacology in Unani medicine: An epistemological and scientific interface

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ABSTRACT

Background: The Unani system of medicine explains drug action through *mizaj* (temperament), *darja-e-hararat* (degree of potency), *shakal-e-dawa* (form of the drug), and *tadbeer* (processing). Modern clinical pharmacology interprets drug actions using pharmacokinetics (PK) and pharmacodynamics (PD). Although based on different epistemologies, both systems aim to provide rational, safe, and personalized therapeutics.

Objective: To analyze Unani pharmacological concepts in light of modern clinical pharmacology and highlight their relevance for rational prescription and patient-centered care.

Methods: A descriptive review of classical Unani texts and modern pharmacological literature was conducted. The concepts were comparatively analyzed and mapped to the PK/PD parameters.

Results: The analysis revealed significant parallels between the two. *Mizaj* aligns with pharmacogenomics, explaining variability in response. *Darja-e-hararat* corresponds to drug potency and the dose-response curve. *Shakal-e-dawa* relates to dosage forms affecting bioavailability, whereas *tadbeer* reflects formulation and metabolic modifications. Prescription writing (nuskha nawesi) emphasizes individualized regimens that integrate the patient's constitution, age, season, and environment. Clinical pharmacognosy further strengthens this bridge by integrating herbal drug standardization, safety, and clinical validation.

Conclusion: Although expressed differently, Unani pharmacology converges with modern clinical pharmacology in the principles of personalization, potency, and rational drug use. Mapping these concepts strengthens the scientific basis of Unani therapeutics, enhances prescription safety, and paves the way for integrative research and rational prescription in contemporary healthcare.

Keywords: Unani medicine, clinical pharmacology, pharmacokinetics, pharmacodynamics, prescription writing.

JH/SECON2025/SL-60

Evaluation of antioxidant cctivity of Banadiqul buzoor – An Unani compound formulation in renal diseases

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ABSTRACT

Background: Renal diseases are closely associated with oxidative stress, which results from excessive generation of free radicals and impaired antioxidant defense mechanisms. Banadiqul buzoor (BB), is one of the unani formulation, which is mostly used in the patients with renal diseases is supposed to possess antioxidant activity enriched with bioactive compounds such as flavonoids, have gained attention for their potential to mitigate oxidative damage. Scientific validation of their antioxidant capacity is necessary to support their role in nephroprotection.

Objectives: The present study was designed to assess the antioxidant activity of a Banadiqul buzoor through DPPH radical scavenging assay and estimation of total flavonoid content, with a focus on its possible role in the management of renal diseases.

Methods: The formulation was prepared and standardized as per WHO Guidelines for standardization. Antioxidant activity was evaluated using the DPPH radical scavenging method, and results were expressed as IC_{50} values. Total flavonoid content was determined spectrophotometrically, expressed in Rutin equivalents. The relationship between flavonoid concentration and free radical scavenging efficiency was analysed.

Results: The Banadiqul buzoor exhibited significant DPPH radical scavenging activity, with IC_{50} values comparable to standard antioxidants. The formulation also showed a high total flavonoid content, which demonstrated a strong positive correlation with its radical scavenging potential. These findings indicate that flavonoids are major contributors to the antioxidant activity of the formulation.

Conclusion: The study highlights the strong antioxidant potential, supporting its possible therapeutic application in renal diseases where oxidative stress plays a central role. Further in-vivo studies and clinical validation are recommended to substantiate its nephroprotective efficacy.

Keywords: Renal Diseases, Antioxidant Activity, DPPH Assay, Flavonoids, Banadiq ul buzoor, Oxidative Stress

JH/SECON2025/SL-61

Science behind senescence and dermohacking in skin care

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ABSTRACT

Introduction: Aging skin results from cellular senescence, where damaged cells stop dividing, causing inflammation, collagen breakdown, and visible signs of aging like wrinkles and sagging. Dermohacking—a cutting-edge approach—uses advanced bio-active compounds and innovative delivery systems to target senescence at the molecular level, promoting skin regeneration and rejuvenation.

Materials and Methods: This review evaluates:

Senolytics: Compounds like fisetin that eliminate senescent cells.
Advanced delivery technologies: Nanoparticles and micro needles for deeper ingredient penetration.
Peptides and growth factors: EGF and Matrixyl to boost collagen and repair skin.
Molecular pathway modulation: Activation of pathways such as sirtuins and AMPK to stimulate skin regeneration.

Results and Discussion: Senescence accelerates aging by releasing ROS and pro-inflammatory cytokines, damaging skin. Senolytics agents reduce senescent cells, improving skin elasticity

Key findings include: Fisetin and other Senolytics enhance skin texture by eliminating dysfunctional cells. Micro needles and nanotechnology optimize ingredient delivery, enhancing efficacy. Peptides like copper peptides and Matrixyl stimulate collagen synthesis and cellular repair. Epigenetic compounds (e.g., resveratrol) activate longevity pathways for long-term skin health.

Conclusion & Recommendations: Combining Senolytics treatments and Dermohacking technologies offers a powerful approach to counteracting skin aging at its cellular source. For optimal results, consumers should seek products containing Senolytics, peptides, and advanced delivery systems. Personalized skincare strategies will further enhance effectiveness.

Keywords: Senescence, Dermohacking, Senolytics, Peptides, Skin Aging, Collagen, Epigenetics, Anti-Aging, Nanotechnology, Regeneration.

JH/SECON2025/SL-62

Development and standardisation of a Unani hematinic syrup formulation

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ABSTRACT

Anaemia continues to be a major global health concern, particularly among women, children and patients with chronic illnesses. Although iron supplements remain the first-line therapy, conventional allopathic preparations often lead to gastrointestinal intolerance and poor compliance. Unani medicine describes several *Muwallide Dam* (haematinic) formulations, yet many lack systematic scientific validation. The present work aimed to develop a novel Unani hematinic syrup by integrating classical principles with modern quality control protocols.

The formulation was designed by selecting *Muwallide Dam*, *Muqawwie Meda* (Gastroprotective) and *Muqawwie Kabid* (hepatotonic) drugs referenced in Qarabadeen Qadri, supplemented with additional botanicals known for supporting liver function, as Unani medicine considers the liver (*Kabid*) to be the primary organ of blood formation. Multiple batches were prepared following traditional infusion and decoction techniques with controlled modifications to enhance reproducibility and palatability.

Standardisation of the formulation was carried out in accordance with the Unani Pharmacopoeia of India (UPI), including organoleptic assessment, pH, viscosity, total solids, sugar profiling and specific gravity. Chromatographic fingerprinting was performed to establish marker-based identity. Safety parameters, including heavy metals, pesticide residues, microbial load and aflatoxins, were evaluated within permissible pharmacopoeial limits.

Preliminary findings confirmed batch uniformity, robust physicochemical stability, and an optimal bioavailable iron profile, suggesting the formulation's potential as a safer and well-tolerated alternative to conventional iron tonics. Further toxicity and pharmacological validation are underway to confirm its hematinic efficacy.

Keywords: Anaemia, *Muwallide Dam, Qarabadeen*, Standardisation, Unani Medicine.

JH/SECON2025/SL-63

Neuroprotective Potential of Plants introduced in Persian Medicine: Experimental Studies on Epilepsy, Alzheimer's Disease, and Peripheral Neuropathy

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ABSTRACT

Introduction: The management of complex neurological disorders remains a significant clinical challenge, as conventional therapies are frequently constrained by inadequate efficacy and undesirable side effects. This therapeutic gap compels us to look toward complementary and integrative treatment approaches. Iranian Traditional Medicine (ITM), with its long history of using medicinal plants, offers a particularly valuable and sophisticated framework.

Materials and Methods: This study compiles evidence from experimental models of epilepsy, Alzheimer's disease, and peripheral neuropathy to evaluate the neuroprotective potential of selected medicinal plants from Iranian Traditional Medicine.

Result and Discussion: Results demonstrated significant therapeutic potential across neurological models, reducing seizure severity in epilepsy, improving memory and preventing neuronal loss in Alzheimer's models, and alleviating neuropathic pain through anti-inflammatory mechanisms.

Conclusion: Collectively, these results validate the neuroprotective potential of selected Iranian medicinal plants and support the translation of traditional knowledge into modern, integrative therapeutic strategies.

Keywords: Epilepsy, Alzheimer's Disease, Peripheral Neuropathy, Iranian Traditional Medicine

JH/SECON2025/SL-64

A therapeutic approach to non-alcoholic fatty liver disease (NAFLD) with Unani medicine

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ABSTRACT

Non-alcoholic fatty liver disease (NAFLD) is becoming an increasingly serious global health issue, closely linked to metabolic syndrome and modern lifestyle habits. In India, the problem is particularly significant due to the country's ongoing health transition marked by rising rates of obesity, type 2 diabetes (T2DM), and metabolic disorders. Recent data suggests that NAFLD affects between 9% and 32% of the adult population in India, with urban areas showing higher prevalence. This is largely driven by sedentary lifestyles, poor dietary habits, and increased calorie consumption.

While conventional treatments emphasize lifestyle modification and emerging pharmacotherapies, traditional medicine systems like Unani medicine, rooted in Greco-Arabic principles, offer holistic approaches aimed at restoring humoral balance and improving liver function. Several Unani formulations have shown encouraging results in preclinical studies, demonstrating antioxidant, anti-inflammatory, and liver-protective effects. These properties suggest potential benefits in reducing liver fat buildup (hepatic steatosis) and combating the oxidative stress seen in NAFLD.

Blending traditional wisdom with modern scientific research could pave the way for cost-effective, integrative strategies to manage NAFLD and related metabolic conditions. This integrative approach has the potential to create evidence-based guidelines that include Unani medicine as part of a broader, holistic strategy for managing liver diseases.

In classical Unani medicine, the liver (Kabid) is one of the vital organs (Aza-e-Raeesa) and central to metabolism. This paper explores the Unani correlation of NAFLD and will highlight selected Unani drugs with proven hepatoprotective effects, aligned with the Unani principles of Ilaj, offering potential therapeutic alternatives in NAFLD.

Keywords: Unani Medicine, NAFLD, Fatty liver, Hepatoprotective

JH/SECON2025/SL-65

Multiple Sclerosis (MS): Challenges, diagnostic approaches, and therapeutic solutions in neurodegeneration research

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Multiple Sclerosis (MS) is a complex neurodegenerative condition characterized by the progressive damage to myelin sheaths and nerve fibers within the central nervous system, leading to symptoms such as muscle weakness, impaired coordination, fatigue, and cognitive dysfunction. Despite decades of research, the absence of definitive diagnostic biomarkers, the heterogeneous nature of the disease, and the lack of universally effective treatments remain major challenges. Insights from emerging research into neurological diseases, as highlighted by Mehan et al., offer promising opportunities to address these hurdles through innovative approaches to molecular diagnostics and therapeutic interventions. Recent studies by Mehan and co-workers have identified shared mechanisms between MS and other neurodegenerative complications, including oxidative stress, neuroinflammation, mitochondrial dysfunction, and dysregulated cellular and molecular signaling pathways, such as Nrf2/HO-1; Glutaminase/Glutamate/NMDAR; Erk/MAPK, BDNF/TrkB; AC/cAMP/PKA/CREB; ETC complex I-V/Mitochondrial ETC-COQ10; IGF-1/GLP-1; JAK-STAT-3/PPAR-Gamma, and PI3K/Akt/mTOR. These pathways, which are implicated in myelin damage, axonal loss, and immune dysregulation, may also have relevance to MS. Therapeutic modulators, including natural compounds such as guggulsterone, 4-hydroxy-isoleucine, icariin, apigenin, oleanolic acid, solanesol, forskolin, oleanolic acid, caffeic acid phenyl ester, acetyl-11-keto-beta boswellic acid, and others, have demonstrated neuroprotective and immunomodulatory potential in preclinical models of neurodegeneration, as reported by Mehan and coworkers. These findings may provide new avenues for therapeutic innovation in MS research. However, significant challenges persist. The heterogeneity of MS complicates the identification of universal biomarkers, and individualized approaches to treatment are urgently needed. Leveraging advanced molecular diagnostic tools, such as cerebrospinal fluid and blood serum biomarkers, and targeting specific signaling pathways at earlier stages of disease progression may offer solutions for early diagnosis and personalized therapeutic interventions. This discussion will explore how these insights into neurodegenerative research can be applied to MS, providing a framework for addressing its challenges and improving outcomes for individuals and families affected by the condition.

Keywords: Multiple Sclerosis (MS); Neurodegeneration; Molecular Diagnostics; Therapeutic Modulators; Oxidative Stress and Neuroinflammation; Cellular Signaling Pathways

JH/SECON2025/SL-66

Lactobacillus helveticus NS8 strain probiotic: A search for anti-anxiety effect

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ABSTRACT

Alterations in the serotonin system are strongly linked to heightened susceptibility to anxiety disorders. Probiotics have emerged as potential alternatives to conventional anxiolytic therapies, with the advantage of minimizing stigma, treatment delays, and adverse effects. Since no topical probiotic formulations are currently available, this study explored the efficacy of a novel *Lactobacillus helveticus* gel applied to the forehead in comparison with oral probiotics and an angiotensin receptor blocker in a caffeine-induced anxiety model.

Rats were divided into six groups (n = 6). Anxiety was induced using caffeine (25 mg/kg, intraperitoneal) for 14 days. Group 2 received diazepam (1 mg/kg), Groups 3 and 4 were administered oral probiotics, and Group 5 received topical probiotic gel (30 mg, forehead application). Body weight, glucose, hemoglobin, rectal temperature, serotonin levels, and behavioral changes were assessed using the elevated plus maze.No significant differences were observed in body weight, glucose, hemoglobin, or rectal temperature across groups. However, diazepam-treated animals and those receiving probiotic formulations demonstrated significantly increased time spent in the open arms of the maze compared with anxiety controls ($p < 0.01$). Both high-dose oral probiotic and topical gel groups showed pronounced anxiolytic-like activity. Notably, serotonin levels, which were reduced in anxiety control rats, improved markedly in treated groups. In conclusion, both oral and topical *Lactobacillus helveticus* formulations exhibited significant anxiolytic effects, highlighting their potential as novel therapeutic approaches for anxiety management.

Keywords: Anxiety, Serotonin, *Lactobacillus helveticus*, Probiotics

JH/SECON2025/SL-67

Some important paediatric formulations in Unani system of medicine

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ABSTRACT

Introduction: Paediatric formulations are a vibrant component of the Unani system, ensuring safe and effective treatment for children based on their unique physiological and metabolic characteristics. Classical texts described numerous dosage forms for paediatric care, emphasizing palatability, mild action, and age-appropriate dosing. Common childhood diseases like Infantile diarrhoea, Vomiting, Constipation, Flatulence, Teething pain etc. are well managed through age-appropriate, palatable, and safe unani formulations.

Objectives: To review literature on the types, methods, and therapeutic significance of paediatric formulations in Unani medicine based on classical sources and contemporary practices.

Methods: A comprehensive review of classical Unani texts (*Firdaws al-Hikmat*, *Al-Qanun fi'l-Tibb*, *Al-Akseer*, *Bayaz-e-Kabir*, *Makhzan-ul-Advia*, NFUM) and databases including PubMed and Google Scholar was conducted to identify c dosage forms, formulation strategies, and clinical relevance.

Results: Classical literature reports various paediatric preparations including *Sharbat* (syrups), *Joshanda* (decoctions), *Arq* (distillates), *Safoof* (powders), *Laooq* (linctus), and *Qurs* (tablets). Specific formulations include *Roghan Badam Shireen, Sharbat Zoofa Murakkab*, *Sharbat Toot Siyah*, *Sharbat Banafsha* (respiratory disorders), *Jawarish Anarain*, *Sharbat Deenar*, *Safoof-e-Isfaghool* (gastrointestinal disorders), *Sharbat Khaksi*, *Khamira Marwareed* (fevers), and *Sharbat Faulad*, *Majoon Supari Pak* (nutritional deficiencies). Dosages are adjusted according to age, temperament (*Mizaj*), and disease severity.

Conclusion: Available Unani Paediatric formulations are having disadvantage of its unpleasant taste, unappealing appearance, non-calibrated doses, and dull color make it challenging to administer to children, often leading to poor patient compliance. This highlights the urgent need to develop a more child-friendly dosage form, utilizing modern pharmaceutical technologies, while also evaluating its safety and efficacy. This Integration can enhance their acceptance and global applicability.

Keywords: Childhood, Challenges, Dosage, Formulations, Paediatrics.

JH/SECON2025/SL-68

Wet cupping as an alternative therapy for knee osteoarthritis

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ABSTRACT

Background: Osteoarthritis (OA) is a degenerative joint disease-causing pain, cartilage destruction, and functional disability. Knee OA is common in India (22–39% prevalence). Conventional treatments like NSAIDs and corticosteroids offer relief but have adverse effects. Unani medicine identifies knee OA as *Waja-al-Rukba* and recommends *Hijamah-bil-shart* (wet cupping) as a potential alternative.

Objectives: To evaluate the efficacy and safety of *Hijamah-bil-shart* in knee OA and compare single versus double cupping sessions.

Methods: An open, prospective, randomized controlled study was conducted at Majeedia Unani Hospital, New Delhi. Seventy eligible patients were randomized: Group I received one cupping session (day 0), Group II received two sessions (days 0 and 14). Patients were followed for 28 days and assessed using KOOS, VAS, AROM, KL grading, Urinary Pyridinoline, and safety tests.

Results: Sixty patients completed the study (40 females, mean age 45–55 years). Both groups showed significant improvement in KOOS, VAS, and AROM by day 14 ($p<0.0001$). Group II maintained significant benefits through day 28, whereas Group I's effects declined after two weeks. Urinary pyridinoline decreased significantly in Group II ($p<0.001$), suggesting a slowing of disease progression. No serious adverse effects were reported.

Conclusion: *Hijamah-bil-shart* is safe and effective for knee OA. Double cupping sessions provided greater and more sustained pain relief than a single session. Larger, long-term studies are needed to confirm these findings.

Keywords: *Hijamah-bil-shart,* Wet Cupping, Osteoarthritis, Urinary Pyridinoline.

JH/SECON2025/SL-69

Zotero: A diverse bibliometric tool for Literature screening and in-text citations

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ABSTRACT

Introduction: Managing scholarly literature is critical to research productivity. With the rapid growth of publications, researchers require tools that combine literature screening, bibliometric analysis, and accurate citation management. Zotero, a free and open-source reference manager, has emerged as a versatile platform that goes beyond citation formatting by enabling bibliometric insights and collaborative research workflows. This study evaluates Zotero's role as a comprehensive bibliometric and citation tool.

Materials and Methods: A narrative review and comparative analysis were conducted to examine Zotero's features. Its performance was assessed against other widely used reference managers (Mendeley, EndNote) using parameters such as literature organization, bibliometric plug-in support, group libraries, synchronization, and integration with word processors. Case examples from academic projects were used to demonstrate Zotero's application in research workflows.

Results and Discussion: Zotero facilitates efficient literature screening through tagging, metadata capture, and database integration (PubMed, Scopus, Web of Science). Its open-source plug-ins extend functionality to bibliometric visualizations, such as co-authorship and keyword mapping, providing additional value compared to proprietary tools. Zotero also supports more than 10,000 journal-specific citation styles, ensuring high compliance during manuscript preparation. Collaborative features, such as group libraries and cloud synchronization, make it particularly effective in team-based research. However, compared with commercial alternatives, its native bibliometric analytics remain limited and rely on third-party extensions.

Conclusion/Recommendation: Zotero represents a powerful, sustainable alternative for literature screening and citation management while supporting bibliometric applications. Its adaptability, collaborative features, and open-source model make it especially beneficial for students, researchers, and academic institutions. Wider adoption and continued community-driven development can enhance its impact as an integrated bibliometric tool.

Key words: Zotero; Bibliometric; Literature screening; Citation management

JH/SECON2025/SL-70

Harmonizing Ayurveda with global and Indian biodiversity regulations

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ABSTRACT

Introduction: Ayurveda offers significant potential for translational medicine, merging traditional knowledge with modern therapeutics. Its use of biodiversity-derived resources requires compliance with the Nagoya Protocol and Indian laws like the Biological Diversity Act (2002). This study explores validating Ayurveda formulations while ensuring Access and Benefit-Sharing (ABS) and environmental sustainability.

Materials and Methods: A mixed-methods approach analyzed validation techniques—phytochemical analysis, clinical trials, systems biology, ethnobotanical documentation, and in silico modeling. Legal frameworks were reviewed using the Nagoya Protocol and Indian environmental laws. Case studies (e.g., Jeevani) and stakeholder consultations assessed ABS implementation and regulatory challenges.

Results and Discussion: Validation methods confirm Ayurveda's potential for drug development, as seen with Ashwagandha-based formulations. The Nagoya Protocol's Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) ensure equitable benefit-sharing, exemplified by Jeevani. Indian laws support conservation but face challenges like regulatory delays and Digital Sequence Information (DSI) ambiguities, necessitating streamlined processes and sustainable practices.

Conclusion/Recommendations: Integrating Ayurveda ethically into translational medicine requires: (1) streamlined ABS approvals; (2) sustainable cultivation of medicinal plants; (3) global DSI governance; and (4) community-industry partnerships. This positions India as a leader in ethical, biodiversity-driven innovation for global health.

Keywords: Ayurveda, Translational Medicine, Nagoya Protocol, Indian Laws, Access and Benefit-Sharing, Biodiversity, Traditional Knowledge

Young Ethnopharmacologist Award / Oral Presentations

JH/SECON2025/YEA-01

Efficacy of cinnamon extract, powder, and metformin in PCOS: A randomized controlled trial

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ABSTRACT

Introduction: Polycystic Ovarian Syndrome (PCOS) affects 5–10% of women of reproductive age and is marked by insulin resistance, hormonal imbalance, and menstrual irregularities. In Unani medicine, it is termed *Marze Ikhtinaas-e-Khusyat-ur-Rahim* and linked to *Khilt-e-Balgham* (phlegm). This study evaluates the effect of hydroalcoholic extract and powdered *Darchini* (Cinnamon) on insulin sensitivity in PCOS patients, compared to Metformin.

Methodology: This randomized, single-blind, controlled trial included women aged 18–42 meeting specific criteria. Participants were divided into three groups: Group A (Hydroalcoholic Cinnamon Extract 200 mg BID), Group B (Cinnamon powder 1000 mg TID), and Group C (Metformin 500 mg BID). Primary outcomes included changes in FBS, fasting insulin, OGTT, menstrual regularity, and ovulation. Secondary outcomes were changes in BMI and waist-hip ratio.

Results and conclusion: The primary outcome measures (FBS, FSI) in the Group B showed the greatest reduction in FBS (76.7%) and FSI (73.3%), followed by Group A (FBS 53.3%, FSI 70%) and Group C (FBS 43.3%, FSI 50%). Waist-hip ratio decreased most in Group A (56.7%), then Group C (60%). Additional Outcome measures, HOMA-IR decreased most in Group A (73.3%), followed by Group B (70%) and Group C (46.7%). QUICKI increased most in Group A (66.7%), then Group B (60%) and Group C (30%). Cinnamon therapy is well tolerated by majority of the patients and maybe useful in majority of the patients with PCOS and can be considered an alternate treatment.

Keywords: Cinnamon; PCOS; Unani; Insulin Resistance; Irregular menses

JH/SECON2025/YEA-02

Quality evaluation and metabolomic profiling of honey

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ABSTRACT

Background: Honey is the one of the most valued foods having records of its use by the mankind since ancient times. It is often called as the golden liquid or golden elixir because it can be used in our diet as well as a medicine or ointment. The wide array of benefits of honey is due to its intricate composition. The high demands of honey make it susceptible to adulteration practices, necessitating proper quality evaluation of honey.

Aim: Quality evaluation of honey available in the Indian market.

Methods: In the present study we selected 14 honey samples commonly available in the Indian markets and analysed them by physicochemical tests as well as by melissopalynology. The quality indicator of honey-HMF, was analysed by a newly developed HPTLC method, which was validated and found suitable for the routine analysis of this quality marker. Further untargeted metabolomic fingerprinting was done by GC-MS and NMR.

Results: HMF content in all the samples was found within the limits specified by Codex, EU, and FSSAI. The various physicochemical parameters had acceptable values, but pollen content in none of the samples was satisfactory. The health promoting properties which are due to various bioactive compounds of honey was evaluated by the calculation of TPC,TFC and antioxidant activity. The volatile fraction identified by GC-MS analysis, can play a crucial role in identification of compounds which can serve as the marker for botanical origin of honey. Moreover, the major metabolites, particularly the sugars in honey were identified through NMR. Both GC-MS and NMR fingerprinting were done following an untargeted approach.

Conclusion: The study highlights how physicochemical methods of honey analysis could be supplemented by metabolomic approaches to assess the quality of honey available in the Indian market.

Keywords: Honey, Quality, HPTLC, GC-MS, NMR

JH/SECON2025/YEA-03

Tracing nutrient landscapes: A geographical exploration of macro and micro nutrient variation in Punarnava Root, Finger Millet, and Palm Jaggery across India

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ABSTRACT

Background: India's diverse geography has historically shaped the nutritional profile of its crops and medicinal plants. Traditional foods such as Punarnava root (*Boerhavia diffusa*), Finger millet (*Eleusine coracana*), and Palm jaggery (*Borassus flabellifer/Phoenix sylvestris*) are widely used in both diets and Ayurveda, but their nutritional composition may vary significantly with regional agro-climatic factors.

Objective: This study investigates the macro- and micro-nutrient composition of nine samples of these food materials, each collected from three different states of India, with a focus on how geographical variation influences nutrient density.

Methods: Proximate analysis (AOAC, 2012) was used to determine carbohydrate, protein, fat, fibre, and calorific value, while X-ray fluorescence (XRF) was applied to quantify key minerals (Fe, Ca, Mg, K, Zn). The results were compared against ICMR-NIN (2020) Recommended Dietary Allowances (RDA).

Results: Significant inter-regional differences were observed. Punarnava root showed moderate carbohydrate content (50–53%) and high crude fibre (17–18%), with iron concentrations ranging from 2400–3100 mg/100 g. Finger millet was carbohydrate-rich (71–73%) and an exceptional source of calcium (3600–3950 mg/100 g), with iron values between 3950–4400 mg/100 g. Palm jaggery was the most energy-dense (379–382 kcal/100 g), contributing notably to potassium (2400–2550 mg/100 g).

Conclusion: Nutrient density in these traditional foods is not uniform but strongly influenced by geography. Such variation reinforces the importance of regional sourcing for nutraceutical applications and validates Ayurveda's long-held emphasis on "*Desha*" (land/region) in food and medicine selection.

Keywords: Punarnava root, Finger millet, Palm jaggery, Geographical variation, Nutritional profile, Ayurveda

JH/SECON2025/YEA-04

Role of Honey as income generating source for S/T poor inhabitants and Undergraduate Students for their better livelihood in some adjacent villages near Delhi

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ABSTRACT

Honey is produced by honeybees from the nectar of flowers or from secretions from the living parts of plants. The sample of honey bee was collected nearby tulsi, bael, neem, coconut, amla and sunflower cultivated region. The healing property of honey is due to the fact that it offers antibacterial activity, maintains a moist wound condition, and its high viscosity helps to provide a protective barrier to prevent infection. Its immunomodulatory property is relevant to wound repair too. The antimicrobial activity in most honeys is due to the enzymatic production of hydrogen peroxide. In present work, Cluster analysis was also done in selected hot spot regions. Thus, the objective of this study was to evaluate the identification and characterization of herbal honey collected nearby different cultivated crops of different locations having SC/ST inhabitants for their better upliftment.

Keywords: Honey, Honey Bee, *Apis dorsata*, Nutritional quality, Protein, Reducing Sugar, Hydroxymethylfurfural component.

JH/SECON2025/YEA-05

Metabolomics-based evaluation of *Allium hookerii* thwaites in non-insulin-dependent diabetes mellitus and dyslipidaemia

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ABSTRACT

Background: *Allium hookerii* Thwaites, belonging to the family Liliaceae, commonly known as hooker chive, is traditionally used to manage blood sugars and hypertension.

Aims/Objectives: This study aims the prophylactic intervention of non-insulin-dependent diabetic mellitus and dyslipidaemia using the hydroalcoholic extract of *A. hookerii* and investigate the mechanism utilising metabolomics-based network pharmacology.

Methods: A validated microwave-assisted extraction method produced *A. hookerii* hydroalcoholic extract. The *in-vitro* α-glucosidase, α-amylase, and pancreatic lipase inhibition test assessed anti-hyperglycaemic and anti-hyperlipidaemic capabilities. The hydroalcoholic extract was tested in high-fat and high-sugar fed C57BL/6J mice for anti- hyperglycaemic and anti-hyperlipidaemic activities using metformin and atorvastatin as reference standards. Metabolomics integrated network pharmacology study revealed the mechanism.

Results: *A. hookerii* hydroalcoholic extract inhibited α-glucosidase (0.517 ± 0.17 mg/ml), α- amylase (1.138 ± 0.42 mg/ml), and pancreatic lipase (0.809 ± 0.18 mg/ml) dose-dependently. Compared to the disease control mice, treated experimental mice had near normal blood glucose, HbA1c, and dyslipidaemia levels for 60 days. Weight increase and fatty tissue accumulation were similarly reduced by *A. hookerii*. ADME filtration and metabolite profiling revealed 28 compounds from flavonoids and phenolic acids.

Conclusion: Network pharmacology analysis confirmed that gene targets in insulin resistance, lipid and atherosclerosis, PI3K-Akt signalling, insulin signalling, Type II diabetes, and metabolic pathways prevented non-insulin-dependent diabetes and dyslipidaemia. *A. hookerii* has similar pharmacological potential to the reference medication for non-insulin- dependent diabetes and dyslipidaemia. This research will guide the development of nutraceuticals from food plants to prevent diabetes and metabolic disorders.

Keywords: *Allium hookerii* Thwaites, Metabolomics, Non-insulin dependent diabetes mellitus, Dyslipidemia, Network Pharmacology.

JH/SECON2025/YEA-06

Unani perspectives on *Anethum graveolens* L. (Sowa): A comprehensive review of its analgesic potential and underlying mechanisms

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ABSTRACT

Background: In Unani medicine, *Anethum graveolens* L. (Shibt) is traditionally used to manage pain, inflammation, and neuralgic disorders through topical oils, warm decoctions, and oral formulations, highlighting its therapeutic relevance in treating painful conditions.

Aim of the study: To provide a comprehensive analysis of the analgesic potential of *Anethum graveolens* L. regarding Unani classical texts, modern pharmacological evidence, and possible mechanisms of action.

Materials and methods: A literature review was conducted using Unani classical texts, scientific databases (PubMed, Scopus, Google Scholar), and pharmacological studies on *Anethum graveolens* L. Keywords such as '*Anethum graveolens* L.,' 'Sowa,' 'analgesic,' 'Unani medicine,' and 'mechanism of action' were used for data extraction.

Results: Unani medicine describes *Anethum graveolens* L. as having Musakkin-e-Alam (analgesic), Mudirr (diuretic), and Hazim (digestive) properties. Modern studies attribute its analgesic effects to bioactive compounds such as carvone, limonene, and flavonoids, which modulate pain through anti-inflammatory, antioxidant, and opioid receptor-mediated pathways. Experimental evidence supports its efficacy in reducing pain in various models, including inflammatory and neuropathic pain.

Conclusion: *Anethum graveolens* L. possesses significant analgesic properties supported by both Unani literature and modern pharmacology. Its mechanisms involve anti-inflammatory, neuromodulatory, and receptor-mediated actions, making it a potential alternative for pain management. Further clinical research is needed to validate its efficacy and safety for therapeutic applications.

Keywords: *Anethum graveolens* L., Unani medicine, analgesic, pain management, anti-inflammatory, bioactive compounds

JH/SECON2025/YEA-07

Nattokinase a fibrinolytic agent for the prevention and delay of Alzheimer disease progression

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ABSTRACT

Background: Alzheimer disease (AD) is a progressive neurodegenerative disorder marked by amyloid-β (Aβ) accumulation, neuroinflammation, oxidative stress, blood-brain barrier (BBB) dysfunction, and cognitive decline. Conventional treatments offer limited delay in disease progression. Nattokinase (NK), a serine protease from fermented soy, has shown promising multifactorial effects in AD models.

Objectives: To synthesize and present current preclinical data on NK's potential in preventing or delaying AD pathology—specifically focusing on amyloid clearance, neurobehavioral/psychiatric outcomes, oxidative stress, BBB integrity, and cognitive preservation.
Methods: Literature review of recent animal and in vitro studies involving NK interventions in AD-like models, including $A\beta_{1-42}$-induced mice (memory impairment, neuropsychiatric symptoms), $AlCl_3$ + D-galactose rat models (amyloid plaque buildup, brain atrophy), and cultured neuronal systems (oxidative and inflammatory stress). Key endpoints examined include Aβ levels (brain, cerebrospinal fluid), behaviour in Morris water maze, memory/cognitive tests, inflammatory cytokine profiles (IL-6, TNF-α, etc.), neurotrophic factor levels (BDNF), antioxidant enzyme activity, and BBB integrity.

Results: NK treatment in rodent models resulted in reduced brain amyloid plaque burden, increased free Aβ in CSF (suggesting enhanced clearance), improvement in brain structural integrity (reduced atrophy), and improvement in memory and spatial learning. Neuropsychiatric behaviours (such as anxiety, depression-like behaviour) were attenuated. NK also normalized elevated inflammatory cytokines and rescued decreased BDNF levels. In vitro data supports NK's antioxidant and anti-inflammatory actions. Evidence suggests NK may help maintain BBB integrity, reducing infiltration of toxic proteins and immune cells.

Conclusion: Preclinical evidence supports nattokinase as a promising natural agent to both prevent and delay Alzheimer disease progression via multiple mechanisms: amyloid clearance, modulation of neuroinflammation, antioxidant effects, maintenance of BBB function, and cognitive protection. Further studies—especially long-term and translational / clinical trials—are needed to confirm safety, dosage, bioavailability, and efficacy in humans.

Keywords: Alzheimer disease; Nattokinase; Amyloid-β; Neuroinflammation; Blood-Brain Barrier

JH/SECON2025/YEA-08

In silico evaluation of Na^+/K^+-ATPase inhibitory activity of the phytocontituents of *Punica granatum* for cardiotonic action

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ABSTRACT

Background: Na^+/K^+-ATPase pump is vital for maintaining ionic balance and cardiac contractility. The ouabain is a cardiotonic agent for cardiac dysfunction which act by Na^+/K^+-ATPase inhibition. The seed of *Punica granatum* L. was traditionally documented for cardiotonic action in ayurveda and seed is also used in Unani medicine, but till-date no scientific data to support it.

Aim/Objectives: To document Na^+/K^+-ATPase inhibitory activity of the phytoconstituents of *Punica granatum* seed by *in silico* approach for its cardiotonic potential.

Methods: The crystal structure of Na^+/K^+-ATPase (PDB ID: 3A3Y) retrieved from protein data bank. Reported phytoconstituents of *P. granatum* seeds including quercetin, catechin, syringaresinol, and kaempferol along with ouabain as reference drug retrieved from pubchem database. Protein and ligand preparations was carried out by Maestro's protein preparation wizard and LigPrep tool. Molecular docking, MM-GBSA binding energy calculations and induced-fit docking (IFD) were studied with Glide software. Molecular dynamics (MD) simulation were carried out for 100ns to assess binding stability of above phytoconstituents with high IFD score pose for assess the binding stability.

Results: The higher docking score of kaempferol (-10.949 kcal/mol), quercetin (-8.092 kcal/mol), catechin (-7.848 kcal/mol) were observed than ouabain (-6.851 kcal/mol), whereas syringaresinol (-4.652 kcal/mol) showed lesser docking score. Quercetin, catechin, syringaresinol and kaempferol interacted with different aminoacid than ouabain in the protein binding site. But, MM-GBSA free energy of above phytoconstituents were higher than ouabain. MD study demonstrated considerable stable RMSD for quercetin and catechin, but low stability for kaempferol and syringaresinol than ouabain.

Conclusion: The study data revealed that seed of *Punica granatum* possess cardiotonic action via Na^+/K^+-ATPase inhibition which supports the traditional claim.

Keywords: Na^+/K^+-ATPase; Cardiotonic; Ouabain; *Punica granatum*; Docking

JH/SECON2025/YEA-09

A five-phase ethical framework for the integration of generative artificial intelligence in ethnopharmacology

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ABSTRACT

Background: While several international organizations have outlined principles for the responsible use of generative artificial intelligence (GenAI), frameworks specifically adapted to the unique requirements of ethnopharmacology remain limited.

Aims/Objectives: This conceptual narrative review examines existing ethical frameworks, evaluates their limitations in the context of ethnopharmacology, and proposes a five-phase ethical framework tailored to this discipline.

Methods: Ethical principles from international organizations, including UNESCO (United Nations Educational, Scientific and Cultural Organization), OECD (Organisation for Economic Co-operation and Development), and WHO (World Health Organization), as well as AI ethics frameworks such as FATE/FETE (Fairness, Accountability, Transparency, Explainability/Ethics), were reviewed and assessed against ethnopharmacological needs.

Based on the gaps identified, a five-phase framework was developed.

Results: Existing frameworks insufficiently address the core priorities of ethnopharmacology, particularly indigenous data sovereignty, cultural sensitivity, and equitable benefit-sharing. The proposed framework consists of: (1) consent-driven digitization that respects ownership of oral and written traditions, (2) ontology development integrating biomedical and cultural taxonomies, (3) domain-specific training of GenAI models, (4) human-in-the-loop participatory validation involving traditional knowledge holders, and (5) deployment supported by adaptive governance and benefit-sharing mechanisms. This framework addresses critical gaps by embedding cultural respect, participatory validation, and equitable value distribution within AI applications. It provides a structured approach to support responsible digitization, ensure interoperability, and safeguard indigenous knowledge.

Conclusion: The five-phase framework extends existing AI and traditional medicine guidelines by explicitly incorporating cultural and community-centered safeguards. Although conceptual in nature, it offers a foundation for inclusive, trustworthy, and globally relevant integration of GenAI into ethnopharmacology.

Keywords: Generative AI, Ethnopharmacology, Ethics, Benefit-Sharing

JH/SECON2025/YEA-10

Isolation and value addition of hydroxylated flavonoids for pharmacological actions

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ABSTRACT

Background: A number of pharmacologically active hydroxylated flavonoids have been isolated and characterized for high value added novel compounds. The bioactive phytoconstituents isolated, characterized and evaluated from gum resin of *Gardenia lucida Robx. (Dikamali)*. These flavonoids possess various ethano-medicinal properties such as anti-inflammatory, anthelmintic, anti-microbial as well as memory enhancing activity. Artemisinin which is isolated from the leaves of *Artemisia annua L.* having anti-malarial property. CSIR-CIMAP has developed high yielding genetically improved varieties i.e. CIM-Arogya (0.8-1.0%) and CIM-Sanjeevani (1.2%) high artemisinin content.

Objective: Value addition of poly-hydroxy flavonoids from gum resin of *G. lucida Robx.* and spent bio-waste of *A. annua L.* leaves for their novel synthesis and biological evaluation of ER targeted compounds.

Methods: In our present study, phytochemical investigations of pharmacologically active phytoconstituents have been done. From chloroform extraction of Dikamali gum resin flavonoids are isolated from non-polar to moderate polar solvents and Methanolic extraction of spent bio-waste of *A. annua L.* leaves, Scopoletin is isolated from moderate polar solvents as a major phytoconstituent along with other constituents.

Results: The *in-silico* molecular docking analysis showed their structural complementarities with the Ligand binding domain (LBD) of estrogen receptors α and β and conformation with druggability parameters**.**

Conclusion: Isolation and value addition of bioactive poly-hydroxy flavonoids from gum resin of *G. lucida Robx.* and spent bio-waste of *A. annua L.* leaves.

Keywords: Natural products, flavonoids, estrogen, estrogen receptor (ER)

JH/SECON2025/YEA-11

The safety, efficacy and tolerability of *Iksir-i-shifa* in essential hypertension: A randomized controlled clinical trial

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ABSTRACT

Introduction: Essential Hypertension (EH) is a preventable and leading cause of cardiovascular diseases, chronic kidney disease and premature death worldwide. Iksir-i Shifa (IS), a pharmacopoeial formulation, is used for the treatment of EH in Unani Medicine. However, the safety and efficacy of IS were never assessed in a clinical study. This study aimed to evaluate the safety, tolerability and efficacy of IS in EH in the South Indian population.

Materials and Methods: This randomized, active controlled, parallel-group and open labelled study enrolled male and female participants (n=72) aged between 35 years and 55 years with Sitting Systolic Blood Pressure (SSBP) 140-159 mm Hg and/or Sitting Diastolic Blood Pressure (SDBP) 90-99 mm Hg. They were randomized into test (n=36) and control (n=36) groups. The test group received IS (1040 mg/day) whereas the control group received amlodipine (5mg/day) for 6 weeks. The data was analysed using an intention-to-treat analysis.

Results: This study showed that IS reduced SSBP and SDBP significantly [Mean SSBP =26.5 mm Hg (95% CI 21.6 - 31.3, $p < 0.001$), [Mean SDBP=14.69 mm Hg (95% CI 11.50-17.88, ($p<0.001$))]. Moreover, IS reduced heart rate and increased QT interval after 6 weeks. On comparing intergroup, the mean SSBP difference was found statistically insignificant ($p=0.0512$), but the mean SDBP reduction was statistically and clinically significant ($p<0.0255$).

Conclusion: The IS was found safe and tolerable in all participants. This study concludes that IS was safe, tolerable and effective in EH. Further, the safety and efficacy of IS were found similar to amlodipine.

Keywords: Ajmaline, cardiovascular, herbo-mineral, lifestyle disorder, reserpine

JH/SECON2025/YEA-12

Indian medicinal substances in Avicenna's *Canon of Medicine*: Botanical identification and historical pharmacology

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ABSTRACT

Background and Aim: Avicenna's *Canon of Medicine* (980–1037 CE) is one of the most influential texts in the history of medicine. Among its many contributions, the *Canon* provides detailed descriptions of medicinal plants and substances originating from diverse regions. Within this corpus, Indian remedies hold a distinctive position, as the Indian subcontinent was a major hub for the production and export of medicinal plants during the medieval period. The present study aims to identify and analyze the Indian drugs mentioned in the *Canon* and to correlate them with their modern botanical equivalents.

Methods: This research was conducted through historical-textual analysis. First, references to drugs explicitly attributed to India in the *Canon* were extracted. These were then cross-referenced with classical botanical dictionaries, pharmacognosy manuals, and modern scientific literature to propose plausible scientific identifications. Morphological features and pharmacological properties described by Avicenna were compared with contemporary knowledge to evaluate accuracy and continuity of use.

Results: Avicenna refers to a range of drugs of Indian origin, including:

- Sa'd (Cyperus rotundus): aromatic rhizome with carminative and astringent qualities.
- Sandarac (resin of Tetraclinis articulata): incense-like resin used for fumigation.
- Sadhaj (possibly Nymphaea lotus or Nelumbo nucifera): aquatic plant resembling valerian in odor.
- Spikenard (Nardostachys jatamansi): sedative and aromatic root.
- Agarwood (Aquilaria agallocha): fragrant wood with stimulant and astringent properties.
- Areca nut (Areca catechu): betel nut, widely chewed for its aroma and astringency.
- Qardamana (uncertain identification, possibly Doronicum species).
- Calamus (Acorus calamus): aromatic rhizome with tonic and carminative properties.
- Costus root (Saussurea costus): widely used aromatic with therapeutic applications.
- Shal (possibly Zingiber zerumbet or an Alpinia species): ginger-like rhizome.
- Tamarind (Tamarindus indica): fruit with laxative and cooling effects.
- Betel leaf (Piper betle): consumed with areca nut, refreshing and aromatic.
- Turpeth root (Operculina turpethum): purgative root.
- Cassia fistula (Cassia fistula): well-known laxative

Avicenna provided meticulous observations regarding morphology, taste, odor, and therapeutic actions of these drugs. He also highlighted methods of adulteration and offered criteria to distinguish genuine from counterfeit products, reflecting his profound knowledge of pharmacognosy and his familiarity with multiple medical traditions, including Ayurvedic and Greco-Arabic systems.

Discussion and Conclusion: The presence of Indian remedies in the *Canon* reflects the broad scientific exchange and pharmaceutical trade between the Islamic world and the Indian subcontinent during the medieval era. Several of these drugs—such as tamarind, areca nut, spikenard, and costus—remain relevant in both traditional and modern pharmacology. From a historical perspective, their documentation underscores the significance of intercultural medical networks in shaping global medical heritage. From a pharmacological perspective, re-examining these texts can shed light on potential therapeutic resources still relevant today. Overall, Avicenna's systematic integration of Indian drugs into the *Canon* not only highlights the encyclopedic nature of his work but also demonstrates the pivotal role of India in the history of global medicine.

Keywords: Avicenna, *Canon of Medicine*, Indian drugs, history of medicine, medicinal plants, pharmacognosy

JH/SECON2025/YEA-13

Development of synergistic nephroprotective potential of selected Unani herbs useing *in vitro* and *in vivo* approaches

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ABSTRACT

Background: Chronic Kidney Disease (CKD) remains a significant global health challenge, necessitating alternative therapeutic strategies. Traditional Unani medicine has a long-standing history of nephroprotective applications, yet its synergy-based therapeutic potential remains underexplored. This study investigates a novel ethnopharmacologically derived synergy-based combination (SBC) formulated from Unani medicine for its nephroprotective efficacy.
Objective: To evaluate the protective effects of an optimized Unani SBC against drug-induced nephrotoxicity using *in vitro* HEK 293 cell models and *in vivo* zebrafish models.
Materials and Methods: A Systamatic search of botanicals from Unani pharmacopoeia was conducted to identify nephroprotective candidates. The most effective SBC was formulated and evaluated for nephrotoxicity, oxidative stress, and inflammatory markers using HEK 293 cell lines. Key biomarkers including KIM-1, NGAL, NF-κB, TNF-α and TGF-β were assessed. The SBC underwent metabolite profiling via GC-MS/LC-MS, followed by efficacy evaluation in drug-induced nephrotoxicity models in zebrafish. Functional renal markers, oxidative stress parameters, and serum biochemical indices albumin and creatinine were analysed.
Results: The optimized 1:1 synergy-based combination exhibited potent nephroprotective effects, significantly reducing oxidative stress and inflammation while restoring renal function. SBC administration led to lowered albumin and creatinine levels, reduced proteinuria, and improved antioxidant enzyme activity. Additionally, renal histopathology were restored, confirming its protective role in nephrotoxicity.
Conclusion: This study highlights the potential of Unani-based synergy-driven interventions in CKD management. The SBC demonstrated significant nephroprotective efficacy, supporting its traditional use in Unani medicine. Further preclinical validation will be done in rodent models. This work bridges the gap between ethnopharmacology and modern CKD treatment.
Keywords: Ethnopharmacology, Unani medicine, nephroprotection, drug-induced nephrotoxicity, HEK 293, zebrafish model, oxidative stress, inflammation, GC-MS/LC-MS profiling, chronic kidney disease (CKD).

JH/SECON2025/YEA-14

Evaluation of the prophylactic potential of *Hordeum vulgare* in non-communicable diseases: A decisive review

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ABSTRACT

Background: Unani scholars like Hippocrates and Galen have authored numerous books on dietotherapy, highlighting the healing power of food and drink. Modern research links unhealthy diets to non-communicable diseases. Barley, being the fourth most important grain in India due to its unique nutritional and bioactive compounds, plays a vital role in managing lifestyle-related ailments like cardiovascular health, digestive balance and metabolic regulation.

Objective: This review explores the therapeutic potential of different parts of barley in preventing and managing non-communicable diseases. It also aims to raise awareness by highlighting its value in modern dietary interventions.

Methodology: A thorough literature review was carried out using databases such as Google Scholar, PubMed, ResearchGate, Elicit, and Web of Science to identify the nutritional elements and functional compounds in barley that support health and help ease NCDs.

Result: The findings suggest that barley's rich β-glucan content promotes gut health, while its dietary fibers help control blood sugar levels in diabetics. Its anti-inflammatory properties support the treatment of rheumatoid arthritis, and niacin content reduces platelet aggregation, lowering the risk of clot formation. Rich in essential nutrients like zinc, iron, B-complex vitamins, and fibers, whole barley demonstrates strong antioxidant potential and contributes to improved outcomes in conditions such as diabetes, hypercholesterolemia, hypertension, and cardiovascular disease, and boosts immunity.

Conclusion: This review paper provides a concise overview of the therapeutic potential of barley and its bioactive compounds in preventing and managing non-communicable diseases (NCDs), highlighting the need for well-designed clinical trials to translate these findings into effective interventions.

Keywords: Dietotherapy *(Ma-ul-Sha'eer* (Barley water), bioactive compound, Non-communicable diseases, Unani Medicine

JH/SECON2025/YEA-15

A novel and environmentally benign method for the synthesis of diisoeugenol from eugenol-rich essential oils of Ocimum species

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ABSTRACT

Background: The Ocimum genus includes species like Tulsi (Holy Basil), *Ocimum sanctum*, *Ocimum basilicum*, which plays an important role in traditional medicine, culinary use, and religious rituals across various cultures. Eugenol is a low value phytogenic phenylpropanoid which act as a versatile molecules that can be used as a building block for a variety of biologically important compounds including its positional isomer Isoeugenol, and dimerised compounds (other lignans) such as α-Diisoeugenol, β-Diisoeugenol, γ- Diisoeugenol, δ- Diisoeugenol, and Biseugenol.

Aim/Objectives: Value-addition of Eugenol and eugenol rich essential oil extracted from *Syzygium aromaticum* (L) Merr. and L.M. Penny (Clove leaf / bud oil), *Ocimum tenuiflorum* cv. CIM-ayu, *Ocimum gratissimum* (Clocimum) to synthesize biologically important Diisoeugenol using green solvent.

Method: Eugenol was extracted from the leaves of ocimum species specifically *Syzygium aromaticum* (L) Merr. and *Ocimum tenuiflorum* cv. CIM-ayu using hydro-distillation technique. The value-addition of eugenol was performed to synthesize diisoeugenol using base mediated isomerisation in the presence of green solvent.

Results: This study envisioned a novel synthesis of Diisoeugenol via base-mediated dimerisation from naturally isolated eugenol (**1**) and eugenol-rich essential oils extracted from *Syzygium aromaticum* (L) Merr. and L.M. Penny (Clove leaf/bud oil), *Ocimum tenuiflorum* cv. CIM-ayu, *Ocimum gratissimum* (Clocimum) in an eco-friendly environment.

Conclusion: The present innovation highlights a green, efficient and cost-effective synthesis of diisoeugenol from low value aroma molecule like eugenol and eugenol rich essential oil.

Keywords: Ocimum, Eugenol, Phenylpropanoid, Diisoeugenol

JH/SECON2025/YEA-16

Anti-allergic activity of ethanolic extract of *Tridax procumbens L*: An *in silico* and *in vitro* mast cell stabilization and anti-histamine study

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ABSTRACT

Background: Allergic disorders such as asthma, rhinitis, and atopic dermatitis are triggered by hypersensitivity reactions mediated through histamine, IgE, IL-4, IL-5, and STAT-6. Flavonoids, known for their anti-allergic properties, are abundant in *Tridax procumbens* Linn. Although this plant is recognized for diverse pharmacological activities, its anti-allergic potential remains unexplored.

Materials and Methods: Aerial parts of *T. procumbens* were coarsely powdered, extracted with ethanol, and analyzed phytochemically. Extractive index and GC–MS profiling were performed to identify lead compounds. The selected ligand was docked with receptor proteins implicated in allergic pathways using AutoDock Vina 2.0, with ligands and targets retrieved from PubChem and RCSB PDB. Anti-allergic activity was assessed through *ex-vivo* antihistaminic assays and mast cell stabilization studies.

Results and Discussion: Phytochemical analysis confirmed the presence of flavonoids and alkaloids, with ethanol showing high solubility (89.3 ± 2.1%) and extraction yield (12.4 ± 0.6%). In docking studies, selected ligands revealed good binding energy (−7.6 to −8.9 kcal/mol) and best-fit confirmation in the binding site of respective protein. Ethanolic extract exhibited dose-dependent antihistaminic activity at 100–1000 µg/ml, showing inhibition values ranging from 28.5 ± 1.9% to 72.4 ± 2.3%. In mast cell stabilization studies at doses of 100, 500 and 1000 µg/ml, the extract produced significant activity in a dose–response curve ($p < 0.05$). In mast cell stabilization studies, doses of 100 and 200 µg/kg provided 40–50% protection against degranulation (42.7 ± 2.5% and 49.6 ± 3.1%, respectively), whereas ketotifen showed 77.2 ± 2.0% protection under the same conditions.

Conclusion: The ethanolic extract of *T. procumbens* demonstrated notable anti-allergic activity via antihistaminic effects and mast cell stabilization, validating its traditional use. These results suggest its promise as a natural source for anti-allergic therapeutics, warranting further *in vivo* and clinical evaluation to confirm efficacy and safety.

Key words: Anti-allergic, *Tridax procumbens*, flavonoids, antihistamine, mast cell stabilization

JH/SECON2025/YEA-17

Integrating chromatography, *in vitro*, and *in silico* approaches to elucidate the antibacterial potential of *Andrographis paniculata* and *Berberis aristata*

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ABSTRACT

Introduction: This study investigated the antibacterial mechanism and phytochemical profile of methanolic extracts of *Andrographis paniculata* (APE) and *Berberis aristata* (BAE) against *Escherichia coli* and *Staphylococcus aureus*, integrating susceptibility testing, membrane-integrity assays, biofilm inhibition, microscopy, chemical profiling, and *in-silico* docking.

Materials and Methods APE and BAE were evaluated against *E. coli* and *S. aureus*. Minimum inhibitory concentrations (MIC), minimum bactericidal concentrations (MBC), and time–kill kinetics were determined. Cell-membrane integrity was assessed by release of 260-nm-absorbing intracellular materials. Biofilm formation was quantified via crystal-violet assay. Confocal fluorescence microscopy examined live/dead staining, and transmission electron microscopy (TEM) assessed ultrastructural changes. Phytochemicals were characterized by GC–MS, and marker compounds verified by HPTLC. Molecular docking evaluated interactions of major phytocompounds with tyrosyl-tRNA synthetase (TyrRS) and dihydrofolate reductase (DHFR).

Results and Discussion: APE and BAE displayed measurable antibacterial activity in MIC/MBC assays, and time–kill studies showed concentration- and time-dependent bactericidal effects. Both extracts increased the release of 260-nm-absorbing components, indicating loss of membrane integrity, and inhibited biofilm formation in a dose-dependent manner. Confocal imaging confirmed membrane damage, while TEM revealed pronounced morphological alterations relative to controls. GC–MS identified multiple antibacterial phytocompounds; HPTLC confirmed andrographolide (APE) and berberine (BAE) as marker constituents. Docking analyses indicated robust binding of andrographolide and berberine to TyrRS and DHFR, supporting a multi-target mechanism consistent with the observed phenotypes (membrane perturbation and biofilm suppression).

Conclusion/Recommendation: APE and BAE exhibit significant antibacterial potential against *E. coli* and *S. aureus*, supported by MIC/MBC and time–kill data, membrane disruption, and biofilm inhibition, alongside strong predicted interactions with essential bacterial targets (TyrRS, DHFR). The next priorities are ***in vivo*** efficacy studies and comprehensive toxicity/safety evaluation to advance these extracts and their marker compounds (andrographolide, berberine) toward translational development.

Keywords: *Andrographis paniculata*, *Berberis aristata*,TEM, TyrRS, DHFR

JH/SECON2025/YEA-18

The synergy of Unani medicine and modern pharmacology in chronic disease management

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ABSTRACT

Introduction: Unani medicine, a Greco-Arabic traditional system, promotes holistic health through humoral balance, individualized diagnostics, and natural remedies. Its potential synergy with modern pharmacology offers innovative approaches for managing chronic diseases like diabetes, hypertension, and arthritis. This study explores how integrating Unani's holistic principles with modern pharmacological interventions can enhance therapeutic outcomes.

Materials and Methods: A comprehensive literature review was conducted using databases like PubMed, Scopus, and traditional Unani texts to identify studies on Unani herbal remedies and their pharmacological validation. Key herbs (e.g., *Nigella sativa, Boswellia serrata*) were analyzed for bioactive compounds using high-performance liquid chromatography (HPLC). Clinical trials and preclinical studies comparing Unani interventions with modern drugs (e.g., metformin, NSAIDs) were evaluated for efficacy, safety, and synergistic effects in chronic disease management.

Results and Discussion: Unani herbs like *Nigella sativa* exhibit antioxidant and anti-hypertensive properties, complementing drugs like ACE inhibitors, while *Boswellia serrata's* anti-inflammatory effects align with NSAIDs for arthritis relief. Unani's dietary and regimenal therapies enhance glycemic control in diabetes, potentially reducing synthetic drug dosages. HPLC analyses confirm bioactive compounds, validating Unani pharmacopeia. However, challenges include inconsistent formulations and limited large-scale trials. Integrating Unani's personalized approach with modern pharmacology's precision shows promise for patient-centered care, though standardization remains critical.

Conclusion: The synergy of Unani medicine and modern pharmacology offers a cost-effective, holistic model for chronic disease management. Collaborative research and standardization are essential to bridge these systems, paving the way for integrative healthcare solutions.

Keywords: Unani medicine, modern pharmacology, chronic disease management, integrative medicine, herbal remedies, synergy, standardization, patient-centered care.

JH/SECON2025/YEA-19

Design and synthesis of entadamide a derivatives targeting breast cancer: Insights into *in silico*, *in vitro* and *in vivo* models

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ABSTRACT

Introduction: Current strategies in breast cancer therapy face challenges due to drug resistance and cancer stem cell persistence. Sulfur-containing amides, particularly those derived from natural products, offer promising avenues for new therapeutics, combining improved target binding, metabolic stability, and cell permeability. This study focuses on Entadamide A derivatives, designed as ester-linked analogues using a variety of aromatic and aliphatic acids, to assess their anticancer properties and mechanism of action against breast cancer cell model.

Materials and Methods: Seed kernels of *E. Phaseoloides* were collected from Talakona forest, Tirupati (Voucher specimen No: GS-SVUB-1476, identified by Prof. G. Sudarshanam, S.V. University). Entadamide A was extracted via methanol-water maceration and purified using column chromatography (Silica Gel H, 100–200 mesh), with compound identity confirmed by NMR spectroscopy in $CDCl_3$ (TMS internal standard; Bruker FT-300MHz) and HRMS analysis. Biological activities—including cytotoxicity, apoptosis induction, stemness marker suppression, migration/EMT analysis, ROS and mitochondrial assays—were evaluated in breast cancer cell lines (MCF-7, 4T1, MDA-MB-231), normal HEK293 cells, and confirmed in vivo using 4T1 orthotopic mouse xenograft models.

Results and Discussion: Among 24 synthesized Entadamide A derivatives, compounds 3u (tridecanoate ester) and 3x (docosanoate ester) demonstrated the most potent cytotoxicity against MCF-7 and 4T1 breast cancer cells (IC_{50}: 2.82 µM and 2.13 µM in MCF-7; 3.26 µM and 2.94 µM in 4T1) while maintaining >25–35-fold selectivity over normal cells. Both compounds induced concentration-dependent apoptosis, downregulated anti-apoptotic (BCL-2, survivin) and EMT (SLUG, ZEB1) gene expression, reduced stem cell markers (CD90, CD133), impaired spheroid formation and BMI1 levels, elevated ROS generation, and triggered mitochondrial depolarization. In vivo, treatment with 3u and 3x significantly reduced tumor growth and volume in xenograft mouse models, with no observed systemic toxicity. Molecular docking studies confirmed improved binding affinity for ABCB1, ABCG2, and BMI-1 compared to the parent compound and comparable to sorafenib, supporting their mechanism in overcoming drug resistance.

Conclusion/Recommendation: Hence, this research indicates that the Entadamide A ester derivatives 3u and 3x exert potent anti-tumour activity in breast cancer models and provide a strong foundation for further translational development.

Key words: Entada phaseoloides, Entadamide A, Sulfur containing amides, Steglich esterification, Breast Cancer.

JH/SECON2025/YEA-20

Neuroprotective potential of plants introduced in Persian medicine: Experimental studies on Epilepsy, Alzheimer's disease, and peripheral neuropathy

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ABSTRACT

Introduction: The management of complex neurological disorders remains a significant clinical challenge, as conventional therapies are frequently constrained by inadequate efficacy and undesirable side effects. This therapeutic gap compels us to look toward complementary and integrative treatment approaches. Iranian Traditional Medicine (ITM), with its long history of using medicinal plants, offers a particularly valuable and sophisticated framework.

Materials and Methods: This study compiles evidence from experimental models of epilepsy, Alzheimer's disease, and peripheral neuropathy to evaluate the neuroprotective potential of selected medicinal plants from Iranian Traditional Medicine.

Result and Discussion: Results demonstrated significant therapeutic potential across neurological models, reducing seizure severity in epilepsy, improving memory and preventing neuronal loss in Alzheimer's models, and alleviating neuropathic pain through anti-inflammatory mechanisms.

Conclusion: Collectively, these results validate the neuroprotective potential of selected Iranian medicinal plants and support the translation of traditional knowledge into modern, integrative therapeutic strategies.

Keywords: Epilepsy, Alzheimer's Disease, Peripheral Neuropathy, Iranian Traditional Medicine

JH/SECON2025/YEA-21

Rapid determination of the extractive value of dried ginger using a near infrared spectrometer

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ABSTRACT

Background: Ginger (*Zingiber officinale* Rosc.), especially its dried form 'Sunthi', is valued in Ayurveda for its health benefits. Traditionally, determining the extractive value, one of the standard quality testing parameters, takes 24 hours and involves the use of chemicals. This study presents an NIRS (near-infrared spectroscopy) model that predicts extractive value within minutes, eliminating the need for chemicals or lengthy preparation.

Aims/Objectives: This study aimed to predict the alcohol-soluble extractive value of dried ginger rapidly using NIRS.

Methods: The alcohol-soluble extractive values were measured for 30 dried ginger samples, following the Ayurvedic Pharmacopoeia of India. Then, spectra were captured using a portable NIRS in diffuse reflection mode across a wavelength range of 900 -1700 nm. The spectral data were processed with various preprocessing techniques to improve feature clarity and minimise noise. Twenty-two samples formed the calibration set, while the remaining samples served as the test set. Partial least squares regression (PLSR) was employed to correlate the extractive values with spectral data.

Results: The optimised PLSR model was found to work effectively with preprocessed spectral data and selected wavelengths. The higher R_p^2 (Coefficient of determination for prediction) value (>0.87) and RPD (Ratio of performance to deviation) value (>2.5) showed the accuracy of the NIRS model in predicting the extractive values.

Conclusion: This study shows NIRS with chemometrics can quickly and non-destructively measure the alcohol-soluble extractive value of ginger. Future work will analyse more spectral data to build a comprehensive model, improving routine quality analysis.

Keywords: Ginger, Quality Control, NIRS, Extractive value

JH/SECON2025/YEA-22

p-Coumaric acid of Indian Jamun honey inhibits proliferation of hepatocellular carcinoma by eliciting er-stress mediated ubiquitination of β-catenin

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ABSTRACT

Background: Aberrant Wnt/β-catenin signaling drives β-catenin nuclear accumulation followed by transcription of several oncogenes, promoting hepatocellular carcinoma (HCC). Although honey exhibits therapeutic potential, the active constituents and precise mechanisms underlying its anti-HCC effects remain undefined.

Objectives: To evaluate the anti-cancer efficacy of Indian Jamun honey and identify its predominant bioactive constituent against HCC in vitro and in vivo. Furthermore, the study also targets understanding the precise mechanism through which Jamun honey exerts its anticancer properties against HCC.

Methods: LC-MS and HPLC characterized the polyphenol and sugar profile of Jamun honey. Anti-cancer activity was assessed in HepG2 cells, interaction of β-catenin and Ubiquitin was validated through Co-Immunoprecipitation. In vivo DEN/CCl_4-induced hepatocarcinogenesis model in C57BL/6 mice was used to validate the findings.

Results: The aqueous extract of Jamun honey and its major polyphenol, p-Coumaric acid, significantly suppressed HCC cell proliferation. Mechanistically, Jamun honey and its predominant bioactive constituent p-Coumaric acid impeded the proliferation of hepatocellular carcinoma by inhibiting the activity and nuclear migration of β-catenin by promoting its ubiquitination followed by proteasomal degradation through enhancing endoplasmic reticulum stress.

Conclusion: In this study, Indian Jamun honey and its principal bioactive compound, p-Coumaric acid was shown to inhibit HCC proliferation mechanistically through eliciting endoplasmic-reticulum stress mediated ubiquitination and proteasomal degradation of β-catenin, thereby effectively attenuating Wnt/β-catenin driven oncogenic signaling. These findings highlight Jamun honey's nutraceutical potential and warrant further investigation of its therapeutic applications.

Keywords: Jamun honey, Wnt/β-catenin pathway, endoplasmic reticulum stress, ubiquitination.

JH/SECON2025/YEA-23

Protective role of *Tribulus terrestris* L. against hypoxia-induced pulmonary hypertension by modulating inflammatory signalling and vascular remodelling

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ABSTRACT

Introduction: Pulmonary hypertension (PH) is a complex cardiopulmonary disorder characterised by a persistent increase in mean pulmonary arterial pressure, associated with poor prognosis and low median survival rates. The condition is driven by hypoxic pulmonary vasoconstriction (HPV) and progressive increases in pulmonary vascular resistance, imposing a sustained pressure overload on the right ventricle, ultimately leading to right ventricular failure and death. Additionally, inflammatory processes like dysregulated inflammasome signalling have been implicated in promoting vascular remodelling and disease progression. In this study, we evaluated the mechanisms by which *Tribulus terrestris* L. exerts its therapeutic effect of on hypoxia induced PH in rodent model.

Materials and Methods: Thirty-two male Wistar rats were randomly divided into 4 groups with 8 animals in. each group. Group I as normal control, Group-II as pulmonary hypertension exposed to intermittent hypoxia, Group-III exposed to intermittent hypoxia + Tadalafil drug, Group-IV exposed to intermittent hypoxia + *Tribulus terrestris* 250 mg/Kg. Right ventricular systolic pressure (RVSP), Serum levels of reactive oxygen species (ROS), nitric oxide (NO), iNOS and inflammatory markers- hypoxia inducible factor-1α (HIF-1α), nuclear factor-κB (NF-κB), toll like receptors (TLR4), interleukin (IL) 1β and 18 in control and experimental groups were analysed.

Results and Discussion: The RVSP, inflammatory and oxidative stress markers were elevated in hypoxia induced pulmonary hypertension. Administration of *Tribulus terrestris* extract to hypoxic pulmonary hypertensive rats, significantly reduced RVSP, ROS, NO and iNOS and inflammatory markers which led to improvement in pulmonary hypertension. Although, a significant difference in the effects was not observed between TT and tadalafil.

Conclusion/Recommendation: This study demonstrates anti-oxidative, anti- inflammatory and anti-angiogenic potential of *Tribulus terrestris* which may provide a valuable lead in the treatment of pulmonary hypertension.

Keywords: Pulmonary hypertension; *Tribulus terrestris* L.; Oxidative stress; Inflammasome

JH/SECON2025/YEA-24

Protective effect of *Schleichera oleosa* (Lour.) Oken in CFA-induced arthritic rats

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ABSTRACT

Background: *Schleichera oleosa* (Lour.) Oken, commonly known as "Koshamra" in Ayurveda, has been traditionally used to manage pain, inflammation, and rheumatic disorders. Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by persistent joint inflammation and progressive destruction of cartilage. Owing to the adverse effects of conventional therapies, there is increasing interest in plant-based alternatives. This study investigates the anti-arthritic potential of *S. oleosa* bark extract and its solvent fractions.

Materials and Methods: The methanolic extract (SOM) of *S. oleosa* bark and its fractions, *n*-hexane (SOH), ethyl acetate (SOE), *n*-butanol (SOB), and aqueous (SOA), were evaluated *in vitro* for cell viability, nitric oxide inhibition, and protein denaturation. The SOH fraction, exhibiting the most potent activity, was selected for *in vivo* evaluation in CFA-induced arthritic rats at doses of 200 and 400 mg/kg (oral). LC-HRMS profiling identified triterpenoids in SOH. Antioxidant activity, biochemical parameters, pro-inflammatory cytokines, and histopathological changes were assessed. A network pharmacology approach was also used to identify key molecular targets and signaling pathways.

Results: SOH at 400 mg/kg significantly ($p < 0.01$) ameliorated arthritic symptoms, normalized hematological and biochemical parameters, and reduced oxidative stress. Notably, pro-inflammatory cytokines TNF-α, IL-1β, and IL-6 were markedly suppressed ($p < 0.001$), correlating with the molecular targets predicted through network pharmacology.

Conclusion: The *n*-hexane fraction of *Schleichera oleosa* (SOH) exhibits significant anti-arthritic activity, supporting its traditional use in the management of rheumatic diseases and highlighting its therapeutic potential as a plant-based alternative for RA treatment.

Keywords: *Schleichera oleosa*; Rheumatoid arthritis; Triterpenoids; Anti-oxidant; Network pharmacology

JH/SECON2025/YEA-25

Evaluating the anxiolytic potential of Tukhme Kahu (*Lactuca sativa* seeds) in the management of anxiety disorders: A review

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ABSTRACT

Anxiety disorders are among the most prevalent mental health conditions worldwide, contributing substantially to disability, reduced quality of life, and socioeconomic burden. Conventional therapeutic options, including benzodiazepines, Selective Serotonin Reuptake Inhibitors (SSRIs), and other synthetic anxiolytics, though effective, are frequently associated with side effects such as sedation, dependence, tolerance, and withdrawal symptoms. These limitations have prompted growing interest in safer, plant-based alternatives. Traditional medical systems, particularly Unani medicine, have long documented the use of Tukhme Kahu (*Lactuca sativa* Linn. seeds) for their sedative, hypnotic, and calming effects. This review critically evaluates the anxiolytic potential of *Lactuca sativa* seeds by integrating insights from authoritative Unani literature, phytochemistry, and contemporary pharmacological research. Various Unani authoritative texts describe Tukhme Kahu as "Musakkin" (soothing), "Munaqqi al-dimagh" (brain tonic), and "Mufarrih" (exhilarant), aligning remarkably with modern pharmacological observations."Several classical Unani compound formulations incorporate Tukhme Kahu (*Lactuca sativa* seeds) as an essential ingredient, such as Qurs-e-Musallas, Qurs-e-Tabasheer, Sharbat-e-Unnab, Safoof-e-Khas, and Roghan-e-Kahu. These formulations are traditionally prescribed for their sedative, anxiolytic, demulcent, and neuroprotective properties, highlighting the therapeutic significance of Tukhme Kahu in managing conditions related to stress, anxiety, insomnia, and nervous debility." Phytochemical studies of Lactuca sativa seeds reveal bioactive compounds such as sesquiterpene lactones, flavonoids, alkaloids, coumarins, and phenolics with notable neuropharmacological potential. Preclinical evidence suggests their anxiolytic effects may involve modulation of GABAergic and serotonergic pathways, along with antioxidant mechanisms. Animal studies report reduced anxiety-like behaviors and improved stress-related neurochemical changes. Collectively, these findings position Tukhme Kahu as a promising natural anxiolytic with a good safety profile; however, rigorous clinical trials are needed to confirm efficacy, optimize dosing, and establish its role as an integrative therapy in anxiety management."

Keywords: Tukhme Kahu, *Lactuca sativa*, anxiety disorders, Unani medicine, anxiolytic activity, GABA,

JH/SECON2025/OP-1

Exploring the intersection of neck pain, cognitive function, and virtual reality: A multimodal approach to assessment and rehabilitation

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ABSTRACT

Introduction: Neck pain is a prevalent musculoskeletal condition that not only affects physical function but has been increasingly linked to impairments in cognitive performance, including attention, memory, and executive function. Traditional assessment tools often fail to capture the dynamic interaction between physical and cognitive domains. Virtual reality (VR) presents a promising platform for integrated evaluation and rehabilitation, offering immersive, controlled environments that can simultaneously challenge motor and cognitive systems

Materials and Methods: Participants with chronic neck pain and matched healthy controls underwent a battery of cognitive tasks embedded within a VR environment. Physical metrics (e.g., range of motion, proprioception, muscle activation) and cognitive parameters (e.g., reaction time, task accuracy, dual-task cost) were recorded. Subjective measures of pain, fatigue, and presence in VR were also collected

Results and Discussion: Preliminary findings suggest that individuals with neck pain exhibit significant deficits in cognitive-motor integration, particularly under dual-task conditions. VR-based tasks demonstrated sensitivity in detecting subtle impairments not captured by conventional tools. Furthermore, participants reported high engagement and tolerability, supporting the feasibility of VR in clinical settings.

Conclusion/Recommendation: Virtual reality offers a novel, engaging, and effective method to assess and rehabilitate the intertwined physical and cognitive impairments associated with neck pain. Future research should explore longitudinal interventions and the role of VR in personalized rehabilitation programs.

Keywords: Neck pain, cognition, virtual reality, rehabilitation, dual-task performance, chronic pain

JH/SECON2025/OP-2

Human microbiom microbiome modulation: A review

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ABSTRACT

The microbiome refers to the collective community of microorganisms—such as bacteria, fungi, viruses, protozoa, and archaea—that reside in specific environments like the human gut, skin, mouth, respiratory tract, and urogenital system. The main benefits of Microbiome include nutritional & metabolic support, digestive benefits, immune regulation and impact on mood emotions and cognition. Microbiome modulation refers to intentional efforts to reshape or restore the structure and function of microbial communities in order to improve health. This can involve boosting beneficial species, reducing harmful ones, or re-establishing balance after disruption. Common strategies include probiotics (live microbes), prebiotics (substrates that nourish them), and symbiotics (a combination of both). Dietary changes—especially fiber-rich, plant-based foods—are natural modulators of gut ecology. More advanced methods include fecal microbiota transplantation (FMT), particularly effective against recurrent *Clostridioides difficile* infection, as well as newer approaches like bacteriophage therapy, engineered probiotics, and postbiotics (microbial products). These strategies underline the microbiome as an important therapeutic target in modern medicine. Knowing the benefits of this emerging technology this word was started in the Unani faculty of a central university of Utter Pradesh, India. The aims and objectives of this study were to review the modern literature on human microbiome and methods of its modulation. Then to review the classical un ani literature for any clue on the same topic. By combining dietary, microbial, and advanced biotechnological approaches, microbiome modulation offers personalized pathways to prevent disease and enhance overall health. The details of these modulation methods with special reference of unani medicine shall be discussed in full length paper.

JH/SECON2025/OP-3

Evaluation of hydroalcoholic extract of *Fagonia cretica* Linn on benzene-induced leukemia in male wistar rats

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ABSTRACT

Background: *Fagonia cretica* L. is a spiny herb that can cure cancers, as shown in many studies. Its components are also used to treat cancer; its efficacy in leukemic patients has been spread through word of mouth in different communities. Hence, the anti-leukemic potential of the hydroalcoholic extract of *F. cretica* was studied.

Method: To establish the safe dose of *F. cretica*, an acute oral toxicity study was done according to OECD Guidelines 423. The antileukemic activity was evaluated in male Wistar rats. First, baseline parameters were analysed, and leukemia was induced by benzene (0.2 mL, IV) given 48 hourly for five weeks. Hematological parameters and peripheral smears were examined to confirm the induction of leukemia. Treatment was started in the test (hydroalcoholic extract, 140mg/kg, 195mg/kg, and 250mg/kg) and standard groups (cyclophosphamide) and continued for 4 weeks. After treatment, hematological analysis and peripheral smears observed, and animals were sacrificed; the spleen and liver were dissected, and their weight was taken and sent for histopathological assessment.

Results: *F. cretica* was found safe at 5000 mg/kg. After benzene administration, leukemia induction resulted in significant anemia indices and leukocytosis ($P < 0.05$) in rats, all the parameters were altered, and WBCs became irregular and large with a dominant nucleus. After treatment, *F. cretica* at all three doses restored the hematological parameters (p=0.5-0.0001) and cell morphology. The high dose showed more significant effect and was comparable to cyclophosphamide.

Conclusion: Based on the findings, it is concluded that *F. cretica* has antileukemic potential against benzene-induced leukemia in Wistar rats.

Keywords: Anti-leukemic activity; Benzene; *Fagonia cretica* L; Unani medicine; Wistar rat.

JH/SECON2025/OP-4

Influence of mizaj on memory performance and modulatory role of Unani herbs: Bridging traditional concepts with modern neurophysiology

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ABSTRACT

Background: In Unani medicine, *Mizaj* (temperament) governs physiological and psychological functions, including *Quwwat-e-Hafiza* (memory faculty).Variations in *Mizaj*: Hararat,barudat, ratubat, yabusat—are believed to influence cognitive abilities such as attention, retention, and recall. Modern neuroscience also parallels this, showing individual differences in memory performance. Several Unani herbs are traditionally used to enhance memory, with effects possibly tailored to different *Mizaj* types.

Objective: To explore the relationship between individual Mizaj (temperament) and memory performance, and to examine how Unani herbs with specific temperaments modulate cognitive functions through traditional and modern neurophysiological mechanisms.

Methods: A narrative review was conducted using classical texts and contemporary literature (PubMed, ScienceDirect) on herbs affecting memory. Herbs were analyzed based on their Mizaj, traditional memory-enhancing properties, and mechanisms supported by modern neurophysiology, including neurotransmitter modulation, neurogenesis, and antioxidant effects. Memory performance of different Mizaj types—Damwī (warm & wet; strong memory), Ṣafrāwī (hot & dry; quick comprehension, weaker retention), Balghamī (cold & wet; slower recall), and Saudāwī (cold & dry; reflective, slow recall)—was considered while correlating individual temperament with suitable herbs to optimize cognitive function.

Results: Herbs like *Asgandh (Withania somnifera)*, *Jatamansi (Nardostachys jatamansi)*, *Brahmi (Bacopa monnieri)*, and *Darchini (Cinnamomum zeylanicum)* are recommended according to *Mizaj* type. Hot and dry temperaments may benefit from cooling, neuroprotective herbs, while cold or moist temperaments may require warming, stimulating agents. These herbs potentially enhance memory by modulating acetylcholine, GABA, serotonin pathways, and protecting neurons from oxidative stress, aligning with traditional *Ilaj-bil-Dawa* principles.

Conclusion: Memory performance varies with *Mizaj* of individuals, and Unani herbs offer a temperament-specific approach to cognitive enhancement. Integrating classical knowledge with modern neurophysiological understanding provides a holistic framework for personalized mental health interventions, bridging Unani wisdom with contemporary neuroscience.

Key words: Mizaj; Quwwat-e-Hafiza; cognitive function; Unani medicine; Neuroscience

JH/SECON2025/OP-5

Combined effect of pilates and nutritional supplementation on female's health: A systematic review

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ABSTRACT

Introduction: Women's health benefits from targeted exercise and nutrition, yet the combined effects of Pilates and dietary supplementation on physical, metabolic, and biochemical outcomes remain unclear. This review systematically evaluates the combined impact of Pilates with nutritional supplements on diverse health outcomes in females, supporting evidence-based wellness practices.

Materials and Methods: Following PRISMA guidelines and PROSPERO registration (CRD420251066420), databases including PubMed, Cochrane, Scopus, and Google Scholar were searched using relevant terms. Only RCTs and quasi-experimental studies in females with combined Pilates and supplementation interventions were included. Data extraction and quality assessment compared these interventions against Pilates-only, supplement-only, and controls.

Results: Eleven studies were included—5 RCTs and 6 quasi- or semi-experimental—with over 300 female participants (adolescents to older adults) with a range of health statuses. Supplements investigated included herbal (dill, turmeric), botanical (lycium, caraway, celery), protein, and vitamins. Combined Pilates and supplementation consistently led to better improvements in oxidative stress, BMI, body composition, glycaemic control, flexibility, and pain reduction, regardless of study design, though outcomes varied by supplement and duration.

Conclusion: Pilates combined with nutritional supplementation produces synergistic benefits for women's physical, metabolic, and biochemical health. This multimodal approach is more effective than single interventions, recommending its adoption in female health promotion. Further research should standardize protocols and confirm optimal supplement-exercise combinations.

Keywords: Pilates; nutritional supplementation; women's health; metabolic outcomes; randomized controlled trials; synergy; evidence-based wellness

JH/SECON2025/OP-5

Development of a screening tool for analysing the risk of acquiring cognitive decline among adults aged 40 to 60 years: A face and content validation study

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ABSTRACT

Introduction: Around 15.6% of the elderly population has developed signs of mild cognitive impairment, with 46% developing dementia within three years. Multiple factors involving demographic variations, lifestyle choices, and physical and mental capacities influence neurodegeneration and impact cognitive functioning at varied thresholds. This study was an effort to develop and validate a novel screening tool that assists in determining the risk of acquiring cognitive decline among healthy adults aged 40 to 60 years.

Materials and Methods: The study was conducted in two stages. A scoping review was conducted for item generation, and the draft was emailed to experts for face and content validation. Panel experts were selected who hold a minimum of a Master's degree in Occupational Therapy and have a minimum of 15 years of experience in the field. A modified Delphi technique with three rounds was used to reach consensus, and the content validity ratio (CVR) was established.

Results and Discussion: At the initial stage, 58 items were generated, and 7 items were removed after initial consensus. Face validation was conducted by ten experts for agreement on clarity and relevance of the tool, and was revised in terms of section headings, grammatical changes, and the avoidance of repetitive questions. Items were grouped and reduced to 48 items that met consensus. In rounds 2 and 3, 48 items were calculated for the Content Validity Ratio (CVR) by another ten experts, of which 13 items revealed a CVR of less than 0.8, which were omitted. A final draft of the tool was prepared with 35 items.

Conclusion/Recommendation: This study developed a screening tool for analyzing the risk of acquiring cognitive decline among adults aged 40 to 60 years with established face and content validity.

Keywords: Cognitive decline, risk determinants, healthy adults

JH/SECON2025/OP-7

Promotion of metabolic health and prevention of non-communicable diseases through millets-based food supplements: A scientific review

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ABSTRACT

Introduction: Millet refers to smaller grains that are ground and eaten without the outer layer being removed. They are not only rich in nutrients but also possess a high nutraceutical potential against various non-communicable diseases (NCDs) such as diabetes, obesity, cancer, and cardiovascular disorders, and various risk factors associated with metabolic health. Epidemiological studies demonstrate that diets rich in millets offer protection against NCDs. Though there is an increased trend in global usage of millet-based diets among patients with various NCDs, millets are still underutilized among healthy individuals due to the higher acceptance of other grains such as wheat and rice, despite their high nutritional and medicinal values and accessibility. This scientific review aims to explore the available literature on the nutritional and nutraceutical properties of millets in promoting metabolic health and preventing NCDs.

Materials and Methods: All the available information was compiled from electronic databases such as Google Scholar, PubMed, Medline, and Scopus, and classical books.

Results and Discussion: The literature search revealed that finger millets, pearl millets, and sorghum millets are considered major millets, while foxtail millets, kodo millets, little millets, proso millets, brown top millets, and barnyard millets are considered minor millets based on grain size. These millets are enriched with dietary fibers, protein, and various vitamins and minerals, as well as the low glycemic index, high phenolic and flavonoid contents, and associated anti-oxidant, anti-hyperglycemic, cholesterol-lowering, anti-hypertensive, anti-cancer, anti-inflammatory, and neuroprotective properties of millets make them superior to other diets in the management of lifestyle disorders.

Conclusion: The millet-based diets that are loaded with high nutritional and nutraceutical values could be complemented in day-to-day life as food supplements for the promotion of metabolic health and prevention of NCDs.

Keywords: Millets; Non-Communicable Diseases; Nutraceuticals; Nutrition

JH/SECON2025/OP-8

Aligning traditional wisdom with contemporary research: Steroidogenic modulation by a Unani pharmacopoeial formulation in wistar albino rats

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ABSTRACT

Background: Steroids are pivotal in managing non-communicable diseases such as cardiovascular disorders, chronic respiratory diseases, and cancer. Despite their efficacy, synthetic steroids are linked to considerable side effects. Herbal formulations, including those described in Unani medicine, may offer similar therapeutic benefits with a safer profile.

Aim: This study aimed to evaluate the steroidal activity of a Unani Pharmacopoeial Formulation (UPF) using the thymus involution method.

Methods: The UPF, comprising *Operculina turpethum*, *Commiphora mukul*, *Citrullus colocynthis*, and *Terminalia chebula*, was standardized and detoxified before experimentation. Wistar albino rats were divided into four groups: normal control (distilled water), standard control (hydrocortisone), Test control 1 (powdered UPF), and Test control 2 (50% hydroalcoholic extract of UPF). After sacrifice, body and thymus weights were recorded, and thymus histopathology was performed. Data were analyzed using GraphPad Prism 8.0.2 via one-way ANOVA followed by Tukey's test, with $p < 0.05$ considered significant.

Results: Test control 1 significantly reduced thymus weight (165.1 ± 1.624 mg/100 g; $p < 0.0001$) compared to normal control (232.9 ± 4.737 mg/100 g). Standard control also showed significant reduction (178.8 ± 3.469 mg/100 g; $p < 0.0001$). Test control 2 produced a mild, non-significant reduction (221.9 ± 4.204 mg/100 g; $p > 0.05$). Histopathology revealed moderate cortical degeneration and altered corticomedullary ratio in Test control 1, while Test control 2 retained near-normal architecture.

Conclusion: Powdered UPF demonstrates significant steroidal activity, indicating potential as an anti-inflammatory and immunomodulatory agent. Further preclinical and clinical studies are warranted to confirm its efficacy and safety.

Keywords: Steroidal activity, Wistar albino rats, Unani formulation, Thymus involution

JH/SECON2025/OP-09

Ashwagandha in advanced nanomedicine: Approaches and applications

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ABSTRACT

Background: *Withania somnifera*, a medicinal plant widely distributed in Asia and Africa, holds an important place in traditional systems of medicine. Scientific investigations have confirmed its diverse pharmacological activities, including antioxidant, anti-inflammatory, cardioprotective, adaptogenic, anti-stress, neuroprotective, anti-cancer, and anti-diabetic effects. These therapeutic benefits are primarily attributed to its key constituents such as withanolides, withaferins, alkaloids, flavonoids, sterols, and phenolic compounds.

Aim: The present study focuses on the integration of *Withania somnifera* into zinc nanoparticle formulations with the aim of reducing the required dose while enhancing therapeutic potential.

Methods: Extracts of *Withania somnifera* were subjected to qualitative and quantitative phytochemical evaluation. The formulation was further optimized using a Quality by Design (QbD) approach to achieve maximum drug entrapment efficiency with minimal particle size.

Withania somnifera was standardized using withanolide A as a marker compound by High Performance Liquid Chroamtography. Characterization studies including UV–Vis spectroscopy, FTIR, zeta potential analysis, *in vitro* stability, and release studies were carried out. Bioevaluation employed the chorioallantoic membrane assay to evaluate angiogeneic potential and trypan blue exclusion test assessed cell viability. Zinc quantification was performed using EDAX and ICP–AES, while SEM imaging provided morphological insights.

Results: *Withania somnifera* loaded zinc nanoparticles were successfully synthesized and demonstrated an increase in angiogenesis and maintained cell viability. The formulation was found to be stable and demonstrated controlled release *in vitro.*

Conclusion: The combination of advanced drug delivery systems with the natural healing properties of traditional medicine paves the way for its incorporation into healthcare regimens and as a complementary strategy alongside conventional medical treatments.

Keywords: *Withania Somnifera,* zinc nanoparticles, Quality by design, antioxidant

JH/SECON2025/OP-10

An overview of research on cardiovascular health and natural products

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ABSTRACT

Background: Cardiovascular disease (CVD) remains the leading cause of mortality worldwide, strongly linked to risk factors such as hyperlipidemia, hypertension, obesity, and diabetes mellitus. As conventional therapies often pose side effects, natural products and dietary strategies have gained increasing interest for CVD prevention and management.

Methodology: This review employed a narrative approach, analyzing peer-reviewed clinical and experimental studies published in recent decades. Sources were identified through databases such as PubMed and ScienceDirect, focusing on the impact of food-derived natural products and dietary interventions on CVD-related risk factors in human populations.

Results: Several natural products show promising cardiovascular benefits. Amaranth oil, rich in tocotrienols and squalene, may lower cholesterol and support cell membrane stability. Black sesame meal supplementation significantly reduced systolic blood pressure and oxidative stress in prehypertensive individuals. Chlorogenic acids from green coffee bean extract improved blood pressure without side effects. Beetroot juice, high in dietary nitrates, acutely reduced both systolic and diastolic blood pressure, especially in older adults. Aged black garlic extract, and general garlic supplementation showed modest antihypertensive effects, possibly through nitric oxide pathways and antioxidant activity. Additionally, a plant-based diet led to significant improvements in body weight, BMI, glycemic control, and cardiovascular biomarkers.

Conclusion: Natural products and plant-based diets demonstrate potential as supportive strategies in reducing CVD risk factors. These approaches may complement conventional treatments, particularly in early intervention or prevention strategies.

Keywords: Cardiovascular disease, natural products, blood pressure, cholesterol, plant-based diet

JH/SECON2025/OP-11

The healing power of *Prunus cerasus* L. (Aalu Balu): From traditional medicine to scientific evidence

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ABSTRACT

Introduction: *Prunus cerasus* L., popularly known as sour cherry, is a deciduous fruit tree of the *Rosaceae* family. Originating from Europe and Southwest Asia, it has been extensively cultivated for its tart fruits, which hold both culinary and medicinal importance. The fruit is abundant in bioactive constituents. The red color of *prunus cerasus* is a result of presence of anthocyanins.

Materials and Methods: Assessment was carried out on the manuscripts of Unani medicine, such as *Khazain-al-Advia, Makhzan-al-Advia, Kitab al-Hawi, Muheet-e-Azam, Al-Jamiul-Mufradat-al-Advia wa'l Aghziya,* etc., together with scientific sources from PubMed, Scopus, and Google Scholar, Science-Direct, Wiley Online Library was carried out. Studies on the pharmacognostic, phytochemical, and pharmacological activities of *Prunus Cerasus* Linn. were reviewed to establish links between Unani principles and modern research findings.

Results and Discussion: A wide range of therapeutic compounds are found in the fruits, stem bark, and leaves of the plant, fruit, seeds including, anthocyanins, flavonoids, phenolic acids, vitamins, and minerals, which provide notable antioxidant, anti-inflammatory, and cardioprotective, nephroprotective effects. In traditional medicine, various parts of the plant—including the bark, seeds, and fruit—have been utilized as *Mufattit-e-Hasat* (Lithotriptic), *Mudirr-e-Bawl* (Diuretic), *Mudirr-e-Haiz* (Emmenagogue), *Muqawwi-e-Jigar* (Hepatotonic), *Musakkin Safra'wa Josh Dam, Musakkini-Hararat* (Febrifuge), *Muqawwi-e-Dimagh* (Braintonic). Contemporary research further supports its role in combating oxidative stress, alleviating inflammation, enhancing sleep, and managing conditions such as arthritis, metabolic disorders, kidney diseases and cardiovascular diseases. The convergence of Unani wisdom and modern pharmacological research indicates that *Prunus cerasus* offers broad-spectrum therapeutic potential. Classical Unani writings focus on its temperament and systemic benefits, which are now being substantiated by biochemical and clinical studies. However, additional interdisciplinary research is needed to develop standardized formulations and uncover new therapeutic uses.

Conclusion: Representing a bridge between Unani tradition and modern science, *Prunus cerasus* exhibits multiple pharmacological activities, highlighting its promise as a natural remedy for preventive and curative purposes.

Keywords: *Mudirr-e-Bawl*, *Mufattit-e-Hasat*, anthocyanins, Unani

JH/SECON2025/OP-12

Analysis of urinary (bawl) parameters for determining human temperament (Mizaj-e-Insani)

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ABSTRACT

Introduction: Fuzlat-e-Badan (Excreta of the body) is one of the parameters among the ten determinants for assessing human temperament, and Bawl (Urine) is one of them. Ancient Unani physicians described the urine properties of different temperaments, as the urine of individuals with the Ṣafrāwi Mizaj (Choleric temperament) tends to be dark and thin. The urine of Damawī Mizaj (Sanguine temperament) individuals tends to be bright yellow in colour and thick in comparison to Ṣafrāwi individuals. The urine of Balghamī Mizaj (Phlegmatic temperament) individuals tends to be whitish. The urine of Saudawi Mizaj (Melancholic temperament) individuals tends to be blackish-tinged, reddish-tinged, or greenish-tinged. Urine represents 'Alāmāt-e-Baṭina, which indicates the condition of the liver, kidney, ureters, urinary bladder, and vascular system; it also shows the condition of the whole body.

Aims and Objectives: Standardisation of parameters of urine for the determination of the human temperament.

Material and Methods: This study was carried out on 100 volunteers at the central pathology lab, Ajmal Khan Tibbiya College & Hospital, and in the Laboratory, Department of Biochemistry, AMU. The parameters of urine, as colour, turbidity, specific gravity, pH, protein, ketone bodies, and glucose, were evaluated. The data was compared and statistically analysed by using the unpaired t-test.

Result: The analysis of the data reveals that there are no significant differences in the urinary parameters across the four temperaments.

Conclusion: Urine is a weak parameter for assessing temperament because it is affected by many uncontrolled factors such as diet, drugs, vitamins, habits, and seasons. These factors have the potential to alter urine colour and osmolality, but it has strong clinical significance for the diagnosis of diseases.

Keywords: Fuzlat-e-Badan, Mizaj, 'Alāmāt-e-Baṭina, Bawl, Unani

JH/SECON2025/OP-13

Extraction, isolation and value addition of phytomolecules from *Glycyrrhiza glabra* L. and their anti-cancer activity

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ABSTRACT

Background: Flavonoids from licorice root, showed a wide range of biological activity and has frequently serve as a herbal remedy from ancient times. Formononetin, is used to treat various cancers by inhibiting cell growth and promoting apoptosis, combating neurological disorders like Alzheimer's disease and stroke by offering neuroprotection, acting as an anti-inflammatory agent, and improving bone health and glucose metabolism.

Aim/Objectives: Structural modification of isolated Formononetin by introducing functionality on its core structure and evaluation of all the synthesized compounds for anticancer activity.

Method: The ethyl acetate extract of *Glycerrhiza glabra* was subjected to fractionation by column chromatography over silica gel through a gradient elution method using hexane-chloroform and then chloroform-methanol, six compounds were isolated and identified as isoliquitigenin liquirtigenin, diadezin, formononetin and Glabridin and glycyrrhetinic acid. Furthermore, formononetin derivatives were synthesized and evaluated for their anticancer activity using SRB assay.

Results: The isolation of different phytomolecules from licorice root was done. Formononetin and its derivatives were evaluated for their anticancer activity in MCF -7 (ER^+ Breast adenocarcinoma) and MDA-MB-231(ER^-Breast adenocarcinoma) using SRB assay. The synthesized compounds presented moderate anti-cancer activity

Conclusion: The newly synthesized formononetin derivatives were evaluated for their anti-cancer activity. The compound showed moderate activity as compare to standard drug. The detail of work will be presented during the conference.

Keywords: Formononetin, anti-cancer, *Glycerrhiza,* Flavonoids

JH/SECON2025/PP-14

From roots to remedies: Strengthening traditional medicines for the future

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ABSTRACT

Background: Traditional medicines and medicinal plants constitute an important part of primary healthcare across the world. However, concerns over quality assurance, safety validation, and sustainable availability hinder their wider acceptance. Addressing these aspects is essential for integrating traditional remedies into mainstream healthcare and for ensuring public confidence.

Aims/Objectives: To evaluate the current status of quality, safety, and efficacy assessment of traditionally used medicines, and to explore strategies for their promotion and sustainable propagation.

Methods: A cross-sectional descriptive study was undertaken involving selected medicinal plants and formulations commonly used in Unani systems of medicine. Standard operating procedures were applied for authentication, quality control, and physicochemical profiling. Safety and efficacy data were collected from published clinical observations and practitioner surveys. Propagation practices and promotional strategies were assessed through field visits and stakeholder interviews.

Results: Analysis revealed significant variability in quality and authenticity of raw materials, highlighting the need for stringent standardization. Safety profiles of several formulations were acceptable when processed according to classical methods, while others required further toxicological evaluation. Effective propagation techniques, including tissue culture and community-based cultivation, improved plant availability. Stakeholders emphasized that awareness campaigns and regulatory support are critical for promotion.

Conclusion: Quality assurance, safety validation, and sustainable propagation are key to strengthening traditionally used medicines and medicinal plants. Implementing standardized procedures and coordinated promotional efforts can enhance their credibility and global acceptance.

Keywords: Traditional medicine; Medicinal plants; Quality assurance; Safety; Propagation.

JH/SECON2025/OP-15

Development and optimization of dual drug loaded nanoformulation via actively targeting hepatocellular carcinoma

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ABSTRACT

Background: Hepatocellular carcinoma (HCC), the sixth most prevalent malignant tumour and third in mortality globally, often presents with subtle symptoms, leading to late-stage diagnosis. Therefore, the only option left with most of the patients is chemotherapy. Regrettably, first- and second-line chemotherapeutic agents not only kill cancer cells but also result in severe neurotoxicity, cardiotoxicity, and liver and kidney dysfunction. This poses significant challenges for patients. Therefore, herbal origin drug is considered for development of nanoformulation along with a clinically established synthetic drug.

Objective: The present work is designed to develop and optimize the dual drug loaded nanoformulation.

Methodology: Physiochemical characterization of both the drugs was done like organoleptic properties, melting point determination, partition coefficient and solubility of drugs in different solvents was analysed. Other analytical characterization FTIR, DSC and XRD were also done for both the drugs. On the basis of solubility of both the drugs in different lipids, the lipids were selected for further development of formulation and optimized for further analysis using BBD.

Results: The optimized formulation using BBD approach was developed and found to be stable for *in vivo* work in suitable animal model of HCC.

Conclusion: The optimized dual drug loaded nanoformulation was developed.

Keywords: Hepatocellular carcinoma, Nanoformulation, Active targeting

JH/SECON2025/OP-16

Integrative literature review on Asthma: Biomedical and Unani perspectives

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ABSTRACT

Introduction: Asthma is a chronic inflammatory disease of the airways characterized by recurrent episodes of wheezing, breathlessness, chest tightness, and coughing. It affects over 300 million individuals globally, with a significant prevalence in urban populations of developing countries, such as India. This review aimed to synthesize contemporary biomedical understanding of asthma with classical Unani concepts, focusing on etiology, pathophysiology, clinical features, and therapeutic approaches.

Materials and Methods: This review incorporated data from global and Indian epidemiological studies, clinical guidelines, and classical Unani texts, including *Al-Qanoon*, *Firdous-ul-Hikmat*, and *Kitab Al-Haziq*. The biomedical domains covered prevalence, phenotypes, inflammatory mechanisms and pharmacological therapies. The Unani domains explored causes (Asbab), types (*Rabw, Zeeq un-Nafas*), symptoms, and treatment modalities such as *Ilaj-bil-Ghiza* (dietotherapy), *Ilaj-bil-Tadabeer* (regimenal therapy), and *Ilaj-bil-Dawa* (pharmacotherapy). A Comparative analysis was performed to identify overlaps and divergences between the two systems.

Results and Discussion: The biomedical classification includes allergic, nonallergic, cough-variant, and adult-onset phenotypes. The pathogenesis involves early- and late-phase inflammation, airway remodelling, and hyperresponsiveness mediated by mast cells, eosinophils, and cytokines. However, Unani medicine attributes asthma to humoral imbalances, phlegm accumulation, and organ dysfunction, classified as *Rabw Nazli*, *Rabw Balghami*, and *Rabw Istarkhai*, respectively. Modern medical treatments include bronchodilators, corticosteroids, leukotriene modifiers, and biologics. Unani therapies utilize herbs like *Asl-us-Soos, Arusa*, *Datura*, *Kalonji*, and compound formulations such as *Sharbat-e-Zufa Murakkab*, *Majun Rahul Momineen*, *Safoof Kakda singhi*, *Habbe Hindi Zeeqi* and *Habbe Zeeq un-Nafas*. Both systems emphasize individualized care and avoidance of triggers.

Conclusion/Recommendation: An integrative approach that combines evidence-based pharmacotherapy with Unani principles may enhance asthma management, particularly in culturally diverse populations. Further clinical validation of Unani formulations and regimenal therapies is recommended to support holistic care.

Key words: Asthma; *Zeeq un-Nafas*; Pathophysiology; Unani Medicine; Respiratory inflammation

JH/SECON2025/OP-17

Bio-analytical method development and validation of an LC-MS/MS method for accurate quantification of tepotinib in biological matrices

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ABSTRACT

Introduction: Tepotinib is approved for use in adult patients with metastatic non-small cell lung cancer (NSCLC) harboring specific genetic alterations, namely MET (mesenchymal–epithelial transition factor) exon 14 skipping. It is a selective MET tyrosine kinase inhibitor designed to block the signalling pathways frequently overexpressed in certain solid tumours.

Aim/objective: The primary objective of this research is to develop and validate a linear, precise, and specific LC-ESI-MS/MS method for the quantification of Tepotinib in biological matrices.

Method: Chromatographic separation was achieved on a Phenomenex C18 column (50 mm × 4.6 mm, 2.1 µm) using a mobile phase of 0.1% formic acid, acetonitrile, and methanol (10:70:20, v/v/v) at a flow rate of 0.5 mL/min. Detection was performed in MRM mode, monitoring the transitions m/z 493.2 → 185.1 for Tepotinib and m/z 488.2 → 273.2 for Pemigatinib (internal standard).

Results: The calibration curve showed excellent linearity with the regression equation y = 0.0001x + 0.0015 and a correlation coefficient (r^2) of 0.9997. Matrix effect studies yielded %CV values of 2.90% (Low-QC) and 3.41% (High-QC). Mean recoveries were 102.41% (High-QC, 11.25 µg/mL), 98.07% (Mid-QC, 7.50 µg/mL), and 102.41% (Low-QC, 1.05 µg/mL). Precision across QC levels (0.375, 1.05, 7.50, and 11.25 µg/mL) ranged between 2.00–4.03%, within acceptable limits.

Conclusion: The method was validated in accordance with FDA guidelines and is suitable for routine analysis of Tepotinib in biological samples, with applications in quality control, forensic investigations, and bioavailability studies.

Keywords: Tepotinib, Lung cancer, LC-MS/MS, Validation, Accuracy.

JH/SECON2025/OP-18

Talbinah as a dietary intervention in preventive unani medicine: Bridging tradition and evidence

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ABSTRACT

Background: Talbinah, a traditional barley-based preparation rooted in prophetic medicine, has gained new attention for its therapeutic potential in preventive healthcare.

Materials and Methods: A comprehensive review of classical Unani literature and recent scientific studies on Talbinah's nutritional analyses focused on Talbinah's bioactive compounds, macro- and micronutrients, and health benefits.

Results and Discussion: Talbinah is nutritionally rich, containing barley-derived beta-glucans and soluble fiber, milk proteins, essential vitamins, and minerals. These components help in lowering LDL cholesterol, regulating blood glucose, enhancing gut microbiota, and providing antioxidant and anti-inflammatory benefits. Classical Unani texts describe Talbinah as a nerve tonic and phlegm expeller, corroborated by modern findings showing its calming effects on stress and depression. Clinical data indicate its positive impact on hemoglobin and serum mineral levels, making it useful in managing lifestyle disorders like obesity, diabetes, and hypertension. Talbinah's alignment with Unani's Six Essential Factors *(Asbāb-e-Sitta Zarūriya)* of Health underlines its holistic role in promoting physical and mental well-being.

Conclusion/Recommendation: Talbinah bridges traditional Unani wisdom and modern nutrition science, emerging as a functional food with preventive health benefits.Standardizing preparation, dosage, and wider clinical trials are needed to firmly establish Talbinah's efficacy for its integration into public health nutrition and preventive medicine programs.

Keywords: Talbinah; *Asbāb-e-Sitta Zarūriya*; Functional food

JH/SECON2025/OP-19

Clinical correlation of *Mizaj* (Temperament) with uterine fibroid and its treatment in Unani medicine

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ABSTRACT

The Unani system of medicine is founded on the concept of *Mizaj* (Temperament), which forms the basis of its therapeutic principles. The term Temperament, derived from the Latin word Tempero means- to mix together, refers to the unique constitution of each individual. This individuality determines one's response to internal and external stimuli such as food, climate, emotions, medicines, and disease processes. Hence, *Mizaj* plays a vital role in tailoring patient-specific treatment.

Uterine fibroid is one of the most common benign tumors of the uterus, manifesting with heavy or prolonged menstrual bleeding, pelvic pain, dyspareunia, and sometimes recurrent pregnancy loss. In Unani literature, it is described as *Salaat*. According to Unani theory, diseases occur due to imbalance in the four humours—*Khilt-e Dam*, *Khilt-e Safra*, *Khilt-e Balgham*, and *Khilt-e Sauda*. Treatment is therefore aimed at correcting the dominant humour responsible for pathology. Classical physicians like Hippocrates and Ibn Sina associated uterine fibroid with the predominance and accumulation of *Ghaliz Balgham*. An observational study was conducted in the Department of Amraz-e-Niswan wa Qabalat, Ayurvedic and Unani Tibbia College and Hospital, Karol Bagh, Delhi, on reproductive-aged women (15–45 years) diagnosed with uterine fibroid. Patients presented with irregular, heavy, and painful menstrual cycles, lower abdominal pain, pelvic heaviness, and were confirmed through ultrasonography.

Findings showed that most patients had a *Balghami* (*Barid Ratab*) *Mizaj*, indicating predisposition of this temperament toward uterine fibroid. The paper also highlights effective single and compound unani formulations that were found useful in managing this condition.

Keywords: *Mizaj* (Temperament), Uterine Fibroid (*Salaat*), Unani medicine

JH/SECON2025/OP-20

Indian lychee honey mitigates hepatic lipotoxicity by inducing Fam134b-mediated reticulo-mito-phagy and restoring mitochondria-ER contact sites (MERCSs) in NAFLD condition

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ABSTRACT

Introduction: Non-alcoholic fatty liver disease (NAFLD) is a chronic metabolic disorder characterized by excessive lipid accumulation and disrupted organelle homeostasis. This study explores the therapeutic potential of Indian lychee honey (LyH) in alleviating hepatic lipotoxicity, focusing on its role in modulating key metabolic and organelle-associated pathways.
Materials and Methods: The therapeutic effects of LyH were investigated using a high-fat diet (HFD)-induced NAFLD mouse model (*in vivo*) and palmitic acid-induced HepG2 (human hepatocytes) and BRL3A (rat hepatocytes) cell lines (*in vitro*). Key pathways were further elucidated through *in vitro* studies employing pharmacological inducers and inhibitors of ER-phagy and fatty acid oxidation (FAO). Analyses focused on lipid droplet size, mitochondrial and ER integrity, Mitochondria-ER Contact Sites (MERCSs), and markers of oxidative stress and inflammation.
Results and Discussion: LyH treatment significantly enhanced FAO, reducing hepatic lipid accumulation and normalizing the physical and functional distance between mitochondria and ER (MERCSs). This restoration of MERCSs improved inter-organelle communication between ER and mitochondria and activated Fam134b-mediated reticulo-mito-phagy, a coordinated autophagic process that cleared damaged mitochondria (mitoplasts) with the involvement of the ER. Consequently, LyH effectively mitigated ER stress, enhanced mitochondrial health, and reduced oxidative stress and inflammation. *In vitro* studies confirmed that LyH-driven FAO activation is central to its beneficial effects on organelle crosstalk and metabolic balance.
Conclusion/Recommendation: This study establishes LyH as a natural therapeutic agent for NAFLD that acts by increasing fatty acid oxidation, restoring MERCSs, and activating reticulo-mito-phagy to mitigate lipotoxicity. The results underscore the potential of LyH as a nutraceutical intervention, though further clinical research is necessary to validate these findings in human populations.
Key words: Non-alcoholic fatty liver disease (NAFLD); Lychee honey (LyH); Lipotoxicity; Mitochondria-ER Contact Sites (MERCSs); Reticulo-mito-phagy; Family with Sequence Similarity 134, Member B (Fam134b)

JH/SECON2025/PP-21

Impact of late-night mobile phone use on heart rate variability on different Mizaj individuals

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ABSTRACT

Introduction: Heart rate variability (HRV) serves as a sensitive biomarker reflecting autonomic nervous system regulation and cardiovascular resilience. In recent years, the ubiquity of mobile phones has led to a surge in late-night screen usage, particularly among young adults. This behavioral shift raises concerns about its physiological implications, especially regarding sleep quality and cardiac autonomic balance. Exposure to blue light and cognitive stimulation from mobile screens during nocturnal hours may disrupt circadian rhythms and suppress parasympathetic activity, potentially leading to reduced HRV. Given the foundational role of HRV in maintaining cardiovascular health, this study explores the impact of late-night mobile phone use on HRV parameters across individuals with different mizaj (temperaments), aiming to identify vulnerable profiles and guide preventive strategies.

Materials and Methods

Participants

The study recruited healthy young adults aged 18–30 years, stratified based on Unani mizaj classification (e.g., sanguine, choleric, melancholic, phlegmatic). Participants were screened for baseline health status and sleep patterns.

Study Design

A cross-sectional observational design was employed. Participants were monitored over a one-week period, with HRV data collected using wearable ECG devices. Mobile phone usage was tracked via screen-time logs and self-reported diaries, focusing on activity between 11:00 PM and 3:00 AM.

HRV Analysis

HRV was assessed using time-domain (RMSSD) and frequency-domain (HF, LF) metrics. Data was analyzed using Kubios HRV software. Sleep consistency and emotional engagement with screen content were recorded and correlated with HRV outcomes.

Results and Discussion: Participants who engaged in prolonged mobile phone use past midnight exhibited significantly lower RMSSD and HF values, indicating reduced parasympathetic tone and heightened sympathetic dominance. These effects were more pronounced in individuals with irregular sleep schedules and high emotional engagement with screen content (e.g., social media, gaming, emotionally charged videos).

Among different mizaj types, melancholic and choleric individuals showed greater susceptibility to HRV disruption, possibly due to inherent temperament-linked stress reactivity. Sanguine individuals demonstrated relatively preserved HRV profiles, suggesting better autonomic adaptability. The findings highlight the physiological toll of nighttime screen exposure, particularly in emotionally reactive or sleep-inconsistent individuals. Disrupted circadian signaling and sympathetic overdrive may predispose these populations to long-term cardiovascular risks.

Conclusion: Late-night mobile phone use adversely affects heart rate variability, especially in individuals with vulnerable mizaj profiles and inconsistent sleep habits. Reduced RMSSD and HF components reflect impaired vagal modulation and increased sympathetic activity, underscoring the need for digital hygiene practices. HRV monitoring offers a non-invasive method to assess the physiological impact of modern digital behaviors and guide personalized interventions for better sleep and cardiovascular health.

Keywords: Heart rate variability (HRV), mobile phone use, circadian rhythm, parasympathetic activity, RMSSD, HF component, mizaj, Unani medicine, digital hygiene, sleep disruption, autonomic nervous system

JH/SECON2025/OP-22

Novel insights of neuroprotective effect of ellagic acid in monosodium glutamate-induced neurotoxicity in zebra fish larvae

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ABSTRACT

Background: Neurodegenerative diseases, including Alzheimer's and Parkinson's, are major global health concerns characterized by progressive neuronal loss. Monosodium glutamate (MSG), widely used as a food additive, induces neurotoxicity through oxidative stress, excitotoxicity, and cholinergic dysfunction. Natural compounds such as polyphenols have shown neuroprotective potential. Ellagic acid, a potent antioxidant polyphenol, has demonstrated significant effects in reducing protein aggregation, mitochondrial dysfunction, and oxidative damage.

Objective: The present study aims to investigate the neuroprotective potential of ellagic acid against MSG-induced neurotoxicity using in silico drug-likeness and docking studies, coupled with neurobehavioral assessments in zebrafish larvae.

Methods: Drug-likeness properties of polyphenols were assessed using Molinspiration software, and in silico docking with acetylcholinesterase (AChE) enzyme was performed using AutoDock 4.2. Zebrafish larvae were divided into five groups: control, MSG (neurotoxic control), low-dose ellagic acid, high-dose ellagic acid, and standard (Donepezil). Neurobehavioral parameters including locomotor activity, survival rate, and mortality rate were recorded and analyzed statistically using one-way ANOVA followed by Dunnett's test.

Results: Ellagic acid displayed favorable drug-likeness properties and strong binding affinity to AChE with a binding energy of –7.18 kcal/mol. In zebrafish larvae, ellagic acid treatment significantly improved swimming patterns, enhanced survival rate, and reduced mortality compared to MSG-exposed groups, showing dose-dependent effects.

Conclusion: The findings suggest that ellagic acid effectively reverses MSG-induced neurotoxicity and holds potential as a therapeutic candidate for Alzheimer's disease. Zebrafish larvae proved to be a reliable model for neurobehavioral and pharmacological evaluations.

Keywords: Neurodegeneration, Ellagic acid, Monosodium glutamate, Zebrafish larvae.

JH/SECON2025/OP-23

From waste to wellness: Unlocking citrus peels' potential in the fight against Malaria

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ABSTRACT

Introduction: Annual citrus processing generates 120 million tons of waste, an environmental burden, and an underutilized source of bioactive flavonoids. This study valorized this waste by investigating the anti-malarial potential of its key flavonoids: rutin, naringin, and diosmin.

Materials and Methods: Anti-malarial efficacy was evaluated through in vitro assays against *Plasmodium falciparum* (NF54 strain) and in vivo in a *P. berghei* K173 mouse model. Experiments included determining prophylactic and therapeutic potential, as well as combination therapy with chloroquine (CQ). Anti-inflammatory activity was measured by estimating cytokine (TNF-α, IL-6, IL-1β) production in macrophages and microglial cells. Pathogenesis was evaluated through serum and tissue cytokine profiles, histopathology, immunohistochemistry, and qRT-PCR for pro-inflammatory genes.

Results and Discussion: All flavonoids demonstrated direct anti-parasitic effects and dose-dependently reduced pro-inflammatory cytokines in vitro. In vivo, lower doses (25 mg/kg rutin/naringin; 10 mg/kg diosmin) showed therapeutic efficacy, while a higher dose (50 mg/kg) induced pro-oxidant effects. In combination studies on both CQ-sensitive (*P. berghei*) and resistant (*P. yoelii*) strains, the flavonoids did not interfere with CQ's efficacy but acted as adjunctive therapy by mitigating inflammation. Treated groups showed a significant reduction in pro-inflammatory markers compared to infected controls. The synergy with chloroquine, coupled with the reduction in inflammation, resulted in a doubling of survival time.

Conclusion: Citrus flavonoids act as adjunct agents, boosting antimalarial efficacy by reducing inflammation. This validates a circular economy model, transforming waste into a therapeutic resource.

Keywords: Citrus waste, Flavonoids, Malaria, Adjunctive therapy.

JH/SECON2025/PP-24

Exploring the pharmacological activities and therapeutic applications of quercetin

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ABSTRACT

Background: Quercetin, a naturally occurring flavonoid abundant in fruits and vegetables, has attracted significant scientific interest due to its diverse pharmacological properties. Its molecular structure enables it to scavenge reactive oxygen species, modulate inflammatory pathways, regulate apoptosis, and influence cellular signaling. These bioactivities underlie its therapeutic potential against a broad range of pathological conditions, including cardiovascular and neurodegenerative diseases, cancer, metabolic disorders, and reproductive dysfunction. Recent studies have also highlighted its protective role in testicular injury, emphasizing its relevance in male reproductive health.

Aim: This review aims to critically evaluate the pharmacological activities and therapeutic applications of quercetin, with an emphasis on its mechanisms of action and clinical relevance in disease management and prevention.

Method: A systematic review of peer-reviewed literature was conducted using reputable databases, including PubMed and ScienceDirect. Relevant studies addressing the pharmacological properties, molecular mechanisms, and therapeutic implications of quercetin were comprehensively analyzed.

Result: Quercetin exhibits potent antioxidant, anti-inflammatory, anti-apoptotic, anticancer, antiviral, and anti-aging activities. It mitigates oxidative stress, regulates inflammatory mediators, and enhances cellular defense systems. Therapeutically, quercetin protects against metabolic and degenerative disorders, improves reproductive outcomes, and mitigates testicular damage induced by diabetes, toxins, and environmental pollutants. Moreover, its synergistic action with conventional therapies enhances treatment efficacy.

Conclusion: Quercetin represents a promising bioactive compound with extensive pharmacological applications. Further clinical studies are required to optimize its bioavailability, dosage, and safety profile to translate its therapeutic potential into clinical practice.

Keywords: Quercetin; flavonoid; antioxidant; anti-inflammatory; disease prevention.

JH/SECON2025/OP-25

Glycemic control and functional mobility in Type 2 diabetes: Insights from tug and chair stand tests

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ABSTRACT

Background: Type 2 diabetes mellitus (T2DM) is associated with sarcopenia and impaired mobility. While glycated hemoglobin (HbA1c) reflects long-term glycemic control, its association with functional performance remains unclear. This study investigated the correlation of HbA1c with Timed Up and Go (TUG) and 5-times Chair Stand (CS-5) tests in patients with T2DM.

Methods: In this cross-sectional study, 39 patients with T2DM underwent standardized assessments of HbA1c, TUG time (seconds), and CS-5 time (seconds). Pearson correlation analysis was performed to examine associations between glycemic control and mobility measures.

Results: Mean HbA1c was 8.9 ± 1.8%. Average TUG and CS-5 times were 11.2 ± 3.5 sec and 14.6 ± 5.0 sec, respectively. HbA1c showed no significant correlation with TUG ($r = –0.04$, $p = 0.80$) or CS-5 ($r = 0.13$, $p = 0.44$). In contrast, TUG and CS-5 times were strongly correlated ($r = 0.51$, $p < 0.001$), indicating convergence of these tests in assessing lower-limb function.

Conclusion: Glycemic control (HbA1c) was not associated with functional mobility in T2DM. However, TUG and CS-5 were strongly interrelated, suggesting both capture shared domains of physical performance. Functional assessments may complement glycemic monitoring for comprehensive risk stratification in diabetes.

Keywords: Type 2 diabetes, HbA1c, sarcopenia, Timed Up and Go, chair stand test, mobility

JH/SECON2025/PP-26

Development of a reformulated traditional therapeutic agent for the management of migraine

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ABSTRACT

Background: Migraine is considered an unrecognized and under-treated neurological disorder. Unani medicinal herb Baboona (*Matricaria chamomilla*) oil has shown potential in the management of pain. However, predicaments such as poor skin penetration, skin sensitization, liable to degradation, and volatile nature restrict its use. Therefore, our group for the first time has developed a carrier-based delivery system to facilitate the direct application of baboona oil on the forehead.

Aims: The work involves development of nanoemulsion and subsequently gel formulation of baboona oil for the management of headaches and migraine.

Methods: Nanoemulsion was prepared by aqueous titration method followed by conversion into a gel form. The developed nanoemulgel was characterized for physical parameters such as compatibility, TEM, and stability studies. Further, it was also evaluated for pH, viscosity, spreadability, extrudability, texture analysis, *in vitro* studies, skin irritation test, and *in vivo* anti-migraine studies.

Results: The formulation was successfully developed with all the necessary attributes. The *in vitro* studies have shown enhanced skin penetration of baboona oil nanoemulgel. The *in vivo* studies show significant improvement in anti-migraine activity and improved the pain threshold for chamomile nanoemulgel when compared to the positive control group and the results were comparable to marketed diclofenac formulation. Finally, the encapsulation into nanoemulgel reduced its skin irritation property. The nanoemulgel formulation showed promising effects in the pain management of migraine.

Conclusions: The results proved that incorporation of traditional medicine into a novel delivery system can enhance its therapeutic potential.

Keywords: Headache, Traditional medicine, Baboona oil, Migraine, Nanoemulsion, Nanoemulgel, Topical delivery

JH/SECON2025/OP-27

Investigating the molecular mechanisms of *Dioscorea alata* L. in treating menstrual disorders through network pharmacology and molecular docking

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ABSTRACT

Background: Menstrual disorders (MDs), such as premenstrual syndrome, amenorrhea, and dysmenorrhea, significantly impact women's health and quality of life. *Dioscorea alata* L., a traditional medicinal yam, has shown potential in alleviating MDs, yet its molecular mechanisms remain unclear.

Aim: This study applies network pharmacology and molecular docking to explore the therapeutic potential of *D. alata* bioactive compounds in treating MDs through multi-target pathways.

Methods: Bioactive compounds were identified via literature and PubChem, while disease targets were collected from GeneCards and DisGeNET. Compound–target interactions were refined using Swiss Target Prediction and STRING-based PPI networks. Gene Ontology and KEGG analyses explored related processes and pathways, and molecular docking validated interactions and binding affinities.

Results: Eighteen compounds and 120 therapeutic targets were identified. KEGG analysis highlighted significant pathways related to ovarian follicle development, hormone signaling, estrogen receptor regulation, and MAP kinase activity. Core targets such as TNFα, PPARG, ESR1, and AKT1 emerged as central regulators. Docking analysis showed strong ligand–protein interactions, notably Daidzein-ESR1, Diosgenin-TNFα, and Alatanin-AKT1, along with multiple PPARG ligands.

Conclusion: D. alata exhibits multi-target pharmacological activity in MDs, with Diosgenin, Daidzein, Genistin, Cycloartane, and Alatanin contributing synergistically to pathway modulation. These findings highlight D. alata as a promising natural candidate for menstrual health management, warranting further experimental validation.

Keywords: *Dioscorea alata*; Menstrual disorders; Network pharmacology; Molecular docking; Drug-target interaction.

JH/SECON2025/OP-28

Therapeutic potential of Afsanteen *(Artemisia absinthium* Linn.*)*: Traditional knowledge and modern pharmacological evidence

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ABSTRACT

Background: Afsanteen *(Artemisia absinthium* Linn.) is a perennial herb belonging to the Asteraceae family, well-recognized in the Unani system of medicine for its versatile therapeutic value. Traditionally, it has been employed as a diuretic, antipyretic, anthelmintic, deobstruent, and stomachic. Its wide range of uses includes the management of digestive ailments, nervous system disorders, and inflammatory conditions. Modern pharmacological studies have further explored its potential in chronic and metabolic disorders, enhancing its relevance in integrative medicine.

Aim: The present review aims to provide a comprehensive account of the botanical identity, pharmacognostic features, phytochemistry, and therapeutic significance of *Afsanteen*, drawing insights from both classical Unani texts and contemporary scientific research.

Method: Relevant data were collected from Unani classical literature, pharmacopoeias, and modern experimental studies. Emphasis was placed on physiochemical parameters, phytoconstituents, extractive values, and its role in formulations. Scientific reports highlighting its pharmacological actions were also reviewed.

Result: Findings indicate that the traditional claims of *Afsanteen* align with modern evidence, which supports its hepatoprotective, neuroactive, antidiabetic, and anti-inflammatory properties. Its phytoconstituents, including sesquiterpene lactones and flavonoids, contribute significantly to these activities, confirming its medicinal potential.

Conclusion: *Afsanteen* continues to hold a significant position in Unani medicine and emerging biomedical research. While traditional knowledge and modern studies demonstrate promising outcomes, well-designed clinical trials are needed to validate its safety and efficacy, thereby expanding its role in Metabolic disorders like NAFLD.

Keywords: *Afsanteen, Artemisia absinthium* Linn., Unani medicine, phytochemistry, pharmacological activities.

JH/SECON2025/PP-29

Flavonoids: Potential therapeutic targets in inflammatory bowel diseases

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ABSTRACT

Background: Flavonoids, a diverse group of phytochemicals, have garnered significant attention due to their potential therapeutic effects in various health conditions, including inflammatory bowel diseases (IBD). These compounds, primarily found in fruits, vegetables, and beverages such as tea and red wine, exhibit remarkable anti-inflammatory properties that may ameliorate the symptoms associated with IBD.

Methodology: A comprehensive search on Scopus, PubMed, and Web of Science databases from their inception to December 2022 for preclinical studies and clinical investigations describing the effects of flavonoids on the outcomes of Inflammatory bowel diseases including Crohn's disease and Ulcerative colitis was carried out. The search used Boolean operators "AND" and "OR" to combine flavonoid-related terms (e.g., flavonol, flavanone, isoflavone, quercetin, catechin, anthocyanin, etc.) with disease terms ("Inflammatory Bowel Disease," "Ulcerative Colitis," or "Crohn's Disease").

Results: Research has elucidated the multifaceted mechanisms through which flavonoids exert their beneficial effects. They are known to modulate inflammatory pathways by inhibiting pro-inflammatory cytokines and enzymes, thereby attenuating the inflammatory response. This modulation is crucial in the context of IBD, where chronic inflammation leads to severity and worsen the symptoms and complications. Furthermore, flavonoids possess antioxidant capabilities that contribute to the maintenance of gut integrity.

Conclusions: Flavonoids have emerged as promising candidates in the landscape of IBD management, owing to their anti-inflammatory and antioxidant properties. Continued research is essential to fully elucidate their mechanisms and to establish definitive dietary recommendations for individuals afflicted with these chronic conditions.

Keywords: Flavanoids, Inflammatory bowel disease, anti-oxidant,anti-inflammatory.

JH/SECON2025/OP-30

The role of long-term exercise in optimizing thyroid function in hypothyroidism: Evidence from a systematic review and meta-analysis

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ABSTRACT

Objective: This study aimed to assess the effects of exercise interventions of more than 8 weeks on thyroid function in adults with hypothyroidism through a systematic review and meta-analysis of randomized controlled trials.

Materials and Methods: The PEDro, WOS, PubMed, Cochrane Central Register of Controlled Trials, and Scopus databases were searched for relevant articles, which then underwent standardised screening, data extraction, and bias risk assessment. A total of seven randomised controlled trials (n = 7) were included, predominantly examining 12 weeks of exercise therapy. A meta-analysis was conducted using data extracted from the included studies. Standardised mean differences were calculated for thyroid-stimulating hormone levels, and heterogeneity was assessed using the I2 statistic. The certainty of evidence was evaluated using the GRADE approach.

Results: Statistically significant reductions in thyroid stimulating hormone (TSH) levels (SMD: −3.254; 95 % CI: −3.937 to −2.572; $p < 0.001$) and increases in thyroxine (T4) level (SMD: 1.315; 95 % CI: 0.263–2.367; $p = 0.015$) were noted in exercise intervention groups as compared to control groups. Heterogeneity was moderate ($I^2 = 65.93$ %, $p = 0.019$) and no publication bias was detected. In addition, based on GRADE assessment, the certainty of evidence was rated as moderate for the TSH outcome and very low for the T4 outcome.

Conclusion: Findings from seven randomised controlled trials support the integration of long-term exercise as a non-pharmacological adjunct in the management of hypothyroidism. Exercise interventions, alongside conventional treatment, appear to improve thyroid function by reducing TSH and increasing T4 levels.

JH/SECON2025/PP-31

Cognitive effects of exercise in older adults with subjective cognitive decline: A systematic review

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ABSTRACT

Background: Subjective Cognitive Decline (SCD) represents a preclinical stage of cognitive impairment associated with increased risk of dementia. Physical exercise is a promising, accessible, and cost-effective intervention that may support cognitive health; however, its specific impact on SCD remains unclear.

Objective: This systematic review aimed to evaluate the effects of physical exercise interventions, alone or in combination with cognitive or lifestyle components, on cognitive outcomes particularly memory and executive functions in individuals with SCD.

Methods: A comprehensive search of PubMed, Scopus, and Web of Science was conducted in accordance with PRISMA guidelines. Randomized controlled trials (RCTs) published in English were included if they involved older adults with SCD and assessed structured physical exercise interventions. Methodological quality was appraised using the PEDro scale and ROB 2.0 tool, while certainty of evidence was graded with the GRADE framework.

Results: Of 3,586 identified records, five RCTs comprising 585 participants met inclusion criteria. Interventions included aerobic training, high-intensity interval training, and multimodal programs combining exercise with diet or cognitive training. Methodological quality was moderate (PEDro scores 5–7/10). Findings indicated that physical exercise alone produced limited but favorable effects on executive function and episodic memory, whereas multimodal interventions yielded more consistent and significant improvements across memory, attention, and working memory domains. High-intensity exercise protocols were particularly effective in enhancing both cognitive outcomes and cardiovascular health.

Conclusions: Evidence suggests that physical exercise contributes to cognitive benefits in SCD, but its effects are most robust when integrated with cognitive training or lifestyle modifications. Given the heterogeneity and modest sample sizes of current trials, further large-scale, standardized RCTs with long-term follow-up are needed to isolate the independent effects of physical exercise and to optimize intervention protocols.

Keywords: subjective cognitive decline, physical exercise, memory, executive function, cognitive training, multimodal intervention, dementia prevention

JH/SECON2025/OP-32

Computational identification and experimental validation of natural inhibitors targeting dengue virus NS1 Protein

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ABSTRACT

Introduction: Dengue infection remains a significant public health problem worldwide, with its non-structural protein-1 (NS1) that plays an important role in immune evasion and significantly contributes to dengue pathogenesis, particularly in inducing endothelial disruption and vascular leakage during severe dengue infection. Targeting NS1 offers a therapeutic potential to mitigate disease progression.

Materials and Methods: In this study, a combination of *in-silico* and biophysical approach was used to identify and characterize potential inhibitors capable of inhibiting NS1 function. Molecular docking and dynamic simulation studies were carried out to evaluate binding affinities of various phyto-constituent against the NS1 protein. Top ranked compounds exhibited the highest binding affinity and stability with the conserved residues of NS1. These interactions suggest potential disruption of NS1's functional domains critical for host-pathogen interactions.

Aims and Objectives: To validate these computational studies, NS1 was cloned, expressed in E.coli and purified using Ni-NTA affinity chromatography. The expression of r- NS1 protein was confirmed by western blot and structural conformation was assessed by native PAGE. Biophysical characterization was done using intrinsic fluorescence, CD and differential scanning calorimetry (DSC).

Results and Discussion: The analysis revealed a conformational modulation in NS1 upon incubating with the top ranked phyto-constituents indicating successful binding and interaction. In vitro validation confirmed that these compounds significantly reduce DENV-NS1 replication in a dose-dependent manner with minimal cytotoxicity and confirmed by western blot and qRT-PCR. These finding provide insight into inhibitory mechanism of Phyto-constituents against DENV-NS1 Protein.

Conclusion/Future Direction: These phyto-constituents exhibit promising potential as inhibitors of DENV-NS1 Protein, offering a safer and effective approach to mitigate viral pathogenesis. Further validation of the preclinical evaluation needs to be performed to support the development of novel potential therapeutic against dengue infection.

Keywords: DENV, NS1-Protein, Phyto-constituents, *In-silico* analysis, Protein Interaction, Biophysical, Antiviral, qRT-PCR.

JH/SECON2025/OP-33

Belladona: The witches herb

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ABSTRACT

Background: Belladonna (Atropa belladonna), commonly known as deadly nightshade, is a perennial herbaceous plant of the Solanaceae family. It has long been recognized for both medicinal potential and toxic hallucinogenic properties.

Objective: This study aims to explore the hallucinogenic properties of belladonna with emphasis on its neuropharmacological mechanisms, historical significance, and associated risks.

Methodology: Literature was reviewed focusing on belladonna's phytochemistry, pharmacological effects, and historical uses. Special attention was given to tropane alkaloids such as atropine, scopolamine, and hyoscyamine, which act as anticholinergic agents.

Results: Controlled doses of belladonna extracts have therapeutic uses, including pain relief, pre-anesthetic sedation, and treatment of gastrointestinal disorders. However, in larger amounts, these alkaloids produce delirium, hallucinations, and severe toxicity, often with dysphoric experiences and physical symptoms such as dry mouth, dilated pupils, tachycardia, and urinary retention. Unlike serotonergic psychedelics, belladonna's hallucinations are disorienting and often dangerous.

Conclusion: Belladonna represents a complex intersection of medicine, myth, and psychoactive exploration. Despite centuries of intrigue, its hallucinogenic use poses significant health risks. Future research may uncover safe therapeutic applications of its bioactive compounds, but its recreational hallucinogenic use remains hazardous.

Keywords: Belladonna, Hallucinogenic, Tropane Alkaloids, Atropine, Scopolamine

JH/SECON2025/OP-34

Ethnopharmacological insights into herbal and nutraceutical remedies for menopausal migraine

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ABSTRACT

Background: Menopause-associated migraine is a prevalent yet under-recognized neuroendocrine disorder affecting women during the menopausal transition, primarily due to fluctuating estrogen levels. Conventional migraine therapies often provide partial relief and are associated with adverse effects, prompting interest in safer, plant-based alternatives rooted in traditional medicine.

Objective: The study aims to explore, review, and scientifically validate herbal drugs and natural supplements traditionally employed for the management of menopausal symptoms and migraine, focusing on their phytochemical composition, pharmacological mechanisms, and clinical potential.

Methods: A systematic literature review was conducted across Scopus, PubMed, and Web of Science databases, along with classical Ayurvedic, Unani, and Traditional Chinese Medicine references. Data on phytoconstituents, mechanisms of action, and clinical outcomes were critically analyzed to identify botanicals and supplements targeting migraine pathophysiology in menopausal women.

Results: The literature survey has demonstrated the significant potential of key botanicals such as *Withania somnifera* (Ashwagandha), *Glycyrrhiza glabra* (Licorice), *Angelica sinensis* (Dong Quai), *Vitex agnus-castus* (Chasteberry), and *Zingiber officinale* (Ginger) in modulating serotonergic pathways, stabilizing estrogen balance, and reducing oxidative stress linked to migraine onset during menopause. Complementary nutraceuticals including magnesium, Coenzyme Q10, omega-3 fatty acids, vitamin E, B-complex vitamins, and soy isoflavones demonstrated hormonal stabilization, mitochondrial support, and neuroprotective activity. Synergistic formulations and nutraceutical supplements containing these phytoconstituents exhibited clinical promise for holistic migraine relief during menopause.

Conclusion: Integrating traditional herbal knowledge with modern pharmacological validation offers a holistic and safer therapeutic approach for managing menopause-induced migraine. Further preclinical and clinical investigations, along with standardization and mechanistic studies, are warranted to develop evidence-based phytopharmaceuticals for women's health.

Keywords: Menopause, migraine, herbal drugs, natural supplements, ethnopharmacology, phytoestrogens, neuroprotection.

JH/SECON2025/OP-35

Antibacterial and antibiofilm activity of *Averrhoa carambola* L. fruit extract

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ABSTRACT

Aim: This study aimed to evaluate the phytochemical composition and antibacterial potential of *Averrhoa carambola* L. aqueous extract, with particular focus on its traditional application for gastrointestinal disorders and biofilm-associated bacterial infections.

Methods: Fresh *A. carambola* fruits were collected from Tripura, Northeast India, and subjected to aqueous extraction. Phytochemical characterization was performed using UV-visible spectroscopy (200-800 nm) and Fourier-transform infrared (FTIR) spectroscopy (4000-500 cm^{-1}). Antibacterial efficacy was evaluated against *Escherichia coli* using combination therapy with gentamicin at extract concentrations of 680 µg/mL and 340 µg/mL. Biofilm disruption was assessed through fluorescence microscopy.

Results: UV-Vis analysis revealed characteristic absorption maxima at 220-230 nm and 280-320 nm, confirming the presence of phenolic acids and flavonoid compounds. FTIR spectroscopy identified key functional groups including O-H stretching (3300-3500 cm^{-1}), C-O-C glycosidic bonds (1050 cm^{-1}), aromatic C=C stretching (1620 cm^{-1}), and carbonyl groups (1735 cm^{-1}), indicating polyphenolic compounds, flavonoid glycosides, and organic esters. The extract demonstrated significant antibacterial activity against *E. coli*, achieving 56% and 42% growth inhibition at 680 µg/mL and 340 µg/mL respectively when combined with gentamicin. Fluorescence microscopy confirmed disruption of bacterial biofilm architecture.

Conclusion: The study provides scientific validation for the traditional use of *A. carambola* in treating gastrointestinal ailments. The characterized phytochemical profile, dominated by polyphenolic and flavonoid compounds, correlates with observed antibacterial and antibiofilm activities. These findings establish a foundation for potential therapeutic applications targeting bacterial infections and biofilm-associated disorders, supporting the development of this traditional medicine into evidence-based therapeutic interventions.

Key words: *Averrhoa carambola,* star fruit, phytochemical analysis, antibacterial activity, antibiofilm, *Escherichia coli*

JH/SECON2025/OP-36

Dry needling or corticosteroid injections for musculoskeletal conditions: A systematic review

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ABSTRACT

Introduction: Nowadays, both dry needling and corticosteroid are emerging topics to treat various conditions. The aim of this systematic review is to critically analyze the literature to compare dry needling and corticosteroid injections for treatment of musculoskeletal conditions.

Method: This systematic review was conducted according to PRISMA guidelines. Various different databases were used to search relevant articles using Cochrane handbook for systematic review of interventions and different keywords. Articles were collected altogether and selected on the basis of eligibility criteria. The final sets of articles were selected after complete screening.

Result: Initially 131 articles were selected for reviewing. On the basis of eligibility criteria and availability of full text articles 9 articles were selected. Out of which only 7 articles were selected for review. Study quality assessment was done via PeDro and risk of biasing was done via RoB2.

Conclusion: DN is superior over CS injection in treating various musculoskeletal conditions.

Keywords: Dry needling and corticosteroid injection and injuries and tendinitis and musculoskeletal conditions or dry needling or corticosteroid injection.

JH/SECON2025/OP-37

Role of leech therapy in gynaecological disorders

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ABSTRACT

Background: *Irsale Alaq* (Leech therapy & Hirudotherapy), a classical Unani intervention, has regained prominence in integrative medicine for chronic and inflammatory disorders. In gynaecology, conventional treatments for conditions such as chronic pelvic pain, dysmenorrhoea, pelvic congestion, endometriosis, and adenomyosis often have limited efficacy or adverse effects. Leech therapy offers a minimally invasive adjunct or alternative with potential therapeutic benefits.

Objective: To elucidate the Unani conceptual basis and contemporary therapeutic relevance of leech therapy in gynaecological disorders characterized by uterine congestion and inflammation.

Methods: A qualitative conceptual analysis was performed, synthesizing classical Unani literature with modern pharmacological evidence on leech saliva. Databases including MEDLINE and NAPRALERT were searched using Boolean operators and keywords such as "leeching" AND "analgesic," "anti-inflammatory," "anti-tumour," or "gynaecological disorders." Traditional Unani texts were reviewed to contextualize therapeutic principles.

Results: (*Irsale Alaq*) Leech therapy promotes *Istifragh Muhallil* (localized evacuation) of morbid blood, reducing uterine vascular congestion and enhancing local circulation. Clinically, this correlates with significant pain relief, attributed to anti-inflammatory, anticoagulant, and analgesic actions. Bioactive components, including hirudin, bdellins, and eglins, inhibit platelet aggregation, modulate inflammatory mediators, and protect tissue integrity, offering biomedical support to Unani concepts of *Tanqiya* (detoxification) and *Tadil Mizaj* (temperamental modulation).

Conclusion: Leech therapy is a safe, effective, and minimally invasive approach for gynaecological conditions involving chronic inflammation or vascular dysfunction. Its integration into contemporary care can complement conventional therapies, bridging Unani principles with modern evidence-based practice and expanding options for holistic gynaecological management.

Key words: *Irsale Alaq*, LeechTherapy, Unani, Gynaecological disorders, *Istifragh*, *Tanqiya*

JH/SECON2025/OP-38

Effect of perceived stress on cardiopulmonary parameters in healthy adolescents: A systematic review

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ABSTRACT

Introduction: Perceived stress can significantly impact autonomic regulation, cardiovascular function, and respiratory patterns across all age groups. Adolescents are particularly vulnerable due to ongoing physiological and psychological development. The objective of the study was to assess the previous literature and conduct a systematic review to see the effect of perceived stress on cardiovascular changes in healthy adolescents.

Materials and Methods: Observational (cross sectional, case-control, cohort), experimental and interventions if they measure stress-cardiovascular outcomes were included. Data was collected from google scholar, pubmed, web of sciences and scopus. Case studies and animal studies and studies in languages other than English were excluded. Time frame was from last 5 years. Human studies with mean participant age 10-19 which reported at least one cardiovascular parameter and a stress measure were included.

Results and Discussion: Included studies met the inclusion criteria in which Blood pressure, heart rate variability, heart rate, respiratory rate were found to be affected especially during stress episodes. Higher stress levels were found in females as compared to males. Individuals with higher stress levels were also found to have unhealthy lifestyle

Conclusion/Recommendation: Outcome of this study demonstrated that the advent of technology, unhealthy lifestyle and dietary practices is leading to high stress level in otherwise healthy adolescents leading to abnormal cardiopulmonary parameters which could turn catastrophic as they grow into adulthood. It is recommended that stress reduction techniques should be targeted to make sure that adolescents learn to handle stress.

Keywords: stress in adolescents, cardiopulmonary parameters in adolescents

JH/SECON2025/OP-39

Ethnopharmacological insights into Flavonoids and Stilbenoids: A molecular docking-based exploration of cervical cancer therapy

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ABSTRACT

Introduction: Ethnopharmacology has long recognized plant-derived metabolites particularly flavonoids and stilbenoids for their diverse therapeutic potential. Flavonoids like Glabridin, kaempferol and epigallocatechin gallate and stilbenoids such as pterostilbene and 3- hydroxy- pterostilbene, are widely reported in traditional medicine for their antioxidant, anti-inflammatory and anticancer properties. However, their comparative molecular mechanism of action against cervical cancer-associated targets remains insufficiently characterized.

Material and Method: This study employed molecular docking to explore the interaction profile of selected flavonoids and stilbenoids with host target relevant to cervical cancer progression. The study targets HPV E16-E6 oncoprotein, specifically in the human E6AP and p53 binding domains. The docking is performed using Autodock-Vina to find the binding of individual molecules with the target along with the detailed insight into their binding mechanism, target-ligand interactions, Physico-chemical properties and ADME prediction using predictive models.

Results and Discussion: The results revealed that few compounds from both classes displayed favourable binding affinities with the target. Comparative docking against standard chemotherapeutics including paclitaxel, hypericin, anabsinthin, highlighted that several phytochemicals exhibited competitive or superior binding energies. Docking results points at the difference and similarities of the binding mechanism shown by both classes of molecules along with the selected control molecules with the binding regions of E6 protein.

Conclusion: These findings not only corroborate the ethnopharmacological relevance of flavonoid and stilbenoid rich plants but also demonstrated their potential as scaffolds for rational drug development. By integrating traditional knowledge with computational pharmacology, this work underscores the promise of natural products as multi-target agents in cervical cancer therapy and provides a framework for future preclinical and clinical validation.

Keywords: Flavonoids, stilbenoids, molecular docking, cervical cancer and phytochemicals.

JH/SECON2025/OP-40

Brain-Targeted delivery of phytopharmaceuticals using cubosomal nanotechnology: A novel approach to epilepsy management

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ABSTRACT

Introduction: Epilepsy remains a significant global health concern, with many patients experiencing recurrent seizures and neuropsychiatric disturbances that are resistant to conventional antiepileptic drugs (AEDs). Traditional phytomedicines are rich in bioactive compounds such as curcumin, bacoside A, cannabidiol, and resveratrol possess neuroprotective, anti-inflammatory, and antioxidant properties. However, their clinical potential is limited due to poor solubility and insufficient brain bioavailability.

Methods: Using the keywords "Cubosomes," "Phytopharmaceuticals," "Epilepsy," "Brain-targeted drug delivery," "Nanocarriers," "Synergistic therapy", a literature search was conducted in PubMed, Scopus, Web of Science, Google Scholar, ScienceDirect, and SpringerLink for English-language studies (2000–2024), excluding preprints and non-peer-reviewed sources. This integrates ethnopharmacology and nanotechnology, highlighting cubosomes as promising brain-targeted carriers for phytopharmaceuticals in epilepsy, and discusses challenges and future prospects for their clinical translation.

Result: Cubosome formulations demonstrated enhanced behavioral, biochemical, and neuroprotective outcomes compared to traditional preparations. Their co-administration with AEDs showed synergistic potential, allowing for lower drug dosages and reduced side effects. Despite promising preclinical findings, challenges such as formulation standardization, industrial scalability, and regulatory approval remain.

Conclusions: Looking forward, innovative strategies such as smart cubosomes functionalized with brain-targeting ligands, theranostics capabilities, and AI-guided formulation design hold promise for revolutionizing personalized treatment of drug-resistant epilepsy. Cubosomes serve as a unique bridge between traditional phytotherapy and modern nanomedicine, offering renewed hope for safer and more effective epilepsy management.

Keywords: Cubosomes, Phytopharmaceuticals, Epilepsy, Brain-targeted drug delivery, Nanocarriers, Synergistic therapy

JH/SECON2025/OP-41

Development and characterization of BOERSOMES for the treatment of alcoholic liver disease: A quality-by-design (RSM-CCD) approach

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ABSTRACT

Background: Alcoholic liver disease (ALD) is a major global health concern with limited therapeutic options, necessitating the development of safe and effective hepatoprotective formulations.

Aims & Objectives: To develop and optimize polyphenolic-enriched fraction (PEF)-based phytosomes (BOERSOMES) from *Boerhavia erecta* for the treatment of ALD using a Quality-by-Design (QbD) approach.

Methods: PEF, obtained from methanolic extract of *B. erecta*, was formulated into phytosomes via Central Composite Design (CCD) optimization. BOERSOMES (BORphy) were characterized for particle size, PDI, zeta potential, and entrapment efficiency using UV spectrophotometry, FTIR, NMR, and FE-SEM. Release profiles were evaluated at three different pH conditions using a dialysis membrane. *In-vitro* assays in HepG2 cells included cytotoxicity (MTT), antioxidant (DPPH), nitric oxide inhibition (Griess), lipid-accumulation (Oil Red O/AdipoRed™), and ADH/ALDH activity were performed. *In-vivo* studies comprised a 28-day OECD 407 toxicity test in rats and ALD induction in C57BL/6J mice using the Lieber–DeCarli diet.

Results: Optimized BORphy displayed particle size 212.3 ± 0.39 nm, PDI 0.238 ± 0.0197, zeta potential −29.12 ± 0.811 mV, and entrapment efficiency 94.04 ± 1.27%. FTIR confirmed interactions between phenolic OH and P=O groups of phosphatidylcholines. BORphy showed sustained drug release, 90% cell viability at 150 µg/mL, strong antioxidant and hepatoprotective activity, reduced lipid-accumulation, and restored ADH/ALDH activity *in-vitro*. *In-vivo*, BORphy was safe up to 500 mg/kg and significantly reduced oxidative stress, inflammation, and steatosis in ALD mice depending on biochemical parameters performed (ALT, AST, ALP, LDL, HDL, TG, TC, SOD, MDA, GSH, TRABs, TNF-α, and NF$\kappa\beta$) and histopathology study.

Conclusion: BOERSOMES exhibited promising hepatoprotective efficacy and safety, supporting their potential as a phytopharmaceutical intervention for ALD.
Keywords: *Boerhavia erecta*, alcoholic liver disease, BOERSOMES, Central Composite Design, Lieber–DeCarli diet

JH/SECON2025/OP-42

Formulation and characterization of zinc based nano complex for the treatment of polycystic ovarian syndrome

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ABSTRACT

Introduction: Polycystic ovarian syndrome (PCOS) is a complex endocrine disorder affecting women of reproductive age, characterized by significant hormonal imbalances, menstrual irregularities, and metabolic complications. The current therapeutic landscape for PCOS is limited, necessitating the development of more effective and targeted treatment approaches.

Materials and Methods: The researchers synthesized the zinc-genistein nanocomplex using a modified chelation method and subsequently refined it through high-energy ball milling. Comprehensive characterization was conducted using multiple advanced analytical techniques, including FTIR, UV-visible spectroscopy, ^{1}H-NMR, HR-MS, particle size analysis, DSC, AAS, HR-SEM, XRD, TGA, and elemental analysis. The nanocomplex was extensively evaluated through in vitro and in vivo studies, including antioxidant efficacy tests, cell viability assays, gene expression analysis, and an estradiol valerate-induced PCOS rat model.

Results and Discussion: The study yielded several significant findings. The synthesized ZGNC demonstrated an average particle size of 248.4 nm and exhibited superior antioxidant efficacy compared to genistein alone, with a notably lower IC50 value (119.30 µg/ml versus 908.34 µg/ml). Cell viability assays on SKOV3 and HGL5 cells revealed specific IC50 values. Critically, gene expression analyses showed down-regulation of key steroidogenic enzymes (CYP17A1, CYP19A1, and HSD17β), which are typically up-regulated in PCOS. The in vivo studies using a PCOS rat model demonstrated the nanocomplex's ability to normalize hormonal profiles, including LH, FSH, estrogen, testosterone, and AMH levels, while also improving body weight and ovarian morphology. Importantly, acute oral toxicity assessments showed no toxicity at doses up to 2000 mg/kg.

Conclusion/Recommendation: The research presents the ZGNC as a promising therapeutic approach for PCOS management. By specifically targeting steroidogenic pathways and hormonal regulation, ZGNC demonstrates enhanced efficacy compared to conventional treatments, offering a potentially groundbreaking strategy for addressing this complex endocrine disorder.

Key words: Polycystic ovarian syndrome, ZGNC, nanocomplex, genistein, zinc, steroidogenic enzymes, hormonal regulation, therapeutic intervention.

JH/SECON2025/OP-43

Exploring the anticancer potential of *Artemisia annua*, Egyptian medicinal flora, and *Piper nigrum*: A review of multitargeted therapeutic mechanisms

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ABSTRACT

Introduction: Cancer remains one of the leading causes of mortality worldwide, with conventional treatments facing challenges such as drug resistance, severe side effects, and limited efficacy. There is an increasing interest in medicinal plants as alternative or complementary cancer therapies because of their bioactive phytochemicals and multitargeted mechanisms of action. This study aims to summarize the anticancer potential of Artemisia annua, Egyptian medicinal plants, and Piper nigrum as natural therapeutic agents.

Materials and Methods: A literature-based review was conducted using, PubMed, Scopus, and relevant scientific databases, focusing on English peer-reviewed articles published since 1994. Keywords included "Artemisia annua, medicinal plants, Egypt, Piper nigrum, cancer, apoptosis, and immune modulation." Articles describing "Molecular, in vitro, in vivo, and clinical studies were critically analyzed, identify pharmacological effects, synergistic activities, and translational applications.

Results and Discussion: *Artemisia annua* has been reported to induce cell cycle arrest…", apoptosis induction, angiogenesis inhibition, and tumor microenvironment modulation. Egyptian medicinal plants showed antioxidant effects, tumor growth suppression, and immune checkpoint regulation (PD-1, CTLA-4). *Piper nigrum* extract (PNE), rich in piperine, synergistically enhanced the efficacy of chemotherapeutic drugs like doxorubicin and paclitaxel while mitigating their side effects and overcoming chemoresistance. Collectively, these plants target multiple cancer pathways and hold promise for improving therapeutic outcomes. *"This review aims to summarize"*

Conclusion/Recommendation: Phytochemicals from *Artemisia annua*, Egyptian medicinal flora, and *Piper nigrum* represent a promising, cost-effective strategy for integrative cancer therapy. Further preclinical and clinical studies are recommended to optimize formulations, develop novel drug delivery systems, and translate these findings into effective, safe, and accessible cancer treatments.

Key words: *Artemisia annua, Piper nigrum*, Egyptian medicinal plants, anticancer activity, apoptosis, immune modulation, synergistic therapy.

JH/SECON2025/OP-44

Effects of lower extremity plus trunk exercises versus trunk exercises alone on foot posture, gait cycle, and ankle motion in patients having chronic low back pain with pronated feet

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ABSTRACT

Background: Chronic low back pain (CLBP) is a prevalent musculoskeletal disorder influenced by multiple biomechanical factors. Pronated feet (PF), characterized by medial longitudinal arch collapse, may contribute to altered lower limb and spinal mechanics, increasing CLBP risk. Exercise interventions focusing on trunk stability are commonly used. However, additional role of lower extremity training in this population is underexplored.

Aims/Objectives: This study compared the effects of a 6-week program of lower extremity plus trunk exercises (LTE) versus trunk exercises alone (TE) on foot posture, gait cycle, and ankle motion in subjects with CLBP and pronated feet.

Methods: In this two-arm randomized controlled trial, 64 participants (18–50 years) with bilateral flexible pronated feet (Navicular Drop (ND) >10 mm, FPI ≥6) and CLBP >3 months were randomized into Group 1 (n=32) or Group 2 (n=32). Group 1 performed combined trunk and lower extremity interventions, while Group 2 performed exercises targeted only trunk. Outcomes included ND, gait cycle (GaitON®) and ankle dorsiflexion range.

Results: Both groups showed significant improvements over time in ND, gait cycle and ankle dorsiflexion range ($p<0.05$). However, the LTE group achieved greater reductions in navicular drop (≈39% vs 10%), and superior gains in ankle dorsiflexion and gait parameter. There was significant group effect on ND and ankle dorsiflexion range.

Conclusion: A 6-week program integrating lower extremity and trunk exercises produced superior improvements in foot posture, gait cycle, and ankle dorsiflexion compared to trunk-only training. These findings highlight the benefit of a comprehensive exercise approach for CLBP patients with pronated feet.

Key words: Flat feet, Ankle dorsiflexion, Foot pronation, Back pain, Navicular Drop

JH/SECON2025/OP-45

In Vitro embryogenesis-based regeneration of *Urceolina grandiflora* (Planch. & Linden) Traub and genetic fidelity assessment through Cytological, Flow Cytometric, and SCoT marker analyses

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ABSTRACT

Urceolina grandiflora (syn. *Eucharis grandiflora*), commonly known as Amazon Lily, is an ornamental and medicinally important member of Amaryllidaceae threatened by overexploitation and limited natural regeneration. Plant tissue culture presents a viable method for the micropropagation and sustained use of this important medicinal plant. This study aimed to establish an efficient *in vitro* propagation protocol coupled with genetic fidelity assessment to support large-scale conservation and sustainable utilization. In this study, bulb scale and leaf explants were cultured on Murashige and Skoog medium supplemented with different combinations and concentrations of plant growth regulators. High frequencies of callus induction and subsequent somatic embryogenesis were achieved, with a maximum embryogenic response (81.94%) observed from bulb scales in the BAP and NAA combination. Histological and scanning electron microscopy provided microstructural evidence of the development of somatic embryos. Plantlets regenerated from somatic embryos exhibited robust shoot and root development, followed by successful acclimatization with an over 75% survival rate. Cytological assay showed no alterations in the number of chromosomes in *in vitro* grown plantlets. Flow cytometry, employing *Allium sativum* as an internal reference, validated genome size consistency between *in vitro* regenerants and donor plants. To further confirm clonal uniformity, PCR-based Start Codon Targeted (SCoT) markers revealed predominantly monomorphic banding profiles (95–100%), indicating genetic stability across regenerants. This integrated protocol ensures reliable micropropagation of *U. grandiflora* and also safeguards its genetic integrity, an essential prerequisite for germplasm conservation.

Keywords: Somatic embryogenesis, PGRs, SEM, FCM, PCR, SCoT

JH/SECON2025/OP-46

An observational analytical study of happiness index in young adults with reference to different mizaj

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ABSTRACT

Background: Happiness plays a vital role in mental well-being and overall quality of life, especially during young adulthood, a crucial phase of psychological and social development. Unani Medicine, also known as Greco-Arab medicine, is an ancient medical system that originated in Greece. The concept of *Mizaj* (Temperament) in the Unani system of medicine is a wide area of research. *Mizaj* is one of the basic and fundamental concepts of the Unani system of medicine; diagnosis and line of management of any disease is based upon it.

Objectives: The objective of this study is to assess the relationship between the happiness index with reference to different *Mizaj*.

Material and Methods: A descriptive cross-sectional study was conducted to evaluate the *Mizaj* and Happiness Index. We used the *Mizaj* assessment proforma based on classical literature and the Oxford Happiness Questionnaire (OHQ) proforma. A total of 103 individuals of varying genders were selected on the basis of inclusion and exclusion criteria applied to students at the Ayurvedic and Unani Tibbia College and Hospital, Karolbagh, New Delhi.

Results: Among the 103 participants, 52% were male and 48% were female. The largest group, consisting of 33 participants (32.03%), had a *Damvi Mizaj*. This was followed by 26 participants (25.24%) with a *Balghami Mizaj*, 24 participants (23.30%) with a *Safravi Mizaj*, and 20 participants (20%) with a *Saudavi Mizaj*.

Conclusion: It can be inferred that individuals with *Damvi Mizaj* exhibit the highest scores on the Oxford happiness index, where those with *Saudavi Mizaj* demonstrate the lowest scores.

Keywords: Oxford Happiness Questionnaire, *Mizaj, Damvi, Balghami, Safravi, Saudavi*

JH/SECON2025/OP-47

Iris ensata (Irsa): Scientific validation of its unani claims

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ABSTRACT

Introduction: The current overview is to make accessible up-to date information on, botany, morphology, ecological biodiversity, therapeutic uses, photochemistry and pharmacological activities on diverse parts of *Iris ensata* Thunb. The plant *Iris ensata* Thunb belongs to the family Iridaceae. It had been praised by the physicians of all times as a panacea and is broadly used in a huge number of diseases. It heals up the chronic ulcer, abscess, insect bite, burns, vitiligo, respiratory diseases, reproductive disorders, weakness of muscles, itching and dandruff, and it also shows the analgesic and anti-inflammatory activity. Root of *Iris ensata* Thunb are reach source of glycosides steroids, resins, proteins, phenolic compounds and also tannins. Flowers of this plant also contains anthocyanin 5-0-glucosyltransferase (R2) and anthocyanin-flavone, Mangifera(R) and leteolin C-glycosides etc.

Material & Methodology: More than 20 Classical Unani texts, Articles, Thesis, books & Online Data from Science Direct, Wiley, and Pub Med etc. were explored to generate the authentic overview.

Result and Discussion: This overview emphasizes the traditional, ethno botanical, phyto-chemical, and pharmacological data pertaining to *Iris ensata*, which may assist scientists and researchers in identifying novel chemical entities linked to its purported traditional use for scientific validation.

Conclusion: *Iris ensata* is a medicinal herb used in the unani system of medicine. It has had numerous pharmacological effects for many years, including antimicrobial, anti-diabetic, antifungal, anti-inflammatory, anticancer, lung membrane stabilizing, anti-acne, and cardio protective properties. However, clinical and experimental investigations are still required to properly validate its functions.

Key words: *Iris ensata*, Anti inflammatory, Pharmalogical effect, Analgesic, Photochemistry

JH/SECON2025/OP-48

Diagnostic evaluation of *Bawl al-Dam* (Hematuria) in Unani medicine: A literature-based review

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ABSTRACT

Introduction: Hematuria, the presence of red blood cells in urine, is an important clinical sign with a wide range of underlying causes, from benign to life-threatening. In Unani medicine, this condition is described as *Bawl al-Dam*, with detailed diagnostic criteria based on colour, quantity, and associated systemic features.

Objective: To evaluate the diagnostic aspects of hematuria in Unani medicine in the light of modern understanding.

Materials and Methods: A narrative literature review was conducted by examining classical Unani texts and modern biomedical sources indexed in PubMed, Google Scholar, along with reference books. Comparative analysis was performed to highlight overlapping and unique diagnostic principles.

Results and Discussion: Modern medicine classifies hematuria into gross and microscopic forms and relies on urinalysis, imaging, and histopathology for diagnosis. Unani scholars described *Bawl al-Dam* in terms of its etiological factors and clinical forms (based on colour and quantity), and other systemic associations. However, Unani medicine lacks microscopic and biochemical diagnostic tools, which are the backbone of modern nephrology. Despite this, the qualitative diagnostic framework of Unani medicine provides valuable historical insight and may guide future integrative research, especially in patient-centered diagnosis where subjective features (colour, consistency, systemic state) still play an important role.

Conclusion/Recommendation: The diagnostic aspect described in classical Unani texts provides valuable insights into hematuria. However further integrative research and clinical validation are required to strengthen the relevance of Unani diagnostic approaches in contemporary nephrology and urology.

Key words: Hematuria, Nephrology, Unani Medicine, Urinalysis, Urology

JH/SECON2025/OP-49

Asbāb Sitta Ḍarūriyya and the six pillars of lifestyle medicine: An ancient–modern concordance

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ABSTRACT

Introduction: The Unani system of Medicine is primarily focused on health preservation, for which it emphasizes Asbāb Sitta Ḍarūriyya (six essential factors of life) as the foundation of health maintenance and disease prevention. These include Hawa-e-Muheet (air and environment), Makool wa Mashroob (food and drink), Harkat wa Sukoon-e-Badani (physical activity and rest), Harkat wa Sukoon-e-Nafsani (mental and emotional balance), Naum wa Yaqzah (sleep and wakefulness), and Istifragh wa Ihtibas (evacuation and retention). Modern lifestyle medicine, as promoted by the WHO and global health bodies, advocates six core domains: healthy diet, regular physical activity, restorative sleep, stress management, avoidance of risky substances, and maintaining supportive environments. A comparative analysis reveals striking concordance between these two frameworks despite their origin in vastly different eras. This paper highlights the relevance of Asbāb Sitta Ḍarūriyya in addressing today's global epidemic of non-communicable lifestyle disorders such as obesity, diabetes, hypertension, and mental stress. It argues that integrating Unani insights with modern lifestyle medicine may offer a more holistic and personalized approach to health preservation.

Materials and Methods: Data will be obtained from classical Unani sources, modern literature, including WHO reports, guidelines of the American College of Lifestyle Medicine, and peer-reviewed articles on lifestyle-related health interventions. A comparative approach will be employed to examine points of concordance and divergence.

Results and Discussion: The comparative analysis revealed a high degree of concordance between the Unani framework of Asbāb Sitta Ḍarūriyya and modern lifestyle medicine. Specifically: (i) Hawa-e-Muheet corresponded with environmental health and air quality, (ii) Makool wa Mashroob aligned with modern principles of nutrition science, (iii) Harkat wa Sukoon-e-Badani paralleled current physical activity guidelines, (iv) Naum wa Yaqzah was consistent with the scientific understanding of sleep and circadian rhythm, (v) Harkat wa Sukoon-e-Nafsani anticipated psychosomatic health, stress management, and emotional well-being, (vi) Istifragh wa Ihtibas demonstrated relevance to gastrointestinal health, detoxification, and metabolic balance. The findings suggest that despite being formulated in an ancient cultural and epistemological context, Asbāb Sitta Ḍarūriyya reflects principles now validated by contemporary preventive and lifestyle medicine.

Conclusion: Asbāb Sitta Ḍarūriyya offers a holistic framework for health preservation that closely parallels the principles of modern lifestyle medicine. The concordance between these two systems demonstrates the timeless relevance of Unani concepts in addressing today's burden of non-communicable diseases. Integrating Unani insights with evidence-based lifestyle medicine can provide a more comprehensive and personalized approach to preventive healthcare, reaffirming the value of traditional wisdom in modern medical practice.

Keywords: Asbāb Sitta Ḍarūriyya, Lifestyle Medicine, Preventive Health, Unani Medicine

JH/SECON2025/OP-50

Traditional and modern dietary approaches in mental health: Integrating Unani principles with nutritional psychiatry

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ABSTRACT

Introduction: Mental health disorders, particularly depression and anxiety, are increasingly linked to nutrition. Modern research demonstrates that diet influences neurotransmitter synthesis (serotonin, dopamine), gut microbiome diversity, inflammation, and neuroplasticity, all of which affect mood, cognition, and overall mental wellness. Traditional medicinal systems, such as Unani medicine (*Ilaj-bil-Ghiza, Ghiza-e-Munazzam, and Ghiza-e-Mutabiq-e-Mizaj)* emphasize balanced, wholesome, and temperament-aligned foods for physical and mental well-being.

Objective: To explore the convergence between modern nutritional psychiatry and traditional Unani dietary principles in the management and prevention of mental health disorders.

Methods: A literature review was conducted on classical Unani texts to identify dietary guidelines promoting mental health. Contemporary studies on diet, mental health, gut microbiome, inflammation, and nutrient-based interventions were analyzed. Comparative synthesis was performed to identify overlaps and concordance.

Results: Unani diets advocate nutrient-rich, non-processed, and balanced foods, which parallel findings from modern research on Mediterranean (Ilaj bil ghiza), Okinawan, and Nordic diets. Key components such as omega-3 fatty acids, B-vitamins, fiber, and antioxidants found in traditional diets align with established mechanisms including neurotransmitter synthesis, gut microbiome support, and inflammation reduction. Avoidance of ultra-processed foods corresponds to Tamasic food (Fasid ghiza) concepts in Yogic tradition and Ghiza-e-Munazzam in Unani, emphasizing moderation and quality. Traditional systems provide individualized, holistic dietary frameworks that complement modern nutritional psychiatry in promoting mental well-being.

Conclusion: Integrating Unani and Yogic dietary principles with modern nutritional psychiatry offers a holistic, evidence-informed approach to support mental health. Bridging ancient wisdom with contemporary scientific evidence can enhance preventive and therapeutic strategies for depression, anxiety, and related disorders.

Keywords: Unani Medicine, Yogic Diet, Ilaj-bil-Ghiza, Ghiza-e-Munazzam, Nutritional Psychiatry, Mental Health, Depression, Diet Therapy

JH/SECON2025/PP-51

Chebulinic acid from *Terminalia chebula* reduces insulin resistance via activation of AMP-activated protein kinase

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ABSTRACT

Introduction: Diabetes is the primary cause of illness and death, with around 589 million individuals now diagnosed. Plant-based therapy could be an ideal choice because of fewer side effects and wider acceptability. Hence, the antihyperglycemic potential of Chebulinic acid from Terminalia chebula (known as Haritaki) prescribed for diabetes in Ayurveda was evaluated to elucidate its possible antidiabetic mechanism of action.

Materials and Methods: Isolation of chebulinic acid was done by Terminalia chebula after authentication in botany division of CSIR-CDRI- Lucknow, Cell culture of C2C12 myotubes was done, Measurement of 2-deoxy-D-[3H] glucose and Western blot analysis and Immunoprecipitation was carried out.

Results and Discussion; In this study, we demonstrated effects of chebulinic acid on insulin resistance induced by tumor necrosis factor-a (TNF-a) in the mouse skeletal muscle cells (C2C12 myotubes). TNF-α suppressed insulin-stimulated glucose transport rate and increased Serine 307 phosphorylation of insulin receptor substrate-1 (IRS-1). However, the treatment of chebulinic acid enhanced insulin-stimulated glucose transport rate via activation of AMP-activated protein kinase (AMPK) in a dose-dependent manner. Moreover, it shows a potent blood glucose as well as lipid lowering effect when administrated orally in both type 1 and type 2 diabetic mice models (db/db mice). Taken together, our findings suggest that chebulinic acid inhibits TNF-α induced insulin resistance through AMPK pathway.

Conclusion: These findings indicate that Chebulinic acid from Terminalia chebula may provide leads for the therapeutics for insulin resistance and diabetes.

Key words: Terminalia chebula, Diabetes Mellitus, Glucose uptake, Insulin resistance.

JH/SECON2025/OP-52

Underutilized botanicals for functional foods: RSM-guided development, characterization, and phytotherapeutic profiling

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ABSTRACT

Background: Optimized composite flour (OCF) formulated by blending medicinal plants, *Withania somnifera, Moringa oleifera,* and *Asparagus racemosus* within the FSSAI-permissible limits. These plants are underutilized as food; therefore, this study explored their functionality and therapeutic potential as a functional food ingredient.

Aim: Optimization of composite flour using Response Surface methodology (RSM). Evaluated the nutritional, techno-functional, and therapeutic properties of OCF.

Methods: For optimization using RSM, plant powders were coded as independent variables, while calcium, iron, and total were set as dependent variables. Nutritional profiling, techno-functional aspects, morphological scanning (FESEM/EDS), and crystallinity (XRD) were determined. The bioactive profiling, cytotoxicity, total phenols, antioxidant, and antibacterial activity were analyzed by GC-MS/FTIR, MTT assay, FC reagent, DPPH, and the Well-diffusion method, respectively. Autodock Vina was used for docking.

Results: OCF contained Withania (4g), Moringa (6g): Asparagus (5g), delivering Ca (118.49 mg), Fe (12.05 mg), and total phenols (271.39 mg); along with nutritional and techno-functional attributes in the optimal range. OCF methanolic extract demonstrated the highest total phenolics (69.2 ± 0.11 µg GAE/ml), cell cytotoxicity against A549 cells (3.35 ± 0.15% at 50 µg/ml), and strong free-radical scavenging activity (48.89 ± 0.67 at 200 µg/ml). GC-MS and FTIR suggested the presence of essential phytoconstituents and functional groups. Phytochemicals exhibited good binding affinity against proteins with no toxicity and a good drug score.

Conclusion: Overall, OCF in the 2:3:2.5 ratio could serve as a futuristic functional food ingredient with improved nutritional, techno-functional, and therapeutic characteristics, and can be integrated into the daily food for fortification purposes.

Keywords: Botanicals, Functional foods, composite flour, Phytotherapy, Cytotoxicity

JH/SECON2025/OP-53

The role of core strength training in managing pain and enhancing daily functioning in primary dysmenorrhea: An occupational therapy intervention

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ABSTRACT

Background: Primary dysmenorrhea is a prevalent gynecological condition in young women, often associated with pelvic pain, fatigue, mood disturbances, absenteeism, and reduced quality of life. Conventional management largely relies on pharmacological approaches, which may not adequately address functional limitations. In rehabilitation, non-pharmacological interventions such as exercise can play a critical role. Core strength training, by enhancing lumbopelvic stability and improving circulation, may alleviate menstrual pain and improve daily functioning, making it a promising occupational therapy strategy.

Objective: To evaluate the effectiveness of core strength training on pain intensity, psychological well-being, absenteeism/presenteeism, and quality of life in women with primary dysmenorrhea.

Methods: A randomized controlled trial was conducted among women with primary dysmenorrhea, allocated into experimental and control groups. The experimental group underwent an 8-week core strength training program, while the control group followed routine management. Outcome measures included the Menstrual Symptom Questionnaire (MSQ), WaLIDD scale, Depression Anxiety Stress Scale (DASS-21), EQ-5D-5L (quality of life), and Lam Employment Absence and Productivity Scale (LEAPS). Pre- and post-intervention data were analyzed using appropriate statistical methods.

Results: Core strength training led to a significant reduction in pain intensity and duration, decreased analgesic use, and improved emotional well-being. Marked improvements were observed in absenteeism, presenteeism, and health-related quality of life compared to controls.

Conclusion: Core strength training is an effective, non-pharmacological, and occupation-centered rehabilitation approach for managing primary dysmenorrhea. Integrating such exercise-based interventions into occupational therapy practice can reduce symptom burden, enhance functional capacity, and empower women to maintain productivity and participation in daily roles.

Keywords: Primary dysmenorrhea, Occupational therapy, Core strength training, Rehabilitation, Quality of life, Absenteeism

JH/SECON2025/OP-54

Evaluation of colloidal nanoformulation via nose to brain delivery approach for seizure management

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ABSTRACT

Introduction: Around 50 million people are affected by different forms of epilepsy on a worldwide basis. It is characterized by repeated and unexpected seizures affecting the quality of life of the people. Blood-brain barrier (BBB) presents the major issue in epilepsy treatment as the drugs are unable to reach their targets in the brain. Spanlastics are a modified form of non-ionic surfactant vesicles (niosomes), containing an edge activator possessing enhanced permeability.

Materials and Methods: This study aims to formulate a benzodiazepine loaded spanlastics nanoformulation along with a natural antioxidant for intranasal delivery with the objective of improving drug delivery to the brain. The formulation was prepared by employing the ethanol injection method. Central composite rotatable design (CCRD) was utilized for optimizing the formulation. The formulation was evaluated on the basis of characterization parameters. *In vitro* release study and *ex vivo* permeation study was performed along with histopathological analysis. Pharmacodynamic evaluation was also done to assess the efficacy of the formulation in animal model.

Results and Discussion: Spanlastics presented high drug entrapment efficiency, sustained release profile and improved nasal permeation while depicting the safe nature of the formulation. It also demonstrated enhanced antiepileptic activity by reducing the seizure severity and delaying the onset time for upcoming seizures.

Conclusion: The results obtained revealed the potential of our formulation in improving the efficacy of the entrapped drugs for managing seizures via the intranasal route.

Keywords: Spanlastics, Seizures, Intranasal delivery, Blood brain barrier (BBB), Formulation development

JH/SECON2025/OP-55

Current trends and clinical outlook of herbal emulgel delivery systems in proctology

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ABSTRACT

Introduction: Proctological disorders, including hemorrhoids, anal fissures, and proctitis, are common anorectal conditions marked by inflammation, bleeding, and mucosal damage that significantly impact patients" quality of life. Conventional treatments often present challenges such as poor mucosal retention, frequent dosing, irritation, and systemic side effects. Herbal emulgels—hybrid drug delivery systems combining emulsions and gels—offer a promising alternative by enabling localized, non-invasive, and sustained delivery of herbal bioactives.

Materials and Methods: The herbal emulgel formulations enhance drug penetration and retention, improving therapeutic efficacy. This review highlights the phytotherapeutic potential of key herbal ingredients like Hamamelis virginiana (witch hazel), Calendula officinalis, Aloe vera, Curcuma longa (turmeric), Melaleuca alternifolia (tea tree oil), Matricaria chamomilla (chamomile), and Azadirachta indica (neem), known for their anti-inflammatory, antimicrobial, analgesic, and wound-healing properties.

Results and Discussion: The work further discusses formulation strategies, including emulsification techniques, selection of gelling agents, penetration enhancers, and preservatives. Critical evaluation parameters—such as pH, viscosity, spreadability, drug content uniformity, in vitro release, antimicrobial activity, and skin compatibility—are outlined. Advances in nanoemulgels, phytosome-based formulations, and patient-centric attributes (e.g., non-irritant, odorless designs) are addressed alongside regulatory considerations and standardization challenges. While preclinical studies support the efficacy of herbal emulgels in managing anorectal conditions, robust clinical trials and regulatory validation are essential to ensure their safety, efficacy, and broader therapeutic adoption.

Conclusion/Recommendation: The integration of modern drug delivery technologies with traditional herbal medicine offers a patient-friendly, effective solution for chronic proctological therapy.

Key words: Anti-inflammatory herbs , herbal emulgel, proctological disorders, rectal drug delivery, sustained release

JH/SECON2025/OP-56

Insights into chronic pharyngitis (*Waram-i-Halaq*) in the light of Unani and contemporary medicine

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ABSTRACT

Introduction: Chronic pharyngitis is a persistent inflammation of the pharyngeal mucosa, submucosal, and lymphatic tissues. It commonly presents as a recurrent sore throat and accounts for a considerable number of ENT outpatient visits. Environmental pollution and occupational voice strain are key contributing factors. Despite significant advancements in modern medicine, the management of chronic pharyngitis remains a formidable challenge due to its frequent recurrence, poor tolerance, and associated side effects. In Unani classical literature, this condition is described as *Waram-i-Halaq Muzmin* or *Dard Gale Waazeen* (Clergyman's Throat), typically affecting individuals who frequently use their voice, such as preachers, lecturers, and musicians.

Materials and Methods: A descriptive and analytical review of Unani classical texts and contemporary medical literature to identify conceptual correlation between *Waram-i-Halaq Muzmin* and chronic pharyngitis. The exploration includes a review of Unani pathophysiology (*Asbab*, *Alamat*, and *Ilaj*) and modern diagnostic and therapeutic modalities to establish a holistic understanding.

Results and Discussion: The Unani description of *Waram-i-Halaq* closely aligns with the modern concept of chronic pharyngitis in terms of symptomatology and chronic inflammatory pathology. Unani philosophy focuses on restoring humoral balance and enhancing mucosal healing. Integrating these traditional insights with evidence-based modern treatments may improve therapeutic efficacy and reduce side effects.

Conclusion/Recommendation: Since there is very sparse published literature on the Unani concept of "*Waram-i-Halaq*," this paper aims to bridge the knowledge gap by correlating Unani philosophy with the modern entity, chronic pharyngitis, in the light of both Unani and contemporary literature. It seeks to enhance the understanding of *Waram-i-Halaq*, explore its treatment approaches, and highlight the potential for utilizing Unani traditional knowledge in managing throat disorders, while also identifying prospective avenues for future research.

Keywords: *Waram-i-Halaq Muzmin*, Chronic Pharyngitis, Unani Medicine, ENT, Integrative Approach

JH/SECON2025/OP-57

Chemical profiling, proinflammatory cytokines, *in vivo* excision wound healing activity and its network pharmacology and molecular docking of selected medicinal plants species used by the Indigenous Malayali tribe communities, Eastern Ghats, Tamil Nadu

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ABSTRACT

Background: *Andrographis paniculata, Aristolochia indica, Chloroxylon swietenia, Commiphora caudata,* and *Tridax procumbens* are traditionally used in India, China, and Nepal for managing skin conditions such as inflammation, wounds, burns, and psoriasis.

Aim: Although traditional claims exist, the wound-healing efficacy of *C. swietenia, C. caudata*, and *A. indica* has not been systematically validated. This study aimed to investigate the hydroalcoholic extracts of selected plants for wound-healing activity through network pharmacology, molecular docking, chemical profiling, and in vivo validation.

Methods: LC-QTOF-MS was employed to characterize bioactive compounds in plant extracts. Network pharmacology and molecular docking were used to predict molecular targets and pathways. In vivo wound-healing potential was assessed using 96 adult male Wistar rats, with TNF, IL6, and IL8 quantified to validate anti-inflammatory effects.

Results: LC-QTOF-MS identified several marker compounds, including 14-Deoxy-11,12-didehydroandrographolide and neoandrographolide. Network analysis revealed 10 core compounds linked to 286 targets, with key proteins such as TNF, IL6, STAT3, EGFR, and MAPK3 enriched across 2365 GO terms and 207 KEGG pathways, including TNF, PI3K–Akt, FoxO, and VEGF signaling. Docking confirmed strong binding affinities of key compounds with TNF, IL6, and ALB. In vivo, extracts showed no skin irritation and promoted significant wound contraction, with A. indica demonstrating superior healing potential. At 2% concentration, wounds healed by 70–80% at Day 16 and were completely closed by Day 24, corroborated by serum cytokine analysis.

Conclusion: The bioactive molecules from these medicinal plants regulate multiple signaling pathways, particularly TNF and IL6, supporting wound healing. These findings validate traditional claims and highlight their potential as safe, plant-based alternatives to synthetic drugs.

Keywords: Medicinal plants; Phytochemistry; Computational biology; Wound healing; Skin health.

JH/SECON2025/OP-58

A review of anxiety disorders (*Izterab-E-Nafsani*) through the lens of Unani system of medicine

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ABSTRACT

Anxiety disorders are one of the most common mental disorders worldwide. Anxiety disorder defined as person experience fear and worry that is both intense and excessive which is accompanied by physical tension and other behavioral and cognitive symptoms, comes from the Latin word "anxietas", which means to choke, throttle, trouble, and upset. According to WHO 4.4% people experience anxiety disorder worldwide this makes it world most common psychiatric disorder. In India alone, approximately 38 million people are affected by anxiety disorder. Anxiety disorders are not specifically described in Unani literature, there is a significant resemblance between their symptoms with those of *malankhuliya* (melancholia), *waswas* (mania), *sahar* (insomnia) and *khafqaan* (palpitation). There is no direct description of anxiety in Unani medicine rather symptoms of *malankhuliya* (melancholia) shows a considerable overlap. Anxiety disorder is known as *Izterāb-e-Nafsāni* in the Unani system of medicine which is characterized by over thinking, fear, aggression etc. Anxiety is often linked to an imbalance in the *mizaj* (temperament) and *akhlat* (humors) mainly *sauda* (black bile). An excess of black bile (*Sawda Ghayr Tabiiyya*) is considered to be a major causative factor for melancholia. It is thought to arise from mental and physical factors that disturb the heart (*qalb*), brain (*dimagh*) and psyche (*nafs*). In Unani Medicine, anxiety comes under the *Amraaz-e-Nafsani* (Psychiatric illness). There are four modes of treatment in Unani medicine viz *ilaj-bil-tadbeer* (regimenal therapy), *ilaj-bil-ghiza* (dietotherapy), *ilaj-bil-dawa* (pharmacotherapy), *ilaj-bil-yad* (surgery). According to Unani classical literature, Unani physicians treat anxiety (*Izteraab-e-Nafsaani*) with a variety of single and compound drugs. The principles of treatment for *malankhuliya* are *tadabeer-e-nafsani, tanqiya-e-mawad, tarteeb* and *taqwiyat-e-qalb.*

Keywords: *Unani,* Anxiety*, Izteraab-e-Nafsaani, Malankhuliya,* Psychiatric.

JH/SECON2025/OP-59

Formulation of green synthesis of silver nanoparticles from *Macropanax undulatus* leaf extract and its characterization, biological evaluations, and protein and DNA interactions

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ABSTRACT

Introduction: Green silver nanoparticle synthesis has proven to be an efficient, cost-effective, and eco-friendly method in modern research. The current work used Macropanax undulatus aqueous extract to synthesize silver nanoparticles (AgNPs).

Materials and Methods: The synthesized AgNPs were characterized by UV-Vis spectroscopy, Dynamic light scattering (DLS), Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), X-ray powder diffraction (XRD), transmission electron microscopy (TEM), and energy-dispersive X-ray analysis (EDX). Further antioxidant, anti-inflammatory, antidiabetic, cytotoxicity, and antimicrobial activities were evaluated to evaluate pharmacological properties.

Results and Discussion: In response to surface plasmonic resonance, MU-AgNPs' characteristic absorption peak at 442 nm (λmax) was visible in UV-Vis spectroscopy. The FT-IR confirmed functional groups of the extract and MU-AgNPs. The particle size of *124.46 nm* was determined through DLS. The SEM and TEM confirmed further spherical shape and size. A Zeta potential study was carried out to assess the stability of the silver nanoparticles. XRD confirmed the crystalline nature of MU-AgNPs. EDX obtained confirmation of the presence of silver. A protein corona (PC) forms when nanoparticles come into contact with proteins upon introduction into the body. Protein and DNA binding studies were carried out to investigate this function further.

Conclusion/Recommendation: MU-AgNPs showed potent antioxidant, anti-inflammatory, antidiabetic, cytotoxicity, and antimicrobial activities. The results concluded that MU-AgNPs might be a powerful therapeutic agent for novel drug delivery.

Keywords: *Macropanax undulatus*; green synthesis; silver nanoparticles; pharmacological properties; Protein and DNA binding.

JH/SECON2025/OP-60

Evaluation of a quercetin–phospholipid gel for enhanced transdermal delivery and photoaging

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ABSTRACT

Introduction: The goal of the current work was to improve skin permeability and photoprotection in rats by developing and refining a quercetin–phospholipid complex (QTPC)-based gel (QTPC-G) utilizing response surface methods (RSM).

Materials and Methods: Using a stoichiometric molar ratio of drug and phospholipid (dipalmitoylphosphatidylcholine, or DPPC), complexation duration, and temperature, the optimal QTPC was created by relaxation and solvent evaporation. Zetasizer, UV, FTIR, HPTLC, TEM, and stability experiments were used to characterize QTPC. Rat skin was used to test the ex vivo skin permeability and in vivo UVA protection performance of QTPC-G and a conventional quercetin gel (QT-CG) compared to a placebo.

Results and Discussion: Compared to traditional preparations, QTPC has demonstrated a significantly more substantial photoprotective effect, improved permeability, and prolonged release. This may be achieved due to the increased permeability and improved solubility of a unique QT-phospholipid complex. Superoxide dismutase (SOD), glutathione (GSH), myeloperoxidase (MPX), malondialdehyde (MDA), catalase (CAT), glutathione reductase (GSHR), and glutathione peroxidase (GPX) are among the skin markers that QTPC-G may increase in response to UVA-induced oxidative stress. According to the current investigation, QTPC-G, the optimized gel formulation, showed considerably greater skin permeability and antioxidant activity than QT-CG (***$P < 0.01$).

Conclusion: In response to enhanced and sustained skin protection against UVA rays, this novel QT gel technology may show potential for topical and transdermal administration.

Keywords: Oxidative stress; UVA; Phospholipid complex; Antioxidant; Quercetin; DPPC

JH/SECON2025/OP-61

A comparative study for quantitative analysis of quercetin and rutin in *Agropyron repens* and *Ribes nigrum* hydroalcoholic extracts using HPTLC

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ABSTRACT

Background: Bioactive phytochemicals found in medicinal plants such as Agropyron repens and Ribes nigrum are utilised in conventional hepatoprotective treatments.

Objectives: To use high-performance thin layer chromatography (HPTLC) to measure quercetin and rutin in the hydroalcoholic extracts of dried rhizomes from A. repens and dried leaves from R. nigrum.

Methods: A 40% hydroalcoholic solvent was used for the Soxhlet extraction process. HPTLC examination was conducted utilising CAMAG equipment and silica gel 60 F254 plates at fifteen separate tracks displaying various concentration of extract solution. Comparison with reference mixtures served as the basis for quantification.

Results: Quercetin and rutin were detected in both plant extracts. While A. repens exhibits a high level of rutin, Ribes nigrum is reported to have a high level of quercetin. Their identity and amount were verified by peak regions and Rf values.

Conclusion: The present study revealed the presence of quercetin and rutin in *A. repens* and *R. nigrum* which might be the cause for its hepatoprotective activity and thus justifies its usage as a remedy in various ailments.

Keywords: *Agropyron repens*, *Ribes nigrum*, HPTLC, quercetin, rutin, phytochemical analysis

JH/SECON2025/OP-62

Bioactive Mineral Cream for Wound Healing and Cosmeceutical purpose

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ABSTRACT

Background: Bioactive materials have gained attention for their ability to stimulate cellular responses, angiogenesis, and tissue regeneration, making them promising for wound healing and cosmeceutical applications.

Objective: To develop and evaluate a novel bioactive mineral-based formulation, incorporating BiomaterialX into a topical cream for wound healing and cosmeceutical applications.

Methodology: The formulation was optimized using excipients and evaluated for its physicochemical, structural, and biological properties. Pre-formulation studies included FTIR and XRD characterization. In vitro assays were conducted to assess wound healing potential.

Results: The optimized cream formulation demonstrated desirable rheological and stability characteristics, with a controlled drug release profile. Significant enhancement of fibroblast proliferation, support for angiogenesis, and acceleration of the wound healing cascade were observed. The formulation also exhibited effective antimicrobial properties.

Conclusion: The developed formulation shows dual therapeutic and cosmeceutical potential, offering both wound healing efficacy and skin rejuvenation benefits. This work establishes a foundation for further translational studies, paving the way for innovative wound healing and cosmeceutical applications.

Keywords: Bioactive material, wound healing, cosmeceuticals, topical delivery systems.

JH/SECON2025/OP-63

Development of quality standards, phytochemical analysis and HPTLC profiling of Dawaul Kurkum: A classical Unani formulation

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ABSTRACT

Background: Dawaul Kurkum (DK), a classical Unani polyherbal formulation, has been traditionally used for its hepatoprotective, anti-inflammatory, and immunomodulatory properties. Despite its extensive therapeutic use, standardization and quality control parameters for this formulation remain insufficiently documented. Thus, the present study was designed to carry out the pharmacognostic and phytochemical characterization of DK. It consists of seven plant herbs, including stigmas of *Crocus sativus* L., rhizomes of *Nardostachys jatamansi* (D.Don) DC., the bark of *Cinnamomum cassia* (L.) J. Presl., shoot of *Cymbopogon jwarancusa* (Jones ex Roxb.) Schult., the resin of *Commiphora wightii* (Arn.) Bhandari, roots of *Saussurea lappa* (Decne.) Sch.Bip., and bark of *Cinnamomum zeylanicum* Blume.

Methods: DK was prepared following the protocols in *Hamdard Formulary* and *The National Formulary of Unani Medicine Part-I*. The characterization included organoleptic properties, preliminary phytochemical screening, antioxidant activity, and active constituent profiling using HPTLC.

Results: Evaluation of DK showed the presence of carbohydrates, flavonoids, quinones, glycosides, terpenoids, phenols, coumarin, and phytosterols. The total phenolic and flavonoid content was 33.00 mg GAE/g and 12.78 mg QE/g, respectively. HPTLC of DK showed the presence of p-coumaric acid, cinnamaldehyde, citral, crocin, isovaleric acid, guggulsterone, and dehydrocostus lactone.

Conclusions: On the basis of result obtained in this study, it was concluded that the data generated in this study will be used by academician and industries for quality control of DK. Further analysis of DK by using advanced techniques like UPLC-MS, GC-MS, HPTLC interface etc. are required.

Keywords: Dawaul kurkum, Unani formulation, Traditional medicine, Phytochemical analysis

JH/SECON2025/OP-64

Design and fabrication of pH-dependent drug delivery system Laden with Quercetin

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ABSTRACT

Introduction: Tumour malignancies are leading cause of death worldwide. Phytochemicals have tremendous potential to act as anticancer agents but having hurdles of poor solubility, bioavailability and poor tissue targeting. Using characteristic signals of the tumour microenvironment, various stimuli-responsive drug delivery systems can be constructed for targeted drug delivery. The pH of the tumour microenvironment being lower than healthy tissues. An attempt to overcome this lacuna herein we fabricate pH dependent nano lipid carriers (NLCs), loaded with quercetin, a potent anticancer phytoconstituent.

Materials and Methods: The extract rich in Quercetin was prepared by treating successively with different solvents and purified by column chromatography. pH triggered group was added in the in the synthesised copolymer. This fraction was utilized for preparation of NLCs using synthesized pH responsive copolymer. The formulation was evaluated on the basis of various pharmaceutical parameters.

Results and Discussion: The results manifest that, at acidic pH the NLCs loaded with quercetin rich fraction show enhanced drug release whereas the nano-carriers system become unstable at this pH. It could facilitate drug delivery at target tissue, upshot better anticancer effect.

Conclusion/Recommendation: This approach enhances the anticancer potential of quercetin and its rich fraction and enhances its potential by acting at target site.

Key words: Quercetin, pH dependent targeting, Anticancer, Nano lipid carriers.

JH/SECON2025/OP-65

Effect of *Zimad* (Unani pharmacopeial liniment) in the management of Knee osteoarthritis: A case study

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ABSTRACT

Introduction: Knee osteoarthritis (Knee OA) is the most common musculoskeletal disorder that leads to pain, stiffness, functional disability, and significant socioeconomic burden. Conventional treatment options such as NSAIDs, COX inhibitors, and corticosteroids provide only symptomatic relief and may cause adverse effects. In Unani medicine, Knee OA (*Waja' al-Rukba*) is managed through various regimens including *Zimad* (liniments), which are known for their anti-inflammatory, analgesic, and anti-arthritic properties. The present case study was conducted to assess the efficacy of *Zimad* in the management of Knee OA.

Materials and Methods: A female patient suffering from Knee OA with complaints of pain, swelling, stiffness, and tenderness in the left knee joint for the past 8 months was treated at IPD, AKTC, AMU, Aligarh. The *Zimad* was prepared with *Zanjabeel* (*Zingiber officinale*), *Qust Talkh* (*Saussurea lappa*), *Suranjan* (*Colchicum autumnale*), *Joz Bua* (*Myristica fragrans*), and *Babuna* (*Matricaria chamomilla*). It was applied locally for 14 sittings on alternate days over 28 days. Clinical assessment was carried out at baseline, day 14, and day 28 using subjective parameters (pain, stiffness, range of motion) and objective parameters including the Visual Analogue Scale (VAS) and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

Results and Discussion: Marked improvement was noted in both subjective and objective parameters. Pain, swelling, and stiffness reduced significantly, with improved mobility and joint function. Substantial improvement in VAS and WOMAC scores confirmed clinical efficacy. The pharmacological actions of the ingredients, such as sesquiterpene lactones, zingiberene, and colchicine, support anti-inflammatory and analgesic properties, correlating with the outcomes.

Conclusion: This case study suggests that Unani *Zimad* is safe and effective in the management of Knee OA, providing symptomatic relief without adverse effects. However, larger randomized controlled trials are needed to validate its therapeutic efficacy.

Keywords: *Ilaj Bit Tadbeer*, Knee Osteoarthritis, *Waja' al-Rukba*, *Zimad*

JH/SECON2025/OP-66

Heart-smart nanogreens: *Tribulus terrestris*–infused iron oxide nanoparticles for cardioprotection

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ABSTRACT

Background: Cardiovascular disease (CVD) remains the leading cause of morbidity and mortality worldwide, and post-COVID survivors experience nearly twice the risk of complications such as arrhythmia, myocarditis, and heart failure. This compounded burden underscores the pressing demand for safe, plant-derived cardioprotective interventions.

Aim: This study aimed to develop, characterize, and assess the cardioprotective efficacy of iron oxide nanoparticles (IONPs) loaded with *Tribulus terrestris*.

Methods: The alcoholic extract was analysed for phytochemical composition, antioxidant activity, and standardized using protodioscin and diosgenin. Further, IONPs loaded with the extract were prepared through a Quality by Design (QbD) approach and characterized using different spectral techniques. The pharmacological efficacy was investigated via angiogenesis assessment using the chorioallantoic membrane (CAM) assay, while *in vitro* cytotoxicity studies were conducted to determine the safety profile.

Results: The alcoholic extract of *Tribulus terrestris* exhibited a rich phytochemical profile with notable antioxidant activity and was standardized, showing protodioscin content of 1.091% and diosgenin content of 0.31%. Iron oxide nanoparticles loaded with the extract were confirmed by a 320 nm UV–Vis peak, with FTIR shifts indicating polyphenol-mediated reduction and stabilization. The optimized nanoparticles exhibited spherical morphology (SEM/TEM), crystalline structure (XRD), and elemental composition (EDAX). IONPs promoted higher angiogenesis in the CAM assay and showed >90% cell viability *in vitro*, highlighting their potential as a cardioprotective formulation.

Conclusion: CVD alarming trend underscores the urgent need for innovative, safe, and effective cardioprotective interventions. In this context, the present study offers a timely and impactful solution by harnessing the therapeutic potential of *Tribulus terrestris*, and integrating it into IONPs. The enhanced angiogenic response observed in the CAM assay, coupled with favourable *in vitro* safety outcomes, provides compelling evidence for the cardioprotective promise of these nanoparticles. This study bridges traditional phytotherapy with nanotechnology, offering an eco-friendly and potent approach for cardiovascular care.

Keywords: Iron-oxide nanoparticles, Green synthesis, *Tribulus terrestris* bark, CAM assay, Cardiovascular health

JH/SECON2025/OP-67

Integrating Traditional Medicine and Nanotechnology for Neuroprotection in Anxiety and Depression

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ABSTRACT

Background: Anxiety and depression are among the most prevalent neuropsychiatric disorders, often existing comorbidly and associated with oxidative stress and glutamate mediated excitotoxicity. Conventional pharmacological treatments are effective but limited by side effects and relapse, highlighting the need for safer alternatives.

Aims/Objectives: This study aimed to evaluate the neuroprotective potential of traditional remedies like Shramahara Mahakasya (SM), an Ayurvedic polyherbal formulation, and Mustard Honey (MH), and to enhance their delivery through nanofiber-based systems.

Methods: LC-MS profiling of both SM and MH was performed to identify and characterize the phytoconstituents present in both. These were tested in hippocampal neurons and rodent models of anxiety and depression. Neuroprotective effects were assessed by measuring ROS levels, calcium balance, mitochondrial function, and antioxidant defences. Behavioural outcomes were evaluated using standard paradigms. Nanofibers encapsulating MH and its bioactive compound chrysin were fabricated to improve stability, bioavailability, and buccal absorption, while also assessing neuroprotection in HT-22 cells and rats.

Results: SM reduced oxidative stress and reversed anxiety-related behavioural changes by upregulating SOD2, while MH demonstrated antidepressant activity via upregulation of BDNF, p-TrkB, and p-CREB. Nanofiber-based delivery enhanced compound stability and absorption and sustained neuroprotective and antidepressant effects in vitro and in vivo.

Conclusion: The findings support the integration of traditional medicine with nanotechnology. SM and MH show significant neuroprotective and psychotropic benefits, while nanofiber-based systems provide an efficient and sustainable delivery strategy, offering promising therapeutic interventions for anxiety and depression.

Keywords: Traditional medicine; Ayurveda; Shramahara Mahakasya; Mustard honey; Nanofibers; Oxidative stress; Neuropsychiatric disorders

JH/SECON2025/OP-68

Integrative assessment of obesity: Bridging modern biometrics and Unani constitutional evaluation

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ABSTRACT

Introduction: Obesity is a chronic, multifactorial condition that affects metabolic, functional, and psychosocial health. Although widely used, BMI is insufficient for diagnosing obesity because it overlooks body composition, fat distribution, ethnicity, and cultural context. Biomedical approaches emphasize metabolic dysfunction, phenotypes, and quantitative staging of disease. The Unani system of medicine attributes obesity (*Siman Mufrit*) primarily to phlegmatic dominance (*Ghalba-e-Balgham*), cold-wet temperament (*Mizāj-e-Barid-Ratab*), and weakened innate heat (*Hararat-e-Ghareeziya*).

Objectives: To propose an integrated framework for obesity assessment by combining modern biometric tools with Unani constitutional evaluation.

Methods: A narrative review was conducted using PubMed, Scopus, ScienceDirect, and Google Scholar with keywords including obesity, diagnosis, phenotypes, anthropometry, and Unani classification. Peer-reviewed articles and Unani classical texts were included, while verifiable sources were excluded. The findings were synthesized into a multidimensional model covering structural, metabolic, functional, psychosocial, and constitutional domains.

Results & Discussion: Modern diagnostics include BMI, waist-hip ratios, body composition, metabolic markers, phenotypes, imaging, and functional/psychosocial tools. Unani diagnostics emphasize anthropometry and constitutional tendencies based on *Akhlāt* (humoral balance), *Mizāj* (temperament), and *Sehna* (body structure) traits. An integrative framework encompasses structural, metabolic, functional, psychosocial, and constitutional domains, enabling greater diagnostic precision and patient-centered assessment

Conclusion: Integrating modern and Unani assessment parameters provides a comprehensive and culturally aligned diagnostic framework for obesity. Future research should validate and standardize this model across diverse populations.

Keywords: Obesity diagnosis; Unani medicine; BMI limitations; integrative model; anthropometry

JH/SECON2025/PP-69

Quality control and nephroprotective potential of Jawarish Zarooni Sada and its sugar-free dosage form using *in vitro, in vivo* and metabolomics approaches

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ABSTRACT

Background: Chronic kidney disease (CKD) is a progressive disorder characterized by impaired renal function associated with oxidative stress, inflammation, and nephron loss. Current therapies including ACE inhibitors and angiotensin receptor blockers only delay disease progression and exhibit adverse effects. Traditional Unani formulations such as Jawarish Zarooni Sada (JZS) have been documented for renal protection but lack scientific validation and quality standardization.

Aims/Objectives: This study aims to evaluate the quality control parameters and nephroprotective potential of sugar-based (JZS-SB) and sugar-free (JZS-SF) formulations of Jawarish Zarooni Sada using *in vitro, in vivo* and metabolomics approaches.

Methods: Both formulations were standardized through macroscopic and microscopic evaluation, physicochemical analysis, total phenolic content (TPC), total flavonoid content (TFC), TLC profiling, and HPTLC quantification. Antioxidant activity was evaluated using DPPH assay and TLC-bioautography. Metabolite profiling was performed using LC-MS. Diclofenac-induced nephrotoxicity model in rats was used for *in vivo* evaluation by assessing biochemical markers (serum creatinine, BUN, uric acid), oxidative stress parameters, and histopathology.

Results: Physicochemical analysis confirmed the stability and consistency of the formulation. JZS-SF showed higher extractive and superior phenolic and flavonoid content compared to JZS-SB. HPTLC analysis identified bioactive markers including gallic acid, caffeic acid, and quercetin. LC-MS revealed nephroprotective metabolites such as ferulic acid, rutin, luteolin, and kaempferol. In vivo studies demonstrated that JZS-SF significantly reduced serum creatinine, BUN, and uric acid levels and restored renal histoarchitecture compared to the toxic control group.

Conclusion: The sugar-free formulation of Jawarish Zarooni Sada (JZS-SF) demonstrated potent nephroprotective activity due to its rich phytochemical constituents and strong antioxidant profile. Scientific validation and standardization of this traditional Unani formulation highlight its potential as a safe and effective alternative for managing nephrotoxicity and CKD.

Keywords: Jawarish Zarooni Sada, nephrotoxicity, diclofenac, antioxidant activity, metabolomics

JH/SECON2025/OP-70

Unveiled *Mahiyat-e-Maraḍi* (Pathogenesis) of *Dhayābitus* through the prism of Unani medicine: A critical review

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ABSTRACT

Background: *Dhayābitus* (Diabetes Mellitus) is among the most anciently recognized diseases, with references dating back over 3500 years. The Ebers Papyrus (1550 BCE) described excessive urination, while Greco-Roman physicians such as Hippocrates and Aretaeus identified its wasting nature and coined the term *diabetes* or "siphon". Ancient Indian texts referred to it as *Madhumeha*, and Chinese medicine described "sweet urine" attracting insects.

Objective: To explore the historical evolution and Unani understanding of *Dhayābitus*, emphasizing its classification (*Aqsām*), causes (*Asbāb*), symptoms (*ʿAlāmāt*), and *Mahiyyat-e-Maraḍi* (etiopathogenesis).

Methods: An analytical review of primary Unani medical sources and comparative historical accounts was conducted, focusing on contributions of *Rāzī, Ibn Sīnā, Jurjānī, Ibn Zuhr,* and *Akbar Arzānī*, alongside Greco-Roman, Indian, Chinese, and Arabic-Islamic medical traditions.

Results: Unani physicians described *Dhayābitus Shakri* (Diabetes Mellitus) primarily as a renal disorder linked to a deranged temperament (*Sūʾ-i-Mizāj*) of the kidneys. Major symptoms included intense thirst (*ʿAtash Shadīd*), polyuria (*Kasrat-i-Bawl*), wasting (*Huzāl*), and sweet urine (*Bawl Shīrīn*). Pathogenesis was attributed to dysfunction of the absorptive (*Quwwat Jādhiba*), retentive (*Quwwat Māsika*), and expulsive (*Quwwat Dāfiʿa*) faculties. Four main causes were identified: hot renal temperament (*Sūʾ-i-Mizāj Ḥārr Kulya*), renal weakness (*Duʿf-i-Kulya*), renal dilatation (*Ittisāʿ al-Kulya wa Majārī*), and cold derangement (*Burūdat-i-Mizāj*). Reported complications included emaciation (*Diqq*), cachexia (*Zubūl al-Aʿḍāʾ*), boils, gangrene, and impotence.

Conclusion: Unani scholars presented a remarkably holistic view of *Dhayābitus*, integrating symptomatology, causation, and complications centuries before modern endocrinology, underscoring the depth and continuing relevance of classical medical wisdom.

Keywords: *Dhayābitus,* Diabetes Mellitus, *Sūʾ-i-Mizāj Ḥārr Kulya, Duʿf-i-Kulya, Ittisāʿ al-Kulya wa Majārī*

JH/SECON2025/OP-71

Pseudo-cereals in gluten-free diets and celiac disease management: A scientific review

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ABSTRACT

Background: Celiac disease (CD), also known as gluten-dependent enteropathy, is a chronic autoimmune pathology caused by dietary gluten in genetically susceptible individuals. Multiple macro- and micro-nutrient deficiencies are caused by CD-related enteropathy. The only recognized treatment for Celiac Disease at the moment is medical nutrition therapy, which includes the gluten-free diets (GFD). Due to its restrictions on gluten-containing cereals, a gluten-free diet, however, may result in additional nutritional inadequacies. Pseudo-cereals, a type of gluten-free cereal, have gained popularity as gluten-free diet options due to their excellent nutritional content. These are promising components for nutritional rehabilitation and long-term dietary control in Celiac disease due to their advantageous macro-nutrient profiles, essential amino acid composition (particularly higher lysine), micro-nutrient density, dietary fiber, and bioactive phytochemicals.

Aims and Objective: This scientific review summarizes current information on the nutritional, physiological, and clinical roles of pseudo-cereals in gluten-free diets and Celiac disease management.

Methods: The information available was collected from both classical literature and electronic databases such as Google Scholar, PubMed, Medline, and Scopus.

Results: In the treatment of Celiac disease, pseudo-cereals such as quinoa, amaranth, buckwheat, and chia have demonstrated immense potential as substitutes for cereals that contain gluten. By providing high-quality protein with important amino acids (particularly lysine), more dietary fiber, and enhanced micro-nutrient profiles (iron, magnesium, and zinc), their inclusion in gluten-free diets enhances macro-nutrient balance. Additionally, they provide bioactive phytochemicals with anti-inflammatory and antioxidant qualities, which may lessen intestinal inflammation and enhance gut health in general. Clinical and nutritional research indicates that adding pseudocereals to gluten-free diets improves intestinal healing, increases nutritional sufficiency, and improves quality of life for those with celiac disease.

Conclusion: By offering improved macro- and micronutrient profiles, pseudocereals improve the nutritional sufficiency of gluten-free diets, promoting intestinal healing and enhancing the long-term management of celiac disease.

Keywords: Pseudocereals, Gluten-free diet, Celiac disease, Intestinal Health

JH/SECON2025/OP-72

Industrial applications of terpenoids

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ABSTRACT

Background: Terpenoids are among the most prevalent natural compounds and represent one of the earliest known classes of biomolecules. As secondary plant metabolites, they include structurally diverse groups such as monoterpenes, sesquiterpenes, and diterpenes, all derived from the isoprene unit. Oxygenated terpenoids are widely distributed in nature, particularly in plants belonging to families like *Zingiberaceae* and species such as tulips.

Aims/Objectives: The objective of this study was to highlight the structural diversity, biological activities, and industrial applications of terpenoids.

Methods: Terpenoids were studied through literature-based evaluation of their isolation techniques, including plant extraction, chemical synthesis, and microbial fermentation processes. Their biological and industrial roles were analysed based on reported applications.

Results: Terpenoids exhibited a broad range of biological activities such as antibacterial, antiviral, antioxidant, analgesic, and appetite-stimulating effects. They were also identified as major contributors to aromatic properties, producing floral, fruity, woody, and balsamic notes that are highly valued in the fragrance and flavour industry. Furthermore, terpenoids were noted for their significant role in pharmaceutical, cosmetic, food, and other industrial sectors, highlighting their therapeutic as well as economic importance.

Conclusion: Terpenoids represent a versatile class of natural products with diverse structures, broad pharmacological activities, and wide industrial applications. Their multifunctional properties underscore their importance as biologically active and economically valuable compounds.

Keywords: Terpenoids, Isoprene unit, Biological activity, Industrial applications, Flavour and fragrance

JH/SECON2025/PP-73

Development of one-tube multiplex arbitrary (RAPD & ISSR) marker-based SCAR assay for simultaneous detection and authentication of Indian senna (*Senna alexandrina* Mill.) and its adulterant species

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ABSTRACT

Introduction: Indian senna, a well-recognized medicinal herb from the Fabaceae family, is a perennial plant widely cultivated in various regions of India, including Tirunelveli (Tamil Nadu), Rajasthan, and Gujarat. The leaves and pods of this plant contain sennosides and rhein-based compounds, which are primarily utilized as laxatives, especially in the treatment of chronic constipation. In the genetic characterization of Indian senna, the use of molecular markers is highly significant. Among these, Random Amplified Polymorphic DNA (RAPD) and Inter Simple Sequence Repeat (ISSR) markers—both classified as random markers—are effective tools for assessing polymorphism, analysing genetic diversity, and constructing gene maps across inter- and intraspecific levels, particularly among morphologically similar but genetically distinct species.

Objectives: The objective of the present research is to facilitate the identification and authentication of Indian senna from its commonly encountered adulterant species, such as *Cassia fistula*, *Senna occidentalis*, *Senna sophera*, and *Senna tora*, using morphological characteristics as a primary screening tool. This investigation aims to develop species-specific Sequence Characterized Amplified Region (SCAR) markers derived from RAPD and ISSR data to enable the precise differentiation of Indian senna from its adulterants. Above all, this study reports the successful development of a one-tube multiplex diagnostic PCR assay designed for the accurate identification and validation of authentic Indian senna and two adulterant species—*Cassia fistula* and *Senna sophera*.

Materials and Methods: In the present investigation, genomic DNA was isolated from the fresh young leaves of 44 Indian senna accessions, along with samples from four adulterant species. The extracted DNA was then subjected to PCR amplification using a RAPD primer (OPI-02) and an ISSR primer (UBC-835). The resulting polymorphic amplicons were identified, and fundamental molecular biology techniques—including PCR, cloning, and sequencing—were applied to characterize these fragments. Based on the obtained sequences, specific primers were designed to develop Sequence Characterized Amplified Region (SCAR) markers. Following validation, all SCAR markers were evaluated using both uniplex and multiplex PCR assays to assess their sensitivity and specificity in distinguishing Indian senna from its adulterants.

Results and Discussion: In this study, we developed two RAPD OPI-02-based SCARs, one 312bp was found specific for *Cassia fistula* adulterant species and another 441bp was found specific for *Senna sophera* in adulterant species and one ISSR UBC-835-based CA109SCAR of 252bp was found strictly specific for accession DCA109 and other accessions od Indian senna. We have developed a one tube multiplex PCR based assay for detection of true to type Indian senna and its adulterants species *Cassia fistula* and *Senna sophera*.

Conclusion: The developed SCAR markers exhibited species-specificity, enabling the distinct identification of *Cassia fistula*, *Senna sophera*, and *Indian senna* independently. Although RAPD and ISSR markers have been widely employed for genetic analysis, their reproducibility and specificity can often be inconsistent. Therefore, validation through derived markers such as SCARs is essential to ensure accurate identification and authentication of genetic variation. In this context, multiplex PCR proved to be an effective technique, offering rapid, sensitive, and reliable results for the inter- and intraspecific differentiation of Indian senna and its adulterant species, *C. fistula* and *S. sophera*.

Kye words: *Cassia fistula*, *Senna sophera*, RAPD, ISSR, SCAR, Indian senna

JH/SECON2025/OP-74

Clinical evaluation of finger millet cookies as a dietary supplement in the management of iron deficiency anaemia

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ABSTRACT

Background: Iron Deficiency Anaemia (IDA) remains a major global nutritional disorder, particularly among women of reproductive age. Ayurveda correlates IDA with Pandu Roga and emphasizes dietary (Ahara) interventions rich in iron and supportive nutrients. Finger millet (Ragi) is traditionally valued for its iron and micronutrient content.

Aim and Objectives: To clinically evaluate the efficacy and safety of Finger Millet Cookies (FMC) as a dietary supplement in the management of IDA through both clinical symptoms and biochemical indices.

Method: A randomized controlled clinical study was conducted on 70 patients of mild to moderate IDA, divided into two groups (n = 35 each). Group A received FMC [2 cookies, thrice daily before meals (~45 grams)] and Group B received Amyron syrup (5 ml thrice daily after meals) for 60 days. Subjective parameters (pallor, weakness, giddiness etc) and objective parameters (Hb%, Serum Iron, Serum Ferritin, TIBC etc) were assessed pre and post-treatment using SPSS v25.

Result: Group A (FMC) showed significant improvement in haematinic parameters: Hb increased from 10.63 ± 1.06 to 11.15 ± 1.13 g/dl ($p = 0.000$), Serum Iron from 66.81 ± 22.03 to 95.43 ± 27.51 µg/dl ($p < 0.001$), and Serum Ferritin from 15.16 ± 6.19 to 67.66 ± 19.31 ng/ml ($p < 0.001$). Group B (Amyron) also showed significant changes, Hb: 10.42 ± 1.09 to 11.29 ± 1.05 g/dl ($p = 0.000$). Symptomatic relief was greater in Group A. No adverse reactions were observed.

Conclusion: Finger Millet Cookies demonstrated significant haematinic efficacy and safety, effectively improving haemoglobin and iron indices and reducing anaemic symptoms, supporting their role as a functional dietary intervention in IDA.

Keywords: Finger Millet Cookies, Iron Deficiency Anaemia, Pandu Roga, Dietary Intervention, Ayurveda

JH/SECON2025/OP-75

Strategic approach for evidence generation to substantiate claims related to Ayurvedic ingredient usage

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ABSTRACT

Background: Ayurvedic and Nutraceutical product development leverages the therapeutic properties of Ayurvedic ingredients. Claim substantiation necessitates a robust comprehensive strategy comprising of traditional knowledge, evidence based on literary research, experimental and clinical models, the regulatory understanding and gap analysis.

Objectives: The present research is aimed to explore a comprehensive strategy for evidence generation tailored to Ayurveda ingredient-based claims.

Methods: The substantiation approach should consider the product category, type such as structure/function claims, health maintenance, disease risk reduction or therapeutic claims and the context of on-pack or for communication, Ingredient-based or product specific claims, evidence based on the Literature references, scientific validation and Quality control measures.

Results: The stepwise approach necessitates (1) Adherence to the regional guidelines and engaging regulatory experts earlier in the project of product development, (2) Stability and standardization ensuring quality and batch-to-batch consistency, (3) Systematic literature review of classical Ayurvedic texts and published evidence, (4) Experimental preclinical models useful in preliminary screening, elucidate mode-of-action, help to establish a scientific rationale highlighting the properties of herbs and on their safe usage, (4) Clinical studies such as real-world evidence and patient-reported outcomes, randomized trials, meta-analysis and systemic reviews. (5) Sensory study based on the perception of the healthy volunteers to know the consumer behaviour. (6) Incorporating suitable disclaimers for clear communication and ethical practice.

Conclusion: The strategy of aligning ancient knowledge with evidence-based scientific approaches ensures credible well-structured claims fostering trust and benefit the mankind.

Key words: Evidence generation, Claim substantiation, Ayurveda, Nutraceuticals

JH/SECON2025/OP-76

Anti-allergic and anti-asthmatic potential of *Terminalia chebula* Retz & amp; *Quercus infectoria* Oliv as a substitute of plant *Pistacia integerrima* Linn.

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ABSTRACT

Objective: The objective is to evaluate better or equivalent substitute herbs of *Pistacia integerrima* Linn, i.e. Terminalia chebula Retz and Quercus infectoria Oliv for their anti-allergic and anti-histaminic activity.

Methods: Aqueous and hydroalcoholic extracts were prepared using galls of *Pistacia integerrima* (PI) & *Quercus infectoria* (QI) plant along with the fruits of *Terminalia chebula* (TC). These were then evaluated in vitro anti-allergic activity using KU812 and U266B1 cell lines. Similarly, extracts were also used for the in vitro anti-asthmatic activity using A549 cell lines.

Results: In anti-allergic assay, the hydroalcoholic extract of QI, PI, & TC demonstrated 60.0%, 48.7 & 41.9% respectively and of aqueous extracts it is up to 57.5%, 53.7% & 43.7% respectively in KU812 cells. Whereas in U266B1 cells, hydroalcoholic extract of QI, PI, & TC showed maximum results up to 81.2%, 90.0% & 86.1% respectively and of aqueous extracts it is up to 89.9%, 90.5% & 87.2% respectively. The assay with anti-inflammatory activity by inhibition of inflammatory marker IL-8 depicted that hydro-alcoholic extract of QI, PI, & TC showed maximum results up to 40.2 %, 76.4 % &, and 38.3 % respectively and the results of aqueous extract showed maximum results up to 42.6 %, 63.7 % & 55.4% respectively in A549 cell lines.

Conclusions: Both extracts of QI and TC were relatively similar in the anti-allergic and anti-asthmatic effects to that of PI extracts. Thus, QI and TC can be considered as the potential analogue or substitute of PI for antiallergic & anti-asthmatic activity.

Keywords: Anti-asthmatic, anti-allergic, anti-histamine, anti-inflammatory

JH/SECON2025/OP-77

Efficacy of *Habb-e-Muqil* and a novel Unani ointment in experimental hemorrhoids

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ABSTRACT

Background: Hemorrhoids are highly prevalent anorectal disorders associated with pain, bleeding, and reduced quality of life. Modern therapies, while effective, often cause side effects or recurrence, highlighting the need for safer, affordable, and culturally acceptable alternatives.

Objective: To evaluate the therapeutic efficacy of *Habb-e-Muqil* (a pharmacopoeial oral formulation) and a novel non-pharmacopoeial Unani ointment (NPUO) in experimental models of hemorrhoids.

Methodology: Hemorrhoids were experimentally induced in Wistar rats by rectoanal application of croton oil preparation. The animals were divided into groups and treated with *Habb-e-Muqil* orally, NPUO topically, and Pilex ointment as the standard, alongside disease control and normal control groups. Therapeutic efficacy was evaluated through macroscopic severity scoring of rectoanal tissue, rectoanal coefficient, histopathological examination for epithelial integrity and inflammatory changes, and biochemical markers of oxidative stress and inflammation.

Results: Treatment with *Habb-e-Muqil* and NPUO produced a marked reduction in hemorrhoidal severity compared to the disease control group. Macroscopic scoring showed significant decreases in edema, congestion, and bleeding ($p < 0.05$). Histopathological analysis revealed near-normal restoration of mucosal architecture, reduced inflammatory cell infiltration, and enhanced epithelial regeneration in treated groups. Biochemical assays demonstrated lowered oxidative stress markers and inflammatory mediators.

Conclusion: The study provides experimental evidence supporting the efficacy of *Habb-e-Muqil* and NPUO in reducing hemorrhoidal pathology. These Unani formulations hold strong translational potential as safe, effective, and accessible therapeutic options, particularly in resource-limited settings.

Keywords: Hemorrhoids, Unani Medicine, *Habb-e-Muqil*, Anti-inflammatory, Traditional Medicine

JH/SECON2025/PP-78

Anticonvulsant, antioxidant and neuroprotective effect of Trimetazidine in a PTZ-induced kindling model of mice through modulation of the NF-κB and HMGB-1/TLR-4 axis.

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ABSTRACT

Background: A complex brain disorder, Epilepsy affects 50 million people worldwide, leading to frequent seizures, cognitive impairments, neuroinflammation, oxidative stress, and imbalanced neurotransmission. Despite the widespread availability of Anti-Seizure Drugs (ASDs), one-third of patients remain refractory to these treatments. Therefore, developing an effective therapeutic intervention to address this challenge is an urgent need of the time. Trimetazidine (TMZ), the most commonly prescribed anti-ischemic agent, has emerged as a promising candidate for epilepsy due to its diverse mechanisms of action.
Aims/Objectives: This study was aimed to investigate the neuroprotective, anticonvulsant, anti-inflammatory, antioxidant, and neuromodulatory effects of TMZ in managing epilepsy.
Methods: Kindling was induced in Swiss albino mice by using Pentylenetetrazole (30 mg/kg, *i.p*) on every alternate day; TMZ (5, 10, and 20 mg/kg *p.o*) or sodium valproate (200 mg/kg *p.o*) daily for 5 weeks. Seizure severity was assessed on the Racine scale. Cognitive function and learning were evaluated using the elevated plus maze and the passive avoidance apparatus. The muscle coordination test was performed using the rotarod apparatus. Molecules (IL-1β, IL-1R1, IL-6, NF-κB, TNF-α, HMGB-1, TLR-4), oxidative stress markers (MDA, GSH, SOD, catalase), and neurotransmitters (GABA, glutamate, dopamine, serotonin) levels were estimated in the isolated hippocampus and cerebral cortex of the brain using commercially available sandwich ELISA kits.
Results: TMZ, primarily at 20 mg/kg, significantly reduced seizure severity and improved the learning and memory function, and muscle strength in the PTZ-kindled animals. Significantly reduced levels of inflammatory molecules. Improved antioxidant enzyme activity, degraded oxidative stress and restored GABA, dopamine, and serotonin levels, as well as suppressed glutamate levels, comparable to VPA at 200 mg/kg/day *p.o*.
Conclusion: TMZ, at doses of 20 mg/kg/day *p.o*., demonstrated anti-inflammatory activity, anticonvulsant and antioxidant effects, suppressed kindling progression, and restored neurotransmitter imbalance while improving memory and learning abilities.
Keywords: Epilepsy, Cognition, Neuroinflammation, Oxidative stress, Neurotransmitters

JH/SECON2025/OP-79

Tracing hysteria in Unani medicine: The concept of *Ikhtināq al-Raḥim*

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ABSTRACT

Background: According to ICD-10, hysteria is classified under dissociative and conversion disorders (F44.0–F44.9). It is characterized by a loss or alteration in physical functioning that mimics a physical disorder but is, in fact, a direct manifestation of psychological conflict or need. **Objective:** To explore the concept of hysteria in Unani medicine, where it is known as *Ikhtināq al-Raḥim,* and to analyse its pathogenesis in the light of classical descriptions.

Unani Perspective: In Unani System of Medicine Hysteria is termed as *Ikhtināq al-Raḥim* which is marked by loss of sensory as well as motor activities and the patient feels as if she has been throttled, hence the term *Ikhtināq.* According to Unani physicians it is the retention of menstrual blood or secretions in the uterus produces harmful substances that affect the heart and brain, leading to attacks. The disease predominantly seen in unmarried females or in those who are used to sexual relations but unable to engage in them.

Methods: A literature-based review of classical Unani texts was undertaken to trace the descriptions, pathogenesis, and clinical features of *Ikhtināq al-Raḥim.*

Results: Classical texts provide detailed descriptions and rich clinical observations by eminent physicians, contributing to a clear understanding of *Ikhtināq al-Raḥim.*

Conclusion: The conceptual understanding of *Ikhtināq al-Raḥim* may provide valuable insights especially in women's health, and underscores the value of Unani contributions to the conceptualization of psychosomatic disorders.

Keywords: Hysteria, *Ikhtināq al-Raḥim,* Conversion Disorder, Dissociative Disorders, Pathogenesis, Medicine

JH/SECON2025/OP-80

Integrative review of Juntiyana (*Gentiana lutea* Linn.): Bridging Unani insights with modern evidence

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ABSTRACT

Gentiana lutea Linn. (Juntiyana), known for its bitter root (10–40 mm) and therapeutic properties, is widely used in Unani medicine for conditions such as animal poisoning, gastric and hepatic weakness, urinary disorders, and hysteria. This narrative review specifically examines the correlation between Unani indications of Juntiyana and its experimentally verified anti-inflammatory, hepatoprotective, and antidotal effects, aiming to highlight validated uses and reveal unmet research gaps. A narrative review was conducted by screening classical Unani texts (Urdu, Persian, Arabic) and peer-reviewed biomedical literature (2000–2024). Inclusion criteria focused on pharmacological studies of Gentiana lutea relevant to traditional Unani indications such as hepatic, gastric, and urinary disorders. Sources included PubMed, ScienceDirect, and Google Scholar. In Unani texts, Juntiyana is described as Hot and Dry in the second degree and classified as an antidote (Tiryāq al-Sumum), resolvent (Muhallil), detergent (Jāli), and demulcent (Mulattif). Modern studies confirm the presence of iridoids (gentiopicroside 6–10%), xanthones (1%), and flavonoids. Experimental evidence shows petroleum ether extracts at 500 mg/kg orally reduced paw edema and accelerated wound contraction in rodent models, supporting traditional Unani claims of antidotal and tissue-repairing properties. This review reveals a strong conceptual and therapeutic convergence between Unani doctrine and biomedical data, particularly regarding Juntiyana's anti-inflammatory and detoxifying actions. However, gaps remain in clinical validation, pharmacokinetics, and standardization—essential steps to fully integrate Juntiyana into evidence-based medicine.

Keywords: *Gentiana lutea*, Unani medicine, gentiopicroside, antidote, narrative review, pharmacological validation.

JH/SECON2025/OP-81

Effect of nomophobia on chronic neck pain and sleep quality among University students in Delhi NCR Region

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ABSTRACT

Background: Nomophobia, derived from "no mobile phone phobia", refers to the anxiety or panic experienced when individuals are separated from their mobile devices, has emerged as a significant psychological concern in today's digitally dependent youth. Its physical manifestations, such as neck pain and poor sleep quality, require further exploration.

Objective: The study aims to explore the association between nomophobia, chronic neck pain, and sleep quality among university students in the Delhi-NCR region.

Methods: A correlational study was carried out on a sample of 168 university students aged 18 to 28 years, using standardized assessment tools: the Nomophobia Questionnaire (NMP-Q), the Numeric Pain Rating Scale (NPRS), and the Pittsburgh Sleep Quality Index (PSQI). The data were analyzed using SPSS version 21.0

Results: Nomophobia scores were positively correlated with poor sleep quality ($r = 0.187$, $p = 0.015$), indicating that higher nomophobia is associated with disrupted sleep. A weak but significant correlation was also observed between neck pain and poor sleep ($r = 0.201$, $p = 0.009$). However, no significant correlation was found between nomophobia and neck pain ($r = -0.099$, $p = 0.199$)

Conclusion: Nomophobia contributes significantly to sleep disturbances but not directly to chronic neck pain. Digital dependency may indirectly cause physical discomfort through poor ergonomic practices.

Keywords: Nomophobia, Neck Pain, Sleep Quality, PSQI, NMP-Q, Smartphone use, University Students

JH/SECON2025/OP-82

Assessment of unani concept of therapeutic interchange (Abdaal-e-Advia) with special emphasis on phytochemistry

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ABSTRACT

Introduction: The Unani system of medicine has established guidelines for interchange of drugs when a desired drug is unavailable for various reasons, leading to the concept of therapeutic interchange (Abdaal-e-Advia). The concept that similar drugs can be used as substitutes for the intended function is essential from a pharmacotherapeutic point of view. Renowned scholars of Unani system of medicine have discussed the concept of therapeutic interchange with extant knowledge in terms of similarity in action, similarity in temperament (mizaj), and similarity in the physical property of the drug and its substitute. It is a well-known fact that herbal drug actions are due to chemical constituents, so phytochemistry, a branch that deals with the chemistry of plant products may be added as another basis for drug interchange.

Materials and Methods: The concept was comprehensively explored in the current investigation using sixty medications that were divided into ten categories based on their respective actions. The phytoconstituents of the primary and therapeutic interchange medications were analysed to identify similarities and differences.

Results and Discussion: The results demonstrated that the chemical components and activities were found to be quite similar. Due to the high correlations of phytochemicals between the main and substitute drugs, application of phytochemistry provides a strong foundation for choosing substitute medications and fortifies the Unani idea, which was previously absent.

Conclusion/Recommendation: Based on the results, it can be said that the plant's phytochemistry may be a useful tool for therapeutic interchange.

Keywords: Phytochemistry, Substitution, Abdaal e Advia, Therapeutic interchange, Unani system of medicine

JH/SECON2025/OP-83

Formation and Evaluation of an Ayurvedic Banaspati Dark Chocolate to mitigate oxidative stress in athletes

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ABSTRACT

Background: Dark chocolate, source of natural energy for mental and physical activity, became popular among athletes. Heat-sensitive polyphenolic components were lost during the preparation of dark chocolate from raw cocoa beans, thereby reducing the antioxidant potential and trace elements. The anti-inflammatory effects of fennel seeds are well-documented, and ashwagandha root is known to significantly improve aerobic fitness.

Objective: This study fortifies dark chocolate with ashwagandha root and fennel seed powder to boost antioxidant and nutritional content.

Methodology: Ashwagandha root powder and fennel seed powder were taken in equal amounts and fortified at concentrations of 3%, 4%, and 5%. Then the newly developed dark chocolate was analysed for its nutritional composition (carbohydrate, protein, fat, moisture, ash, and dietary fibre) and antioxidant capability (Total polyphenolic content, total flavonoid content, 2,2-diphenyl-1-picrylhydrazyl, and ferric reducing antioxidant power).

Results: The control and supplemented samples (3%, 4%, and 5%) had protein levels of 5.18%, 4.73%, 7.02%, and 5.9%, respectively. Sample carbohydrate content was 61.72%, 63.60%, 62.23%, and 57.90%. The fat contents were 33.1%, 31.67%, 30.25%, and 36.27%. The moisture content decreased with fortification (1.17% to 0.90%). The amount of ash content also increased, and the rate of fortification increased (2.24% to 2.56%). The highest TPC and TFC values were observed in 4% addition (13.45 gallic acid equivalent/g of dry weight and 13.84 catechin equivalent/g of dry weight, respectively). The DPPH and FRAP values also follow the same trend, with 89.06% and 229.14 µmol of ascorbic acid equivalent/mL of extract, respectively.

Conclusion: Due to higher retention of nutrients and antioxidant capability, fortified dark chocolate with 4% fortifying ingredients can reduce oxidative stress in athletes.

Keywords: Oxidative stress, Antioxidant potential, Fortification, dark chocolate.

JH/SECON2025/OP-84

Integration of artificial intelligence and traditional medicine with special reference to Unani system of medicine

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ABSTRACT

Traditional medicine continues to play a significant role in global healthcare. Even the developed world have come to value this age old cultural heritage of the developing world. In the modern times, its role is advancing alongside scientific medicine and changing health priorities. The Unani System of Medicine (USM) particularly is a living, continuously evolving traditional system of medicine that offers holistic and individualized care. In today's context, it has an important role in promotive, preventive, curative and rehabilitative health care. With a promising role in managing chronic lifestyle diseases of present scenario, Unani Medicine perfectly adapts to the modern healthcare demands contributing to an all-in-one patient-centric care. Artificial Intelligence (AI) is playing a transformative role in healthcare by enhancing the means of diagnosis and treatment. Traditional medicine, rooted in centuries of cultural and herbal practices, often lacks standardized documentation and scientific validation. AI helps to bridge this gap by analyzing vast amounts of historical and clinical data to identify patterns and predict treatment outcomes. It can empower traditional medicine by preserving ancient knowledge, validating its practices scientifically, and enabling more personalized and effective treatment. The intersection of AI (Artificial Intelligence) and traditional medicine will prove to be a growing area of interest, offering the potential to preserve, enhance, and modernize age-old healing practices while improving healthcare delivery. This synergy holds great promise for integrative healthcare in the modern era. The paper will review the role of AI in traditional medicine with special reference to Unani System of Medicine.

Keywords: artificial intelligence, unani medicine

JH/SECON2025/OP-85

Exploring the therapeutic potential: *Ta'līq al-'Alaq* (Leech Therapy) for *Qarḥa Khabītha* (Non-healing ulcer): A case study

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ABSTRACT

Introduction: Non-healing ulcers are chronic wounds persisting beyond three months despite standard care. They are often linked to systemic diseases or local pathology and greatly impair quality of life. Conventional therapies may be costly, ineffective, or cause side effects. In Unani medicine, *Ta'liq al-Alaq* (leech therapy), a regimen of *Ilaj-bit-Tadbeer*, is based on *Istifrāgh* (expulsion of morbid humours). Leeches not only remove impure blood (*Ghalīz Mawād*) but also inject saliva with bioactive components that improve circulation, reduce inflammation, and support tissue repair.

Materials and Methods: A 35-year-old male with three non-healing ulcers on bilateral lower limbs for 27 years was treated with weekly leech therapy. Assessment was done at baseline, 2, 4, and 6 weeks, using parameters of size, discharge, smell, pain, edge, and floor.

Results and Discussion: Two ulcers completely healed, while the third showed partial healing after six weeks. Pain reduced significantly, with cleaner floor and healthy edge formation. The effects may be attributed to leech saliva components (Hirudin, Bdellin, Eglin, Hyaluronidase), which promote blood flow, angiogenesis, and granulation tissue. These findings support the Unani rationale of *Istifrāgh* and demonstrate leech therapy's role in chronic wound healing.

Conclusion/Recommendation: Leech therapy was effective, safe, and economical in managing chronic ulcers resistant to conventional treatment. It may serve as a valuable adjunct in wound care and thromboembolic disorders. Larger clinical studies are recommended to establish its role in modern wound management.

Keywords: Leech therapy, *Ta'liq al-Alaq*, non-healing ulcers, Unani medicine, wound healing.

JH/SECON2025/OP-86

Role of *Asparagus racemosus* (Willd.) promotes uteroplacental perfusion by modulating angiogenesis and systemic maternal inflammation in preeclampsia

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ABSTRACT

Introduction: Preeclampsia (PE) poses serious risks to both mother and unborn child. The complex pathophysiology involves systemic inflammation, vascular dysfunction, and an imbalance in angiogenesis. Despite extensive research, effective treatments remain limited. The investigation of medicinal plants as adjunctive therapies for PE offers a promising direction for research. This study examines the potential of Asparagus racemosus (AR) as a treatment for PE, focusing on its capacity to regulate sterile inflammation and restore vascular balance.

Methods: An N (G)-nitro-L-arginine methyl ester (L-NAME)-induced PE rat model was used to evaluate the therapeutic effects of AR. Hemodynamic parameters and proteinuria were measured through 24-hour urine collection. On GD 20, plasma and placental tissues were analysed for oxidative stress markers, inflammatory mediators, and angiogenic regulators using ELISA kits. Data were analysed using one-way ANOVA followed by Tukey's post hoc test, with significance set at $p<0.05$.

Results: *Asparagus racemosus* (200 and 400 mg/kg) significantly improved maternal and fetal outcomes, with the higher dose demonstrating greater efficacy. The extract reduced hypertension and proteinuria, restored maternal weight and fetal growth and decreased fetal mortality and anomalies. It lowered oxidative stress, suppressed inflammation and corrected angiogenic imbalance. These findings emphasize the protective role of A. racemosus against PE.

Conclusion: This study highlights the crucial interplay between sterile inflammation and angiogenic dysregulation in the pathophysiology of PE. The ability of *A. racemosus* to modulate inflammatory cascades and restore vascular balance positions it as a promising natural intervention for managing PE. Further research, including clinical studies, is warranted to validate its efficacy in improving maternal and neonatal outcomes

Keywords: Pre-eclampsia, *Asparagus racemosus*, angiogenic dysregulation, endothelial dysfunction, sterile inflammation.

JH/SECON2025/OP-87

Overview on therapeutic utility of industrial crops: A promising approach

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ABSTRACT

Background: Industrial crops like cottonseed, groundnut, sesame, linseed, and castor are regarded as one of the holistically vital agricultural resources worldwide. Hence, industrial crops are valued for their economic value and nutrition-empowering capabilities. There is increasing evidence to show that these crops exhibit other biological activities; e.g., antioxidants, anti-inflammatory, hepatoprotective, cardioprotective, and antimicrobial. Evaluating these therapeutic potentials serves as both a support for drug discovery and an alternative approach for nutraceuticals and phytopharmaceuticals. Therefore, one integrated way through which industrial crops can be sustainably utilized for human health promotion is through drug discovery.

Aim: The paper attempts to throw light on the therapeutic and industrial importance of major oilseed crops grown in India with respect to their uses in food, pharmaceuticals, and allied industries.

Method: A narrative review approach was taken wherein data regarding selected industrial crops were compiled from the published research, preclinical, and clinical databases. Emphasis was particularly on pharmacological screening, therapeutic activities, and bioactive phytoconstituents.

Results: These oilseeds are important contributors to edible oil production, livestock feed, bio-industrial processes, and foreign exchange. Linseed and sesame enjoy a small niche in nutraceuticals and traditional medicine. Resveratrol in groundnut with cardioprotective effects, lignans in sesame with antioxidant and hepatoprotective potential, linseed with α-linolenic acid against inflammation and for neuroprotection; castor oil mainly serves as an antimicrobial and laxative agent, whereas all sorts of cottonseed derivatives are being studied for anticancer properties. All in all, these findings demonstrate that industrial crops have therapeutic uses in both preventive and curative medicine.

Conclusion: Industrial crops have great promise beyond their economic utility as sources of therapeutic agents. Systematic exploration and clinical validation of these crops will pave the way toward the integration of these crops into nutraceutical and pharmaceutical pipelines, ultimately fostering affordable, sustainable, and accessible healthcare solutions.

Keywords: Groundnut, Sesame, Therapeutic, Industrial, Hepatoprotective

JH/SECON2025/OP-88

Hand grip and pinch strength: A systematic review: methods and outcomes in clinical and health population

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ABSTRACT

Introduction: The essential indicator of hand function is grip and pinch strength and is widely used by occupational therapist and rehabilitation professionals. Evaluation and assessment are critical for diagnosing the patient impairment and evaluating the intervention outcomes. The objective of the research paper is aimed at the systemic review to generate the evidences on methods or outcome used for assessment and treatment of strength in regard to grip and pinch. The other perspective is to assess the clinical utility of this measurement.

Materials and Methods: A precise and comprehensive search was conducted across databases including Pub med, Google Scholar, Scopus and Web of sciences of past five years . Inclusion of the studies was assessment and treatment of grip and pinch strength using standardized tools/instruments in healthy or clinical population. Data on measurement devices, protocols, normative values and psychometric properties and outcomes were appreciated where as animal studies and studies in other language were excluded.

Results and Discussion: Included studies met the inclusion criteria; the Jamar dynamometer emerged for grip strength and baseline pinch gauze were used for pinch strength while mechanical and electronic pinch ometer were also used .Evidences supports the strong reliability and validity for both grip and pinch strength measurement. The treatment protocol varied according to the problem and no specific protocol was followed for the recovery of the pinch and grip strength. . Data through heterogeneity in population ,dynamometer setting and normative data were also included.

Conclusion/Recommendation: Grip and pinch strength assessment demonstrates a robust reliability. Performance component plays the important role in assessment and treatment of grip and pinch strength in relation to motor aspects.

Keywords: Grip strength, pinch strength ,clinical population; normative value

JH/SECON2025/OP-89

Determination of leachables in fosaprepitant injection from the container closure system by novel analytical techniques

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ABSTRACT

Introduction: Leachable are the organic and inorganic chemical entities that migrate from a packaging component or packaging material into an associated drug product under normal conditions of storage and use or during accelerated drug product stability studies. Leachable are typically a subset of extractable or are derived from extractables.

Aim: Assessing the impact of leachables on the suitability of the drug product requires that it be screened to discover, identify and quantify leachables.

Methods: For the identification and quantification of Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), GC-MS/MS technique have been employeed. For the estimation of Non-Volatile Organic Compounds (NVOCs) and Nitrosamines in Fosaprepitant, LC-MS/MS techniquea and for the Elemental Analysis ICPMS techniques have been used.

Results: Based on method optimization, the analytical method was optimized for estimating Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), and Non-Volatile Organic Compounds (NVOCs) and Nitrosamines in Fosaprepitant for Injection (150 mg/Vial). No known potential leachables or unknown compounds were detected in the samples, during the analysis for VOCs, SVOCs, NVOCs. Additionally, the analytical method was optimized for the estimation of elemental impurities in accordance with USP <232> guidelines for Fosaprepitant for Injection (150mg/Vial). Samples were analysed for elemental impurities, and all tested elements were found to be below the limit of quantitation (BLQ) in the samples stored under conditions at 2-8°C during the analysis.

Conclusion: Based on the current investigation, 'No' known potential leachables or unknown compounds were detected in the samples.

Key Words: Fosaprepitant, Leachable, LC-MS/MS, GC-MS/MS and ICPMS.

JH/SECON2025/OP-90

Toxicity and safety levels assessment of oxygen heterocyclic compounds and terpene in cold-pressed grapefruit essential oils using UHPLC-MS/MS

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ABSTRACT

Background: Grapefruit essential oils (GEOs) contain bioactive oxygen heterocyclic compounds (OHCs) like PMFs, CMNs, FCMNs, and the terpene nootkatone (NKT). While these compounds offer health benefits, they can also pose risks, such as CMN toxicity and FCMN phototoxicity, especially with UVA exposure or certain medications, emphasizing the need for precise analytical methods

Aim: To develop and validate a rapid, sensitive, and selective UHPLC-MS/MS method for the simultaneous identification and quantification of 25 OHCs (3 PMFs, 7 CMNs, 15 FCMNs) and NKT in cold-pressed grapefruit essential oils.

Methods: A 16-minute ultra-high-performance liquid chromatography coupled with tandem mass spectrometry (UHPLC-MS/MS) method was optimized and validated. Validation included assessments of linearity, limits of detection (LOD), quantification (LOQ), and intra-/inter-day precision (%RSD).

Results: The method exhibited excellent linearity ($R^2 > 0.99$ for all analytes), low limits of detection (LODs, 6×10^{-8} to 1.5×10^{-6} mg g^{-1}), and quantification (LOQs, 2×10^{-7} to 5×10^{-6} mg g^{-1}). Intra- and inter-day precision (%RSD) ranged from 1.43 to 3.59% and from 2.16 to 6.90%, respectively.

Conclusion: The validated UHPLC-MS/MS method enables fast and accurate quantification of OHCs and NKT in GEOs. It supports safety assessments and quality control of GEO-based products by identifying compounds that may pose health risks or regulatory concerns.

Keywords: Grapefruit, essential oil, UHPLC-MS/MS, oxygen heterocyclic compounds, furanocoumarins

JH/SECON2025/OP-91

Study on a non-pharmacopeial formulation for its hepatoprotective activity against drug-induced hepatotoxicity in animal model

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ABSTRACT

Objectives: This study assessed the hepatoprotective efficacy of a non-pharmacopeial formulation (NPF) against rifampicin-induced hepatotoxicity, aiming to expand the repertoire of hepatoprotective agents in Unani medicine.

Methods: An acute toxicity study and HPTLC analysis were performed. The experiment utilized 42 Wistar rats, each weighing between 150 and 200 g. The rats were systematically allocated into seven distinct groups, each containing six animals, identified as negative, positive, standard, and test groups A, B, C, and D. Liver damage was induced by oral administration of rifampicin at a dose of 500 mg/kg daily for 30 days. Two hours post-administration, the standard and test groups received Silymarin (100 mg/kg), NPF, *Afsanteen*, *Kasni*, and *Asaroon* at doses of 167, 117, 167, and 217 mg/kg, respectively, orally for 30 days once daily to rifampicin-treated rats. Serum levels of marker enzymes (SGOT, SGPT, and ALP), total protein (TP), and albumin (S. Alb) were evaluated. All groups underwent biochemical and histopathological analysis.

Results: The formulation was deemed safe at a dose of up to 2000 mg/kg. Compared to the standard drug, test groups A and D demonstrated potential protective effects on the liver enzymes. Test groups B and C exhibited normal liver architecture.

Conclusion: Asaroon (test group D) demonstrated greater efficacy than NPF. Histopathologically, Afsanteen and Kasni were found to be effective. The study indicated that formulations by Unani scholars were more effective than non-pharmacopeial formulations, although the tested NPF remained effective and safe in this study.

Keywords: Hepatoprotection, HPTLC, Non-pharmacopeial formulation, Rifampicin, Unani Medicine

JH/SECON2025/OP-92

Efficacy of Unani formulations in the conservative management of uterine fibroids: A case report

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ABSTRACT

Background: Uterine fibroids (leiomyomas) are the most common benign tumors of the female reproductive tract, affecting up to 40% of women in reproductive age group. Conventional treatment with hormonal therapy or surgery often carries risks of recurrence and may compromise fertility. Unani system of medicine offers a safe, holistic, and fertility-preserving alternative.

The Unani system attributes fibroid formation to *sue mizaj barid wa ratab* (cold and moist temperament) and derangement of *balgham and damvi akhlat*, and recommends de-obstruent, anti-inflammatory, uterine tonic (purgative) drugs for management.

Objectives: To evaluate the efficacy of Unani polyherbal formulations in the conservative management of uterine fibroids through a case report.

Methodology: A 30-year-old parous woman presented with severe dysmenorrhoea and backache for one year. Ultrasonography revealed two intramural fibroids (2.2 × 1.2 × 2.4 cm and 2.2 × 1.3 × 2.0 cm). She had received allopathic therapy with no significant relief. A Unani regimen was prescribed for 12 weeks: *Majoon Dabeed-ul-Ward* (7 g, twice daily), *Majoon Zanjabeel* (5 g, twice daily), *Arq Mako* and *Arq Kasni* (60 ml each, twice daily) orally.

Result: There was complete relief in pain by the second cycle. Repeat ultrasonography after 12 weeks showed complete resolution of both fibroids.

Conclusion: This case highlights the potential of Unani formulations in the conservative management of uterine fibroids. The regimen exhibited anti-inflammatory, blood-purifying, hepatoprotective, and anti-estrogenic properties, leading to symptom relief and regression of fibroids. Polyherbal Unani medicines may offer a safe, fertility-preserving, and effective alternative or adjunct to conventional therapy.

Keywords: Uterine fibroids, Leiomyoma, Unani medicine, *Majoon Dabeed-ul-Ward,* Polyherbal medicines.

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Morphological and phytochemical plasticity of medicinal plant *Origanum vulgare* L. (Oregano) in response to an elevational gradient

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ABSTRACT

Background: Alpine ecosystems function as natural laboratories, where elevation gradients drive phenotypic plasticity in medicinal plants. For *Origanum vulgare* L. (oregano), understanding these adaptations is crucial for conservation and sustainable use.

Aims/Objectives: This study investigated elevation-driven changes in the morphology and essential oil profile of oregano across a Himalayan transect in Kashmir.

Methods: Accessions from three altitude zones (<1700 m, 1700-2300 m, >2300 m) were cultivated in ex-situ in a randomized complete block design. We analysed morphological traits and extracted essential oils via hydro-distillation for GC-MS profiling.

Results: The findings reveal a clear elevational imprint. Principal Component Analysis (PCA) of morphological traits statistically validated this pattern, extracting three principal components that collectively explained 82.47% of the total variance, with altitude as a primary driver of differentiation. Morphologically, plants exhibited an optimal growth window at mid-elevations (1700–2300 m), showing maximized plant height, leaf size, and inflorescence dimensions. At the highest elevations (>2300 m), a starkly different adaptive strategy emerged, characterized by reduced stature but increased trichome density and a shift in flower pigmentation to pale purple. Critically, essential oil yield and content increased progressively with altitude, culminating in a peak concentration of 1.21% above 2300 m. Chemotypically, a significant shift was observed: dominance transitioned from carvacrol and linalool at lower sites to thymol and terpinen-4-ol in high-altitude accessions.

Conclusion: Elevation acts as a master sculptor of *Origanum vulgare*, fine-tuning its morphology and orchestrating a distinct chemotypic shift. This demonstrated plasticity provides a scientific basis for selective breeding, drug discovery, and sustainable cultivation strategies for alpine medicinal plants.

Keywords: Altitude, *Origanum vulgare*, Phenotypic Plasticity, Essential Oil Chemotypes, Kashmir.

JH/SECON2025/PP-94

Integrated metabolomic and computational analysis of antibacterial compounds from *Ocimum sanctum* targeting uropathogenic *Klebsiella pneumoniae*

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ABSTRACT

Background: Urinary tract infections (UTIs) are the second most common infectious diseases after respiratory tract infections. The primary causative agents include *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Proteus mirabilis*, and *Staphylococcus aureus*. However, the increasing resistance of uropathogens to conventional antibiotics has created an urgent need to discover new antibacterial agents from natural sources. *Ocimum sanctum* (syn. *Ocimum tenuiflorum*), commonly known as Holy Basil or the "Queen of Plants," belongs to the family Lamiaceae and is well known for its diverse pharmacological activities, including antimicrobial and anti-biofilm properties.

Aim: The present study aimed to identify and evaluate the bioactive metabolites of *Ocimum sanctum* with antibacterial activity against uropathogenic *Klebsiella pneumoniae* using integrated metabolomic, in silico, and in vitro approaches.

Methods: Network pharmacology and molecular docking analyses were performed to identify potential antibacterial compounds and their target interactions. Methanolic extracts of *O. sanctum* were further tested against *Klebsiella pneumoniae* using well diffusion and minimum inhibitory concentration (MIC) assays to validate computational predictions.

Results: Metabolomic profiling and in silico analysis revealed that compounds such as palmitic acid, β-caryophyllene, eugenol, and borneol were major constituents targeting bacterial fatty acid synthesis pathways. The methanolic extract demonstrated significant antibacterial activity against selected *Klebsiella* isolates, supporting the predicted antibacterial potential.

Conclusion: This study integrates metabolomics and computational screening to identify antibacterial phytocompounds from *O. sanctum*, providing a theoretical framework for developing plant-based therapeutics for UTI prevention and management.
Keywords: Urinary tract infection, *Ocimum sanctum*, metabolomics, network pharmacology, molecular docking, antimicrobials

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Ethnomedicinal practice of *Achyranthes aspera* L. for labour facilitation: Evidence from tribal communities in Malwa and Nimar region of Madhya Pradesh

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ABSTRACT

Background: Caesarean sections, though essential in complicated cases, are increasingly performed beyond medical necessity, raising risks such as surgical complications, infections, and prolonged recovery. Normal vaginal delivery, by contrast, allows faster recovery and lower morbidity. India's traditional knowledge, including Ayurveda and tribal practices, emphasizes natural childbirth using medicinal plants. *Achyranthes aspera* L. (Apamarga) is used to ease labour, with tribal women in Madhya Pradesh tying its root around the waist to facilitate delivery. Its ethnomedicinal role merits further study. In the context of rising surgical birth rates, the ethnomedicinal significance of A. aspera merits closer study as a bridge between tradition and modern maternal care.

Objectives: 1. To document the traditional ethnomedicinal practices involving *Achyranthes aspera* L. (Apamarga) in childbirth, with emphasis on tribal communities of Madhya Pradesh.

2.To analyse the phytochemical and pharmacological properties of *Achyranthes aspera* L. relevant to uterotonic and labour-facilitating effects.

Methodology: The study combined ethnobotanical surveys among tribal communities in Madhya Pradesh with a review of classical Ayurvedic texts, documenting the traditional use of *Achyranthes aspera* L. to facilitate childbirth.

Results: Ethnobotanical surveys and textual analysis confirmed that *Achyranthes aspera* L. is traditionally used to ease labour, with tribal women tying its root around the waist to support natural childbirth.

Conclusion: *Achyranthes aspera* L., deeply rooted in tribal and Ayurvedic practices, offers a natural approach to facilitate childbirth. Its ethnomedicinal use highlights the potential to complement modern maternal care and reduce unnecessary surgical interventions.

Keywords: *Achyranthes aspera* L, Ethnomedicine, Labour induction, Childbirth, Ayurveda, Tribal practices, Caesarean section

JH/SECON2025/OP-96

Anti-cholagogue medicines and liver health: From unani concepts to biomedical validation

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ABSTRACT

Background: Liver diseases represent a global health challenge, affecting the organ's essential functions of metabolism, detoxification, and bile secretion. In Unani medicine, many hepatic disorders are linked to excess of *Khilṭ Ṣafrā'* (bilious humour). Traditionally, *Qāṭi' Ṣafrā'* (anti-cholagogue) are prescribed to regulate bile production, reduce abnormal heat, and restore humoral equilibrium.

Aim: To evaluate the pharmacological and clinical evidence of *Qāṭi' Ṣafrā'* drugs in the prevention and management of liver diseases.

Methods: A systematic review of classical Unani texts and databases was conducted using terms *Ṣafrā'*, anti-cholagogue, hepatoprotective, liver diseases, to identify evidence on pharmacological and clinical effects.

Results: Several Unani drugs, like Āmlā *(Phyllanthus emblica L.)*, Anār *(Punica granatum L.*), Tamarhindī (*Tamarindus indica L.*), and Ālū Bukhārā (*Prunus domestica L.)* exhibit *Qāṭi' Ṣafrā', Mushil*-i-*Ṣafrā'*, *Muṣaffī-i-Dam*, *Muḥallil-i-Awrām* activities. Researches conducted on these drugs similarly demonstrates their hepatoprotective, antioxidant, anti-inflammatory, and anti-cholagogue actions. Preclinical and limited clinical studies also support their role in reducing elevated liver enzymes, regulating bile secretion, and protecting hepatocytes against oxidative stress. These findings are consistent with classical descriptions of their bilious humour-correcting properties.

Conclusion: Anti-bilious drugs hold promising potential in improving liver function and managing various hepatic disorders by regulating the levels of *Ṣafrā'*. Evidence from both classical texts and modern research supports their role, and further details will be highlighted in the full-length paper.

Keywords: Unani medicine; Anti-bilious drugs; *Khilṭ Ṣafrā'*; Hepatoprotective; Liver diseases.

JH/SECON2025/OP-97

Wearable technology in physiotherapy: Enhancing monitoring and exercise adherence

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ABSTRACT

Background: Wearable technology is increasingly transforming physiotherapy practice by enabling real-time monitoring of physiological and biomechanical parameters. Devices such as smartwatches, inertial sensors, and electromyography-based wearables provide objective feedback, supporting both clinicians and patients in achieving optimal rehabilitation outcomes.

Objective: This study aimed to evaluate the role of wearable devices in physiotherapy, focusing on their effectiveness in monitoring rehabilitation progress and improving exercise adherence.

Methods: A scoping review was conducted of studies published between 2017 and 2025, using PubMed, ScienceDirect, and Google Scholar. Research exploring wearable applications in musculoskeletal, cardiopulmonary, and sports rehabilitation was included. Key outcomes analyzed were patient adherence, accuracy of monitoring, and clinical effectiveness.

Results: Wearables demonstrated significant utility in tracking step count, joint kinematics, heart rate variability, and muscle activation during therapy. Evidence indicated up to a 40% improvement in home-exercise adherence when wearables were integrated with mobile applications. Remote monitoring facilitated better clinician-patient communication, reduced delays in treatment modification, and encouraged patient engagement. Challenges included high device costs, data security concerns, and variability in patient acceptance.

Conclusion: Wearable technology represents a valuable adjunct to physiotherapy practice by enhancing monitoring and promoting exercise adherence. Future integration with artificial intelligence and tele-rehabilitation platforms may further improve personalized care and long-term rehabilitation outcomes.

Keywords: Wearable technology, physiotherapy, monitoring, exercise adherence, rehabilitation

Poster Presentations

JH/SECON2025/PP-01

Understanding the pathogenic footprint of *Amrāḍ Mu'diya* (infectious diseases) in the light of *Mizāj* in early childhood

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ABSTRACT

Background: The Unani System of Medicine (USM) is among the oldest traditional medical systems, categorizing the entire human lifespan into four distinct phases according to the quantity of *Harārat-i-Gharīziyya* (innate heat) and *Ruṭūbat Gharīziyya* (innate moisture) in the body. *Sinn-i- Ṭufūlat*(infancy) signifies the age having *Ḥārr* (hot)and *Raṭb* (moist)temperament which has the greatest potential to produce *Ufūnat* (putrefaction). From modern perspective also, warm and moist environment supports microbial growth, aligning with the Unani concept that *Ruṭūbāt* and *Ḥarārat* predispose the body to *Ufūnat*.

Objectives: To understand the dominant *Mizāj* in *Sinn-i-Ṭufūlat* as a key predisposing factor for *Amrāḍ Mu'diya*.

Methods: The existing Unani literature and scientific knowledge have been reviewed to outline the pathophysiological basis of infectious diseases in *Sinn-i-Ṭufūlat*.

Results: *Sinn-i-Ṭufūlat* (infancy; 0-4years),a subcategory of *Sinn-i-Numū* (growing age;0-30years),is especially vulnerable to infectious diseases. The primary burden of illness in children of *Sinn-i-Ṭufūlat* is due to preventable and treatable infectious diseases like pneumonia, diarrhea, and malaria, alongside neonatal disorders.

Conclusion: This study explores the link between *A'mār Mizāj* (temperament of different ages) and *Amrāḍ Mu'diya*, focusing on how the dominant *Mizāj* in *Sinn-i-Ṭufūlat* predisposes children to *Amrāḍ Mu'diya*.

Keywords: *Mizāj, Sinn-i-Ṭufūlat*, *Ufūnat*, Unani Medicine, Infectious disease

JH/SECON2025/PP-02

Plant-based vaccines: A new approach in immunization

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ABSTRACT

Background: Since the first successful vaccination by Edward Jenner in 1796, vaccines are evolved from attenuated and inactivated pathogens to advanced recombinant technologies. The rise of emerging infectious diseases and the demand for rapid safe, and cost effective vaccines has highlighted the potential of plant-based vaccine platforms. Unlike conventional bacterial or animal-cell systems, plant can perform necessary post-translational modifications, preserve antigen stability, and allow oral delivery, reducing dependency on injections and cold chains.

Objectives: This review explore recent developments and applications of plant-based vaccines in human and veterinary medicine.

Methods: The data presented in these review acquired from the different website like Pubmed, Sciencedirect, Gogglescholar etc. a literature survey of recent studies focusing on recombinant antigen production, Agrobacterium-mediated transformation, and edible vaccine development. Plant efficiently produce recombinant vaccines and monoclonal antibodies while maintaining immunogenicity. Agroinfiltration enables stable antigen expression in plant tissues, including seeds for the long terms. The Newcastle disease vaccine for the poultry is commercialised. While several human vaccine targeting Ebola virus and H. pylori , vibrio cholerae bacterium are under clinical trials. advantages include oral delivery, low-cost production, thermostability, post-translational modifications, making these suitable for rapid outbreak response.

Result: In this review the data related to plant based vaccine is summarized.

Conclusion: keeping in view, the data published with respect to Plant-based vaccines is discussed in these review. It can be concluded on the basis of data published that indicate plant-based vaccine can be used for prevention/ for the treatment of various types of disorder.

Keywords: Plant-based vaccines, Recombinant vaccines, Edible vaccines, Oral immunization.

JH/SECON2025/PP-03

CocoaBloom: A novel diabetic-friendly, sugar-free functional chocolate sweetened with Cocoa pulp and Jamun

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ABSTRACT

Background: The rising global prevalence of diabetes has created a strong demand for sugar-free, preservative-free, and natural alternatives to conventional confectionery. Most sugar-free chocolates rely on artificial sweeteners or sugar alcohols, which may cause side effects.

Aim: This study aimed to develop *CocoaBloom*, a diabetic-friendly, sugar-free, and preservative-free functional chocolate using natural sweeteners and bioactive ingredients.

Method: The chocolate was prepared using cocoa nibs, cocoa butter, cocoa pulp concentrate, lotus seed (*Euryale ferox*) flour, inulin, freeze-dried jamun (*Syzygium cumini*) powder, and spices such as cinnamon and cardamom. Nutritional analysis included carbohydrate content, fiber levels, antioxidant activity, and glycemic index. synthetic preservatives.

Results: CocoaBloom demonstrated a low glycemic load due to natural sweeteners and high fiber content. Jamun and inulin provided antioxidant and prebiotic benefits, while lotus seed flour improved texture and creaminess. Sensory evaluation indicated high consumer acceptability with a fruity-spiced flavor. Shelf-life studies confirmed stability for 6–8 months without preservatives.

Conclusion: CocoaBloom represents a novel nutraceutical chocolate that is diabetic-safe, sugar-free, and preservative-free. It integrates natural sweetness, functional botanicals, and eco-friendly preservation, offering a sustainable and consumer-acceptable alternative to conventional chocolates.

Keywords: Cocoa pulp, jamun, lotus seed, inulin, diabetic-friendly chocolate, sugar-free, functional food, preservative-free

JH/SECON2025/PP-04

Apium graveolens: Phytochemical screening, total phenolic, flavonoid content and HPTLC profiling

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ABSTRACT

Introduction: *A.graveolens*, also known as celery, belongs to the family Apiacae. It has been used as a vegetable since ancient times. *A. graveolens* contains chemical constituents like flavonoids, phenolic acids, coumarins,polyacetylenes,etc.Essential oils are rich in monoterpene hydrocarbons like limonene and β-selinene, as well as phthalides such as sedanolide.It also includes flavonoids such as apigenin, luteolin, which contribute to the plants antioxidant and anti inflammatory properties.It has been reported in the literature that the plant has various pharmacological and therapeutic potential such as antioxidant and anti-inflammatory.Its stem, root, and leaf extracts can promote differentiation of neuronal stem cells to neurons and supportive cells such as astrocytes and oligodendrocytes.

Materials and Methods: Phytochemical screening of methanolic extract was performed by using standard methods.Total phenolic and flavonoid content were determined by Folin Coicalteu reagent and Aluminum Chloride methods, respectively. HPTLC profiling of methanolic extract was also performed using solvent system Toulene:Ethyl acetate:Formic acid in the ratio (5:4:1).

Results and Discussions: Results of phytochemical screening showed presence of alkaloids, carbohydrates and glycosides.Total Phenolic and Total Flavonoid content was found to be 2mg GE/g and 0.712 mg RE/g dry weight, in each order. HPTLC profiling spots were observed under UV light 254 and 366nm respectively.Rf values were found to be 0.47, 0.61, 0.74, 0.88 of spot 1, 2, 3and 4, respectively.

Conclusion: On the basis of results found in the study, it can be concluded that the data curated in the study is important for quality control of this drug. This data will be used in academia and industries for identification and quality control of the drug.

Quantification of marker compounds by using modern and advanced chromatographic techniques such as UPLCMS, GCMSetc are required to be done.

Keywords: *Apium graveolens*, total phenolic content, total flavonoid content, HPTLC.

JH/SECON2025/PP-05

Acute oral toxicity studies of sugar-free Khamira-e-Gaozaban Sada (sf-KGS) a polyherbal unani formulation in swiss albino mice

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ABSTRACT

Introduction: More than 3 billion people are facing neurological disorders. Conventional synthetic active ingredients cancause harsh side effects. In contrast, Unani utilizes whole herbs, making them potentially safer. Khamira-e-Gaozaban Sada, a Unani formulation, has been explored to the extent of its accelerated stabilitystudies. However, there is other literature is limited.The acute oral toxicity analysis of the prepared formulation, sugar-free Khamira Gao Zaban Sada (sf-KGS) was conducted to identify its toxicity category.

Materials and Methods: Upon overnight fasting (feed only), sf-KGS dose in distilled water was delivered to three groups (n=3): 300mg/kg, 2000 mg/kg, and 5000 mg/kg in single doses using oral gavage. An extra group (n=3) designated as the control group was administered only water.

Behavioral Study: All groups were observed at different intervals over 24 hours, changes in skin, fur, behavior pattern, mortality, body weight, and food consumption were recorded and analyzed.

Hematology: Blood sample collected from retroorbital plexus under light anesthesia after biochemistry and hematology evaluations were performed.

Histopathology: On the 14th day, animals were put to sleep using cervical dislocation under mild anesthesia, and histological examination of various organs was conducted. Data was analyzed using GraphPad Prism with appropriate significance tests applied to parameters such as body weight, feed intake, and hematological data.

Results and Discussion: The results indicate that sf-KGS, at the levels studied, did not induce notable behavioral or any harmful physical effects in the animals. There was no statistically significant fluctuation in body weight of the mice being studied suggesting the treatment at the tested dose did not impede the mice's overall growth ($P>0.05$). Upon further evaluation of hematology and serum biochemistry there was no indication of a significant difference between the control group and the toxicity study group. FInally, there were no histological alterations found between both groups.

Conclusion/Recommendation: The single-dose acute oral toxicity study demonstrated no significant histopathological changes in essential organs of both control and treated groups. Microscopic examination revealed normal organ architecture without signs of inflammation, cellular damage, or dysfunction. These findings are consistent with the absence of notable alterations in hematological and serum biochemical parameters, indicating that the herbal formulation did not produce any apparent toxicity at the tested doses. Thus, the formulation appears safe at the administered dose range.

Key words: Acute oral toxicity, Khamira-e-Gao Zaban Sada (sf-KGS), Unani polyherbal formulation, Swiss albino mice, Histopathological evaluation

JH/SECON2025/PP-06

Giloy as a nutraceutical: A natural pathway to wellness

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ABSTRACT

Background: *Tinospora cordifolia* (Guduchi), a member of the Menispermaceae family, is a climbing shrub widely used in Ayurvedic medicine. In Ayurveda, it is known as *Amrita*, meaning the "nectar of immortality," due to its reputed ability to promote health and improve the body's resistance to disease. Historically, Giloy has been employed to treat fever, jaundice, diabetes, gout, skin disorders, and general weakness. Its antioxidant and anti-inflammatory properties indicate a protective effect against oxidative damage, highlighting potential applications in skin health and overall well-being. At present, Giloy is available in multiple forms, including extracts, tablets, teas, and syrups, and is incorporated into herbal medicines, nutraceuticals, and cosmetic products.

Objective: To explore the traditional and modern medicinal uses of *Tinospora cordifolia* (Giloy) and to evaluate its pharmacological activities based on current research.

Methods: A literature survey was conducted using PubMed, Google Scholar, and Ayurvedic texts with keywords such as "Guduchi," "*Tinospora cordifolia*," "Ayurveda," and "pharmacological activities." Relevant English-language studies were reviewed, focusing on phytochemistry, therapeutic applications, and modern pharmacological validations.

Results: The stem, which contains a rich mix of alkaloids, lactones, glycosides, and antioxidants, serves as the main source of Giloy's immunomodulatory, antioxidative, hepatoprotective, and antidiabetic properties. Contemporary research validates several of these traditional claims, demonstrating its role in supporting immune function, regulating blood sugar, reducing fever, eliminating toxins, and alleviating stress. It also exhibits neuroprotective and anti-inflammatory effects.

Conclusion: With its wide range of biological activities and established safety profile, Giloy represents a successful integration of traditional medicinal knowledge with modern scientific understanding, positioning it as a valuable natural resource for holistic health and preventive care.

Keywords: Guduchi, *Tinospora cordifolia*, Ayurveda, immunomodulator, antioxidant, pharmacology

JH/SECON2025/PP-07

Methi's (*Trigonella foenum-graecum*) metamorphosis: From folklore to pharmacology

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ABSTRACT

Background: Fenugreek (*Trigonella foenum-graecum* L.) is a revered herb with a rich history in traditional medicine systems, including Ayurveda Unani and other Traditional systems. For centuries, it has been used as a galactagogue, a hypoglycaemic agent, an anti-inflammatory, and a digestive aid.

Objectives: The objective of this study was to evaluate the traditional uses of fenugreek and the evidence-based outcomes of contemporary pharmacological and clinical research.

Method: To gather this data an extensive literature search was done by scanning scientific Databases like PubMed, ScienceDirect, Google Scholar, Scopus, and Web of Science. Studies published in English reporting about traditional claims and their scientific validation included, while non-scientific and irrelevant reports were excluded.

Results: *Trigonella foenum-graecum* (Fenugreek), a legume originating from the Near Middle East and Mediterranean, possesses a rich history dating to 4000 BCE, with significant use in ancient Egyptian rituals. Traditionally, it has been valued as a digestive aid, a galactagogue to promote lactation, a metabolic regulator, and a culinary spice. Modern science validates many of these ancient applications, confirming the plant's potent anti-inflammatory and antioxidant properties. The herb's efficacy is linked to key phytoconstituents, such as steroidal saponins, which are believed to inhibit cholesterol absorption within the intestine. Furthermore, its ability to stimulate sweat production is a proposed mechanism for its lactogenic effects, effectively bridging ancient wisdom with modern validation and confirming its continued therapeutic relevance.

Conclusion: Both traditional practices and modern studies highlight fenugreek's significant therapeutic potential, validating its long-standing use while supporting its role in contemporary healthcare.

Keywords: *Trigonella foenum-graecum*, Fenugreek, Traditional medicine, Ayurveda, Unani.

JH/SECON2025/PP-08

From hospitals to communities: The expanding burden of antimicrobial resistance

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ABSTRACT

Background: Antimicrobial resistance (AMR) has evolved from a hospital-confined challenge into a widespread community health crisis. Once considered a concern limited to intensive care units and clinical wards, resistant pathogens have now infiltrated households, schools, and the environment, compromising the effectiveness of existing therapeutics. This shift represents not merely a medical issue but a societal and environmental one.

Aim/Objectives: The objective of this review is to elucidate the mechanisms and drivers facilitating the transition of AMR from hospital settings to community domains, and to emphasize integrated strategies for containment.

Methods: Peer-reviewed literature, surveillance data, and global health reports published between 2015 and 2024 were systematically analyzed. Studies focusing on the epidemiology, transmission pathways, and intervention outcomes of resistant pathogens were critically evaluated to identify emerging patterns and risk determinants.

Results: Evidence indicates an alarming rise in community-associated resistant infections, particularly involving Escherichia coli, Klebsiella pneumoniae, and methicillin-resistant Staphylococcus aureus. Factors such as non-prescription antibiotic use, poor wastewater management, and cross-transmission between healthcare and community interfaces were identified as pivotal accelerators of resistance dissemination.

Conclusion: The migration of antimicrobial resistance beyond hospital boundaries underscores the necessity for a One-Health approach that bridges human, animal, and environmental health. Strengthening antibiotic governance, surveillance, and public engagement is indispensable to reversing this silent pandemic.

Keywords: Antimicrobial resistance, hospital-to-community transmission, One Health, antibiotic stewardship, global health

JH/SECON2025/PP-09

Cardioprotective potential of *Doronicum hookeri* (Daroonaj Aqrabi): Insights from Unani literature and modern pharmacology

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ABSTRACT

Background: Doronicum hookeri C.B. Clarke, commonly known in Unani medicine as Daroonaj Aqrabi, is a medicinal herb traditionally acclaimed for its muqawwi qalb (cardiotonic), muqawwi dimagh (neurotonic), and mufarrih (exhilarant) properties. It is prescribed in conditions such as palpitations, cardiac weakness, and general debility. Despite centuries of empirical use, its cardiopotent actions remain underexplored in contemporary pharmacology.

Objective: This review aims to critically appraise the traditional claims, phytochemical profile, and available experimental studies on Doronicum hookeri, with a particular focus on its potential cardiotonic and cardioprotective properties.

Methods: Literature was surveyed from classical Unani texts (Makhzan al-Mufradat, Khazain al-Advia) and indexed databases (PubMed, Scopus, AYUSH portals, Google Scholar) up to October 2025. Keywords included "Doronicum hookeri," "Darunaj Aqrabi," "cardiotonic," "cardioprotective," and "Unani medicine." Relevant reviews, pharmacological studies, phytochemical analyses, and ethnopharmacological reports were included.

Results: Traditional sources consistently identify Doronicum hookeri as a cardiac tonic. Modern phytochemical analyses report the presence of flavonoids, saponins, and glycosides, including compounds suggestive of cardiac glycoside-like activity. Experimental data demonstrate antioxidant, antimicrobial, and hepatoprotective properties, which indirectly support cardioprotection. However, direct in vivo or in vitro evidence of positive inotropic effects or cardioprotective efficacy remains scarce.

Conclusion: Doronicum hookeri holds strong promise as a cardiopotent drug in light of its Unani heritage and preliminary phytochemical indications. Nonetheless, rigorous pharmacological investigations, including isolated heart models, cardiomyocyte assays, and in vivo cardiac function studies, are urgently required to substantiate its cardiotonic claims and ensure safety. This review bridges classical wisdom with modern science, identifying gaps and offering directions for future research.
Keywords: Doronicum hookeri, Darunaj Aqrabi, Unani medicine, cardiotonic, cardioprotective, phytochemistry, antioxidant.

JH/SECON2025/PP-10

Scientific validation of antiviral efficacy in traditional Unani formulations

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ABSTRACT

Objective: The present study aimed to evaluate the Antioxidant & immunomodulatory potential of traditionally claimed AYUSH based Unani Formulations.

Materials and Methods: The selected Unani formulations, recommended by AYUSH as prophylactic agents, contain botanicals known for their potent antioxidant & immunomodulation-one of the key criteria for the development of COVID-19 therapeutics. Furthermore, *in vitro* assays, including Total phenolic content (TPC), Total flavonoid content (TFC), immunomodulatory and antioxidant evaluations through, DPPH (2,2-Diphenyl-1-Picrylhydrazyl), Reducing power assay (RPA) & Total antioxidant capacity (TAC) were conducted to assess their bioactivity. *In vivo* immunomodulatory activity done by cyclophosphamide induced model.

Results: The developed antiviral formulations exhibited a high concentration of total phenolic and flavonoid content. Antioxidant evaluation using DPPH, RPA & TAC has significant antioxidant potential for all formulations. *In vitro* assessments, including immunomodulatory, antioxidant assays (DPPH, RPA & TAC), further confirmed their significant antiviral potential. Moreover, *in vivo* immunomodulatory activity using cyclophosphamide induced model confirmed its potential as Antiviral.

Conclusion: The evaluated formulations revealed significant antioxidant and immunomodulatory properties, demonstrating notable for management of antiviral activity.

JH/SECON2025/PP-11

Phytochemical characterization, monograph development, and network pharmacology studies on *Coriandrum sativum* for nephroprotection

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ABSTRACT

Introduction and Objectives: *Coriandrum sativum* commonly known as coriander, is a traditional medicinal plant rich in bioactive compounds such as linalool, flavonoids, phenolic acids, and essential oils. These constituents contribute to its pharmacological activities, including antioxidant, anti-inflammatory, and anti-apoptotic effects, which underpin its nephroprotective potential. Considering this, a comprehensive study integrating monograph development, chemoprofiling, and network pharmacology was undertaken to explore its renal protective mechanisms.

Materials and Methods: Pharmacognostic evaluation of *C. sativum* was performed via macroscopic and microscopic studies, and a monograph was developed following USP standards. Methanolic extract was prepared using ultrasonication and analyzed for total phenolic and flavonoid content using the Folin–Ciocalteu and aluminum chloride assays, respectively. TLC fingerprinting was carried out for qualitative and quantitative assessment of bioactive markers. Antioxidant compounds were identified using high-throughput DPPH bioautography. In silico network pharmacology analysis was performed to predict molecular targets and pathways associated with nephroprotection.

Results and Discussion: The monograph established standard diagnostic features of *C. sativum*. The extract showed significant phenolic and flavonoid content, with TLC profiling confirming the presence of key bioactive markers. Bioautographic assays revealed strong antioxidant constituents, while network pharmacology highlighted potential molecular targets and signaling pathways supporting nephroprotective activity.

Conclusion/Recommendation: The conducted study scientifically validates the traditional knowledge of nephroprotective potential of the aforementioned plant and can be explored further at preclinical and clinical levels.

Keywords: *Coriandrum sativum*, nephroprotection, TLC fingerprint, antioxidant, network pharmacology

JH/SECON2025/PP-12

Network pharmacology-based analysis of squalene from *Amaranthus tricolor* (Pusa Kiran) for anti-obesity activity

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ABSTRACT

Introduction: *Amaranthus tricolor* is a widely consumed leafy vegetable in India, recognized for its nutritional and therapeutic benefits. Obesity, a major lifestyle disorder, requires safe and effective plant-based interventions validated through modern scientific approaches due to growing concerns over the side effects of synthetic drugs. The current study aimed to evaluate the anti-obesity potential of squalene from *A. tricolor* (Pusa Kiran variety), using a network pharmacology approach.

Materials and Methods: Methanolic seed extracts of *A. tricolor* were analysed using GC-MS, identifying squalene as the most abundant compound. Potential obesity-related hub genes were predicted via network pharmacology. Molecular docking and dynamics simulation were conducted to study squalene's interactions with selected hub targets.

Results and Discussion: Squalene had a favourable ADMET profile. EGFR, ESR1, GRB2 and SRC were identified as the hub genes. GO and KEGG pathway enrichment revealed significant involvement in lipid metabolism, PI3K-AKT signalling, endocrine resistance, and nuclear receptor-mediated transcription, with ESR1, EGFR, and GRB2 appearing across multiple regulatory axes. Molecular docking showed squalene binding most strongly to ESR1 (−7.586 kcal/mol).

Conclusion/Recommendation: These findings suggest that squalene may modulate key signaling pathways implicated in obesity, supporting its potential as a natural, multi-target nutraceutical for metabolic health.

Key words: *Amaranthus tricolor*, Squalene, Obesity, Network Pharmacology

JH/SECON2025/PP-13

Development and evaluation of antibacterial turmeric ointment

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ABSTRACT

Background: Herbal medicines are increasingly explored as alternatives to synthetic drugs due to their safety and efficacy. Turmeric (*Curcuma longa*) is a well-known medicinal plant containing curcumin, a bioactive compound with strong antibacterial, anti-inflammatory, and wound-healing properties. This study focused on the development of a turmeric-based ointment for topical antibacterial use.

Aims/Objectives: To formulate a stable turmeric ointment and evaluate its physicochemical properties and antibacterial activity against common pathogens.

Methods: Turmeric rhizomes were dried, powdered, and subjected to Soxhlet extraction to obtain curcuminoids. The extract was incorporated into a paraffin-based ointment using the levigation method with almond oil and ethanol as additives. The prepared formulation was assessed for key parameters including spreadability, pH, viscosity, and stability. Antibacterial activity was studied using the agar well diffusion method and minimum inhibitory concentration (MIC) test against *E. coli, Pseudomonas aeruginosa, Staphylococcus aureus* and *Bacillus subtilis*.

Results: The formulated ointment showed desirable physicochemical properties and demonstrated noticeable antibacterial activity in preliminary screening. MIC testing is under evaluation to determine its minimum effective concentration.

Conclusion: A turmeric-based ointment was successfully formulated and exhibited promising antibacterial efficacy, making it a cost-effective herbal alternative for the management of skin infections and supporting the use of traditional remedies in modern therapeutics.

Keywords: Turmeric, *Curcuma longa*, Antibacterial Ointment, Herbal Formulation, Wound Healing

JH/SECON2025/PP-14

Synthesis of 4-amino-3-nitro coumarin derivatives

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ABSTRACT

Background: Antimicrobial agents are essential therapeutic substances used to prevent or treat infections by inhibiting the growth of or killing microorganisms. They function by interfering with vital cellular processes such as macromolecule synthesis, enzymatic activity, or cell wall formation. Coumarin, a heterocyclic phenolic compound, has gained attention for its broad pharmacological properties, including antimicrobial, anti-inflammatory, antibacterial, and antineoplastic activities. Owing to the rise of resistant microbial strains, the development of coumarin-based derivatives has become a crucial area of medicinal chemistry research.

Aim: The aim of this study was to synthesize 4-chloro-3-nitrocoumarin and its 4-amino-substituted derivatives to explore their potential as multifunctional agents with antimicrobial, antibacterial, anti-inflammatory, and antineoplastic activities.

Methods:

- *Synthesis of 4-chloro-3-nitrocoumarin*: 4-hydroxy-3-nitrocoumarin was treated with phosphorus oxychloride ($POCl_3$) in the presence of dimethylformamide (DMF), leading to the substitution of the hydroxyl group with a chlorine atom at the 4-position.
- *Synthesis of 4-amino-substituted nitrocoumarins*: The chlorinated coumarin was then reacted with specific amines in ethyl acetate (EtOAc) under reflux conditions for 5–6 hours, using N,N-diisopropylethylamine (DIPEA) or triethylamine (Et_3N) as base catalysts.

Results: The reactions successfully yielded 4-chloro-3-nitrocoumarin and various 4-amino-substituted nitrocoumarin derivatives. These synthesized compounds demonstrated potential biological activities consistent with previously reported coumarin-based molecules, particularly in antimicrobial and anti-inflammatory pathways.

Conclusion: The study demonstrates an effective synthetic route for producing bioactive coumarin derivatives with potential therapeutic applications. The structural versatility of coumarin and its derivatives supports their continued development in medicinal and pharmacological chemistry for combating infections and related diseases.

Keywords: Coumarin derivatives, Antimicrobial agents, 4-chloro-3-nitrocoumarin, Amino-substituted coumarin, Medicinal chemistry

JH/SECON2025/PP-15

Integrative pharmacological and phytochemical profiling of *Boswellia serrata* in chronic kidney disease: Network pharmacology, bibliometric insights, and HPTLC quantification

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ABSTRACT

Background: *Boswellia serreta* (Burseraceae), commonly known as Indian frankincense, is widely utilized in Ayurveda and Unani medicine for inflammatory and arthritic conditions. Its therapeutic efficacy is mainly attributed to boswellic acids, particularly acetyl-11-keto-β-boswellic acid (AKBA).

Objective: This study aimed to investigate the nephroprotective potential of *Boswellia Serrata* in chronic kidney disease (CKD) using an integrative approach that combining network pharmacology, bibliometric analysis, and HPTLC based quality assessment.

Methods: Network pharmacology was employed to predict compound target interactions of major constituents (AKBA, β-boswellic acid, lupeolic acid) against CKD related pathways. Bibliometric mapping of *Boswellia serrata* research (2009-2025) was performed using Scopus and VOSviewer to identify global research trends. Simultaneous quantification of mixed markers was done to confirm and quantify some phytoconstituents for extract standardization.

Results: Network pharmacology revealed multitarget interactions of boswellic acids with inflammatory and oxidative stress pathways NF-κB, TNF-α, IL-6, COX-2, and VEGF. Bibliometric analysis (n=37 publications highlights increasing global interest, with India, USA, and China as leading contributors, and renal protection as a dominant research theme. HPTLC confirmed the presence of quercetin (0.029% w/w) and caffeic acid (0.009% w/w), supporting quality control of the extract.

Conclusion: The findings confirm *Boswellia serrata* as a promising nephroprotective phytomedicine based on the analysis. However, poor oral bioavailability, phytochemical variability, and limited clinical data remain challenges, future studies should focus on advanced formulations and well-designed trials to establish standardized phytopharmaceutical applications.

Keywords: Chronic kidney Diseases, *Boswellia serrata*, HPTLC, Network pharmacology, Bibliometric analysis

JH/SECON2025/PP-16

Herbal cosmetics in India: Consumer survey and proposal for future research

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ABSTRACT

Background: Herbal cosmetics are gaining popularity as alternatives to synthetic products in India, particularly in urban markets. However, consumer perceptions remain underexplored in specific regions.

Objective: This study aimed to assess consumer awareness, preferences, and satisfaction with herbal cosmetic products in New Delhi, India.

Methods: A 17-question Google Forms survey collected responses from 257 participants, covering demographics, awareness, preferences, satisfaction, and feedback. Factorial analysis identified key behavioural themes, regression analysis examined factors influencing satisfaction, and sentiment analysis interpreted open-ended responses.

Results: Awareness of herbal cosmetics was high (85.2%), with 81.3% preferring them over synthetic products. Satisfaction levels varied, influenced by age, brand recognition, and product perception. Younger users were more price-sensitive, while longer usage correlated with greater satisfaction. Reported side effects were relatively low (7.7% rashes, 9.7% irritation). Sentiment analysis showed mostly positive or neutral attitudes, highlighting safety, natural ingredients, and value for money as key drivers.

Conclusion and Future prospects: Consumers in New Delhi hold a generally favorable view of herbal cosmetics, but challenges remain regarding limited availability, high costs, uncertain labelling, and perceived effectiveness. Addressing these concerns through transparent communication and evidence-based validation can strengthen consumer trust and support industry growth.

Keywords: Herbal cosmetics, skincare, herbal products, survey-based study, Compound annual growth rate

JH/SECON2025/PP-17

Comparative GC-MS based metabolite profiling of field-grown and in vitro-regenerated tissues of *Gladiolus grandiflorus* L. cv Pusa Kiran

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ABSTRACT

Background: Untargeted metabolic profiling is a preferred method for identifying phytoconstituents, which is fundamentally necessary to comprehend their anticipated pharmacological benefits and practical implications.

Aim: To assess and compare the active chemical constituents present in *G. grandiflorus* (field-grown and in vitro regenerated tissues) using Gas chromatography and Mass spectrometry (GC-MS) approach.

Methods: Corms of *Gladiolus grandiflorus* were procured from the Herbal Garden, Jamia Hamdard, New Delhi, India, and utilized as explants for the in vitro development of callus and shoots/leaf regeneration. About 1 g of each plant tissue sample was shade-dried, pulverized, and extracted using methanol for metabolite profiling. The phytocompounds were identified using GC-MS-QP-2010 Ultra equipment.

Results: The generated data compiled demonstrated a relative difference in phytochemical content between mother and lab-grown tissues, highlighting the influence of in vitro culture conditions on active compounds. The methanolic extract of different in vitro and in vivo samples (corm, leaves, and corm-derived calli) displayed the presence of more than 60 phytocompounds. The identified plant constituents fall within many categories, including flavonoids, steroids, terpenoids, carbohydrates, etc. These phytoconstituents are critically significant from a pharmacological perspective, possessing multiple therapeutic attributes, such as neuroprotective, anti-cancerous, anti-inflammatory, and antimicrobial activities. Some of the major therapeutically active metabolites are neophytadiene, n-Hexadecanoic acid, lupeol, phytol, chondrillasterol, guanosine, vitamin E, octacosanol, octadecanoic acid and others.

Conclusion: This investigation of plant metabolites helped to determine the efficacy of *Gladiolus grandiflorus* in medical treatment and other fields.

Keywords: *Gladiolus grandiflorus*, metabolic profiling, therapeutic benefits

JH/SECON2025/PP-18

Artificial Intelligence (AI) solutions for integrating traditional medicine into modern healthcare systems

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ABSTRACT

Introduction/Background: The earliest evidence of traditional medicine dates back nearly 60,000 years, serving 80% of the global population for primary healthcare till date. Yet, bringing this vast knowledge into the modern healthcare system remains difficult. This knowledge is fragmented, passed down orally and lacks standardization. Many traditional remedies are still supported more by anecdotal evidence than by accurate trial data. Concerns remain over herb–drug interactions, and the ethical use of indigenous knowledge making allopathic medicine dominate.

Aims/Objective: Artificial intelligence (AI) can help bridge these gaps. AI Tools like natural language processing/knowledge graphs can transform scattered information into structured, searchable databases. AI can help determine various treatment outcomes, risks, and improve scientific validation by predictive modelling/data mining. AI-driven clinical decision-support systems could flag potential herb–drug interactions. AI tools like federated learning and blockchain-enabled AI can safeguard community ownership of indigenous knowledge.

Materials/Methodology: This study involved literature review of multiple scholar databases and literature available on intersection of AI and traditional medicine. Recent AI advances were captured along with understanding existing traditional medicine practices and challenges.

Result/Discussion: AI can help accelerate integration, make scattered knowledge clinically useful, help in data standardization by using various AI tools. These tools are great for data privacy, benefit sharing and protecting IPR.

Conclusion/Recommendation: AI can integrate traditional medicine into modern healthcare. Fragmented knowledge can be digitized, clinical validation increased, clinical decision-making tools can help too while indigenous rights be safeguarded. However, implementation is key and all AI advancements should be transparent in the future.

Keywords: Artificial Intelligence, Traditional Medicine, Healthcare Integration

JH/SECON2025/PP-19

Advancements in natural biomaterials for tissue-engineered vascular grafts

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ABSTRACT

Background: Cardiovascular diseases are a major global health concern, with vascular grafting frequently required for bypass surgeries. Autologous grafts, while preferred, are limited by availability and long-term patency issues. Synthetic grafts often lack the biological and mechanical properties required for small-diameter applications, leading to graft failure.

Objectives: This study aims to provide a comprehensive overview of recent advancements in the use of natural biomaterials for developing functional tissue-engineered vascular grafts (TEVGs) that closely mimic native blood vessels.

Methods: A detailed review of current literature was conducted focusing on biological scaffolds such as collagen, gelatin, fibrin, elastin, silk, chitosan, and decellularized extracellular matrix. Emphasis was placed on fabrication techniques, including electrospinning, 3D bioprinting, molding, and cell sheet engineering, and on strategies to enhance mechanical strength and bioactivity.

Results: Natural biomaterials demonstrated excellent bioactivity, biocompatibility, and cell integration. Hybrid scaffolds combining natural and synthetic polymers achieved improved mechanical properties while retaining biological functions. Electrospun and 3D-printed constructs enabled precise architectural control, enhancing graft patency and endothelialization in preclinical studies.

Conclusion: Natural biomaterials, supported by advanced fabrication and maturation techniques, present significant potential for the development of small-diameter TEVGs. These advancements bring the field closer to clinically viable grafts that can overcome the limitations of current autologous and synthetic options.

Keywords: Vascular tissue engineering, Natural biomaterials, Electrospinning, 3D printing, Tissue-engineered vascular grafts

JH/SECON2025/PP-20

Pharmacognostical and phytochemical evaluation of *Majoon-i-Gul*, a pharmacopoeial Unani formulation: A comprehensive approach with modern techniques

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ABSTRACT

Introduction: An increase in the awareness about the advantages of the traditional medicines has led to the commercialization of the formulations used for the treatments. To obtain effective drug with proven efficacy, it is necessary to ascertain standards through contemporary scientific and technical procedures which would certainly enhance the acceptance of Unani medicines. Quality control of Unani polyherbal formulations is the need of the day for better acceptance of Unani medicine. Majoon-i-Gul is a classical pharmacopoeial Unani formulation traditionally prescribed for liver ailments.

Aims/Objectives: The present study was designed to carry out pharmacognostical evaluation for authentication of raw materials, and phytochemical investigation of *Majoon-i-Gul* using modern analytical techniques, with an aim to develop standard quality parameters for the formulation.

Materials and Methods: Pharmacognostical studies included macroscopic and microscopic examination, powder microscopy etc. The formulation was subjected to preliminary physicochemical and phytochemical evaluation as per pharmacopeial standards. Chromatographic fingerprints were generated by HPTLC and HPLC, and marker compounds were identified and quantified. Safety was assessed through heavy metal, pesticide residue and microbial load.

Results and Discussion: Pharmacognostical evaluation confirmed the diagnostic features of the constituent drugs and authenticated the formulation. Physicochemical analysis showed values within acceptable ranges, indicating good quality and purity. Preliminary screening revealed the presence of alkaloids, flavonoids etc. HPTLC and HPLC profiles provided reproducible fingerprints, with specific marker peaks identified for standardization. Safety analyses confirmed the absence of heavy metals, pesticide residues, and microbial contamination within permissible limits.

Conclusion: These findings provide a scientific basis for its quality control and pave the way for future pharmacological and clinical validation.

Keywords: Majoon-i-Gul, pharmacopoeial Unani formulation, physicochemical parametres, phytochemical parameters, standardization

JH/SECON2025/PP-21

Exploring the scientific validation and nephroprotective potential of Unani drugs: Integrating in-vivo, in-vitro, in-silico, and network pharmacology approaches with molecular and metabolomic Insights

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ABSTRACT

Background: Traditional Unani drugs are widely reported for nephroprotection, yet systematic validation spanning network pharmacology, metabolomics, and in-vitro remains limited.

Objective: This study aims to validate the nephroprotective claims of Unani medicinal plants by network pharmacology, metabolomics and in vitro study of standardized extracts along with development of synergy-based polyherbal for nephroprotection.

Methods: In silico analysis of CS, NS and TT was done to evaluate the nephroprotective potential, KEGG enriched pathways and Gene Ontology. Plant materials were collected, microscopically authenticated, and extracted by reflux. Extracts were evaluated for total phenolics (TPC), total flavonoids (TFC), antioxidant capacity (DPPH, FRAP) and HPTLC analysis produced reproducible fingerprints and specific marker was quantified. In vitro study also done on HEK-293 renal cells for cytoprotection. Synergy among screened extracts was developed via dose-response modeling using isobologram analysisthroughcombination index to select an optimized ratio.

Results: The in-silico analysis revealed that CS, NS and TT have nephroprotective potential. Several compounds were retrieved among which dithymoquinone, apiole, harmine and linoleic acid were important. A PPI network was constructed and TNF, AKT1, IL6 and SRC Hub genes were identified. All the selected plants showed a higher amount of TPC and TFC and robust radical-scavenging. HPTLC fingerprinting showed many separated bands, each band correspond to different metabolites. Cucurbitacin, thymoquinone**,** andsteroidal saponinshowed the presence in CS, NS, and TT respectively with a significant amount. The optimized combination showed synergistic cytoprotection through in-vitro study.

Conclusion: This study validates the nephroprotective potential of CS, NS, and TT using network pharmacology, metabolomics, and in-vitro studies. The optimized synergy-based polyherbal combination demonstrated significant cytoprotection, supporting its further development.

Keywords: HPTLC, *In-vitro*, Metabolomics, Nephroprotective, NetworkPharmacology

JH/SECON2025/PP-22

Bryonia epigoea Rottl: Pharmacological and therapeutic aspects

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ABSTRACT

Introduction: *Bryonia epigoea Rottl,* commonly known as redfruit creeper and akasgaddah, a perennial climber of the Cucurbitaceae family (gourd family) is widely used in traditional medicine across the tropical and subtropical region of Asia. It's tuberous roots are valued for treating rheumatism, inflammation, bronchitis and gastrointestinal aliments.

Materials and Method: The data provided in this review is collected from website like ethnomedical journal, Google, PubMed, Web of science, etc. This review is concerned with the therapeutic and pharmacological studies of the plant *Bryonia epigoea.*

Results And Discussion: Phytochemical studies of *B. epigoea* reveals the presence of bioactive compounds like cucurbitacins, glycosides, flavonoids, alkaloids, saponins and phenolic compounds, which contribute to its wide spectrum of pharmacological actions. Research has reported the analgesic, anti-inflammatory, anti-microbial, antioxidant, hepatoprotective and anticancer properties of the plant *B. epigoea*. It's has an ability to control or regulate oxidative stress and immune response further indicates its potential role in coping up chronic disorder.

Conclusion: *Bryonia epigoea Rottl* contains many bioactive compounds that justify its traditional medicinal uses. Its proven pharmacological activities highlight its potential as a natural remedy for controlling various diseases.

Keyword: *Bryoniaepigoea*, cucurbitaceae, hepatoprotective, anti- inflammatory

JH/SECON2025/PP-23

Unani Aahār: The cornerstone of health, prevention, and therapy in Unani medicine

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ABSTRACT

Background: Unani medicine regards *Aahār* (diet) as a cornerstone of health, disease prevention, and therapy. Rooted in the principle that "food is medicine and medicine is food," dietary regulation is considered one of the six essential factors of life (*Asbāb Sitta Ḍarūriyya*). Proper diet maintains humoral balance, strengthens the body's innate healing power, and prevents illness, while dietary mismanagement is viewed as a major cause of disease.

Objectives: The objective of this study is to highlight the significance of Unani dietary principles in maintaining health, preventing disease, and supporting therapeutic interventions.

Methods: A narrative review of classical Unani texts and modern scholarly literature on Unani dietetics and dietotherapy was conducted. Key concepts of Aahār were analyzed in relation to temperament (*Mizāj*), age, season, and environment.

Results: The review revealed that Unani Aahār is a highly personalized and preventive approach. It emphasizes moderation, food compatibility, and seasonal adaptation. *Ilāj bil Ghizā* (dietotherapy) is prioritized as the first line of treatment, where specific foods are prescribed to correct humoral imbalances. Findings indicate that diet not only nourishes the body but also plays a therapeutic role in restoring equilibrium and managing disorders effectively without immediate reliance on pharmacotherapy.

Conclusion: Unani Aahār serves as a holistic framework for health preservation and therapy. Its personalized and preventive orientation makes it a sustainable and relevant approach for addressing both classical ailments and modern lifestyle-related disorders.

Keywords: Unani Aahār, Ilāj bil Ghizā, Dietotherapy, Humoral Balance, Preventive Medicine

JH/SECON2025/PP-24

Ani epileptic Unani drugs: Classical literature with the scientific validation

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ABSTRACT

Introduction: Epilepsy is a chronic neurological condition in which neurons in the brain occasionally send abnormal signals, leading to recurrent seizures. It has been recognized and discussed extensively in Unani medicine under the term *Sara or Qazoon or Abrqalsa or Marz e Kahini means the falling sickness.* The Unani system, rooted in Greco-Arabic traditions, approaches epilepsy with humoral theories and individualized treatment strategies based on the temperament (*Mizaj*) of the patient. (*Ibn e Sina*, Al Qanoon). *Buqrat* also postulates the same as the derangement of the humors causes epilepsy.

Materials and Methods: Collection and Authentication of Drugs, Preparation of Different Samples, Physicochemical Evaluation of each ingredient of formulation, Refractive index, Qualitative analysis of phytoconstituents, Quantitative Estimation, Total Alkaloids content, Total Phenolics content, Total Flavonoid content, Total glycoside content, TLC, HPTLC

Conclusion: Classical Unani literature provides a coherent therapeutic framework for epilepsy that maps onto several botanicals and compound formulations. Modern experimental studies validate anticonvulsant and neuroprotective properties for a subset of these agents, supporting further translational research. Rigorous standardization of formulations, mechanistic studies and randomized clinical trials are required before routine integration into evidence-based epilepsy care.

Keywords: Ṣarʿ, epilepsy, Unani medicine, Convolvulus pluricaulis, Bacopa monnieri, Majoon, anticonvulsant, pharmacology

JH/SECON2025/PP-25

Nutool therapy: A Unani regimen to reduce anxiety

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ABSTRACT

Introduction: In Unani system of medicine, treatment is administered through four approaches: *Ilaj bi'l ghidha* (dietotherapy), *Ilaj bi'l dawa* (pharmacotherapy), *Ilaj bi'l tadbir* (regimenal therapy), and *Ilaj bi'l yad* (surgery). Nutool therapy, or irrigation, is a widely used and effective treatment modality of *Ilaj bi'l Tadbir*. Nutool involves the continuous pouring or dripping of liquid from a specific height onto targeted areas of the body for various medical conditions. The liquids utilized can range from plain water, herbal decoctions, medicated oils, khaisanda (infusion), to milk. Classical texts attribute numerous benefits of *Nutool*, such as dispersing morbid matter, balancing temperament, and relieving pain, reducing inflammation, strengthening nerves, promoting mental relaxation and reducing anxiety. This therapy is primarily categorized into two forms: *Nutool Harr* (hot irrigation) and *Nutool Barid* (cold irrigation). The procedure is performed daily for two weeks to obtain lasting results. *Nutool* is employed to achieve the distribution of harmful substances, modify the body's temperament, reduce inflammation, serve as a tonic, and enhance the body's defence system to attain the desired neurological, psychological, and pharmacological outcomes. Additionally, it promotes local drug absorption via the skin, thereby facilitating the intended local action of medications.

Conclusion: *Nutool* therapy is frequently applied to address neurological disorders such as anxiety, musculoskeletal issues, renal conditions, and reproductive diseases and is useful for alleviating chronic illnesses, discomfort, and stiffness of different kinds. It is particularly beneficial as an adjuvant treatment in various diseases. This paper intends to examine the advantages and applications of *Nutool* as described in traditional literature and its increasing relevance in contemporary times

Keywords: Nutool, Regimenal therapy, Unani drug, Joshanda, Ilaj bi'l Tadbir, anxiety

JH/SECON2025/PP-26

Poly-γ-glutamic acid: A green biomaterial for the future

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ABSTRACT

Background: Poly-γ-glutamic acid (γ-PGA) is a chiral biopolymer composed of either L-glutamic acid or D-glutamic acid or both monomers in different ratios and repeating frequency. It is biodegradable, water-soluble, environmentally friendly, and edible, and has versatile industrial applications.

Scope and approach: This review presents advances in γ-PGA synthesis in microorganisms and metabolic engineering strategies used to improve γ-PGA diversity. The fascinating roles of structural diversity in various applications and future research directions in γ-PGA bio-production are also discussed in this review.

Conclusion: Obtaining the γ-PGA with specific stereoisomer and molecular weight is an indispensable step in the expanded uses of γ-PGA. With the development of metabolic engineering and synthetic biology, the production of tailored γ-PGA in a single host is possible.

Keywords: Kinema, Bacillus, fermented soybean, poly-glutamic acid.

JH/SECON2025/PP-27

Cloning, expression and characterization of Dengue virus Non-Structural 4B protein

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ABSTRACT

Dengue, a mosquito-borne flavivirus infection caused by one of the four serotypes (DENV-1 to 4), poses a significant public health threat. Structural proteins form part of the virus and non structural (NS) proteins are involved in various steps of virus life cycle and host immune evasion. Minor Protein NS4B, having a mass of 27kDa, is suggested to be involved in membrane rearrangement for formation of replication complexes. DENV NS4B protein has also been shown to cause reduction of interferon response and downregulation of pro-inflammatory cytokine expression resulting in immune evasion. This study aimed to clone and express DENV-2 NS4B with the long term goal of identifying its host binding partners which could help development of antiviral therapies.

NS4B of DENV-2 was cloned into pEGFP-N1, eukaryotic expression vector. This was followed by transfection into Human Embryonic Kidney (HEK) cells and subsequent expression profiling of recombinant protein by Western Blot analysis. Further analysis by real time PCR was done to study effect of NS4B on differential expression of host cytokine and chemokine genes.

NS4B was successfully cloned to pEGFP N1 vector and cell lysate on transfection showed a band corresponding to expected size (~55 kDa). Real time PCR analysis on NS4B-pEGFP transfection showed downregulation of pro-inflammatory cytokine TNF-α and upregulation of CCL5 chemokine which is vital for recruitment of key immune cells. This may enhance host immune response to dengue infection. Further analysis and research is required to identify role of DENV NS4B on host cell during Dengue virus infection.

Keyword: Gene Cloning, Dengue Virus, Protein Expression, Non-structural protein, Cytokines.

JH/SECON2025/PP-28

Formulation of silver nanoparticle using peanut shell extract

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ABSTRACT

Background: Silver nanoparticles (AgNPs) have gained wide attention across healthcare, food, and industrial sectors due to their distinctive physical, chemical, and biological properties, especially antimicrobial activity. Conventional methods of synthesis, however, are costly and environmentally unsafe. Green synthesis using plant extracts offers a sustainable alternative that is simple, rapid, and non-toxic. Peanut shell, an abundant agricultural by-product, has not been previously investigated for AgNP synthesis. This study aimed to formulate silver nanoparticles from peanut shell extract and perform preliminary quality control and phytochemical screening of the plant material.

Methodology: Peanut shells were collected, powdered, and extracted by Soxhlet extraction. Quality control parameters such as ash and extractive values were determined, and phytochemicalanalysis was performed. AgNPs were synthesized by reducing $AgNO_3$ with the peanut shell extract under different conditions including room temperature, magnetic stirring with heating, and microwave irradiation. The synthesized nanoparticles were characterized using UV–Vis spectroscopy, Zeta Sizer, and Zeta Potential analysis, and later incorporated into a gel formulation.

Result: The extractive and ash values of peanut shell were 2% and 9% respectively. Phytochemical screening confirmed the presence of alkaloids, glycosides, proteins, and carbohydrates, with significant phenolic content. The synthesized AgNPs exhibited a maximum absorbance at 448–452 nm and a zeta potential of –33.09 mV, indicating stability. The nanoparticles were spherical with sizes ranging from 286–367 nm. A stable, homogenous AgNP gel was successfully formulated.

Conclusion: This study reports, for the first time, the eco-friendly synthesis of silver nanoparticles from peanut shell extract, with potential applications in antimicrobial therapy and wound healing.

Keywords: Silver Nanoparticles, Peanut Shell, Green Synthesis, Zeta Potential, Gel Formulation

JH/SECON2025/PP-29

Cardio-protective role of *Punica granatum* (Pomegranate) extracts in reducing atherosclerotic risk

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ABSTRACT

Background: Pomegranate (*Punica granatum* L.) is known as for its high cardio-protective properties. That helps to maintain healthy heart and prevent cardio-vascular diseases (CVDs). As Pomegranate is nutritionally dense fruits, containing antioxidant and bio-active compounds.

Aim: This review evaluates the vasculo-protective effects of various pomegranate components, including the fruits, arils, seeds, peel and flower extracts. The arils and seeds are rich in antho-cyanins, ellagic acid and polyphenols, while peel and flower extracts contains high concentrations of punicalagin, gallic acid and other potent polyphenols.

Methods: Evidence from both human and animal models demonstrates that pomegranate supplementation can beneficially modulate several atherosclerotic risk markers by lowering systolic and diastolic blood pressure, improving lipid metabolism, reducing inflammatory mediators, and enhancing endothelial function.

Results: Researchers reported that effective dosage when consumed consistently includes 50–240 ml of pomegranate juice, 1–1.5 g of peel extract, or 200–500 mg of standardized flower extract. Consumption should be modest and closely monitored, considering the high natural sugar content of pomegranate juice and the possibility of drug interactions.

Conclusion: Collectively, these findings indicate that *Punica granatum* is a promising nutraceutical candidate for CVD prevention and control. Future clinical trials should use well-defined extract formulations and standardized biomarkers to further understand its processes and therapeutic potential.

Keywords: Pomegranate (*Punica granatum)*, cardio-vascular diseases, antioxidant, vasculo-protective effects

JH/SECON2025/PP-30

GCMS analysis of *Leptadenia pyrotechnica* (Forsk.) decne hydro-alcoholic extracts and assessment of their antioxidant and anti-inflammatory properties

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ABSTRACT

Introduction: *Leptadenia pyrotechnica* (Forsk.) Decne. (Asclepiadaceae), commonly referred to as "khimp," is a desert shrub that is found in the deserts of both Asian and African nations. It is found in Gujarat, Rajasthan, Haryana, Punjab, Bombay, and Western Uttar Pradesh in India. The objective of this study is to confirm the amazing therapeutic benefits of *L. pyrotechnica* by identifying, measuring, and assessing its antioxidant and anti-inflammatory potential.

Material and Method: *Leptadenia pyrotechnica* (Forsk.) Decne was gathered from the Churu district of Rajasthan. Different extracts of LP (flowers, stem, leave and root,) were made using the hot soxhlet extraction method. These extracts were analyzed quantitatively for the presence of phenol, saponin, tannin, flavonoid, and alkaloid; qualitatively to identify several phytochemicals; and physiochemical to check for impurity, purity, and quality. By using the DPPH, H_2O_2 scavenging the *in vitro* antioxidant potential was calculated. Then, using GC-MS technique, the most common phytochemicals of various extract of *L. pyrotechnica* were examined.Also the anti-inflammatory activity of different extracts of various parts of *L. pyrotechnica* using Bovine serum albumin and Egg albumin method was determined.

Results and Discussion: The GC–MS analysis of *L. pyrotechnica* flower, leaf steam, and root hydro alcoholic extract revealed the presence of 65, 53, 38 and 13 bioactive compound in leaves extract, flowers extract, aerial part extract (stems) and roots extract respectively. Significant antioxidant and anti-inflammatory properties were also demonstrated by *L. pyrotechnica'*s flower, leaf steam, and root extracts at 100, 200,300, 400 and 500µg/ml.

Conclusion: These extract can be helpful in the management of various anti-inflammatory and oxidative stress related condition.

Keywords: Antioxidant; Anti-inflammatory; GC-MS; Hydro-alcholic extract; *Leptadenia pyrotechnica;* Phytoconstituents

JH/SECON2025/PP-31

Traditional medicine in cancer therapy: An evidence-based approach

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ABSTRACT

Cancer is still one of the biggest health problems in the world, causing a large number of illnesses and deaths. To fight it, doctors and researchers are looking for new and combined methods of prevention and treatment. Traditional medicine, such as Ayurveda, Traditional Chinese Medicine, and herbal pharmacopoeias, has long been utilized for managing various ailments, including cancer. Evidence-based research has increasingly highlighted the therapeutic potential of botanicals and bioactive compounds derived from traditional remedies. Many plant-derived agents, such as vinca alkaloids, taxanes, and camptothecin derivatives, originated from traditional knowledge and now serve as cornerstone chemotherapeutics. Recent preclinical and clinical studies suggest that traditional formulations may exert anticancer effects through modulation of cell signaling pathways, induction of apoptosis, inhibition of angiogenesis, and immunomodulatory activities. However, challenges such as variability in quality, standardization, dosage, and safety must be addressed to integrate traditional medicine into mainstream oncology. These abstract underscores the importance of an evidence-based approach, bridging traditional knowledge with modern scientific validation, to safe, effective, and affordable cancer therapeutics.

JH/SECON2025/PP-32

In vitro targeting of dual-specificity tyrosine phosphorylation-regulated kinase 1A (DYRK1A) for β-cell regeneration using the chicoric acid-rich fraction extracted from *Cichorium intybus* seeds

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ABSTRACT

Background: Diabetes mellitus (DM) poses a significant global health challenge as the most prevalent endocrine condition, contributing substantially to morbidity and mortality. Both type 1 and type 2 diabetes exhibit a diminished functional beta-cell mass, leading to absolute or relative insulin insufficiency. While the reduction in beta-cell mass in type 1 diabetes is well understood due to autoimmune destruction. Type 2 diabetes involves prolonged insulin resistance and impaired beta-cell function that also leads to β cell destruction.

Objective of the Study: This study aims to investigate the role of DYRK1A in β-cell regeneration in vitro and to elucidate the potential mechanisms involved in promoting β-cell proliferation.

Material & Method: In the current in vitro experiments, the effect of the chicoric acid-rich fraction on β-cell regeneration was evaluated using the MIN6 cell line. Glucotoxicity was induced in the cells, followed by RNA isolation and RT-PCR analysis to assess DYRK1A expression levels in comparison to control samples.

Results: The expression of DYRK1A was significantly downregulated in the treated β cells, accompanied by a reduction in the levels of CHOP and NFKB, indicating decreased cellular stress and inflammation. Meanwhile, the transcription factors PDX1, PAX6, and MAFA were notably upregulated, suggesting enhanced β-cell proliferation and functional regeneration.

Conclusion: These findings demonstrate that targeting DYRK1A with the chicoric acid-rich fraction from *Cichorium intybus* promotes β-cell regeneration by modulating key regulatory genes. The simultaneous downregulation of stress and inflammatory markers, along with upregulation of β-cell transcription factors, highlights the potential of this approach as a therapeutic strategy for diabetes management through β-cell recovery.

Keywords: Diabetes Mellitus, DYRK1A, β-cell regeneration, Cichorium intybus, Beta cell proliferation

JH/SECON2025/PP-33

A review on stress management with traditional systems of medicine

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ABSTRACT

Introduction: Stress is widely recognized as a major contributor to a variety of physical and psychological health problems, leading to increased interest in alternative approaches for its management. Traditional systems of medicine including Ayurveda, Unani, Siddha, Homeopathy and Naturopathy, are renowned for their holistic focus on mind, body and spirit, yet their full potential in stress management is not fully explored in mainstream healthcare.The main objective of this paper was to provide a comprehensive and comparative analysis of stress management strategies across traditional systems of medicine with particular emphasis on the use of medicinal plants.

Materials and Methods: A narrative review methodology was employed, which involved sourcing literature using online search tools from websites that serve as repositories for research, review articles, and publications. Additional references were drawn from authoritative classical texts.

Results and Discussion: This review highlights that all systems prioritize holistic, patient-centric approaches. Ayurveda attributes stress to mansik doshas and pragyaparadh, recommending herbs like Ashwagandha and Brahmi. Siddha emphasizes spiritual detox through Kayakalpa herbs such as Ponnankanni. Unani manages stress via humoral balance, personalized diets, and regimens like Hijama. Homeopathy provides individualized remedies such as *Ignatia amara* and *Gelsemium*. Naturopathy relies on non-pharmacological therapies like yoga, hydrotherapy, and chromotherapy to restore hormonal balance. A shared emphasis on ethical living, daily routine, and preventive care was observed. However, lack of standardized clinical validation, limited modern documentation, and minimal integration into public health policy were identified as key challenges.

Conclusion/Recommendation: The findings suggest that integrating the strengths of multiple traditional systems and their plant-based therapeutics can enhance stress management and provide culturally relevant, patient-centred solutions for contemporary healthcare.

Keywords: Traditional medicine, Medicinal plants, Stress management, Healthcare.

JH/SECON2025/PP-34

Exploring the remarkable chemotherapeutic potential of polyphenolic antioxidants in battling various forms of cancer

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ABSTRACT

Background: Plant-derived compounds, especially antioxidants, play a critical role in neutralizing free radicals generated under pathological conditions. Persistent free radical production can trigger inflammation and may progress to severe diseases like cancer. Natural antioxidants help prevent radical formation and promote their decomposition, thereby reducing disease risk.
Aims/Objectives: This review aims to explore the molecular mechanisms of flavonoids such as quercetin, kaempferol, naringenin, epicatechin, and epicatechin gallate in cancer prevention and treatment. It also focuses on the pharmaceutical applications of these compounds using nanotechnology-based delivery systems and highlights combination therapies for enhanced anticancer efficacy.
Methods: A comprehensive literature review was conducted, compiling evidence from studies investigating the anticancer mechanisms of flavonoids and their delivery through advanced nanocarriers, including polymeric nanoparticles, lipid-based nanoparticles, liposomes, and metallic nanocarriers. Research on combination therapies integrating flavonoids with conventional anticancer agents was also analyzed.
Results: Flavonoids demonstrated significant antioxidant, anti-inflammatory, and anticancer effects by modulating key signaling pathways, reducing oxidative stress, and inducing apoptosis in cancer cells. Nanotechnology-based formulations improved flavonoid stability, solubility, and targeted delivery, thereby enhancing therapeutic outcomes. Combination therapies exhibited synergistic effects, offering promising strategies for effective cancer management.
Conclusions: Flavonoids, owing to their multifaceted biological activities, hold great potential in cancer therapy. Advanced delivery systems and combination approaches further enhance their efficacy, suggesting a strong foundation for developing novel anticancer therapeutics based on plant-derived antioxidants.
Keywords: Flavonoids; antioxidant; anticancer; nanotechnology; combination therapy

JH/SECON2025/PP-35

Food as medicine: Concept of pathya in Ayurveda and modern nutritional science

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ABSTRACT

The concept of "Pathya" in Ayurveda emphasizes the role of diet as a fundamental component of health and healing. Ayurveda regards food not only as a source of nourishment but also as a therapeutic tool to maintain balance between body, mind, and spirit. Pathya refers to a wholesome diet tailored according to individual constitution (Prakriti), disease condition, season, and lifestyle. This traditional concept finds resonance in modern nutritional science, where diet is recognized as a critical determinant in preventing chronic diseases such as diabetes, cardiovascular disorders, and obesity. Scientific studies highlight the role of balanced nutrition, functional foods, and bioactive compounds in disease management and health promotion.This poster brings together Ayurvedic ideas of Pathya and modern nutrition science to give a holistic view of "Food as Medicine." By combining ancient knowledge with modern research, we can find sustainable ways for better health and disease prevention.

JH/SECON2025/PP-36

Evaluation of pharmacognostical and anti-oxidant efficacy of *Prosopis cineraria* Bark

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ABSTRACT

Introduction: *Prosopis cineraria* (Khejri) is a culturally revered medicinal plant and exhibit significant ethnomedicinal value. It thrives in arid regions of India and associated with the Bishnoi community and the Chipko movement. Present study depicts pharmacognostical, preliminary phytochemical screening and antioxidant potential of hydroethanolic bark extract of *P. cineraria*

Materials and Methods: Bark was collected from northern Rajasthan (27.153735° N, 75.787564° E) in January, 2025 and subjected to organoleptic, powder and microscopy analysis along with determination of moisture% as well as total ash value%. Preliminary phytochemical screening detects the presence of secondary metabolites. Antioxidant potential was assessed using DPPH radical scavenging assay, with ascorbic acid as standard.

Results and Discussion: Powder microscopy revealed a fibrous texture and astringent taste. Microscopic analysis confirmed the presence of cork cells, lignified fibers, and parenchymatous tissues with 4.09% moisture content and 7.71% total ash value. Phytochemical screening detects the presence of carbohydrates, proteins, alkaloids, tannins, flavonoids, phenolics, and saponins. Dose dependent antioxidant efficacy with an IC_{50} value of 56.12 µg/mL, compared to 7.42 µg/mL for ascorbic acid was observed. These findings support the ethnomedicinal use of P. cineraria and its bioactive components.

Conclusion: The study sets pharmacognostical standards for Prosopis cineraria bark and confirms its antioxidant activity, supporting its traditional uses. Further research is recommended for compound isolation and herbal formulation development to explore its therapeutic potential.

Keywords: *Prosopis cineraria*, pharmacognosy, bark microscopy, phytochemical screening, antioxidant

JH/SECON2025/PP-37

From botanicals to nutraceuticals: Innovations in food supplements

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ABSTRACT

Background: Scientific validation of traditional Unani diet formulations is crucial to integrate classical wisdom with modern nutrition. Proximate analysis (carbohydrate, protein, fat, fiber, vitamins, minerals) and advanced tools like HPLC, spectrophotometry, and atomic absorption provide accurate nutrient profiling. Glycemic index (GI), measured through standardized in vivo protocols, further evaluates carbohydrate quality. Evidence shows that low-GI Unani diets support better glycemic control, making them beneficial in diabetes, metabolic syndrome, and weight management.

Aims/Objectives: To scientifically evaluate the nutritive value and Glycaemic index of a traditional Unani diet formulation.

Methodology: Proximate analysis for macronutrients, fiber, vitamins, and minerals. Analytical techniques (HPLC, spectrophotometry, AAS) for micronutrient profiling.In vivo GI testing using standardized postprandial blood glucose response in healthy volunteers compared to reference food.

Results: Enable to know the nutritive value and glycemic index of Unani dietary formulations using modern scientific and analytical methodologies.

Conclusion: Traditional Unani diet formulations possess validated nutritive richness with favorable glycemic response, aligning classical dietary wisdom with modern scientific standards. Their integration may support preventive and therapeutic nutrition.

Keywords: Unani diet, nutritive value, glycemic index,traditional medicine, scientific validation

JH/SECON2025/PP-38

Prevention through lifestyle modifications in Unani system of medicine

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ABSTRACT

Background: Urbanization and modernization lead to changes in lifestyle of people such as changes in eating patterns, dietary preferences, physical activities, sleeping pattern which increases the risk for developing many diseases such as diabetes, hypertension, dyslipidemia, etc. Therefore, many organizations are working on implementing a healthier lifestyle as prevention. Similar concept was present way back in Unani System of Medicine which revolves around *Asbab-e-Sitta Zarooriya* which talks about balance in eating habits, sleeping, bodily movements, emotions, excretion and environment. These six essential factors *(Hava, Makool-wa-Mashroob, Harkat-wa-Sukoon Badani, Harkat-wa-Sukoon Nafsani, Naum-wa-Yakzah, Istifragh-wa-Ihtibas)* influences human health. By regulating the six essential factors, Unani aims to maintain the equilibrium of the body's humours (*akhlat*) and temperament (*mizaj*), thereby preventing disease and promoting longevity.

Keywords: *Asbab-e-Sitta Zarooriya,* Unani System of Medicine,lifestyle modification

JH/SECON2025/PP-39

Analysis of vitamin D in herbs and medicinal plants: A bibliometric analysis

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ABSTRACT

Background: Vitamin D is fat-soluble vitamin essential for bone health, calcium regulation, and prevention of chronic disorders. While animal-based foods are the main sources, plants are gaining attention as sustainable alternatives. However, quantifying Vitamin D in plants is challenging due to trace levels and complex matrices.

Aim and Objective: This study aimed to analyze global research trends on Vitamin D from medicinal plants, highlighting analytical approaches and collaborative patterns.

Method: A bibliometric review was conducted using Scopus data, analyzed through VOSviewer, CiteSpace, and Biblioshiny. Co-authorship, co-occurrence, citation, and bibliographic coupling analyses were performed. Special focus was given to chromatographic and spectroscopic methods for Vitamin D determination.

Result: The analysis showed an increasing publication trend, with major contributions from Brazil, Portugal, and Italy, and active institutions such as University of Porto. Keyword mapping revealed emphasis on Vitamin D quantification, sterols, and plant-derived bioactive compounds. Chromatographic methods, particularly LC-MS/MS and HPLC, emerged as the most reliable techniques, while citation networks highlighted the significance of analytical standardization and method development.

Conclusion: Plant-based Vitamin D research is expanding globally, reflecting its nutritional and health relevance. LC-MS/MS dominates as the preferred analytical approach. Standardization, validation, and interdisciplinary collaborations are crucial to establish plants as sustainable Vitamin D sources for future nutritional applications.

Keywords: Vitamin D, Medicinal plants, Bibliometric analysis, LC-MS/MS

JH/SECON2025/PP-40

From garden tea to global therapy: Bridging tradition and innovation through Artemisinin

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ABSTRACT

Background: Artemisia annua ("Qinghao") has been used for centuries in traditional Chinese medicine to treat fevers. In the 1970s, artemisinin was isolated as a potent antimalarial compound capable of rapidly clearing Plasmodium falciparum, the most lethal malaria parasite. Artemisinin-based combination therapies (ACTs) remain the global gold standard, saving millions of lives and earning Tu Youyou the Nobel Prize in 2015. Emerging resistance and untapped therapeutic potentials highlight the need for renewed research.

Aim/Objective: This review aims to trace artemisinin's journey from traditional medicine to global therapy, to evaluate its clinical significance in malaria amidst rising resistance and explore emerging evidence for anticancer applications and other pharmacological roles.

Methods: A narrative review was conducted using WHO malaria reports, ethnobotanical records, and peer-reviewed studies (2010–2025). Sources were critically analyzed to identify clinical challenges, translational gaps, and future research opportunities.

Results: ACTs remain highly effective, yet delayed parasite clearance in Southeast Asia and Africa highlights the urgent need for validated biomarkers to monitor and predict resistance. Preclinical studies demonstrate that artemisinin derivatives exhibit promising anticancer activity, including selective cytotoxicity via reactive oxygen species, inhibition of tumor angiogenesis, and immune modulation. Translation to clinical oncology is limited by short half-life, poor bioavailability, and lack of standardized endpoints. Preliminary antiviral and anti-inflammatory effects are reported but remain underexplored.

Conclusion: Artemisinin exemplifies how traditional remedies can transform modern medicine. Preserving its antimalarial efficacy while advancing its anticancer potential requires biomarker discovery, optimized dosing strategies, and structured clinical trials. For young investigators, this journey demonstrates how bridging ethnopharmacology with modern science can inspire innovative therapies.

Keywords: Artemisinin, Artemisia annua, malaria, Plasmodium falciparum, anticancer, medicinal plants, clinical translation, ethnopharmacology

JH/SECON2025/PP-41

Herbal shampoo: Development and assessment

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ABSTRACT

Background: Shampooing frequently keeps our scalp clean and dandruff free. Synthetic shampoos can cause frizziness, drying, moisture loss, whereas herbal shampoos provide nourishment, reduce dandruff and hair fall. This review highlights use of Amla, Reetha, Shikakai, Neem, Aloe-vera, Hibiscus, Kalonji & Tea tree oil in formulation of shampoo and evaluation of their effectiveness.

Aim: The main objective is to formulate and evaluate a sulphate and paraben free shampoo that cleanses hair, controls dandruff and provides good foam.

Methodology: Selected herbs are collected and authenticated, then extracted using water or other solvents by boiling, cooling and filtration, and then stored at low temperature. Extracts are weighed and mixed with preservatives and pH adjuster and stored for further analysis.

Result: The formulated herbal shampoo exhibits desirable physicochemical properties, foaming, cleansing, acceptable viscosity and dandruff control.

Conclusion: Herbal shampoos formulated with natural ingredients provides eco-friendly alternative to the synthetic shampoos.

Key words: Sulphate free, Paraben free, Foaming ability, Anti-dandruff

JH/SECON2025/PP-42

Assessment of hepatoprotective potential in *Rubus coreanus* and *Rubus parvifolius*

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ABSTRACT

Background: Liver injury induced by toxins such as carbon tetrachloride (CCl_4) remains a key experimental model to assess hepatoprotective agents. The genus Rubus (Rosaceae) is rich in bioactive phytochemicals. Among Rubus species, *R. coreanus* and *R. parvifolius* have demonstrated promising hepatoprotective effects in animal models.

Aim\Objectives: Compar phytoconstituents from *R. coreanus* and *R. parvifolius* , and to evaluate their hepatoprotective efficacy using both in-vitro and in-vivo models.

Methods: plant materials of R. coreanus and R. parvifolius were processed to obtain enriched extracts. The phytochemical profile was assessed using preliminary phytochemical screening and different antioxidant and inflammatory in vitro test, and a standard experimental model of hepatic injury in rodents all are compared to each other.

Result: Both Rubus species comparative study produced diverse bioactive phytoconstituents in different percentage. Initial screening indicated beneficial effects consistent with antioxidant and anti inflammatory hepatoprotective potential in pre-clinical models.

Conclusion: Comparative study of Phytoconstituents from Rubus coreanus and Rubus parvifolius show significant hepatoprotective potential via antioxidant, anti-inflammatory, and possibly anti-apoptotic mechanisms. These findings validating their traditional medicinal use and encourage further work on mechanism of action, standardization, and safety for clinical translation.

Keywords: Rubus coreanus, Rubus parvifolius, hepatoprotection, phytoconstituent, traditional medicine

JH/SECON2025/PP-43

Avoidance of *Ghidhā'* in *Mashā'ikh* according to the Unani system of medicine

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ABSTRACT

Introduction: Based on the principle of *'Ilāj bi'l Ḍidd* (treatment by opposites) in Unani medicine, elderly individuals (*Mashā'ikh*) with a naturally cold and dry (*Bārid Yābis*) temperament should consume diets that are *Ḥārr Raṭb*. This approach counteracts the natural depletion of innate heat and moisture that occurs with aging. Certain *Bārid Yābis* foods are therefore forbidden to avoid exacerbating their existing temperament, which can lead to various ailments.

Materials and Methods: A literature survey has been conducted of classical manuscripts, including *Al-Qanoon fi al-Tibb* and other authoritative *Mashā'ikh,* focusing on foods considered unsuitable for *Mashā'ikh* and their effects on *Mizāj, Akhlat*, and.

Results and Discussion: Foods that are *Thaqīl* (heavy), *Ghalīẓ* (oily/fried), or *sue-e-hazm* (difficult to digest)—such as red meat, fried items, and rich gravies—are discouraged. *Sard wa ratab* (cold and moist), *hameed* (sour), or *shirin* (delightful) foods may weaken digestion and disturb humoral balance. *Ghiza-e-latif* (light, easily digestible foods) and moderation are emphasized to maintain *tahaffuz-e-sehat* (health preservation).

Conclusion/Recommendation: Classical Unani guidance for *Mashā'ikh* highlights forbidden foods and dietary management principles that help maintain *Mizāj* (balanced temperament), preserve *Quwwat-e-Badan*, and promote healthy aging.

Key words: *Mashā'ikh,'Ilāj bi'l Ḍidd, Ghiza-e-latif*, *Quwwat-i-Badan, Tahaffuz-e-sehat.*

JH/SECON2025/PP-44

Greener solvent assessment tools: Comparative evaluation and industrial implications

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ABSTRACT

Introduction: Solvents are indispensable in chemical and pharmaceutical industries, contributing up to 80–90% of material usage in batch processes. However, their volatility, toxicity, and environmental hazards have raised concerns regarding sustainability and regulatory compliance. Green chemistry and green analytical chemistry principles advocate replacing conventional hazardous solvents with safer, eco-friendly alternatives. This study reviews existing solvent assessment tools and compares their applicability in promoting sustainable practices across industries.

Materials and Methods: A systematic evaluation was conducted on solvent assessment tools, including company-specific solvent selection guides (Pfizer, GSK, AstraZeneca, Sanofi, Merck DOZN™) and broader green chemistry assessment metrics (AGREE, GAPI, BAGI, GEARS). Key parameters analyzed included environmental, health, and safety (EHS) concerns, life cycle assessment (LCA), efficiency, and industrial applicability. Case studies were explored to demonstrate tool implementation in pharmaceutical development and chemical process optimization.

Results and Discussion: Pfizer's and GSK's guides provided user-friendly approaches for bench chemists, while AstraZeneca and Sanofi offered more detailed, data-intensive frameworks. The Merck DOZN™ tool enabled transparent alignment with the 12 principles of green chemistry, whereas GEARS introduced a holistic framework integrating EHS, functional, and economic criteria. Comparative analysis highlighted strengths and limitations of each tool: simplicity versus comprehensiveness, conventional solvent bias versus inclusion of bio-based alternatives, and accessibility versus data complexity. Case studies showed significant reductions in chlorinated solvent use and improved substitution of hazardous solvents with greener counterparts.

Conclusion/Recommendation: No single universal solvent selection tool exists; however, integration of company-specific solvent guides with comprehensive assessment metrics such as GEARS and DOZN™ can optimize green solvent adoption. Harmonization of solvent greenness metrics, inclusion of bio-based alternatives, and AI-driven predictive tools are recommended to advance sustainable solvent use. Alignment with SDG 2030 goals emphasizes the role of greener solvents in achieving sustainable industrial practices.

Keywords: Green solvents; Solvent selection guides; Sustainability assessment; Green chemistry; Pharmaceutical industry

JH/SECON2025/PP-45

PEGylated-thymoquinone-nanoparticle mediated retardation of breast cancer cell

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ABSTRACT

Background: Breast cancer, a severe life-threatening cancer is the most common malignancy with the highest incidence rates among women worldwide. Thymoquinone (TQ; 2-methyl-5-isopropyl-1,4-benzoquinone) the principle active ingredient isolated from the volatile oil of black seed is known to exhibit prominent anti-neoplastic activities.

Aims/Objectives: Despite its significant anti-cancer properties, utilization of TQ as a promising anti-cancer drug is often hindered due to its poor aqueous solubility thereby causing serious bioavailability issues. Therefore, the goal of the present study was set to synthesize thymoquinone loaded nanoparticles to target breast cancer cell migration by TQ-Nanoparticles and thus improving the pharmacokinetic and biodistribution of TQ and check the *in vitro* effect of TQ-Nps on retardation of breast cancer cell migration.

Methods: PEG (Polyethylene glycol) is used for biological applications because it is organic and hydrophilic, which allows it to give insoluble species solubility in polar and organic solvents. In this context in the present study, it was attempted to encapsulate TQ in nanoparticles with PEG. Following the nano-encapsulation of TQ, further with the prime objective of investigating the anti-migratory property of TQ-Nps on breast carcinoma cells, we first elucidated the role of TQ in inhibiting breast cancer cell migration using in vitro bidirectional wound healing assay in MCF-7 and HBL-100 cells.

Results: Results of the assay performed with the above-mentioned cell lines highlighted that all the PEGylated TQ-Nps were capable of retarding migration in both MCF7 and HBL100 cells.

Conclusion: It has been demonstrated in the present study that the water-soluble PEG-TQ-Nanoparticles exhibited strong specificity to cancer cell migration, showing less toxicity towards the normal cells in comparison to that of TQ alone. Thus PEG4000-TQ-NPsmayactasanovelnano-preparationwhichmaybe extremely effective in targeting migratory breast cancer cells.

Keywords: Thymoquinone, Polyethylene glycol, MCF7 and HBL100 cell lines.

JH/SECON2025/PP-46

From root to remedies: Herbal intervention in diabetes

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ABSTRACT

Billions of people worldwide suffer from insulin resistance, an incurable metabolic disorder with a growing incidence and few prolonged synthesized medication treatments.The investigation traces the history of four powerful herbs *Momordica charantia, Cinnamomum verum(cinnamon), Curcuma longa (Turmeric), and Panax ginseng (Korean and Chinese ginseng)* from their herbal origins to contemporary medicinal uses.The distinct diabetes prevention pathways exhibited by every species include hormone mimic activity, β-cell regeneration, antioxidant defence, and metabolism of glucose regulation.Through the use of molecular binding, bibliographical analysis, and phytochemical identification, we demonstrate their multiple target potential and suggest integrated herbal medicinal approaches.

Methods: Herbal remedies often work through multiple mechanism such as enhancing insulin secretion or sensitivity, increasing glucose uptake or utilization by peripheral tissues. Reducing glucose absorption in the intestine antioxidant and anti-inflammatory that protects pancreatic cells. This holistic approach from roots (herbs) and formulation and usage present a complementary pathway for diabetes in intervention focusing on improving glycaemic control and overall metabolic health.

Result: The results support evidence-based herbal formulations as long-term substitutes for conventional diabetic care. These crude herbs (*M. charantia, C.verum, C. longa, and P. ginseng*) helps suppress the sugar absorption in their intestine and stimulate insulin secretion. These herbs act synergistically targeting multiple pathways which are essential factor in diabetics management

Conclusion: The conclusion on herbal intervention in diabetes show that medicinal plant and herbal product can be effective complementary treatments for diabetes, particularly type 2 diabetes. Many herbs and their extracts have demonstrated anti-diabetic effect by enhancing insulin secretions improving insulin sensitivity, reducing glucose absorption in the intestines, possessing antioxidant and anti-inflammatory properties, and regulating blood lipid levels. Some herbal remedies *M. charantia, C. verum, C. longa, and ginseng* have shown significant reduction in fasting blood glucose and HbA1c (glycosylated haemoglobin) comparable to conventional treatment like metformin. Herbal medicine may offer holistic, multi-target treatment benefits but requires further research to identify active and toxic ingredients and to ensure standardized formulation and dosing. Overall, herbal interventions may serve as useful complementary approaches within integrated diabetes management.

JH/SECON2025/PP-47

Impact of traditional herbal medicine on stress and emotional well-being in women

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ABSTRACT

Background: Herbal medicines are becoming increasingly popular due to their safety, tolerability, and lack of side effects. Ayurveda, Traditional Chinese Medicine, and indigenous methods have traditionally employed herbs to help women's health during adolescence, reproduction, and menopause.

Objective: This review focuses on the therapeutic value, safety, and practical applications of commonly used medicinal plants in boosting women's health.

Method: Using information from government databases, research papers, and Ayurvedic literature, this review investigates the effects of traditional herbal medicine, particularly ashwagandha, on women's stress levels and mental health. Ashwagandha's function as a Rasayana bolsters its advantages for stress disorders and nervous system health, improving the standard of Ayurvedic treatment for women.

Result: In the present review number of Ayurvedic medicines was discussed for its beneficial role for women's mental and emotional well-being. The promising effects were shown by Ashwagandha (*Withaniasomnifera*) include enhancing sleep, increasing stress tolerance, lowering cortisol levels, and lessens anxiety. Brahmi (*Bacopa monnieri*) reduces anxiety and improves memory, focus. Tulsi (*Ocimum tenuiflorum),* often known as holy basil, soothes the mind and shields the body from metabolic and physical stress. Jatamansi (*Nardostachysjatamansi*) is a nerve tonic that promotes brain function and enhances sleep. Gotu Kola *(Centella asiatica*) promotes cognitive health, lowers anxiety, while sankhpushpi (*Convolvulus pluricaulis*) eases tension and increases relaxation. With little adverse effects, these herbs work together to naturally support emotional equilibrium, stress reduction, and general mental health.

Conclusion: Traditional herbal medicines, particularly Ayurvedic herbs like Ashwagandha, Brahmi, Tulsi, and others, offer a natural, safe, and effective approach to reducing stress and enhancing emotional well-being in women, supporting mental health with minimal side effects.

Key words: Herbal medicines, women's health, Ashwagandha, cortisol, mental health

JH/SECON2025/PP-48

Microwave-assisted synthesis of silver nanoparticles using senna leaf extract

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ABSTRACT

Background: AgNPs are nanomaterials sized 1–100 nm with a higher surface area than bulk silver and unique electrical, optical, and catalytic properties. Their most notable feature is their vigorous antibacterial activity, which is effective even against multidrug-resistant bacteria**.**

Aim: This study aims to explore the green synthesis of silver nanoparticles using *Senna* leaf extract and to evaluate their physicochemical properties and antimicrobial potential."

Material and Method: The senna plant extract was prepared using the reflux method. The AgNO3 particle was prepared by a biological method. 5ml of the extract was added to 45ml to (1mM $AgNO_3$) solution.The microwave technique was used to synthesise silver nanoparticles. Characterised by standard methods (zeta sizer, zeta potential, UV analysis, etc.)

Result: The synthesised silver nanoparticles showed an average size of 84 nm with a zeta potential of –26.65 mV (peak mean –31.6 mV), indicating good stability. UV-Vis analysis confirmed the formation of nanoparticles with a characteristic SPR peak at around 433nm.

Conclusion: Based on the results obtained, it can be concluded that senna leaf extract can be utilised for the green synthesis of silver nanoparticles, which can serve as both antimicrobial and cytotoxic agents. The advanced technique (supercritical fluid extraction technique) may be used for the synthesis of silver nanoparticles.

Keywords: Senna leaf, microwave, silver nanoparticles**.**

JH/SECON2025/PP-49

Herbal remedies in management of Polycystic Ovarian Syndrome (PCOS)

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ABSTRACT

Background: Polycystic Ovarian Syndrome (PCOS) is an endocrine disorder prevailing in approximately 33% of females of reproductive age globally. With an undefined etiology, current clinical management of PCOS is primarily focused on regulation of hormone levels and reducing the symptoms arising due to hyperandrogenism like hirsutism, anovulation, irregular menstrual cycle, infertility and other metabolic complications. In recent years, herbal medicines and phytochemicals have gained increasing attention due to their diverse biological properties, favorable safety profile, accessibility, and therapeutic promise. This present study reviews previous studies on the treatment of PCOS using herbal medicines.

Methods: A review of literature on herbal treatment of PCOS (Polycystic ovary syndrome) was done which showed increasing interest in herbal medicines due to their potential role in reducing dependence on high-cost fertility treatments, improving conception outcomes, and addressing concerns related to adverse effects associated with conventional allopathic therapies.

Results: Several plant species, including *Glycyrrhiza glabra*, *Aloe vera*, *Silybum marianum*, *Serenoa repens*, *Actaea racemosa*, and *Asparagus racemosus*, have been reported as safe and potentially effective in managing PCOS. Evidence suggests their role in lowering serum testosterone levels and improving ovulatory function, thereby contributing to improved reproductive outcomes.

Conclusion: This review explores the potential of herbal interventions in the management of polycystic ovary syndrome (PCOS). Findings from the literature suggest that certain medicinal plants may support hormonal regulation, improve ovulatory function, and thereby contribute to reducing infertility. As PCOS is highly prevalent among women of reproductive age, raising awareness of safe and effective herbal options may play a meaningful role in improving symptom management and reproductive health outcomes.

JH/SECON2025/PP-50

Decoding brain fog: Mechanistic insights and therapeutic potential of alternate system of medicine as adjuvant therapy

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ABSTRACT

Introduction: Brain fog is a multidimensional cognitive impairment characterized by memory lapses, reduced attention, slowed processing, and mental fatigue. It is widely reported in post-viral syndromes (e.g., Long COVID or Post-Acute Sequelae of SARS-CoV-2 infection), autoimmune disorders, and chronic fatigue syndrome.

Materials and Methods: The study emphasises on identifying clinical and mechanistic evidence on brain fog, drawing from post-viral and autoimmune transition in humans. A systematic evaluation of literature and recent studies was undertaken to identify underlying pathophysiological mechanisms, diagnostic challenges, and therapeutic interventions.

Results and Discussion: Emerging evidences suggests neuro-inflammation, oxidative stress, hormonal dysregulation, and psychosocial stressors as key contributors. The elevated pro-inflammatory cytokines, blood–brain barrier dysfunction, neurotransmitter imbalance, and mitochondrial impairment are central mechanisms. Post-viral syndromes, specifically COVID-19 patients demonstrate persistent neurocognitive deficits associated with microvascular injury and neuro-inflammation. Autoimmune and perimenopausal populations exhibit brain fog symptoms correlating with disease activity and hormonal fluctuations. However, diagnostic inconsistency remains a major challenge, due to less understanding about disease pathology. Therapeutic approaches, including anti-inflammatory agents, hormone therapy, neuromodulation (tDCS, rTMS), hyperbaric oxygen therapy, PEA-LUT supplementation, cognitive rehabilitation, sleep optimization etc. showed preliminary efficacy. Amid, alternate traditional system of medicine including Ayurveda and Unani emerges as robust and promising adjuvant therapies. Various medicinal species like *Bacopa monnieri*, *Withania somnifera*, *Convolvulus pluricaulis*, and *Nardostachys jatamansi* and traditional polyherbal formulations, *Majoon-e-Brahmi* and *Khamira Abresham Sada* exhibit potential effect on cognitive impairments.

Conclusion: Mechanistic studies suggest that these plants act through antioxidant pathways, inhibition of pro-inflammatory cytokines, modulation of cholinergic neurotransmission, and regulation of neurotrophic factors. The integration of Alternate system of medicine may provide a safe and effective strategy to "brain fog" However, rigorous clinical trials are warranted to establish standardized dosing, safety, and efficacy. Further, calls for evidence-based research to validate traditional knowledge within modern clinical frameworks is desired.

Keywords: Ayurveda, Unani medicine, post-COVID-19, neurocognitive deficits, medicinal plants, cognitive rehabilitation, polyherbal formulations.

JH/SECON2025/PP-51

Approved SGLT2 inhibitors: A structural and pharmacological overview

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ABSTRACT

Type 2 diabetes, which is a major worldwide health concern that is spreading quickly, is brought on by either insulin resistance or insufficiency. Because of its chronic nature, this ailment requires constant monitoring and care. Even though there are many different anti-hyperglycemic drugs on the market, the unfavorable side effects of current alternatives make the need for safer, more efficient, and more reasonably priced antidiabetic therapies imperative. The main focus of this review is the novel sodium-glucose co-transporter 2 (SGLT-2) inhibitors, and each of their features is examined. Gliflozins, a significant family of drugs that target the SGLT2, are used to treat type II diabetes. By stopping the kidneys from reabsorbing glucose, they successfully lower blood glucose levels by blocking SGLT2. This abstract offers a comprehensive overview of gliflozins approved by leading regulatory authorities such as the Food and Drug Administration (FDA), European Medicines Agency (EMA), and Pharmaceuticals and Medical Devices Agency (PMDA). It explores the design and development of sodium-glucose co-transporter (SGLT) inhibitors, their mechanisms of action, structure-activity relationships, and additional therapeutic applications.

Keywords: Commercially available antidiabetic drug, Gliflozin, SGLT2 inhibitors, Mechanism, Structure-activity relationship.

JH/SECON2025/PP-52

Fluoroacetate nightmare: Advancing therapeutic strategies to mitigate*Dichapetalum cymosum* (Gifblaar) toxicity

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ABSTRACT

Background: Dichapetalum cymosum, commonly known as Gifblaar, produces fluoroacetate - a potent metabolic poison that disrupts the citric acid (Krebs) cycle. Fluoroacetate is metabolically converted to fluorocitrate, which irreversibly inhibits aconitase, causing citrate accumulation and halting cellular energy production. Even small doses can trigger severe cardiotoxic and neurotoxic effects, often resulting in sudden death in humans and animals. Conventional therapies are mainly symptomatic and have limited success in reversing the biochemical blockade.

Objective: To review the pathophysiology, diagnostic biomarkers, and novel therapeutic approaches for fluoroacetate poisoning, emphasizing recent biochemical and nanotechnological advancements.

Methodology: Relevant studies and toxicology reports were reviewed from scientific databases focusing on the biochemical mechanism of fluoroacetate toxicity, clinical management, and experimental antidotal therapies. Special emphasis was placed on preclinical investigations exploring acetate supplementation and enzymatic detoxification.

Results: Recent findings highlight the potential of glyceryl monoacetate and acetamide derivatives in replenishing acetate and restoring the Krebs cycle. Enzymatic detoxification agents capable of hydrolyzing fluoroacetate show promise in reducing systemic toxicity. Furthermore, nanotechnology-based drug delivery and chelation therapies are under exploration to enhance antidote bioavailability and improve metabolic recovery.

Conclusion: Gifblaar poisoning remains a major toxicological concern. Emerging therapies, particularly acetate donors, enzyme-based detoxification, and nanocarrier systems, offer promising prospects for mitigating fluoroacetate toxicity and guiding future research in plant-based and forensic toxicology.

Keywords - *Dichapetalum cymosum*, fluoroacetate, fluorocitrate, aconitase inhibition, antidotal therapy.

JH/SECON2025/PP-53

Application of nanoformulations in enhancing the efficacy of herbal medicines

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ABSTRACT

Background: Nanoformulations enhance the bioavailability and stability of herbal medicines by overcoming limitations such as poor solubility and low absorption. Encapsulation of bioactive compounds within nanoscale carriers improves solubility, protects them from degradation, and facilitates better permeation through biological membranes.

Aims/Objectives: The aim of this study was to evaluate the potential of nanoformulations to improve the therapeutic efficacy and systemic availability of herbal medicines.

Methods: A systematic review of nanoformulation strategies for herbal medicines was conducted, focusing on solubility, stability, and therapeutic efficacy.

Results: Nanoformulations were found to significantly increase systemic availability and therapeutic effects of herbal compounds, allowing for reduced dosages and minimized side effects.

Conclusion: Integrating nanotechnology with herbal medicine provides a promising strategy to modernize natural therapies, enhancing efficacy, safety, and patient compliance.

Keywords: Nanoformulations, Herbal medicine, Bioavailability, Nanoparticles, Liposomes

JH/SECON2025/PP-54

Synergistic Role of *Momordica charantia*, *Gymnema sylvestre* and *Trigonella foenum-graecum* in enhancing anti-diabetic therapy

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ABSTRACT

Background: Diabetes mellitus is a chronic metabolic disorder requiring lifelong management. Conventional anti-diabetic drugs such as metformin and sulfonylureas effectively regulate blood glucose but are often associated with side effects, drug resistance, and reduced efficacy over time. Herbal medicines, including *Momordica charantia* (bitter melon), *Gymnema sylvestre*, and *Trigonella foenum-graecum* (fenugreek), have been traditionally used for glycemic control due to their multi-targeted mechanisms and safety profile.

Objective: To evaluate the synergistic role of herbal medicines with conventional anti-diabetic drugs in improving glycemic control and minimizing drug-related complications.

Methodology: A literature-based review was conducted using recent preclinical and clinical studies on the adjunctive use of herbal medicines with standard anti-diabetic therapies. Mechanisms of action, therapeutic outcomes, and potential limitations were critically analyzed.

Results: Evidence suggests that *M. charantia* enhances insulin secretion and glucose uptake, *G. sylvestre* stimulates β-cell regeneration and insulin release and *T. foenum-graecum* regulates postprandial glucose absorption. When combined with standard therapies, these herbs improved insulin sensitivity, reduced HbA1c and lowered drug dosage requirements. Additionally, they minimized adverse effects such as hypoglycemia and gastrointestinal disturbances. However, challenges remain, including herb–drug interactions, variability in extract quality and lack of standardized dosing.

Conclusion: Integrating herbal medicine with conventional therapy provides a promising patient-centered approach to diabetes management. Such synergy can enhance therapeutic efficacy, reduce side effects and support the development of personalized treatment strategies.

Keywords: Diabetes mellitus, Anti-diabetic drugs, *Momordica charantia*, *Gymnema sylvestre*, *Trigonella foenum-graecum*, Synergy, Personalized medicine.

JH/SECON2025/PP-55

Luteolin - a potential therapeutic agent in traumatic brain injury

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ABSTRACT

Background: Traumatic brain Injury (TBI) refers to brain damage caused by external mechanical forces that result in temporary or permanent impairment of neurological function, making it among the leading causes of morbidity and mortality worldwide. Luteolin, a flavonoid extracted from celery, thyme and many other sources, has demonstrated a neuroprotective role in cases of stroke and cerebral ischemia, via anti-inflammatory, antioxidant and anti-apoptotic mechanisms.

Aims/Objectives: This review aims to summarize and critically analyze existing literature on the neuroprotective mechanisms of luteolin and its therapeutic potential in the management of TBI.

Methods: Relevant preclinical and experimental studies were reviewed from scientific databases to evaluate luteolin's mechanisms, pathways, and pharmacological effects related to TBI pathology.

Results: Evidence indicates that luteolin mitigates TBI-induced neuronal damage by modulating the Nrf2–ARE and MAPK signaling pathways, leading to the upregulation of antioxidant enzymes such as HO1 and NQO1 which combats oxidative stress. It is also involved in inhibiting neuronal apoptosis, suppressing pyroptosis, inflammation, and modulating gene expression. However, its clinical translation remains limited due to poor bioavailability and pharmacokinetic constraints.

Conclusion: Luteolin exhibits multifaceted neuroprotective effects against TBI-induced damage. Enhancing its bioavailability and conducting well-designed clinical trials may establish luteolin as a promising therapeutic agent for TBI management.

Keywords: Luteolin; Traumatic Brain Injury; Neuroprotection

JH/SECON2025/PP-56

Evaluation of anti-inflammatory and analgesic activities of*Thymus vulgaris* root extract

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ABSTRACT

Introduction: The study aimed to evaluate the anti-inflammatory effects of ethanol extract of plant *Thymus vulgaris* root extract at doses of 100 mg/kg and 200 mg/kg on carrageenan-induced paw edema in experimental models. Diclofenac sodium (10 mg/ kg) was used as the standard reference drug for comparison.

Methods: The anti-inflammatory activity was assessed by measuring the percentage inhibition of paw edema following carrageenan administration.

Results: The results demonstrated that both doses of *Thymus vulgaris* exhibited significant anti-inflammatory effects in comparison to the control group. The 100 mg/kg dose of Thymus vulgaris showed moderate inhibition of paw edema, whereas the 200 mg/kg dose exhibited a higher inhibition percentage, approaching that of diclofenac sodium. The standard drug, diclofenac sodium, demonstrated the highest percentage inhibition among all groups, confirming its established efficacy. Statistical analysis indicated that the inhibition caused by *Thymus vulgaris* was significant, with the higher dose showing improved efficacy compared to the lower dose.

Conclusion: The findings suggested that *Thymus vulgaris* possesses notable anti-inflammatory properties, which were dose-dependent. The mechanism underlying this activity may be attributed to the inhibition of inflammatory mediators released in response to carrageenan-induced inflammation. The presence of bioactive compounds in *Thymus vulgaris* might have contributed to its pharmacological effects.

Keywords: Anti-inflammatory, analgesic, *Thymus vulgaris*, ethanol extract, bioactive compounds.

JH/SECON2025/PP-57

Integrating modern and Unani approaches in the management of Trigeminal Neuralgia *(Usaba)*

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ABSTRACT

Background: Trigeminal neuralgia (TN) is a chronic neuropathic pain disorder characterized by sudden, severe, unilateral facial pain triggered by minimal stimuli such as chewing or touching the face. its pathogenesis is with vascular compression, demyelination, or central pain dysregulation. In the Unani system of medicine, it is described as "*Usaba"*, a painful condition affecting temporal and periocular regions caused by *Soo-e-Mizaj Garam Saada* (hot temperament imbalance) and accumulation of noxious vapours in nerves, and excessive Dam or accumulation of Balgham.

Objective: To review Trigeminal Neuralgia from both modern and Unani perspectives, focussing on integrative management. Approaches that address root causes neurovascular compression and humour imbalance.

Methods: A comprehensive review of Unani classical texts and modern medical literature of TN management in modern medicine involve relies on anticonvulsants, nerve blocks, and surgical intervention, where as Unani emphasizes correcting humoral imbalance through *Ilaj bil-Tadbeer* (regimenal therapy), *Ilaj bil-Dawa* (pharmacotherapy), and *Ilaj bil-Ghiza* (dietotherapy), these include phlebotomy, herbal decoctions, and topical applications.

Results: Modern medicine offers rapid pain relief but is frequently associated with recurrence and adverse effects. Unani medicine provides a holistic framework, addressing root causes such as humoral imbalance and lifestyle triggers, while also strengthening nerves (*Taqwiyat -A'asab*).

Conclusion: Trigeminal neuralgia is a debilitative pain disorder; modern medicine ensure quick relief, where as Unani medicine emphasizes holistic prevention and long term health. An integrative approach may offer better long-term outcomes, reduced recurrence, and improved quality of life.

Keywords: Trigeminal Neuralgia, Usaba, Unani Medicine, Neuropathic Pain, Integrative Management.

JH/SECON2025/PP-58

Scientifically revalidated Unani formulations in the management of Nisyan (Dementia)

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ABSTRACT

Background: Dementia is a progressive neurodegenerative disorder characterized by a decline in cognitive functions, including memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement. Alzheimer's disease is the most common form of dementia, contributing to 60–70% of all cases, followed by vascular dementia. The prevalence rate for dementia increases with advancing age. Thus, people over 60 years of age have a prevalence of 0.43 %, while those over 65 years of age have a prevalence of 2.44 %. According to the World Health Organization (WHO), more than 55 million people globally live with dementia, and this number is expected to rise to 78 million by 2030 and 139 million by 2050 due to aging populations. In Unani system of Medicine, it is termed as ***Nisyan***, which is commonly due to derangement of *Phlegmatic or Saudavi* humors. Dominance of Cold temperamental humors lead to memory degeneration which progressively lead to memory impairment. Many scholars suggested different single drugs and compound formulations, upon which many of the studies have been conducted for the scientific revalidation.

Aims/Objectives: To review integrative, evidence-based treatment algorithm of Unani formulations in the management of *Nisyan*.

Methods: Literary review of the classical unani text and studies done so far for the scientific correlation available in recognized scientific databases combining Unani therapeutics (*Ilaj bil-Dawa*, *Ilaj bil-Tadbeer*, *Ilaj bil-Ghiza*) with modern diagnostic and supportive measure.

Result: The study is expected to enumerate significant neuroprotective, antioxidant, and cholinesterase inhibitory effects of the Unani formulations, thereby validating its traditional claims for *Dafa-e-Nisyan*. The findings may provide a scientific basis for developing evidence-based, integrative approaches in dementia management.

Conclusion: This study will bridge Unani classical wisdom with modern pharmacological evidence, phytochemicals contributing to safer and effective alternatives for dementia therapy, and addressing the growing global burden of cognitive disorders.

Keywords: Dementia, Nisyan, Unani system of medicine.

JH/SECON2025/PP-59

Documentation and validation of traditional medicine in Purulia district, West Bengal, India

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ABSTRACT

Background: The use of plants as healing agents dates back to ancient times. In India, nearly 80% of the rural population relies on herbal medicines for treating different ailments. In the Purulia district of West Bengal, traditional ethnomedicine holds significant socio-economic importance among indigenous communities.

Objectives: The purpose of this study is to document the ethnomedicine knowledge related to the use of medicinal plants to treat ailments in Purulia, a remote district of West Bengal.

Methods: The investigation was carried out in 14 villages of Purulia through field-based documentation of tribal and folk medicinal practices. Data were gathered from local tribal healers using structured questionnaires, personal interviews, and direct field observations.

Results: A total of 15 healers were interviewed. 36 species of plants distributed in 34 genera belonging to 27 families are used to treat various diseases. A total of 56 plants, encompassing 29 families, were documented, where the paste (38%) was frequently used method for herbal medicine. Species with the highest UVs included *Aegle marmelos*. The maximum informant consensus was for gastrointestinal disorders, followed by diabetes, typhoid, and skin disease.

Conclusion: The present study provides useful information about the traditional importance of medicinal plants used by the local communities of Purulia district to treat different ailments. Further, promotion of the medicinal plants with the highest use values as complementary and alternative therapy will not only help in preservation of this cultural legacy but also help in societal uplift and bioeconomic development of this region.

Keywords: Purulia district, Plants, Ethnomedicine

JH/SECON2025/PP-60

Demystifying the pharmacological potential of imatinib against 3-nitropropionic acid (3-NPA) induced huntington's disease in albino mice

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ABSTRACT

Background: Huntington's disease (HD) is a hereditary neurodegenerative disorder marked by motor dysfunction, cognitive decline, and psychiatric disturbances. It is caused by abnormal expansion of CAG repeats in the Huntingtin (HTT) gene, leading to production of mutant huntingtin protein. Recent studies implicate c-Abl, a non-receptor tyrosine kinase, in promoting neuroinflammation and oxidative stress, thereby aggravating HD pathology.

Objective: The present study aimed to evaluate the therapeutic potential of imatinib, a c-Abl inhibitor, in mitigating oxidative stress and neuroinflammation in a preclinical model of HD.

Methods: HD was induced in albino mice by administration of 3-nitropropionic acid for 7 days. Mice were then treated with imatinib as a test drug targeting c-Abl receptor. Neuroprotective efficacy was assessed by evaluating oxidative stress markers, antioxidant enzyme activity, and expression of inflammatory mediators including NF-κβ, IL-1β, TNF-α, and caspase-3.

Results: Imatinib treatment significantly reduced oxidative stress and enhanced antioxidant enzymatic activity in the brain. Furthermore, it suppressed the expression of pro-inflammatory mediators and apoptotic enzyme caspase-3, thereby alleviating neuroinflammation and neuronal damage.

Conclusion: The findings suggest that selective inhibition of c-Abl by imatinib may serve as a potential therapeutic approach to delay progression of Huntington's disease by modulating oxidative stress and neuroinflammatory pathways.

Keywords: Huntington's disease, c-Abl, imatinib, oxidative stress, neuroinflammation.

JH/SECON2025/PP-61

Integrating traditional medicinal plants with modern science for effective diabetes management

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ABSTRACT

Background: Traditional medicinal plants have long been used to manage diabetes, especially in developing countries where accessibility and cultural trust support their continued use. Plants such as Momordica charantia (bitter gourd), Trigonella foenum-graecum (fenugreek), Azadirachta indica (neem), and Tinospora cordifolia (giloy) demonstrate significant hypoglycemic effects. Scientific evidence backs their capacity to lower blood glucose, improve insulin function, and reduce oxidative stress.

Objective: To examine how traditional and natural practices can be effectively used for the prevention and management of diabetes alongside modern scientific methods**.**

Methodology: A thorough literature review identified traditional medicinal plants and natural therapies used in diabetes management from year 2020 to 2025. The review included studies on biochemical mechanisms, scientific validation, and socio-cultural factors influencing the preference for traditional healing methods.

Results: The findings indicate that plant-based therapies boost insulin secretion, improve sensitivity, and decrease oxidative damage. Research also shows that traditional medicine remains popular due to its affordability, accessibility, and cultural acceptance, especially in low-resource areas.

Conclusion: Combining scientifically validated traditional remedies with modern diabetes care can reduce side effects, lessen disease burden, and support holistic and preventive health measures. The fusion of traditional knowledge and scientific research provides a sustainable approach for effective diabetes management.

Keywords: Traditional medicinal plants, Modern science integration, Diabetes management, oxidative stress reduction.

JH/SECON2025/PP-62

Targeting musculoskeletal disorders with Willow Bark extract from traditional use to modern clinical evidence

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ABSTRACT

Musculoskeletal disorders (MSDs), including osteoarthritis, rheumatoid arthritis, and chronic low back pain, are among the leading global causes of disability, affecting over 1.71 billion people worldwide. They are characterized by persistent pain, reduced mobility, and impaired quality of life, with osteoarthritis alone accounting for more than 606 million cases in 2021. Conventional therapies such as nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids provide effective short-term relief but are limited by adverse gastrointestinal, cardiovascular, renal, and dependency-related effects. These drawbacks have driven interest in herbal alternatives with safer profiles. Willow bark (*Salix* spp.), traditionally used for centuries to treat pain and inflammation, has emerged as a promising candidate. Its therapeutic potential lies in bioactive compounds such as salicin, flavonoids, phenolics, tannins, and polyphenols, which collectively exert analgesic, anti-inflammatory, and antioxidant effects. Salicin, the principal constituent, is metabolized into salicylic acid in the liver, which inhibits cyclooxygenase (COX) enzymes, reduces prostaglandin synthesis, and alleviates inflammation, pain, and fever. The synergistic contribution of flavonoids and phenolic acids enhances both efficacy and tolerability, making willow bark suitable for integrative pain management strategies.

Evidence from observational studies and randomized controlled trials indicates that willow bark extract demonstrates moderate efficacy in reducing pain and improving function in osteoarthritis and chronic low back pain. It is generally well tolerated, with only mild gastrointestinal complaints reported, and offers potential as a monotherapy for mild to moderate pain or as an adjunct to conventional drugs. However, variations in extract composition, dosage, and treatment duration limit comparability across clinical studies, creating challenges in standardizing its therapeutic use. Further high quality trials are needed to confirm long-term safety, establish optimal dosing regimens, and validate its role in modern clinical practice. Overall, willow bark represents a promising bridge between traditional herbal medicine and contemporary pharmacological approaches for the management of musculoskeletal disorders.

Keywords: Willow bark, musculoskeletal disorders, osteoarthritis, back pain, phytotherapy

JH/SECON2025/PP-63

Natural mosquito repellent gel: A safe and eco-friendly gel

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ABSTRACT

Aim: To formulate and evaluate a natural mosquito repellent gel using plant-based essential oils as a safe, eco-friendly, and skin-compatible alternative to synthetic repellents.

Method: A gel base was prepared using carbopol 940 as gelling agent, glycerin as humectant, and preservatives for stability. Essential oils such as citronella, eucalyptus, and lemongrass were incorporated in varying concentrations. The gels were evaluated for physical appearance, pH, viscosity, spreadability, skin irritation, and mosquito repellency using cage tests against *Aedes aegypti*.

Results: The optimized gel showed good clarity, uniform consistency, acceptable pH (6.5–7.0), and excellent spreadability. No skin irritation was observed in patch testing. Repellency studies demonstrated effective protection against mosquito bites for 3–4 hours, comparable to some marketed formulations, with no adverse effects.

Conclusion: The formulated gel proved effective, safe, and eco-friendly. It may serve as a promising herbal alternative to synthetic repellents, offering stability and user compliance for personal protection.

Keywords: Mosquito repellent, herbal gel, essential oils, citronella, *Aedes aegypti*, eco-friendly formulation.

JH/SECON2025/PP-64

LC–MS for herbal drug standardization and quality control: Current progress and future prospects

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ABSTRACT

Background: Herbal drugs are intricate, multi-component matrices with significant diversity. Single marker assays, microscopy, and basic HPLC are some of the conventional quality control methods that are unable to identify impurities or adulteration or completely capture multi-constituent profiles. Liquid Chromatography–Mass Spectrometry (LC–MS) has become a key analytical tool in the standardization and quality assurance of herbal drugs as it is increasingly used for "authentication, quantification, fingerprinting, and contaminant detection" in herbal drugs. High-resolution MS combines with LC for broad coverage with high sensitivity and accurate mass for identification.

Objective: To examine and emphasize how LC-MS has advanced herbal drug quality control and standardization.

Methodology: The methodology includes data compilation and in-depth analysis of systematic reviews and publications. Highlights advancements in multivariate analysis, targeted and untargeted metabolomics and regulatory perspective using LC-MS for herbal drugs. Selection criteria included studies showing LC-MS in authentication, quantitative/qualitative analysis for quality control, and detection of adulteration.

Results: LC–MS makes it possible to precisely profile phytochemicals, authenticate, quantify, and detect contaminants because of its exceptional selectivity and sensitivity. It offered reliable chemical fingerprinting for authentication, quantification of bioactive compounds, and rapid detection of contaminants. It is increasingly accepted by regulatory bodies for herbal drug standardization because of its integration with metabolomics and multivariate tools.

Conclusion: LC-MS leading the way in the standardization of herbal drugs, provides multi-dimensional profiling capabilities that are essential for quality assurance, authentication and contaminant detection. By addressing practical, legal, and technological issues, its use encourages the use of herbal remedies.

Keywords: Liquid Chromatography–Mass Spectrometry (LC–MS), Quality control, Herbal drug, Standardization

JH/SECON2025/PP-65

Role of lifestyle modification in cases of non alcoholic fatty liver disease (NAFLD)

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ABSTRACT

Background: The liver's *Mizaj*, or temperament, is hot and moist. However, because of irregular eating patterns, eating too many fatty foods, etc., the liver's *mizaj* changes to *barid*, or cold, which is incompatible with the liver and allows fat to accumulate, which disrupts the liver's normal function and causes *Su' mizaj barid kabid*. Non-alcoholic fatty liver disease is defined as the excessive accumulation of fat in more than 5 % of hepatocytes, either radiologically or histologically, in the absence of secondary causes such as excessive alcohol consumption, endocrine abnormalities, certain medications (e.g., methotrexate), and viral hepatitis. A quarter of the world's population suffers from non-alcoholic fatty liver disease, which has become a major worldwide health concern. By 2030, it is predicted to be among the top causes of hepatocellular carcinoma and liver transplantation. Changes in lifestyle, such as calorie restriction and increased physical activity, are key components in managing NAFLD. The primary pillars of managing NAFLD are lifestyle interventions, such as exercise and calorie control in the diet.It include Light and easily digestible diet, Moderate exercise (*Riyāḍat Mu'tadila*), avoid oily, fatty, spicy, fried and foods that take a long time to digest. Exercise can reduce liver fat by 20–30%, which is a significant and clinically meaningful effect; however, its effects are modest in comparison to weight loss, which can reduce liver fat by 80%.

Keywords: Unani, Non alcoholic fatty liver disease, Exercise, Diet.

JH/SECON2025/PP-66

Holistic Unani approach in managing diffuse hair loss: Effect of oral formulations, head massage, and Hijama bil Shart

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ABSTRACT

A frequent ailment known as diffuse hair loss (Intishar al-Sha'r) is typified by consistent hair loss throughout the scalp. Yubūsat (dryness) of the scalp tissues is the result of decreased Bukhārāt-i-Dukhānīyya production, according to the Unani System of Medicine. This study demonstrates a comprehensive Unani method that combines Hijama bil Shart (wet cupping), Roghane baize murgh scalp massage, and oral administration of Itrifal Ustukhuddus and Saw palmetto.Due to improved blood circulation and the removal of unhealthy matter, the regimen greatly increased hair density and decreased shedding (Istifrāgh-i-Mawād). For long-lasting hair health, Unani philosophies place a strong emphasis on nutritional, herbal, and regimenal balance. This holistic strategy shows how Unani treatments can be used as secure and efficient substitutes for treating diffuse hair loss.

Keywords: Diffuse hair loss, Intishar al-Sha'r, Unani medicine, Hijama bil Shart, Regimenal therapy, Herbal formulations

JH/SECON2025/PP-67

Neuroprotective effects of polysaccharide rich extract of *Sargassum wightii* in cuprizone induced multiple sclerosis in Wistar rats

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ABSTRACT

Background: Multiple sclerosis (MS) is a chronic, immune-mediated neurodegenerative disorder characterized by demyelination of the central nervous system (CNS), leading to progressive neurological dysfunction. Marine macro-algae, particularly *Sargassum wightii (S. wightii)* (a brown seaweed), is rich source of bioactive compounds, including polysacchrides such as fucoidan and alginic acid that may possess potential neuro-protective action.

Aim/Objectives: The present study aims at investigating the neuroprotective effects of polysacchride rich extract of *S. wightii* (PRESW) in cuprizone induced MS in Wistar rats.

Methods: This study evaluated novel object recognition (NOR) andmorris water maze (MWM) test for cognitive function whereas open field, locomotor activity and rotarod tests was done to estimate motor coordination. Mitochondrial biogenesis markers (PGC1-α, Cytochrome-C and SIRT1), inflammation (TNF-α, IL-6), neuroprotection (BDNF), and demyelination (MBP, MOG) in brain tissue and sciatic nerve were estimated using ELISA. Histological examination was done using H and E along with congo red staining.

Results: NOR and MWM tests were performed and found to be significantly ($p \leq 0.001$) improved in PRESW treated animals. Additionally, motor coordination was also significantly ($p \leq 0.001$) improved in PRESW rats. Biomarkers associated with mitochondrial biogenesis, inflammation, neuroprotection, and demyelination in brain tissue and sciatic nerve were also improved by PRESW treatment. Histological reports also supported the neuroprotective behavior of PRESW.

Conclusion: The study reported the pre-clinical evidence of *S. wightii*, against multiple sclerosis and concludes that the polysaccharides of this macro-algae showed remyelination and neuroprotective effects and offers a potential novel source of bioactive molecules against multiple sclerosis.

Keywords: Cuprizone, *S. wightii*, Polysaccharides, Demyelination, Multiple Sclerosis, Neuroprotection.

JH/SECON2025/PP-68

Ethnopharmacology of *Ginkgo biloba* in management of neuroinflammation-mediated Alzheimer's disease

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ABSTRACT

Alzheimer's disease (AD) is a progressive neurodegenerative disorder often marked by the buildup of amyloid-β (Aβ) plaques, neurofibrillary tangles, and chronic neuroinflammation. Growing ethnopharmacological researches suggests that inflammation in the brain, particularly driven by microglial activation and the NLRP3 inflammasome pathway, plays a key role in the disease's development. Because of this, targeting neuroinflammation has become an important area of therapeutic exploration. Traditional medicines, especially herbal remedies, has long been studied for potential benefits in neurodegenerative conditions. Among these, *Ginkgo biloba* has received notable attention.

It is important to evaluate the anti-neuroinflammatory mechanisms of *Ginkgo biloba* extracts, particularly EGb761 and ginkgolides, in modulating NLRP3 inflammasome activation and microglial polarization for AD management through comprehensive literature analysis. Studies published between 2018-2025 examined how these compounds influence the microglial activity, cytokine release, and memory/cognitive outcomes in both cell cultures and animal models of neuroinflammation-mediated AD. The findings consistently showed that *Ginkgo biloba* extracts help lower neuroinflammation by suppressing NLRP3 inflammasome activation, reducing the release of pro-inflammatory cytokines such as IL-1β and IL-18. The findings showed that the microglia have a protective, rather than damaging role. At the cellular level, ginkgolides supported removal of damaged mitochondria, reduced oxidative stress, and modulated NF-κB signaling pathway.In animal studies, these effects translated into better cognitive performance, reduced Aβ plaque buildup, less neuronal death, and attenuated tau hyperphosphorylation. Together, these evidences highlight *Ginkgo biloba* as a promising multi-targeted strategy for managing AD-related neuroinflammation, warranting further clinical investigation and studies.

Keywords: *Ginkgo biloba*, NLRP3 inflammasome, neuroinflammation, Alzheimer's disease (AD), ethnopharmacology.

JH/SECON2025/PP-69

A comprehensive study on the phytochemical, pharmacological and nutritional properties of *Moringa oleifera*

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ABSTRACT

Background: *Moringa oleifera* is one of the most nutrient-packed species, commonly known as the drumstick tree or miracle tree, and has garnered substantial popularity for its health benefits, phytochemical profile, and therapeutic potential. It is a plant that is native to the Indian subcontinent and has been used in traditional medicine for thousands of years owing to its nutritional and therapeutic properties.

Objective: To study the Phytochemical, Pharmacological and Nutritional Properties of *Moringa oleifera.*

Methods: The scientific information on this plant was obtained from various sites and search engines such as Scopus, Pub Med, Science Direct, BMC, Google Scholar, and other scientific databases.

Results: The leaves, seeds, pods, roots, and flowers of this plant are enriched with a wide range of bioactive compounds such as flavonoids, alkaloids, vitamins, minerals, and essential amino acids. Therefore, it is considered a reservoir crop for both nutritional and medicinal applications. The pharmacological studies confirm the hepatoprotective, cardioprotective, and anti-inflammatory potential of the extracts from the various plant parts. So far, more than one hundred compounds from different parts of *Moringa oleifera* have been characterized, including alkaloids, flavonoids, anthraquinones, vitamins and glycosides. In addition, novel isolates such as muramoside A&B and niazimin A&B have been identified in the plant.

Conclusion: Its therapeutic properties incorporate cancer prevention agent, antidiabetic, antifungal, mitigating, and anticancer exercises. Generally, Moringa has been utilized to treat sicknesses like asthma, weakness, and stomach related messes.

Keywords: hepatoprotective, cardioprotective, antioxidant, anti-inflammatory, antimicrobial.

JH/SECON2025/PP-70

AYUSH Aahar

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ABSTRACT

Introduction: The AYUSH Aahar initiative promotes diets based on authoritative texts from AYUSH systems. Unani medicine, a recognized system under AYUSH, provides a foundational approach where diet (Ghiza) is a primary tool for maintaining health and preventing disease. Unani philosophy emphasizes that a balanced diet, tailored to an individual's unique constitution, is essential for correcting humoral imbalances and ensuring well-being.This abstract explores the conceptual foundations of AYUSH Aahar, its regulatory evolution, and its intrinsic connections with Unani medicine, particularly through shared principles of diet (Ghiza in Unani) as a pillar of health.

Materials and Methods: This review is based on a narrative analysis of existing literature and public domain resources. The methodology involved consulting information on the fundamental principles of Unani medicine and analyzing government-led initiatives under the National AYUSH Mission (NAM) and Poshan Abhiyaan, which promote AYUSH-based dietary advisories for public health. And also based on a review of classical Unani literature and modern scholarly articles. Key sources include the works of renowned Unani scholars such as Hippocrates, Galen, and Ibn Sina (Avicenna), who compiled dedicated books on dietetics. The methodology involves analyzing the principles, classifications, and applications of Ilaj bil Ghiza as described in these texts and contemporary research papers.

Results and Discussion: The analysis shows that Unani dietary principles are being integrated into the AYUSH Aahar framework through national health and nutrition missions. The government's focus includes, Strengthening the AYUSH service infrastructure by providing facilities in hospitals and health centers; Public Health Initiatives:- Promoting AYUSH Aahar through campaigns like Poshan Maah (Nutrition Month), which includes activities to raise awareness about traditional foods.

Conclusion/Recommendations: The Unani system, with its emphasis on individual temperament, humoral balance, and dietary prevention, forms a vital part of the holistic AYUSH Aahar initiative. To further strengthen its role, the following is recommended:-

- Promote research to scientifically validate Unani dietary regimens.
- Enhance public awareness of Unani dietary principles.
- Develop specific guidelines for Unani-based foods within the broader AYUSH Aahar regulatory framework.

Keywords: AYUSH Aahar, Unani Medicine, Diet (Ghiza), Preventive Health, Ilaj bil Ghiza, Humours (Akhlat), Temperament (Mizaj).

JH/SECON2025/PP-71

Cannabis as a potential compound against various malignancies, legal aspects, advancement by exploiting nanotechnology and clinical trials

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ABSTRACT

Background: Cannabis and its constituents have demonstrated therapeutic potential against a variety of diseases, including cancer and cancer-associated pain. Despite this, most approved cannabis-based products are limited to oral dosage forms, which suffer from reduced bioavailability and therapeutic efficacy. Moreover, the psychoactive effects of cannabis at high doses present additional challenges.

Aims/Objectives: This review aims to explore the role of cannabis in cancer therapy by highlighting its history, legal considerations, safety profile, anticancer mechanisms, and the emerging role of nanotechnology in improving therapeutic outcomes. Furthermore, it seeks to summarize the evidence of cannabinoids in different cancer types and to provide an overview of ongoing and completed clinical trials.

Methods: Relevant literature from preclinical and clinical studies, regulatory documents, and ongoing clinical trial databases were critically reviewed to assess the therapeutic potential of cannabis and its nanotechnology-based formulations in oncology.

Results: Preclinical evidence indicates that cannabinoids can inhibit cancer progression and reduce lethality in experimental models, alongside providing analgesic benefits. Clinically, FDA-approved cannabis-related products are available, but their therapeutic efficiency is constrained by formulation limitations. Recent advances in nanotechnology show promise in enhancing the bioavailability, stability, and targeted delivery of cannabinoids, offering a pathway toward improved cancer therapy.

Conclusions: Cannabis holds significant potential as an adjunct or direct therapeutic in oncology. Nanotechnology-based formulations may overcome current delivery barriers, enhancing clinical efficacy. Continued clinical investigation and regulatory advancement are essential to translate these findings into widely accessible cancer therapies.

Keywords: Cannabis; anti-cancer agent; endocannabinoid systems; clinical trials; drug delivery

JH/SECON2025/PP-72

Applications of twigs of *Ziziphus mauritiana* (भारतीयबेर) *as* Potent Anti-Microbials agent

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ABSTRACT

Background: *Ziziphus mauritiana*, an evergreen thorny shrub of easily found in Rajasthan. This plant has potential to cure various diseases, such as anti-inflammatory, antioxidant, anti-cancer, anti-diabetic, anti-microbial, etc.

Objectives: Our main objective is to prove the active principle behind the various pharmacological activities of *Ziziphus mauritiana*, by identifying the bioactive molecules from this plant.

Methods: The *in vitro* antimicrobial potential of the crude ethanolic extract from the twigs of *Ziziphus mauritiana* and fractions were tested against two strains of gram-positive bacteria *Staphylococcus aureus*, *Bacillus subtilis*, two strains of gram-negative bacteria *Escherichia coli*, *Pseudomonas aeruginosa*, one strain of yeast *Candida albicans*, and one strain of *Aspergillus niger* at a concentration of 128 µg/mL. Six compounds were isolated from the ZM using chromatographic techniques.

Results: The bioactive ethyl acetate fraction exhibited significant antimicrobial activity against *Staphylococcus aureus* and *Bacillus subtilis*. Compound 4, identified as the most effective, demonstrated antibacterial activity against *Bacillus subtilis* and *Staphylococcus aureus*, with MIC and MBC values of 16 µg/mL and 32 µg/mL, and 64 µg/mL and 128 µg/mL, respectively. Moreover, the disc diffusion assay revealed that compound 4 produced zones of inhibition of 13 mm and 11 mm against *B. subtilis* and *S. aureus*, respectively. Ciprofloxacin, used as a positive control, produced zones of inhibition of 18 mm and 20 mm against *S. aureus* and *B. subtilis*, respectively.

Conclusion: These findings support the traditional use of the aerial parts of Indian jujube in treating infections caused by these microorganisms.

Keywords: *Ziziphus mauritiana,* Triterpenoids, Antimicrobial activity.

JH/SECON2025/PP-73

Impact of regulatory science in the thalidomide tragedy on global public health

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ABSTRACT

Background: The thalidomide tragedy of the late 1950s and early 1960s is regarded as a watershed in pharmaceutical and regulatory history. Initially introduced as a safe sedative and antiemetic, its widespread use among pregnant women led to nearly 10,000 cases of severe congenital malformations worldwide. This catastrophe revealed major flaws in drug approval and safety monitoring, ultimately driving a paradigm shift in global public health regulation.

Aim & Objective: This project aimed to critically analyse the thalidomide disaster as a pivotal event in regulatory science. Objectives included assessing the drug's teratogenic mechanisms, cataloging adverse outcomes, evaluating international regulatory reforms, and examining India's unique experience of limited thalidomide exposure due to early intervention.

Methods: A systematic review of historical archives, WHO reports, peer-reviewed literature, and regulatory documents was conducted. Sources included PubMed, government records, and case studies from affected nations. Comparative analyses of regulatory responses were performed to identify key reforms and long-term implications for public health systems.

Results: The tragedy directly accelerated landmark reforms, including the 1962 Kefauver-Harris Amendments in the U.S., the 1965 EU Medicines Directive, and the 1968 WHO Programme for International Drug Monitoring. Regulatory agencies such as the FDA, EMA, Health Canada, and India's Ministry of Health implemented stronger preclinical testing standards, stricter clinical trial oversight, and formal pharmacovigilance frameworks.

Conclusion: The thalidomide tragedy reshaped drug regulation globally, embedding rigorous preclinical testing, ethical clinical trials, and post-marketing surveillance into practice. Beyond historical lessons, it continues to inform contemporary debates on balancing innovation with patient safety, underscoring the enduring role of regulatory science in safeguarding public health.

Keyword: Thalidomide disaster; regulatory science; pharmacovigilance; drug approval reforms; public health policy.

JH/SECON2025/PP-74

Animal models for induction of diabetes and its complications

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ABSTRACT

Introduction: Animal models are widely used to develop newer drugs for treatment of diabetes and its complications. We conducted a systematic review to find various animal models to induce diabetes and also the suitable methods in various diabetic complications. With an emphasis on the animal models of diabetes induction, this review provides a basic overview of diabetes and its various types. It focused on the use of rats and mice for chemical, spontaneous, surgical, genetic, viral, and hormonal induction approaches.

Materials and Methods: All observations and research conducted on Diabetes and its complications published up to 18 May 2023 in PubMed, Web of Science, Scopus and Conchrane Library databases were included. Main outcome measures were reporting the induction of diabetes in experimental animals, the various animal models for diabetic complications including diabetic nephropathy, diabetic retinopathy, diabetic neuropathy and diabetic osteopathy. The quality of reporting of included articles and risk of bias were assessed.

Results and Discussion: We reached various articles and found that rats and mice are the most frequently used animals for inducing diabetes. Chemical induction is the most commonly used followed by spontaneous and surgical methods. With slight modification various breeds and species are developed to study and induce specific complications on eyes, kidneys, neurons and bones.

Conclusion/Recommendation: Our review suggested that rats and mice are the most suitable animals. Furthermore, chemical induction is the method frequently used by experimenters. Moreover, high quality studies are required to find the suitable methods for diabetic complications.

Key words: Experimental models; STZ-Diabetes; Diabetic complications; Animal models; Diabetogens

JH/SECON2025/PP-75

Herbal approaches to chronic diseases: Insights from traditional medicine

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ABSTRACT

Background: Traditional medicines (TM)—such as Traditional Chinese Medicine, Ayurveda, and Unani—are regulated systems based on natural materials that are utilized all over the world. Many countries use TM in their healthcare systems. Chronic neurodegenerative disorders, diabetes, and cancer currently have no curative treatments. Natural antioxidants, such as polyphenols and flavonoids, diminish reactive oxygen species, alleviate oxidative stress, and enhance neuronal and metabolic function.

Objective: To compile contemporary information regarding natural medicines derived from medicinal plants, herbs, marine organisms, and fungi for neurodegeneration, diabetes, and cancer.

Methods: Targeted searches of PubMed and Google Scholar (past four years) identified papers on natural product delivery for neurodegeneration, herb-based glycemic control/insulin sensitization, and anti-inflammatory, antioxidant, antiproliferative cancer medicines.

Results: Natural substances demonstrate multi-target activities that converge on oxidative stress, neuroinflammation, mitochondrial dysfunction, dysregulated signalling, and protein aggregation. Botanicals (e.g., Ashwagandha, Brahmi, Ginkgo, Curcumin), marine and fungal metabolites, and multi-component formulations exhibit neuroprotective properties, hypoglycaemic effects, and anticancer action in preclinical and certain clinical settings. Polyphenols and flavonoids counteract reactive oxygen species, enhance intrinsic antioxidant defences, and enhance cognitive and metabolic assessments. New tools like nanocarriers, systems and network pharmacology, and multi-omics make it easier to interface with targets, understand how they work, and come up with smart combinations.

Conclusion: TM-derived bioactives exhibit neuroprotective, antidiabetic, hypoglycaemic, and anticancer potential; nevertheless, their translation is constrained by issues of bioavailability, standardization, sourcing, and the variability in trial design. For safe, multi-target treatments for complex chronic conditions, evidence-based care must include strict pharmacology, quality control, and clinical trials with enough power, standardized extracts, reproducible techniques, and clear reporting.

Keywords: Traditional medicines, ROS, Neurodegenerative Diseases, Antioxidant, Anti-inflammatory actions.

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Plant-derived exosomes as novel drug delivery vehicles: Bridging traditional medicine and modern therapeutics for neurodegenerative disorders

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ABSTRACT

Introduction: Plant-derived exosomes are emerging as innovative drug delivery vehicles for neurodegenerative disorders, offering the potential role in enhancing bioavailability and the capability to integrate traditional phytoconstituent with advanced nanotherapeutic strategies. Their unique physicochemical properties allow for targeted CNS delivery and promise enhanced neuroprotective efficacy in conditions such as Alzheimer's and Parkinson's disease.

Methods: A systematic review of current literature was conducted across databases including PubMed, Scopus and Web of Science on methodologies for isolation, physicochemical characterization, drug encapsulation techniques and preclinical application of plant exosomes in neurodegenerative models, with emphasis on blood-brain barrier (BBB) penetration with neuroprotection, antioxidant activity and brain-targeted delivery.

Results: Plant-derived exosomes exhibit nanoscale size, intrinsic biocompatibility and carry diverse bioactive cargos including microRNAs, proteins, lipids and phytochemicals. These vesicles demonstrate efficient BBB penetration and preferential neuronal uptake. Preclinical studies reveal their capacity to attenuate oxidative stress, neuroinflammation, apoptotic pathways and enhance synaptic function implicated in Alzheimer's and Parkinson's diseases. Compared to synthetic nanoparticles and mammalian exosomes, plant exosomes show less immunogenicity, enhanced scalability, and safety. Surface engineering further improves targeting precision. However, variability in isolation protocols and limited clinical data represent ongoing challenges.

Conclusion: Plant-derived exosomes present a promising nanoplatform combining the virtues of traditional herbal bioactive compounds with modern drug delivery systems. Their natural composition and brain targeting capabilities provide innovative, non-toxic strategies that hold a significant therapeutic potential for neurodegenerative disorders. Future research should focus on clinical translation and overcoming current formulation challenges.

Keywords: Plant-derived exosomes, Drug delivery, Neurodegenerative disorders, Blood-brain barrier, Nanotherapeutics

JH/SECON2025/PP-77

Fermented soy metabolites as novel therapeutics for postmenopausal osteoporosis

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ABSTRACT

Aim: This study aims to evaluate the medicinal potential of bioactive metabolites—menaquinone-7 (MK-7), isoflavones, and poly-γ-glutamic acid (γ-PGA)—produced through the fermentation of *Glycine max* using *Bacillus subtilis* and *Rhizopus oryzae*, with a focus on their role in bone health and postmenopausal osteoporosis.

Methods: Fermentation was carried out using *Bacillus subtilis* and *Rhizopus oryzae* under controlled conditions to enhance the production of MK-7, isoflavones (genistein and daidzein), and γ-PGA. MK-7 and isoflavones were quantified using high-performance liquid chromatography (HPLC), while γ-PGA levels were determined by UV-visible spectrophotometry. Bone health potential was assessed through changes in biochemical markers and literature-supported pharmacological relevance.

Results: Fermentation significantly increased the concentrations of MK-7 and aglycone forms of isoflavones, enhancing their bioactivity and bioavailability. γ-PGA production was markedly elevated in *Bacillus subtilis*-fermented samples. These metabolites are known to improve calcium absorption, osteocalcin activity, and bone mineralization, offering therapeutic benefits for postmenopausal bone loss.

Conclusions: Fermentation of *Glycine max* with selected microbial strains effectively enriches MK-7, isoflavones, and γ-PGA, supporting their application in functional foods or nutraceuticals targeting bone health and the prevention of postmenopausal osteoporosis.

Keywords: Fermentation, *Glycine max,* HPLC, osteoporosis

JH/SECON2025/PP-78

Irsal-e-Alaq (Leech Therapy): Ancient-to-modern healing

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ABSTRACT

Introduction: *Irsal-e-Alaq*, or leech therapy, is a Unani regimental therapy designed to evacuate morbid humors, rooted in humoral theory from ancient Egypt (1500 BC) and formalized by scholars like Ibn Sina and Hippocrates for conditions like skin disorders and joint pain. After peaking during the 18th-19th century European "leechmania," it declined but was revived in the 1980s for surgical applications. This explores its efficacy, integrating Unani principles with modern science.

Materials and Methods: The procedure employs aseptic medicinal leeches (Hirudo medicinalis or Hirudinaria manillensis), with 2-10 leeches applied per session (10-60 min) to targeted sites post-cleaning with distilled water. Leeches inject bioactive like hirudin (anticoagulant) and bdellins (anti-inflammatory) while extracting 2-20 ml of blood. Post-detachment, cupping may enhance toxin removal; leeches are disposed of to prevent reuse. Contraindications include anaemia, pregnancy, and haemophilia; sensitive areas like epigastric regions are avoided. Data were synthesized from clinical studies (2014–2024) and Unani texts.

Results: Studies confirm efficacy: osteoarthritis trials report 29% pain reduction, 59% stiffness relief, and 41% functional improvement. Chronic ulcers and diabetic foot ulcers achieved 80% healing rates via improved microcirculation. In reconstructive surgery, leech therapy reduced venous congestion and necrosis, with Doppler studies showing enhanced hemodynamics. High success rates were observed in thyroiditis (94%) and Baker's cyst (80%), with moderate outcomes in varicose veins (33%) and eye diseases (75%). Cardiovascular conditions benefited from hirudin's anticoagulant superiority, and skin disorders like psoriasis showed reduced inflammation.

Discussion: *Irsal-e-Alaq* aligns Unani's humoral evacuation with modern pharmacology, leveraging over 100 salivary compounds for anticoagulant, anti-inflammatory, and antimicrobial effects. Its cost-effectiveness suits chronic conditions, but risks like itching (37-75%) which necessitate sterile protocols. Gaps in applications for cancer and diabetes highlight the need for further research.

Conclusion and Recommendation: *Irsal-e-Alaq* is a cost-effective, minimally invasive therapy with proven efficacy for chronic and surgical conditions, integrating ancient and modern approaches. To maximize its potential, healthcare providers should adopt standardized aseptic protocols, training programs for practitioners, and pursue large-scale randomized controlled trials to validate broader applications, particularly in oncology and diabetes, ensuring safe integration into clinical practice.

Keywords: Leech therapy, *Irsal-e-Alaq*, medicinal leeches, hirudin, Hirudo medicinalis.

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In silico techniques formulation profiling of Majoon-e-Kundur

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ABSTRACT

Background: Chronic pain management faces significant challenges due to the adverse effects of conventional pharmaceuticals, driving the search for safer, natural alternatives. Unani medicine offers complex herbal formulations like Majoon-e-Kundur, traditionally used for such purposes. However, a major hurdle in its modern integration is the limited scientific validation of its pharmacological mechanisms and active compounds. In silico profiling emerges as a powerful preliminary tool to address this gap. This computational approach can systematically identify the bioactive constituents within Majoon-e-Kundur, predict their protein targets, and elucidate their potential molecular pathways, thereby providing a rational scientific basis for its therapeutic efficacy in pain relief.

Aim and Objective: To perform an *in silico* profiling of Majoon-e-Kundur to predict its bioactive potential, molecular mechanisms and to identify key bioactive constituents, predict their protein targets, and elucidate their molecular interactions.

Method: A literature study was performed using Google Scholar, and research publications such as the National Formulary of Unani Medicine for several plants were examined for their various bioactive components present in the formulation. Network pharmacology and molecular docking was done by thoroughly analysing the interactions between genes, proteins, and small molecules. A list of herbal compounds was compiled, and a method for extracting the needed phytoconstituent from the plant source was created. Formulation studies and assessment investigations such as HPTLC fingerprinting, GC, and LC-MS were carried out.

Result: The *in silico* profiling of Majoon-e-Kundur successfully identified multiple bioactive constituents, with boswellic acids and other terpenoids demonstrating the most significant molecular interactions. Molecular docking studies revealed strong binding affinities for key anti-inflammatory targets, including cyclooxygenase-2 (COX-2) and 5-lipoxygenase (5-LOX), effectively inhibiting their activity. Furthermore, the compounds exhibited favorable ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) properties, predicting good bioavailability and a low risk of toxicity. These computational results provide a robust mechanistic rationale for the formulation's traditional use in managing pain and inflammation.

Conclusion: The *in silico* study concludes that Majoon-e-Kundur possesses significant potential as a natural analgesic. Key compounds, particularly boswellic acids, demonstrate strong binding to anti-inflammatory targets like COX-2, validating its traditional use. The favorable ADMET profile further suggests a safer therapeutic alternative. These findings provide a strong molecular rationale for further *in vitro* and *in vivo* studies to develop this Unani formulation into a modern evidence-based treatment.

Keywords: Majoon-e-Kundur, 5-lipoxygenase (5-LOX), ADMET, Boswellic Acid, Cyclooxygenase-2 (COX-2)

JH/SECON2025/PP-80

Pharmacological and therapeutic potential of harmaline: A natural β carboline alkaloid

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ABSTRACT

Background: Harmaline, a major β-carboline alkaloid isolated from *Peganum harmala* L., has attracted significant attention due to its broad pharmacological profile. It exerts antioxidant, anti-inflammatory, vasorelaxant, antimicrobial, antiplasmodial, antileishmanial, and neuroprotective effects, alongside potent antitumor activity. These multifaceted properties underscore its importance in traditional medicine and contemporary therapeutic research.

Aims: To review the pharmacological and therapeutic effects of harmaline, emphasizing its anticancer potential and mechanistic actions.

Methods: Peer-reviewed articles and reviews indexed in PubMed and ScienceDirect were systematically analysed. Experimental studies on *in vitro* and *in vivo* models of harmaline were examined. Data were categorized into anticancer, antioxidant, anti-inflammatory, enzyme inhibitory, antimicrobial, antiparasitic, and vasorelaxant activities. Key pharmacological and therapeutic effects were summarized to provide a comprehensive overview.

Results: Harmaline inhibited proliferation of cervical, gastric, lung, and esophageal cancer cells by inducing apoptosis and G2/M phase cell-cycle arrest. It directly targeted the mTOR signalling pathway and suppressed tumour growth *in vivo*. Harmaline also inhibited CYP1A1 activity, prevented oxidative modification of LDL, and reduced oxidative stress. Its therapeutic profile extended to antinociceptive and anti-inflammatory effects in animal models, along with antimicrobial, antiparasitic, and vasorelaxant activities, confirming its broad pharmacological potential.

Conclusion: Harmaline exhibits extensive pharmacological activities and functions as a natural anticancer and multi-target therapeutic agent. Its plant-derived origin and multifunctional efficacy establish it as a promising scaffold for future drug development.

Keywords: Harmaline, *Peganum harmala*, β-carboline alkaloids, cancer, antioxidant.

JH/SECON2025/PP-81

Herbal Teas in Traditional Medicine: Phytochemical Profiles and Therapeutic Potential

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ABSTRACT

Background: Herbal tea originated in China over 5000 years ago, during Emperor Shennong's era, for their healing properties. Herbal teas include Nettle tea, Cinnamon tea, Fennel tea, Rosemary tea, Green tea, Hibiscus tea, etc. Tea is rich in bioactive compounds with health-promoting effects.

Aim: Thisstudy evaluates the therapeutic and health-promoting effects of herbal teas and identifies key bioactive components.

Method: Health benefits of herbal teas for various health conditions were extensively reviewed from different databases.

Result: Nettle tea (2–3 g leaves/150–200 mL water) mitigates seasonal allergies through flavonoids and phenolics that modulate inflammatory and histamine pathways. Cinnamon tea (1–2 g bark/150–200 mL) contains eugenol and polyphenols that improve glycemic control, insulin sensitivity, blood pressure, and lipid profile. Fennel tea (2–3 g seeds/150–200 mL) provides trans-anethole and estragole, aiding digestion and reducing bloating. Rosemary tea (1–2 g leaves/150–200 mL) delivers cineole and terpenoids that support vascular health and prevent arterial stiffening. Hibiscus tea (1.5–2.5 g calyces/150–200 mL) contains anthraquinones and polyphenols with antidiabetic and dermal antioxidant effects. Green tea (2–3 g leaves/150–200 mL) is rich in epicatechin and EGCG, providing anti-inflammatory and cardioprotective benefits via oxidative stress reduction and endothelial function improvement. For adults, consuming 1–3 cups (approximately 200–600 mL) of herbal tea daily is considered safe depending on variety of tea used; however, safety margins vary with the botanical source. Safety of herbal tea intake is influenced by botanical identity, processing, concentration of secondary metabolites, and cumulative exposure.

Conclusion: Establishing standardized dosage and toxicological assessments is necessary. Despite their widespread use, it require deeper evaluation for safety, standardization, and efficacy.

Keywords: Herbal tea, Herbal tea benefits, Effects of tea

JH/SECON2025/PP-82

Clinical efficacy of a herbo-mineral compound for the management of cataract

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ABSTRACT

Introduction and Objective: The present clinical trial was undertaken to evaluate the safety, preventive/ curative efficacy of the local application of Kohl Chikni Dawa (KCD) in patients of premature senile cataract, to provide an economic, safe, and effective alternative treatment for it. **Materials and Methods:** The present prospective single-blind, placebo-controlled trial was undertaken at Majeedia Hospital, Hamdard University, New Delhi. The diagnosed patients of premature senile cataract were randomly allocated to three groups for local application of KCD/placebo.

Results and Discussion: Ninety-two patients completed the study period. After six-months of treatment the results show that KCD was effective in the general amelioration of the signs, and symptoms of the premature senile cataract. KCD have some significant effect on grade I of PS Cataract as out of 52 cases; lens score was nil in 5 patients (9.6 %) but no effect on grades II and III premature senile cataract. Vision remains stationary in 44% cases during study period.

Conclusion: The dose of KCD in two sticks BID was found safe, and tolerable with no side effects. KCD was also effective in loss of vision in grade I of PSC. KCD have potential to modulate the progress of early premature senile cataract. A multicentric trial of the test drug on a larger sample size for a longer duration of five years as per WHO recommendation is required to establish the efficacy of the formulation on premature senile cataract.

Keywords: Kohl Chikni Dawa (KCD), Premature Senile Cataract (PSC), lens score, loss of vision

JH/SECON2025/PP-83

Machine-learning-based hit selection of natural compounds for the development of novel multitarget directed Anti-Alzheimer's agents

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ABSTRACT

Introduction: Due to the multifactorial and polygenic nature of AD, and several side-effects of currently available drugs there is an urgent need to identify a novel natural cure which is able to target multiple key regulatory proteins directly associated with disease pathogenesis. Designing a chemical library by conventional means is quite tedious, and complex, and requires a high investment of resources. Henceforth to accelerate the initial stage of drug development, structure-based-virtual screening (SBVS) is carried out against 3 targets GSK3β, NMDA receptor, and BACE-1 to identify a novel MTDL. As a subset of AI, ML is emerging as a promising way to carry out SBVS because it holds the ability to reduce false positives.

Objectives: To design machine-learning-based hit molecules of natural compounds for the development of novel multi-target directed Anti-Alzheimer's agents by reducing the time, cost, and efforts of wet lab synthesis by computer-aided drug design approach.

Method: ML Based approach includes two major steps that is dataset preparation and model generation. Firstly, the database is developed for virtual screening followed by the development and validation of the docking model by SBVS. The docking procedure is then carried out using Maestro 12.8 software. Based on the docking score, the best compound was subjected to MD Simulations using GROMACS.

Results: The hit molecule which is generated can be assessed for early Insilco ADMET predictions and analysis of dynamic properties and stability of the complex. This collaboration of the two driving forces, medicinal chemistry, and computer science has the potential to make the drug development process novel, cost-effective, and more efficient.

Conclusion: Computational screening of a vast number of small natural organic molecules for their inhibitory potential against the target proteins will result in hit-lead molecules against AD. Examination of the candidate drug's neuroprotective potentials using in-silico methods could possibly open the door for verification of its clinical effectiveness.

Key Words: Structure based drug designing, Alzheimer's Disease, Multi-target Directed Ligands, Virtual Screening, Natural Products

JH/SECON2025/PP-84

Immunity-boosting botanicals in traditional medicine (Tulsi, Ashwagandha, Giloy)

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ABSTRACT

The immune system plays a crucial role in maintaining health by defending the body against infections and diseases. Traditional medicine systems like Ayurveda, Traditional Chinese Medicine, and Unani have used many plants for centuries to improve immunity and overall wellness. Some well-known examples are Ashwagandha, Tulsi, Giloy, Amla, and Turmeric. These plants are known for their ability to boost the immune system, reduce inflammation, and fight harmful effects of stress and germs. Immunomodulatory, antioxidant, and anti-inflammatory properties. These botanicals not only support innate and adaptive immunity but also aid in combating oxidative stress and microbial challenges. With the growing interest in natural and safe health interventions, immunity boosting botanicals hold significant promise for integration into modern healthcare. This poster focuses on how these plants work, their traditional uses, and modern scientific findings, showing their potential in strengthening immunity and illness

JH/SECON2025/PP-85

Investigation on the primary and secondary phytoconstituents of *Tiliacore acuminate* (Lam.) Miers: An Ethnomedicinal Plant of India

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ABSTRACT

Introduction: *Tiliacora acuminata* (Lam.) Miers is a medicinal climber with significant ethnomedicinal, phytochemical, and pharmacological importance. This review compiles and analyzes existing research on the plant's flowers, highlighting their traditional uses, bioactive compounds, and therapeutic potential. Additionally, the biological characteristics, including habitat and growth habit, are discussed. Visual aids are provided for easy identification. By bridging traditional knowledge with scientific insights, this review underscores the relevance of *Tiliacora acuminata* flowers in herbal medicine and future pharmacological studies.

Background: *Tiliacora acuminata* is a climbing plant native to India, traditionally used in Ayurvedic medicine for various ailments. This study aims to identify the diverse phytochemicals present in T. acuminata extracts, providing a scientific basis for its therapeautic potential.

Aim: To investigateon the primary and secondary phytoconstituents of *Tiliacore acuminate* (Lam.) Miers: An Ethnomedicinal Plant of India.

Methods: The flower of *Tiliacora acuminate* were collected. The species was identified by senior author. Sohxlet extraction method was adopted using different solvents for phytochemical analysis.

Conclusion: The current study concludes that the flower of *T. acuminata* contains tannin, saponins, terpenoids, phenolic compounds, reducing sugars, steroids, and alkaloids.

Keywords: Climber, ethnomedicinal uses, phytochemical analysis, pharmacological

JH/SECON2025/PP-86

Omega-3 fatty acids and medicinal herbs in traditional Indian diets: Bridging nutritional gaps through ethnobotanical knowledge

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ABSTRACT

Background: Traditional Indian dietary customs are centred around plant-based foods and herbal medicinal systems such as Ayurveda. These diets are low in marine-sourced omega-3 fatty acids but incorporate a variety of medicinal herbs and seeds that provide plant-based omega-3s and bioactive compounds with anti-inflammatory effects.

Objective/ Aim: The objective of this study is to examine the role of indigenous medicinal herbs and nutrient-rich seeds in achieving omega-3 fatty acid adequacy within traditional Indian diets. It also explores the ethnomedicinal importance of these herbs in enhancing cardiovascular, cognitive, and inflammatory health.

Method: A literature review was conducted using PubMed, Scopus, the AYUSH Research Portal, and Google Scholar, covering publications up to 2025. Data were compiled regarding the nutritional content, pharmacological activity, and ethnobotanical records of omega-3–rich medicinal species, including flax, chia, perilla, and walnuts.

Result: The Evidence indicates that many traditional plants and seeds high in α-linolenic acid sufficiently meet omega-3 requirements in vegetarian diets. Their inclusion in Ayurvedic formulations boosts antioxidant and anti-inflammatory responses similar to fish oil-based treatments.

Conclusion: In conclusion, traditional Indian medicinal herbs are vital sources of omega-3 fatty acids, both nutritionally and therapeutically. Their use offers a sustainable and culturally relevant strategy to address fatty acid deficiency in vegetarian populations.

Keywords: Traditional medicine, omega-3 fatty acids, medicinal herbs, anti-inflammatory activity, ethnobotany

JH/SECON2025/PP-87

Phytosomes: A novel approach in herbal drug delivery

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ABSTRACT

Introduction: Phytosomes are advanced herbal formulations that improve the bioavailability and therapeutic efficacy of plant-derived bioactive compounds. Many phytochemicals, despite having significant pharmacological activities, suffer from poor absorption and rapid metabolism. Phytosomes provide a solution by complexing phytoconstituents with phospholipids, thereby enhancing their stability, solubility, and permeability.

Methodology: Data was collected from scientific databases including PubMed, ScienceDirect, Google Scholar, and pharmaceutical literature. The review summarizes the principle of phytosome technology, its preparation methods, and its role in improving the pharmacokinetics of poorly absorbed phytochemicals.

Results and Discussion: Phytosomes have been successfully developed for bioactive compounds such as silymarin, curcumin, ginkgo biloba extract, green tea polyphenols, and quercetin. These complexes show better membrane permeability, enhanced therapeutic action, and increased half-life compared to conventional herbal extracts. Studies demonstrate antioxidant, hepatoprotective, cardioprotective, anti-inflammatory, anticancer, and neuroprotective effects of phytosome-based formulations. Their safety profile is generally acceptable, with improved tolerability.

Conclusion: Overall, phytosomes represent a promising drug delivery system to overcome limitations of conventional herbal preparations. They enhance pharmacological potential, ensure better patient compliance, and open new opportunities for pharmaceuticals and nutraceuticals. However, further clinical studies are required to establish their long-term safety, efficacy, and large-scale applicability.

Keywords: Phytosomes, Herbal drug delivery, Bioavailability, Phytoconstituents, Nutraceuticals

JH/SECON2025/PP-88

Development of herbal–synthetic dual drug-based nanogel for psoriasis

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ABSTRACT

Background: Psoriasis is a chronic immune-mediated skin disorder, affecting 0.6 –4.8% population in the world. It caused due to various factors including stress, trauma, drugs, alcohol, and poor nutrition. It triggered by pro-inflammatory cytokines (IL-6, IL-1β, TNF-α), causing inflammation and keratinocyte overgrowth. Its severe level may lead to various cardiometabolic, digestive, and renal problems.

Aims/Objectives: To design, develop, optimize, and evaluate a Glycerosomes-based nanostructured gel formulation containing a herbal and a synthetic drug, using central composite design for enhanced anti-psoriatic and anti-inflammatory activity.

Methods: This study involves preformulation for psoriasis, physicochemical profiling, nanoformulation development, optimization via design expert, and vesicle evaluation.

Results: Preformulation revealed that the selected herbal drug had a melting point of 301.3 °C, higher solubility in water (19.4 mg/ml) than ethanol (16.6 mg/ml), the identity of the drug was conformed by FTIR, UV and DSC. The optimized nanoformulation showed partical size of 182.4 nm size, PDI 0.1691, and zeta potential −14.11 mV.

Conclusion: Preliminary results suggest the optimized nanoformulation is a promising formulation in psoriasis treatment, with *ex vivo* and *in vivo* studies underway to confirm safety and efficacy.

Keywords: Psoriasis, Nanoformulation, Glycerosomes-based, Anti-inflammatory and Antioxidant properties

JH/SECON2025/PP-89

Phytosomes: A novel approach to enhance bioavailability of plant-based compounds

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ABSTRACT

Aim: To formulate and evaluate phytosomes using various phytochemicals to enhance their bioavailability and therapeutic efficacy.

Method: This study involved the complexation of selected phytochemicals (flavonoids, alkaloids, and terpenoids) with phosphatidylcholine to create phytosome formulations. Characterization was performed using spectroscopic methods, including Fourier Transform Infrared Spectroscopy (FT-IR) and Nuclear Magnetic Resonance (NMR). In vitro and in vivo pharmacokinetic evaluations were conducted to assess improvements in solubility and bioavailability compared to conventional formulations.

Results: The findings indicated significant enhancements in solubility and bioavailability of the phytosome formulations relative to traditional delivery methods. Notable improvements were observed in the pharmacokinetic profiles of phytosomes containing curcumin, quercetin, and silymarin, which exhibited enhanced antioxidant, anti-inflammatory, and hepatoprotective properties.

Conclusion: Phytosomes represent a promising drug delivery system that effectively enhances the bioavailability of plant-derived compounds, bridging the gap between traditional medicine and modern therapeutic applications. The results support further research into optimizing phytosome formulations for diverse therapeutic areas.

Keywords: Phytochemicals, drug delivery, curcumin, quercetin, pharmacokinetics

JH/SECON2025/PP-90

Traditional herbal approaches in Alzheimer's disease management

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ABSTRACT

Background: Alzheimer's disease is a progressive neurodegenerative disorder affecting memory and cognitive function. This review focuses on the signs and symptoms of Alzheimer's disease and summarizes available literature on the potential role of various medicinal plants in its prevention and management. Current treatments offer only symptomatic relief and side effects, leading to increased interest in herbal medicine as a complementary therapy due to its cost-effectiveness, better patient compliance, and neuroprotective properties. Current treatments like cholinesterase inhibitors and NMDA receptor antagonists often result in adverse effects. Therefore, there is increasing interest in herbal and plant-based medicines that can target multiple pathways involved in AD progression with fewer side effects.

Method: This review is based on an extensive survey of the available literature regarding herbal treatments for Alzheimer's disease, which indicates that various herbal medicines have beneficial effects in managing AD. These effects are observed primarily through their ability to ameliorate cognitive decline, reduce neuroinflammation, and improve overall neural function. Several herbal compounds also demonstrate potential in enhancing gut–brain axis integrity, thereby contributing to better communication between the central nervous system and the gastrointestinal tract.

Result: From the literature reviewed, several medicinal plants were found to possess neuroprotective effects beneficial for Alzheimer's disease. These include: *Bacopa monnieri*known to enhance memory and reduce oxidative stress. *Curcuma longa*contains curcumin, which inhibits β-amyloid aggregation and reduces inflammation. *Withania somnifera*helps regenerate damaged neurons and reduces beta-amyloid toxicity. *Ginkgo biloba* improves cerebral blood flow and protects against neurodegeneration. *Salvia officinalis* **(Sage)** inhibits acetylcholinesterase and enhances cognitive function. These herbs act through mechanisms such as reducing oxidative damage, inhibiting amyloid plaque formation, modulating neurotransmitters, and improving synaptic function.

Conclusion: Herbal medicine holds promise as a natural and safer approach to managing Alzheimer's disease by targeting multiple pathological pathways. The neuroprotective effects of several herbs have been supported by preclinical and early clinical studies. However, large-scale randomized clinical trials are necessary to establish their safety, efficacy, and therapeutic dosing. Increasing awareness and research into herbal alternatives may contribute to better, more holistic treatment strategies for Alzheimer's disease in the future.

JH/SECON2025/PP-91

A systems biology approach to assess the sleep-enhancing effects of flaxseed consumption

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ABSTRACT

Introduction: Flaxseed (*Linum usitatissimum* L.) is a nutrient-rich functional food, notable for its high content of bioactive compounds such as alpha-linolenic acid (ALA), lignans, omega-3 fatty acids, and digestible proteins. The primary objective of this study is to employ a network analysis approach to elucidate the molecular mechanisms underlying the potential sleep-improving effects of flaxseed consumption.
Materials and Methods: Differentially expressed genes (DEGs) associated with flaxseed consumption were identified from the GSE36422 dataset within the Gene Expression Omnibus (GEO) database. Sleep-related genes were retrieved from the GeneCards database and subjected to undirected protein-protein interaction (PPI) network analysis to identify hub genes. Critical genes responsive to flaxseed intake were determined by intersecting common DEGs with sleep-related hub genes. Subsequently, a directed PPI network analysis was performed to characterize the positional relationships and first-neighbor interactions of these hub genes.
Results and Discussion: Network analysis identified RAF1 as a principal hub gene among 212 sleep-related hubs. Topological assessment revealed MAPK family members, CCNDI, KRAS, RAF1, PIK3CA, and EGFR as key regulatory nodes, while HRAS, AKT1, IL6, RHOA, TNF, SRC, FOXO3, CDC42, PRKACG, PRKACB, MAPK8, and JAK2 were classified as critical downstream targets. Furthermore, MAPK family genes, KRAS, and PIK3CA were established as significant first-neighbor interactors of RAF1 in the directed protein-protein interaction network.
Conclusion/Recommendation: In conclusion, this study demonstrates that *RAF1*, identified as a key sleep-related hub gene, is downregulated following flaxseed consumption. The modulation of *RAF1*, along with coordinated regulation of the *MAPK* gene family, *KRAS*, and *PIK3CA*, appears to constitute a principal molecular mechanism through which flaxseed may exert its sleep-enhancing effects.
Key words: Sleep; flaxseed; gene expression; system biology

JH/SECON2025/PP-92

Synergistic nephroprotective activity of *Punica granatum* and *Piper cubeba* against diclofenac-induced toxicity: *In Vitro* and *In vivo* approaches

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ABSTRACT

Background: Synergy-based nephroprotective formulations have emerged as promising strategies for the management of drug-induced kidney injury. Traditional medicinal plants such as *Punica granatum* L. (PG) and *Piper cubeba* L. (PC) are rich in bioactive constituents with antioxidant and anti-inflammatory properties, prompting their evaluation against diclofenac-induced nephrotoxicity.

Aim and Objectives: This study aimed to investigate the synergistic nephroprotective potential of hydroalcoholic extracts of PG and PC through phytochemical, *in vitro*, and *in vivo* evaluations.

Methods: Phytochemical analysis was performed using HPTLC, UPLC-MS, and FTIR. Antioxidant activity was assessed by DPPH assay, while zebrafish embryos were used for developmental toxicity studies. Synergy was evaluated in HEK293 cells by calculating the combination index (CI). In vivo nephroprotection was examined by analyzing renal biomarkers, oxidative stress parameters, inflammatory cytokines, and histopathology.

Results: HPTLC quantified caffeic acid and piperine in PC, and gallic acid, kaempferol, and oleanolic acid in PG. PG exhibited stronger antioxidant activity (IC_{50} = 70.84 µg/mL) than PC (IC_{50} = 165.98 µg/mL). Zebrafish embryos showed no toxicity at <31.25 µg/mL. A PG:PC ratio of 9:1 showed maximum cell viability with CI = 0.11, confirming strong synergy. In vivo, PGPC (9:1) restored albumin and reduced creatinine, uric acid, and BUN levels while improving oxidative stress and inflammatory markers. Histopathology confirmed preservation of renal architecture.

Conclusion: The synergistic formulation of PG and PC in a 9:1 ratio demonstrated significant nephroprotection against diclofenac-induced toxicity through antioxidant and anti-inflammatory mechanisms, validating their therapeutic potential for drug-induced kidney injury.

Keywords: Nephroprotection; *Punica granatum;Piper cubeba; Synergy.*

JH/SECON2025/PP-93

Nephroprotective potential of *Cucumis melo L.* in chronic kidney disease: Scientific validation of Unani claims

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ABSTRACT

Introduction: Chronic kidney disease (CKD) is a degenerative condition impacting millions globally and presents significant health and economic challenges. Current medications mitigate disease development but are linked to undesirable effects, fostering interest in traditional herbal remedies as adjunctive alternatives. *Cucumis melo L.*, extensively utilised in Unani medicine, is conventionally recommended as a cooling, diuretic, and lithotriptic, indicating possible advantages in renal ailments.

Materials and Methods: A systematic evaluation of literature from PubMed, Scopus, and Web of Science was conducted to evaluate preclinical and clinical investigations on *Cucumis melo*. Experimental and pharmacological evidence was rigorously examined to substantiate Unani assertions of its nephroprotective function.

Results and Discussion: A total of 20 pertinent studies were identified (2004–2024). Preclinical investigations indicated the nephroprotective, antioxidant, anti-inflammatory, and anti-urolithiatic properties of *Cucumis melo* extracts and its phytoconstituents, such as α-amyrin, campesterol, flavonoids, and fixed oils. Enhancements were noted in renal biomarkers, oxidative stress indicators, urine metabolites, and kidney histology. Scarce clinical evidence additionally shown advantages in urolithiasis and enhancement of renal function. These findings align well with Unani characterisations of *Cucumis melo* as a renal tonic and diuretic.

Conclusion/Recommendation: *Cucumis melo* exhibits significant nephroprotective activity, validating its Unani uses in renal ailments. Nevertheless, the majority of evidence is still preclinical, with a limited number of clinical trials. Future investigations must prioritise meticulously conducted randomised controlled trials, phytochemical standardisation, safety assessments, and formulation development to facilitate its incorporation into evidence-based nephrology.

Keywords: *Cucumis melo*, chronic kidney disease, Unani medicine, nephroprotective, herbal medicine

JH/SECON2025/PP-94

A validated HPTLC method for concurrent quantification of four bioactive compounds in *Woodfordia fruticosa* (L.) Kurz: An important medicinal plant species

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ABSTRACT

Introduction: *Woodfordia fruticosa* L. Kurz is a widely used medicinal shrub. It is a key member of the Lythraceae family and is commonly referred to as Dhatki, Agnijwala, Tamra-pushpi, and Fire Flame Bush. In India's Ayurvedic and Unani medicine systems, *W. fruticosa* is a key component in formulations such as Asavas and Aristhas. The flowers are particularly in high demand in both domestic and international markets to prepare herbal medicines. The present investigation aimed to develop an accurate and simple HPTLC method forconcurrent estimation of four bioactive compounds i.e. Ursolic acid, Betulin, Lupeol, and β-sitosterol in flowers, leaves, and stem extracts of this important species.

Material and Methods: HPTLC was performed using Ursolic acid (UA), Betulin (BE), Lupeol (LU), and β-sitosterol (BS) as standards. Toluene: methanol (8:1 v/v) was used as a mobile phase for separation of these phytocompounds. p-anisaldehyde-sulphuric acid reagent was used to derivatize the plates, which were heated for 5 mins at 105ºC. At λmax = 580 nm, densitometric scanning was carried out using a tungsten light bulb in a CAMAG TLC scanner. Documentation included the *Rf* values, peak areas, spectra, and HPTLC chromatograms. The method was validated following the International Conference of Harmonization (ICH) guidelines.

Results and Discussion: For UA, BE, BS, and LU, the linear regression data for the calibration plots revealed a satisfactory linear association with correlation coefficients (r^2) = 0.99. Linear ranges for UA, BE, BS, and LU were 20-100 ng/ band, 20-100 ng/ band, 40-120 ng/ band and 40-120 ng/ band respectively. The accuracy of the method was assessed by a recovery study conducted at three different levels with an average recovery of 99.77%, 100.31%, 99.70%, and 101.93% for UA, BE, BS, and LU, respectively. The results exhibited the highest content of UA (54.24±0.29 %), BE (31.63±1.09%), BS (144.59±0.28 %), and LU (40.05±5.42%) in flowers.

Conclusion: The proposed method provided a rapid and easy approach for detection and simultaneous quantification of four bioactive compounds which will be useful for routine and quality control analysis of fruits, leaves, and stem of *W. fruticosa* species.

Keywords: *W. fruticosa*, Ursolic acid, Betulin, Lupeol, β-sitosterol, different plant parts, validated HPTLC method

JH/SECON2025/PP-95

Nature's neuropharmacy: phytochemicals in the battle against brain degeneration

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ABSTRACT

Background: The rising prevalence of neurodegenerative disorders, coupled with the limited efficacy of current treatments, has accelerated the search for novel neuroprotective strategies. Phytochemicals, bioactive compounds derived from plants, have emerged as promising candidates due to their multifaceted mechanisms of action, targeting key pathological processes like oxidative stress, neuroinflammation, and protein misfolding.

Objective: This work aims to synthesize and critically evaluate the current evidence on the neuroprotective properties of prominent phytochemical classes. Ourobjective is to delineate their molecular mechanisms, assess their therapeutic potential across various neurodegenerative models, and identify gaps in the current research landscape for future investigation.

Methodology: A systematic literature search was conducted using major electronic databases (PubMed, Scopus, and Web of Science) for articles published between 2018 and 2023. Search keywords included "phytochemicals," "neuroprotection," "polyphenols," "curcumin," "resveratrol," "EGCG," "oxidative stress," "neuroinflammation," and "Alzheimer's disease". Included studies were original research articles (in vitro and in vivo) and high-impact reviews focusing on molecular mechanisms. The data were synthesized narratively to highlight consistent findings and central themes.

Result: The analysis reveals strong preclinical evidence that phytochemicals such as curcuminoids, stilbenes (e.g., resveratrol), and flavonoids (e.g., EGCG) exert significant neuroprotective effects. Key mechanisms identified include the upregulation of the Nrf2-mediated antioxidant response, suppression of the NF-κB-dependent pro-inflammatory pathway, inhibition of amyloid-beta and tau aggregation, and promotion of mitochondrial biogenesis. However, clinical translation remains limited by challenges in bioavailability and the need for more robust human trials.

Conclusion: Phytochemicals represent a valuable reservoir of neuroprotective agents with pleiotropic mechanisms of action. While preclinical data are compelling, future research must focus on overcoming pharmacokinetic limitations and validating these benefits in well-designed clinical studies to harness their full potential in preventing and managing neurodegenerative diseases.

Keywords: Phytochemicals, Neuroprotection, Systematic Review, Molecular Mechanisms, Neurodegenerative Diseases.

JH/SECON2025/PP-96

Therapeutic role of tragacanth gum in managing diabetes and related health problems

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ABSTRACT

Background: Tragacanth gum is a natural polysaccharide obtained from the stems of Astragalus species. It is widely used in the food and pharmaceutical industries because of its non-toxic, biodegradable, and bioadhesive nature. In recent years, it has gained attention for its possible therapeutic uses in diabetes, wound healing, and digestive health.

Objectives: To review the efficacy of tragacanth gum and its therapeutic potential in the management of diabetes and other health problems.

Methods: A comprehensive literature review was conducted using databases such as PubMed, ScienceDirect, and Google Scholar. Studies focused on in vitro, in vivo, and clinical research that investigated the pharmacological and biomedical properties of tragacanth gum.

Results: Scientific studies have shown that tragacanth gum helps lower postprandial glucose levels by slowing carbohydrate absorption and improving insulin sensitivity. It also acts as a natural laxative in constipation and as a water-absorbing gel in diarrhea, helping restore bowel balance. Research using tragacanth-based nanofibers and hydrogels reported faster wound healing, better fibroblast growth, and higher collagen formation without toxicity. The expression of growth factors such as TGFβ1, TGFβ2, and VEGF-A ($p < 0.001$) was also observed to increase, supporting tissue regeneration and healing.

Conclusion: Tragacanth gum is a biocompatible natural polymer with promising health benefits. Its role in glucose regulation, gastrointestinal health, and wound repair suggests its usefulness as a safe natural ingredient for nutraceutical and pharmaceutical formulations.

JH/SECON2025/PP-97

Exploring the therapeutic potential of medicinal plants in traditional and modern medicine

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ABSTRACT

Background: Medicinal plants have been central to traditional medical systems such as Ayurveda, Unani, and Traditional Chinese Medicine for centuries. Even today, a significant number of modern drugs are derived from plant-based sources. The exploration and utilization of medicinal plants remain crucial for discovering new therapeutic agents and supporting natural healthcare practices.

Aim/Objectives: This review aims to highlight the significance of medicinal plants in traditional healthcare systems and modern medicine, emphasizing their role in drug discovery and the promotion of natural health remedies.

Methods: Relevant information was gathered from books, scientific journals, research articles, and online databases focusing on medicinal plants. Data regarding their chemical constituents, therapeutic properties, and health benefits were collected and systematically analyzed to understand their applications and importance in both traditional and contemporary medical practices.

Conclusion: Medicinal plants are vital for human health, offering a rich source of bioactive compounds with therapeutic potential. Despite the availability of synthetic drugs, plant-based medicines continue to be valued due to their effectiveness, affordability, and lower risk of side effects. Preserving, studying, and promoting the use of medicinal plants is essential for future healthcare advancements.

Keywords: Medicinal plants, Traditional medicine, Phytochemicals, Herbal drugs, Natural remedies, Therapeutic uses, Plant-based medicine, Ayurveda

JH/SECON2025/PP-98

Therapeutic interventions of herbal phytosomes: A promising approach

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ABSTRACT

Introduction: As of adverse effects has been associated with the extended application of conventional medicines, interest of researchers had been shifted toward natural therapies treating body disorders. Flavonoids and other phytoconstituents had been demonstrated to showed to possess nutritional, therapeutic, and preservative effects, but has poor oral bioavailability which limited their therapeutic value. To confront this obstacle, several novel drug-delivery carrier such as solid-lipid nanoparticles, liposomes, ethosomes, and lipid vesicles, all have been juxtaposed with and phytosomes proved to overcome numerous limitations that that polar phytoconstituents posed.

Materials and Methods: Data was collected from Google, Pub Med and repository of library of CCP. The structure, phytoconstituents and pharmacological attributes of phytosomes were scrutinized. Approaches of the preparations like solvent evaporation, anti solvent precipitation, and lyophilization had been elaborated and also their mechanism has been described by which the phytoconstituent phospholipid complex was produced.

Results and Discussion: FTIR, NMR, DSC, XRD, and microscopy (SEM/TEM), these characterization techniques as well the measurement of particle size, drug entrapment and release had been reviewed in this article. Applications of phytosomes for oral, topical, nasal, and parenteral delivery had been surveyed, had been compiled. In comparision with traditional herbal extracts or liposomal systems,

Conclusion: Despite continuing impediments related to standardization, regulatory acceptance, and cost, the potential of phytosomes was considered to have been considerable for bridging traditional herbal remedies and modern drug delivery systems.

Keywords: Phytosomes, Bioavailability, Phytoconstituents, Phospholipids, Drug Delivery

JH/SECON2025/PP-99

Ameliorative effects of triterpenoid (1S)-(-)-verbenone in traumatic brain injury in mice

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ABSTRACT

Introduction: Traumatic Brain Injury (TBI) is defined as a damage to the brain resulting from an external mechanical force. It can lead to temporary or permanent impairment of cognitive, physical and psychosocial functions.

Material and Methods: The role of Verbenone (VERB) at the doses of (150 mg/kg/b.w and 200 mg/kg/b.w i.p.) administered intaperitoneally (i.p) has been assessed for recovering from TBI after inducing it by weight drop model of trauma in Swiss albino mice. After 30 min of injury, VERB was administered. In a single day model, animals were sacrificed after 24 h and after 21 days of administration of VERB in 21 days model. Behaviour parameters (morris water maze test, beam walk and beam balance test) were evaluated before sacrificing the mice. Biochemical and molecular parameters were also evaluated.

Results and Discussion: Our data demonstrated that VERB significantly ($P<0.001$) improved the neurological behaviours. Biochemical and molecular parameters exhibited significant response as compared to the vehicle group. Significant decreased in the concentration of MDA, Nitrite was observed. Furthermore, it did not significantly regulate the expression of Caspase-3 and BCl-2 gene on 21 days of study but significantly ($P<0.01$ and $P<0.05$) downregulated the expression of GFAP and CCl-3. VERB showed anti-inflammatory effect via inhibiting NF-κB, and IL-6.

Conclusion: The beneficial and therapeutic effect of VERB was observed against TBI due to their anti-oxidant and anti-inflammatory activity. VERB exhibited protective effect by restoring neurological behaviour. VERB plays a vital role in prevention of oxidative stress in brain by restoring antioxidant and mitochondrial dysfunction. In addition VERB could be used as protective agent against Caspase mediated apoptosis and NF-kB mediated pro-inflammatory cytokines induced after trauma.

Keywords: Traumatic Brain Injury; Neuroprotection; anti-oxidative; anti-inflammatory

JH/SECON2025/PP-100

From nature to nano: Revolutionising herbal therapies through nanotechnology

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ABSTRACT

Background: Natural products have long served as a foundation for medicine, with around 200,000 compounds identified from natural sources. 50% of prescribed drugs and OTC medications are derived from natural origins. Despite this, only 5-15% of plant species have been explored for medicinal use. Herbal drugs are widely used and recognised by the WHO, yet they often exhibit poor solubility, low bioavailability, instability, and rapid clearance, resulting in reduced therapeutic potency.

Methods: To address these limitations, NDDS using nanocarriers have been developed. Formulations such as polymeric nanoparticles, liposomes, solid lipid nanoparticles (SLNs), nanostructured lipid carriers (NLCs), and nano-emulsions enhance solubility and bioavailability. Techniques such as high-pressure homogenisation and nanoprecipitation are commonly employed methods of preparation.

Result: Nanocarriers enhance drug performance through improved permeation, sustained release, passive targeting, and reduced toxicity. Examples include curcumin nanogels for cancer, Silymarin-loaded liposomes for liver protection, and Cuscuta chinensis nanoparticles for better absorption of phytoconstituents.

Challenges: Regulatory gaps are present, FDA and EU guidelines are still evolving, creating uncertainty in approval processes. Ethical concerns include risk assessment, high costs, and lack of transparency. Toxicity risks like carbon nanotubes show complex and unpredictable toxic effects. Advanced equipment for the characterisation of nanomedicines is expensive compared to traditional methods. NMs are parameter sensitive. Small changes in nanoparticle properties can greatly affect safety and efficacy. Limited data on how nanomaterials behave in biological systems is available to us.

Conclusions: HNMs integrate traditional phytotherapy with advanced nanotechnology, improving therapeutic outcomes and patient compliance in treating chronic conditions like cancer, asthma, and diabetes.

Keywords: Herbal drugs, Herbal nanomedicines (HNMs), Novel drug delivery system (NDDS).

JH/SECON2025/PP-101

Preparation of sugar-free Unani formulation and its comparison with the Unani drug for their immunomodulatory potential against the *in-vivo* model of maniac phase of Bipolar disorder (BD)

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ABSTRACT

Introduction: Bipolar disorder is strongly associated with cognitive dysfunction. *Khamira -e-Gaozaban sada* is an Unani medicine used for strengthening brain and mind. The present study aims to investigate anti-manic activity of Unani formulation sugar free *Khamira-e-Gaozabansada* (sf KGS) through neurobehavior test with histopathology.

Materials and Methods: Mania will be developed in mice via sleep deprivation approach in custom-designed cages (55 × 30 × 20 cm) filled with water upto 1 cm containing elevated platforms approximately 3.5 cm in height. Protocol is for 10 days**,** on day 1 baseline parameters will be assessed, from day 2–10 day formulation will be administered orally. Sleep deprivation will be repeated three times (24 hrs each) with intervals of 2 days**.** On day 9, training will be given to animals for behavioral assessment.On day 10, 24 hrs after training, a final test will be performed, and animals will be sacrificed.

Results and Discussion: In this study, animals treated with low-dose (50 mg/kg) and high-dose (100 mg/kg) sf KGS exhibited significant reduction in locomotor behavior compared to negative control. There was significant reduction in the spatial memory in negative control compared to both vehicle control and sf KGS (LD and HD) groups. Few ischemic changes were seen in histopathological images of brain in treatment group as compared to other group.

Conclusion: *Khamira-e-Gaozaban sada*could mitigate sleep deprivation-induced cognitive deficits and also preserves structure recognition memory under conditions of chronic REM sleep deprivation in mice.

Key words: Bipolar disorder, mania, sleep deprivation, memory

JH/SECON2025/PP-102

Antimicrobial effect of Unani poly-herbal formulation used in vaginal discharge syndrome against different microbial pathogens

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ABSTRACT

Background: Vaginal discharge is a common concern among patients visiting gynecological clinics. In Unani medicine, the symptoms related to vaginal discharge are categorized as *Sailan ul-Mani* (leucorrhea) refers to an excessive normal discharge from the uterus, while *Sailan ur-Rehm* (vaginal discharge) describes an infectious discharge from the uterus. To address these conditions, many Unani medications, both in single and compound forms, have been documented in traditional texts. However, very few of these remedies have undergone reassessment to evaluate their effectiveness according to accepted scientific standards

Aim & Objectives: This study aims to evaluate the antimicrobial activity of a Unani compound formulation that contains *Baboona, Marzanjosh, Mako, and Qaisoom.*

Material &Methods: Crude drugs, including *Baboona, Marzanjosh, Mako, and Qaisoom*, were dried and powdered before being extracted using a Soxhlet apparatus with 95% ethanol. The extracts from these drugs were tested in vitro against five Gram-positive and four Gram-negative vaginal pathogens. The testing utilized both the agar well diffusion method and the Kirby-Bauer disk diffusion method. The antibacterial activity of the extracts was compared to a standard treatment for the same pathogens.

Results: The antimicrobial activity results showed that the test drug extract demonstrated a higher sensitivity towards *C. xerosis, E. coli, and MRSA.* In contrast, strains such as *S. aureus, B. cereus, P. viridans, and K. pneumoniae* exhibited moderate susceptibility to the treatment. However, *P. aeruginosa* displayed resistance to the extracts.

Discussion: The findings suggest that hydroethanolic extracts can effectively inhibit the growth of bacteria associated with vaginal discharge in women, showing varying levels of potency. The antibacterial activity of the tested plants—*Origanum majorana*, *Matricaria chamomilla, Achillea fragrantissima, and Solanum nigrum*—can be attributed to a diverse array of bioactive compounds. These include thymol and carvacrol, α-bisabolol, bisabolol oxides, solasodine-3-O-β-D-glucopyranoside, α-thujone, β-thujone, and piperitone, each contributing to their antimicrobial properties through distinct mechanisms of action.

Keywords: Antimicrobial effect, Polyherbal formulation, Vaginal discharge, *Sailan ur-Rehm*, Hydroethanolic extracts.

JH/SECON2025/PP-103

Correlation of fluid-electrolyte balance and Akhlat balance: A physiological and Unani perspective

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ABSTRACT

Background: Fluid and electrolyte homeostasis is essential for maintaining cellular function, metabolic processes, and overall physiological stability. In Unani medicine, the concept of *Akhlat* (humors) — *Dam (blood)*, *Balgham (phlegm)*, *Safra (yellow bile)*, and *Sauda (black bile)* — plays a parallel role in sustaining internal equilibrium (*I'tidal-e-Mizaj*). Disruptions in either fluid-electrolyte balance or humoral composition lead to pathological states, suggesting a possible correlation between the two systems.

Objectives: This study aims to explore the interrelationship between modern physiological mechanisms of fluid-electrolyte regulation and the traditional Unani concept of humoral balance, highlighting their complementary roles in maintaining health and preventing disease.

Methods: A comprehensive review of classical Unani texts and contemporary physiological literature was conducted. Key parameters of electrolyte homeostasis (sodium, potassium, chloride, and water distribution) were analyzed in relation to the qualities, functions, and imbalances of *Akhlat*. Correlative interpretations were drawn based on functional analogies and clinical manifestations.

Results: Findings suggest that the qualities of *Akhlat*—such as moisture, heat, coldness, and dryness—are closely aligned with fluid and electrolyte dynamics. For example, *Balgham* correlates with water and sodium balance, while *Safra* and *Sauda* reflect metabolic and ionic influences. Imbalances in electrolytes often manifest in patterns similar to humoral derangements described in Unani texts.

Conclusion: Understanding the correlation between fluid-electrolyte balance and *Akhlat* balance provides a holistic framework for diagnosis and therapy. Integrating these paradigms could enhance patient-centered care and bridge traditional and modern medical approaches.

Keywords: Fluid-electrolyte balance, *Akhlat*, Unani medicine, homeostasis, humoral theory

JH/SECON2025/PP-104

Evaluate the role of Unani and Ayurveda nutraceuticals in migraine and tension-type headache: An in silico study

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ABSTRACT

Background: Migraine and tension-type headache (TTH) are highly prevalent neurological disorders causing significant socio-economic and personal burden. While conventional pharmacological treatments offer relief, they often bring side effects and do not provide a cure. Traditional systems of medicine, notably Unani and Ayurveda, have long utilized nutraceuticals for headache management, emphasizing holistic approaches through humoral and doshic balance. Despite centuries of use, their molecular basis remains underexplored.

Objective: This study applies an integrative in silico approach to investigate the therapeutic potential of selected nutraceuticals from both traditions in treatment of migraine and tension type headache.

Methods: Medicinal formulations traditionally utilized for the management of migraine and tension-type headaches were selected from classical Ayurvedic and Unani pharmacopeias. Bioactive compounds of these medicines were identified using phytochemical databases (IMPPAT, TCMSP, PubChem), followed by target prediction (SwissTargetPrediction, STITCH). Binding affinity with key migraine- and TTH-related proteins such as the CGRP receptor, TRPV1, and 5-HT1B/1D were analysed using AutoDock. Compound–target–pathway networks were analyzed with Cytoscape and pathway enrichment mapping was done.

Results: Analysis suggest several phytochemicals possess neuroprotective and anti-inflammatory potential, modulating serotonergic and neuroinflammatory pathways relevant to headache pathology. Comparative analysis highlights both convergences and differences in the therapeutic logic of Unani and Ayurveda, reflecting shared emphasis on multi-target modulation.

Conclusion: By integrating ancient medical wisdom with modern computational pharmacology, this study underscores the conformity of traditional and contemporary approaches. Findings provide a rationale for developing low-side-effect, multi-target nutraceuticals and lay a foundation for future translational and clinical research.

Keywords: Ayurveda, Unani, Migraine, Nutraceuticals, Network pharmacology

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From lifestyle to technology: Non-pharmacological trends in hypertension management

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ABSTRACT

Background: Hypertension is one of the biggest worldwide health burdens. Research on lifestyle interventions, technology-driven tactics (such as virtual reality, artificial intelligence, and telerehabilitation), and mind-body techniques is growing as a result of a trend towards non-pharmacological approaches for management of hypertension. This shows that such interventions are gaining more momentum and attention worldwide. In this emerging field, bibliometric analysis provides insight into research productivity, trends, and thematic focus, with lifestyle-based and technology-enabled approaches emerging as major research areas.

Objective: To conduct a bibliometric analysis on non-pharmacological interventions for hypertensive patients.

Material and Methods: Articles were searched using the keywords "hypertension," "non-pharmacological management," "lifestyle intervention," and "exercise" on Scopus, PubMed, and Cochrane. VOS viewer was used to analyze the data for booking trends, authorship patterns, contributing nations, journals, and keyword co-occurrence networks.

Result: The research revealed a consistent increase in the number of articles discussing the non-pharmacological management of hypertension. Leading donors were China, India, and the United States. Public health and cardiovascular high-impact journals were the most common publication venues. "Diet," "exercise," "blood pressure control," and "lifestyle modification" were shown to be the main topics by keyword co-occurrence analysis; more recent trends included technology-assisted therapies. Research showed that integrated interventions—diet, exercise, and stress management—were more successful than individual ones.

Conclusion: This search concludes current research trends, and trends for future investigation on non-pharmacological changes such as lifestyle modification, use of physiotherapy-based exercise protocols in hypertension.

Keywords: Hypertension, non-pharmacological management, Lifestyle modification, Diet & exercise, Patient education.

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Kefir as a functional postbiotic: Modulating gut microbiota and the gut–brain axis for mental health

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ABSTRACT

Background: The gut microbiota plays a pivotal role in regulating digestion, metabolism, immunity, and neural signaling through the gut–brain axis. Disruption in microbial diversity can influence neurotransmitter synthesis and inflammatory pathways, contributing to stress, anxiety, and cognitive decline. Kefir, a traditional fermented milk beverage, contains a consortium of bacteria and yeasts that yield bioactive postbiotic compounds capable of restoring microbial balance and enhancing neurochemical communication.

Aims/Objectives: To evaluate kefir's postbiotic potential in modulating gut microbiota composition and improving mental well-being through gut–brain axis mechanisms.

Methods: A narrative review of experimental and clinical studies (2014–2025) was conducted using PubMed and ScienceDirect databases. Research exploring kefir's microbial profile, neurotransmitter modulation, anti-inflammatory activity, and psychological outcomes was analyzed.

Results: Kefir supplementation increased beneficial strains such as Lactobacillus kefiri and Bifidobacterium bifidum, elevated short-chain fatty acid production, and strengthened gut-barrier integrity. Its postbiotic metabolites enhanced serotonin and GABA synthesis while reducing inflammatory cytokines (IL-6, TNF-α). Clinical and pre-clinical findings reported improved mood, reduced anxiety-like behavior, enhanced cognitive performance, balanced cortisol levels, and better sleep quality, demonstrating kefir's psychobiotic and neuroprotective effects.

Conclusion: Kefir acts as a functional postbiotic capable of harmonizing gut microbiota and supporting mental health via the gut–brain axis. Its bioactive metabolites offer a holistic, evidence-based nutritional strategy for psychological resilience and neuroendocrine balance.

Keywords: Kefir · Postbiotics · Gut Microbiota · Gut–Brain Axis · Mental Health

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Smart nanoparticle delivery systems for resveratrol: A targeted strategy to enhance anticancer efficacy and bioavailability

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ABSTRACT

Background: Cancer remains a primary contributor to global mortality, driven by uncontrolled cell proliferation, metastasis, and resistance to standard chemotherapeutics. Resveratrol (RSV), a naturally occurring polyphenolic compound, exhibits strong anticancer potential through modulation of multiple signaling pathways including apoptosis, angiogenesis, and oxidative stress. However, its clinical translation is hampered by poor aqueous solubility, rapid metabolism, and limited systemic bioavailability.

Aims/Objectives: Smart nanoparticle-based delivery systems have emerged as a transformative strategy to overcome these limitations, enabling enhanced tumor accumulation, controlled release, and selective targeting via passive Enhanced Permeability and Retention effect (EPR effect) and active ligand-mediated mechanisms.

Methods: This review critically summarizes recent advancements in RSV-loaded nanocarriers such as polymeric nanoparticles, solid lipid nanoparticles, nanostructured lipid carriers, and stimuliresponsive platforms used across diverse cancer models including colorectal, pulmonary, glioblastoma, and melanoma.

Results: Nanoparticle-based delivery systems significantly enhance resveratrol's solubility, stability, targeted distribution, and controlled release. Preclinical studies across various cancers have shown improved anti-tumor activity, reduced systemic toxicity, and better survival outcomes with nanoparticulate formulations.

Conclusion: Nanoparticle-mediated delivery of resveratrol holds great promise as an effective cancer therapy by overcoming its inherent pharmacokinetic limitations.

Keywords: Resveratrol, Smart nanocarrier, Targeted cancer therapy, Bioavailability enhancement, Stimuli-responsive delivery, Nanomedicine.

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Curcumin (mechanisms and therapeutic potential as a multifaceted anticancer agent

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ABSTRACT

Background: Curcumin, a natural compound found in turmeric, has gained significant attention in cancer treatment due to its potent anticancer properties. This review explores the role of curcumin as an anticancer agent, focusing on its mechanisms of action, efficacy, and potential applications in cancer therapy.

Properties: Curcumin exerts its anticancer effects through multiple mechanisms, including inhibition of cell proliferation, induction of apoptosis, and suppression of tumor growth. It also demonstrates anti-inflammatory and antioxidant properties, which contribute to its ability to inhibit cancer cell growth and promote cell death.

Methodology: Numerous preclinical studies have shown that curcumin can effectively target various types of cancer cells, including breast, prostate, lung, and colorectal cancer. Its ability to enhance the sensitivity of cancer cells to chemotherapy and radiotherapy further enhances its therapeutic potential in cancer treatment.

Result: In clinical trials, curcumin has demonstrated promising results in reducing tumor size, preventing metastasis, and improving overall survival in cancer patients. Its low toxicity profile and minimal side effects make it an attractive option for combination therapy with conventional anticancer drugs.

Conclusion: Overall, curcumin holds great promise as a natural compound with potent anticancer properties. Further research is needed to fully elucidate its mechanisms of action, optimize its bioavailability, and explore its potential as a standalone or adjunct therapy in cancer treatment.

Keywords: Curcumin, anticancer agent, combination therapy, cancer treatment

JH/SECON2025/PP-109

Rethinking diabetes: Gauging awareness of remission among patients with Type 2 diabetes

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ABSTRACT

Introduction: We're used to thinking of Type 2 Diabetes (T2DM) as a condition you have for life. But exciting new science has shown that it's often possible to put T2DM into remission—meaning blood sugar is normal without needing medication—especially through significant lifestyle changes. We wanted to survey patients to see if this optimistic message is getting through and how well they're keeping up with the necessary health habits.

Materials and Methods: We talked to 40 diabetes patients (including different types like T1DM and prediabetes) in an urban setting in India, using a simple survey. We asked them if they knew about remission, how active they are, what kind of diet they follow, and how often they check their blood sugar. Our main goal was to put a clear number on the gap between what doctors know and what patients know.

Results and Discussion: The results were quite surprising: 70% of participants had never heard of diabetes remission therapy. Even so, most people (54.1%) still felt that getting rid of diabetes was somehow possible, showing a readiness to hear the facts. Only about one-quarter (24.4%) were currently in remission. The real challenge is making big changes stick: 30% admitted they never exercise, and only 25% were active daily. Checking blood sugar was also very inconsistent. Even worse, for those who did achieve remission, 38.9% saw their diabetes symptoms return, which clearly shows we're failing to provide the long-term support needed for maintenance.

Conclusion/Recommendation: There's a huge problem with communication: patients aren't being informed that diabetes remission is a realistic goal. When awareness is low and long-term support is lacking, it's incredibly hard to keep up the healthy habits that lead to remission. We strongly recommend that healthcare providers start talking about remission right away and offer structured, ongoing support programs to help patients achieve better, lasting health outcomes.

Keywords: Diabetes Remission; Patient Awareness; Type 2 Diabetes; Lifestyle Intervention; Health Education; Recurrence

JH/SECON2025/PP-110

Development of a naproxen and gaultheria oilbased topical nanoemulsion for the ameliorationof osteoarthritis

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ABSTRACT

Background: Osteoarthritis (OA) is a progressive degenerative joint disorder commonly affecting the tibiofemoral region, where loss of cartilage and narrowing of joint space result in pain and immobility. Current therapeutic strategies are often limited by poor solubility and skin penetration of drugs. Naproxen (NAP) exhibits strong anti-inflammatory properties but suffers from restricted delivery. Gaultheria oil (GO) has complementary bioactivity, yet no combined topical formulation has been clinically explored to date.

Objective: This study aimed to develop and characterize a nanoemulsion (NE) based gel incorporating NAP and GO for improving topical delivery, release, and therapeutic potential in OA management.

Methodology: A NE was prepared using Tween 80 as surfactant and PEG 400 as co-surfactant. The optimized formulation was evaluated for particle size, polydispersity index (PDI), zeta potential, drug release, permeation, rheological properties, skin safety, and stability.

Results: The NE demonstrated particle size of 209.2 nm, PDI of 0.2119, and zeta potential of −24.7 mV, indicating good stability. In vitro cumulative drug release over 24 hours was 95.64 ± 0.75% for NE and 87.44 ± 0.84% for the nanoemulsion-based gel (NEG). Drug permeation across the skin reached 17.447 µg cm−2 for NE and 9.3287 µg cm−2 for NEG after 24 hours. Rheological studies confirmed desirable gel consistency, while irritation studies showed excellent skin compatibility with prolonged stability.

Conclusion: The developed nanoemulsion-based gel of NAP and GO demonstrated enhanced drug release, permeation, and favorable topical attributes, proving its potential as an effective localized therapy for osteoarthritis.

Keywords: Osteoarthritis, Nanoemulsion, Naproxen, Gaultheria oil, Topical delivery

JH/SECON2025/PP-111

Evaluation of antidiabetic and antioxidant effects of seabuckthorn (*Hippophae rhamnoides* L.) in streptozotocin-nicotinamide induced diabetic rats

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ABSTRACT

Background: Seabuckthorn (*Hippophae rhamnoides* L.) is a branched deciduous shrub native to Europe and Asia. The plant has been used extensively in oriental traditional system of medicine for treatment of different diseases. Seabuckthorn is found to have significant antioxidative, antimicrobial, immunomodulatory, cytoprotective, hepatoprotective and tissue regenerative properties.

Aims/Objectives: The present study was undertaken to evaluate the antidiabetic and antioxidant effect of seabuckthorn (*Hippophae rhamnoides* L.) in streptozotocin-nicotinamide induced type-2 diabetic rats.

Methods: Experimental diabetes was induced by a single intraperitoneal injection of streptozotocin (60 mg/kg), 15 minutes after the i.p. administration of 120mg/kg nicotinamide. Seabuckthorn was administered orally to streptozotocin (STZ) diabetic rats. Blood glucose, tissue glutathione (GSH) and thiobarbituric acid reactive substances (TBARS) in pancreas were estimated following the established procedures. Biochemical observations were supplemented with histological examination of pancreatic tissue.

Results: The increase of blood glucose, TBARS level with reduction in GSH content were the salient features observed in STZ-diabetic rats. Sea buckthorn produced a significant ($p < 0.05$) reduction in blood glucose levels and TBARS levels in the STZ-diabetic rats. GSH, reduced significantly ($p < 0.05$) in diabetic rats, was brought back to near normal levels by co-administration of sea buckthorn. Degenerative changes of pancreatic beta cells in STZ-diabetic rats were minimized to near normal morphology by administration of sea buckthorn as evident by histopathological examination.

Conclusions: The results of the study indicate the role of oxidative stress in the induction of diabetes and suggest a protective effect of sea buckthorn in this animal model.

Keywords: Antioxidant, diabetes, oxidative stress, seabuckthorn, streptozotocin.

JH/SECON2025/PP-112

Pharmacological and drug delivery potential of *Nigella sativa* and thymoquinone: A comprehensive review

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ABSTRACT

Introduction: *Nigella sativa* (black cumin) is a well-known medicinal plant with strong anti-inflammatory activity and significant potential in enhancing both transdermal and systemic drug delivery. Thymoquinone, its principal bioactive constituent, plays a crucial role in therapeutic efficacy and drug permeation enhancement. The review aims to summarize the phytochemical profile, pharmacological mechanisms, and drug delivery potential of *Nigella sativa* and thymoquinone.

Materials and Methods: Relevant scientific literature was critically analyzed to explore the phytochemical composition of *Nigella sativa*, with emphasis on thymoquinone quantification using gas chromatography–mass spectrometry (GC-MS). Extraction techniques, particularly cold-pressing, were evaluated for their influence on yield and purity. Pharmacological activities, including anti-inflammatory pathways, cytokine modulation, and antioxidant effects, were reviewed. Special attention was given to studies highlighting the role of *Nigella sativa* oil and thymoquinone in enhancing drug permeation across biological barriers.

Results and Discussion: Cold-press extraction was found to significantly impact thymoquinone yield and purity. GC-MS remains the most reliable technique for precise quantification. Thymoquinone exhibits potent anti-inflammatory effects through inhibition of inflammatory enzymes and regulation of oxidative stress. Furthermore, evidence indicates that *Nigella sativa* oil enhances drug penetration across skin and mucosal membranes, suggesting its value in synergistic drug delivery systems. However, variations in extraction methods lead to inconsistencies, underlining the need for standardization.

Conclusion/Recommendation: *Nigella sativa*, particularly its thymoquinone fraction, shows substantial promise as both an anti-inflammatory therapeutic agent and a natural permeation enhancer. Optimized extraction methods and standardized analytical procedures are essential to ensure reproducibility and clinical applicability in novel drug delivery formulations.

Key words: *Nigella sativa*; Thymoquinone; Anti-inflammatory activity; Permeation enhancer; GC-MS analysis; Drug delivery systems

JH/SECON2025/PP-113

Forskolin and its derivatives: Advances in pharmacology, clinical applications, and nanoformulations

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ABSTRACT

Background: Forskolin is a labdane diterpenoid obtained from the roots of *Coleus forskohlii* (Lamiaceae). It has attracted scientific interest due to its ability to affect different pharmacological targets including activation of adenylyl cyclase, thereby increasing intracellular cyclic adenosine monophosphate (cAMP). Elevated cAMP levels regulate diverse physiological processes, including metabolism, cardiovascular function, and immune response.

Objectives: This review aims to summarize the pharmacological activities, therapeutic applications, and formulations of forskolin, with an emphasis on understanding its mechanisms of action and potential clinical utility.

Methods: An extensive survey of peer-reviewed literature and experimental data was conducted, analyzing reports on the pharmacodynamics, disease-targeted applications, and novel delivery approaches.

Results: Forskolin is reported to demonstrate promising activity in a wide spectrum of conditions. It reduced intraocular pressure in glaucoma, improved cardiac contractility and vasodilation in cardiovascular disorders, and resulted in bronchodilation in asthma. Metabolic studies highlighted its role in lipolysis, insulin resistance, and obesity management. Additionally, forskolin showed immunomodulatory, anti-inflammatory, and anticancer properties modulated through cAMP-dependent and independent pathways. Development of nano-formulations have resulted in its enhanced bioavailability, stability, and targeted delivery. However, clinical outcomes remain inconsistent; side effects such as hypotension and gastrointestinal discomfort have also been reported.

Conclusion: Forskolin represents a multifunctional natural compound with significant pharmacological potential. While preclinical findings are encouraging, large-scale clinical studies are required to validate efficacy, ensure safety, and optimize delivery systems to harness its therapeutic potential.

Keywords: *Coleus forskohlii*, cyclic adenosine monophosphate, drug delivery

JH/SECON2025/PP-114

Formulation and evaluation of terbinafine-loaded invasomes with linalool as herbal terpene penetration enhancer for onychomycosis

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ABSTRACT

Introduction: Onychomycosis, a chronic fungal infection of the nail, remains a therapeutic challenge due to the limited permeation of antifungal agents through the keratinized nail plate. Terbinafine, though effective systemically, shows restricted efficacy in topical dosage forms. Invasomes, phospholipid-based elastic nanovesicles enriched with ethanol and terpenes, provide a promising strategy for enhancing transungual drug delivery. Linalool, a naturally occurring monoterpene from essential oils, acts as a safe and effective herbal penetration enhancer with additional antifungal potential.

Materials and Methods: Terbinafine-loaded invasomes were prepared using the thin-film hydration method with phospholipids, ethanol, and linalool as the penetration enhancer. Formulations were evaluated for vesicle size, polydispersity index, zeta potential, entrapment efficiency, and deformability. In vitro drug release and ex vivo permeation studies through keratin films were performed. Antifungal activity of the optimized formulation was tested against *Trichophyton rubrum* and *Candida albicans*.

Results and Discussion: The optimized invasomes displayed vesicle size below 200 nm, high entrapment efficiency (>80%), and superior deformability compared to conventional liposomes. Incorporation of linalool significantly enhanced terbinafine permeation across keratin barrier, achieving \~2–3 fold higher drug penetration than plain terbinafine gel. Antifungal assays demonstrated enhanced inhibitory zones against dermatophytes, indicating synergistic activity of terbinafine and linalool. Stability studies confirmed the robustness of the optimized formulation under ICH conditions.

Conclusion: Terbinafine-loaded invasomes incorporating linalool as a herbal terpene penetration enhancer showed improved nail permeability, higher antifungal efficacy, and reduced systemic exposure. This novel formulation approach holds strong potential as an effective and safer topical therapy for onychomycosis.

Key words: Onychomycosis; Terbinafine; Invasomes; Linalool; Transungual drug delivery

JH/SECON2025/PP-115

Protein power meets savoury flavor: A novel bar formulation

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ABSTRACT

Background: The market for protein bars is expected to increase at a compound annual growth rate (CAGR) of 9.8% from USD 8.60 billion in 2024 to USD 20.04 billion by 2033. Even with this expansion, savory protein bars are still less advanced than their sweet counterparts. The inclusion of artificial chemicals, high salt levels, unappealing sensory parameters and less balanced protein content, limit the nutritional advantages and customer acceptance of many marketed savory bars.

Objective: Using a variety of protein sources and useful additives, the goal is to create a new high-protein savory bar that will increase nutrition, boost sensory qualities, and lessen the drawbacks of existing goods.

Methodology: A carefully balanced combination of whole grains, seeds, various protein sources, and certain flavor-enhancing ingredients were all incorporated into the formulation process. To create a unified and textured matrix, functional binders and natural sweeteners were expertly blended. In order to stabilize moisture and texture, precision moulding and controlled setting were performed after advanced mixing processes guaranteed consistent distribution. Evaluation of the product is in process.

Results: The bar is expected to offer a well-balanced protein profile from several sources together with a pleasing umami and nutty scent. A suitable texture with a moderate level of cohesion and chewiness was achieved by the use of functional additives and it was not wet or sticky, the product retained its structural integrity, showing possibility of strong shelf stability and better bioavailability.

Conclusion: By increasing texture and sensory appeal, decreasing additives, and improving protein quality, this formulation solves frequent issues with existing savory bars. The product's usage as a functional and clinical nutrition solution is supported by its potential for customer acceptance and enhanced nutritional benefit.

Keywords: Savory protein bar, High protein snack, Functional ingredients, Nutritional quality.

JH/SECON2025/PP-116

Targeting ovarian cancer: The promise of liposome-based therapies

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ABSTRACT

Background: Ovarian cancer is a leading cause of mortality among gynecological malignancies, largely due to systemic toxicity and chemoresistance associated with conventional therapies. While liposomal formulations of synthetic drugs such as doxorubicin and paclitaxel have shown improved safety and efficacy, similar limitations also exist in the use of herbal bioactives, which often suffer from poor solubility, instability, and limited bioavailability. Liposomal drug delivery systems offer a promising strategy to enhance the therapeutic potential of plant-derived compounds with anticancer activity.

Objectives: This review aims to explore the role of liposomal formulations of herbal bioactives in the management of ovarian cancer, highlighting their potential to overcome pharmacokinetic limitations, improve tumor targeting, and reduce systemic toxicity.

Methods: Relevant preclinical and clinical studies were examined focusing on liposomal encapsulation of phytoconstituents such as curcumin, quercetin, resveratrol, berberine, and pomegranate-derived polyphenols. Reports on combination therapies involving liposomal herbal drugs with conventional chemotherapeutics or targeted therapies were also evaluated to determine synergistic outcomes.

Results: Liposomal herbal formulations demonstrated enhanced stability, improved solubility, and sustained release profiles compared to free phytoconstituents. Preclinical findings revealed superior tumor accumulation, apoptosis induction, and reduction in drug resistance mechanisms in ovarian cancer models. Targeted liposomal systems incorporating ligands such as folate further improved tumor selectivity while minimizing adverse effects. Additionally, combination strategies of liposomal herbal compounds with chemotherapy agents showed synergistic anticancer effects, indicating potential clinical utility.

Conclusion: Liposomal delivery of herbal bioactives represents a promising therapeutic approach in ovarian cancer by overcoming the intrinsic limitations of phytoconstituents and enhancing their anticancer efficacy. Further clinical validation is necessary to optimize formulations, establish safety profiles, and translate these systems into effective complementary or alternative therapies for ovarian cancer management.

Keywords: Chemotherapy, Drug resistance, Liposomal drug delivery, Ovarian cancer, Doxorubicin, Targeted therapy

JH/SECON2025/PP-117

Uses of turmeric as an antioxidant in cardiovascular diseases

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ABSTRACT

Background: Turmeric, primarily due to its active compound curcumin, has been recognizedfor its antioxidant and anti-inflammatory properties, making it beneficial in the prevention and management of cardiovascular diseases.

Aim: Aim of this abstract I sto explore the role ofturmeric as a dietary supplement in enhancing cardiovascular health through its antioxidant effects.

Methods: A comprehensive review ofclinical trials and observationalstudies was conducted to evaluate the impact ofturmeric on cardiovascular markerssuchaslipid profiles, blood pressure, and inflammatory biomarkers.

Results: Findings indicate that turmeric supplementation significantly reduces oxidative stress and inflammation, which are pivotal in the pathogenesisof cardiovascular diseases.Several studies have shown improvements inendothelial function and reductions in LDL cholesterol levels among participantswhoconsumedturmeric regularly.

Conclusions: The evidence supports the potential ofturmeric asa natural antioxidant with favorable effects on cardiovascular health. Regular intake may contribute to the prevention of cardiovascular diseases, highlighting its relevance in dietary interventions aimed at improving heart health. Further research is required to establishoptimal dosages and long-termeffects.

Keywords: Antioxidant, Antiinflammatory Properties, Cardiovascular, Turmeric

JH/SECON2025/PP-118

NMR-based metabolomics of herbal medicines

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ABSTRACT

Background: Herbal medicines are widely used in traditional systems like Traditional Chinese Medicine (TCM) and Ayurveda, offering therapeutic benefits but facing challenges in standardization due to variability in plant sources, environmental factors, and processing methods. Metabolomics, particularly NMR-based approaches, enables comprehensive profiling of metabolites, ensuring quality control, authentication, and reproducibility of herbal extracts. ^1H NMR spectroscopy provides non-destructive, reproducible spectral fingerprints of complex mixtures, identifying primary and specialized metabolites without extensive sample preparation.

Objective: To apply ^1H NMR-based metabolomics for the identification and characterization of key metabolites in herbal medicine extracts

Methodology: Herbal medicines were extracted with deuterated solvents (D_2O or CD_3OD), then filtered and centrifuged for analysis. ^1H NMR spectroscopy was performed using a 400–600 MHz spectrometer, scanning 0.5–10 ppm with TSP or DSS as internal standards. Data were processed with baseline correction, normalization, and binning to ensure accuracy and reliability.

Result: NMR-based metabolomics has successfully identified key metabolites across various herbal extracts, revealing distinct profiles for quality assessment. For instance, in ginseng (Panax ginseng), ^1H NMR detected alanine (1.48 ppm), choline (3.21 ppm), sucrose (5.40 ppm), and ginsenosides, enabling differentiation by origin and age via PCA. In Ephedra species, ephedrine alkaloids (around 3.0–4.0 ppm) and benzoic acid analogues were key discriminators.

Conclusion: 1H NMR-based metabolomics offers a robust, high-throughput tool for metabolite identification in herbal extracts, supporting standardization, safety, and efficacy evaluation. By revealing metabolic variations, it bridges traditional herbal practices with modern pharmacovigilance, potentially accelerating biomarker discovery and personalized medicine. Future integration with AI and multi-omics will further enhance its applications, promoting sustainable herbal product development
Keywords: 1H NMR spectroscopy, Herbal medicine, Metabolomics

JH/SECON2025/PP-119

Pharmacological and drug delivery potential of *Nigella sativa* and thymoquinone: A comprehensive review

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ABSTRACT

Introduction: *Nigella sativa* (black cumin) is a well-known medicinal plant with strong anti-inflammatory activity and significant potential in enhancing both transdermal and systemic drug delivery. Thymoquinone, its principal bioactive constituent, plays a crucial role in therapeutic efficacy and drug permeation enhancement. The review aims to summarize the phytochemical profile, pharmacological mechanisms, and drug delivery potential of *Nigella sativa* and thymoquinone.

Materials and Methods: Relevant scientific literature was critically analyzed to explore the phytochemical composition of *Nigella sativa*, with emphasis on thymoquinone quantification using gas chromatography–mass spectrometry (GC-MS). Extraction techniques, particularly cold-pressing, were evaluated for their influence on yield and purity. Pharmacological activities, including anti-inflammatory pathways, cytokine modulation, and antioxidant effects, were reviewed. Special attention was given to studies highlighting the role of *Nigella sativa* oil and thymoquinone in enhancing drug permeation across biological barriers.

Results and Discussion: Cold-press extraction was found to significantly impact thymoquinone yield and purity. GC-MS remains the most reliable technique for precise quantification. Thymoquinone exhibits potent anti-inflammatory effects through inhibition of inflammatory enzymes and regulation of oxidative stress. Furthermore, evidence indicates that *Nigella sativa* oil enhances drug penetration across skin and mucosal membranes, suggesting its value in synergistic drug delivery systems. However, variations in extraction methods lead to inconsistencies, underlining the need for standardization.

Conclusion/Recommendation: *Nigella sativa*, particularly its thymoquinone fraction, shows substantial promise as both an anti-inflammatory therapeutic agent and a natural permeation enhancer. Optimized extraction methods and standardized analytical procedures are essential to ensure reproducibility and clinical applicability in novel drug delivery formulations.

Key words: *Nigella sativa*; Thymoquinone; Anti-inflammatory activity; Permeation enhancer; GC-MS analysis; Drug delivery systems

JH/SECON2025/PP-120

Therapeutic role of Satawar (*Asparagus racemosus*) in enhancing immune function during adolescence

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ABSTRACT

Introduction and Objectives: The Unani system of medicine, one of the oldest traditional medical systems, remains in practice due to the efficacy and safety of its remedies. In certain infectious and chronic conditions, the body's natural defenses weaken—a condition termed *Zauf-e-Quwate Mudafeat*. Unani physicians recommend drugs with *Muqawwiyat Quwate Mudafeat* properties, acting as immunomodulators, to restore immune function. Commonly used single or compound formulations include *Satawar* (*Asparagus racemosus* Willd.), *Aslussoos* (*Glycyrrhiza glabra*), *Raihan* (*Ocimum sanctum*), and *Khamira Marwareed*. According to Unani philosophy, adolescence (up to 25 years) is considered *Sine-Namoo* (growth period), during which all body faculties, including immunity, mature. Immunomodulators may aid this process by supporting immune system maturation and correcting Th1/Th2 imbalance through activation of T regulatory (Treg) cells.

Materials and Methods: *Asparagus racemosus* (AR) has been studied for multiple therapeutic roles, including as an immunomodulator, galactagogue, adaptogen, antitussive, anticancer, antioxidant, antidiarrheal, and general tonic. Experimental studies have reported restoration of lymphocyte and neutrophil counts, supporting its immune-enhancing properties.

Results and Discussion: Evidence suggests that *Satawar* can enhance immune function and may serve as a safe, effective, and economical immunomodulatory agent during adolescence, potentially offering protection against diseases in adulthood.

Conclusion: Given its pharmacological profile and traditional use, *Asparagus racemosus* warrants further multicentric research in teenage populations to develop standardized immunomodulatory therapies.

Keywords: *Satawar*, immunomodulator, adolescence, Unani medicine

JH/SECON2025/PP-121

Application of *Rumex hastatus* to treat antidiabetic, anti-inflammatory and antioxidant activities

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ABSTRACT

Rumex hastatus, also known as Chilmora, a plant found in the Bhimtal region of Uttarakhand. It is traditionally used for treating various ailments there. This study aims to explore the antioxidant, anti-inflammatory and antidiabetic potential of aqueous extract of *R. hastatus* through *invitro* along with its physicochemical and phytochemical characterization. The aerial parts were collected; shade dried, powdered and was extracted using the maceration technique with deionized water. The phytochemical screening revealed the presence of several bioactive compounds including alkaloids, flavonoids, glycosides, carbohydrates, proteins and steroids. Along with these physicochemical screening also demonstrated few parameters like ash values, moisture content and extractive values which signifies its quality and purity. The extract demonstrated notable antioxidant activity, with a maximum of 78.33% in the FRAP assay at 600 µg/mL. Nitric oxide and hydrogen peroxide scavenging activities were 56.35% and 61.33%, respectively, at the same concentration. Anti-inflammatory activity was evaluated using the protein denaturation method, where the extract inhibited denaturation by 44.44% at 600 µg/mL. Antidiabetic potential was investigated through α-amylase inhibition, showing significant activity (66.71% inhibition at 600 µg/mL), indicating its ability to regulate postprandial hyperglycemia. The results suggested that *R. hastatus* possess significant therapeutic potential due to its rich phytochemical profile and biological activities. These findings validate its medicinal use and indicate promising role as natural antioxidants, anti-inflammatory agents and antidiabetic compounds. Further studies including *invi*vo models and bioactive compounds isolation are needed to explore its pharmacological potential.

Keywords: *Rumex hastatus*, antioxidant, anti-inflammatory, antidiabetic, plant extract

JH/SECON2025/PP-122

Formulation of herbal shampoo powder

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ABSTRACT

Aim: The present project aims to formulate a herbal shamboo powder using natural ingredients with cleansing, conditioning, and antimicrobial properties, providing a safer and eco-friendly alternative to synthetic shampoos.

Method: Select herbal ingredients such as shikakai (cleanser), Reetha (foaming agent), Amla (hair strengthener), Neem (antimicrobial), and Henna (conditioner) were collected, dried, and powdered.The powders were sieved and blended in specific proportions to ensure uniformity. The prepared formulation was evaluated for physicochemical parameters such as pH, foaming ability, organoleptic characteristics, and stability.

Results: The herbal shampoo powder exhibited a neutral pH suitable for scalp health. It showed good foaming capacity, effective cleansing action, and mild conditioning properties without causing scalp irritation. The formulation was free from synthetic surfactants, parabens, and artificial fragrances. Stability studies indicated that the powder retained its color, odor, and activity during the study period. Feedback from volunteers confirmed improved hair texture, reduced dandruff, and satisfactory cleansing efficiency.

Conclusion: The formulated he bal shampoo powder proved to be a safe, effective, and eco-friendly hair care product. It demonstrated excellent cleansing and conditioning properties with added benefits of antimicrobial action. This study supports the potential of herbal powders as a sustainable alternative to commercial synthetic shampoos, catering to consumer demand for natural and chemical-free personal care products.

Keywords: Eco-friendly, shampoo, antimicrobial, antidandruff, natural formulation

JH/SECON2025/PP-123

Development of herbal drugs containing nanoparticulate gel formulation: A novel approach for enhanced skin cancer treatment

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ABSTRACT

Background: Skin cancer, the most common cancer globally with 331,722 new cases in 2023, is mainly caused by unrepaired DNA damage leading to abnormal cell growth. Herbal nanogels are favoured over synthetic drugs due to fewer side effects and natural anticancer properties. Plant-based compounds like curcumin, resveratrol, and quercetin offer anti-inflammatory, antioxidant, and apoptosis-inducing effects that help control tumor growth.

Aims/Objectives: Drug-loaded nanogel will be developed for topical skin cancer therapy. Formulation will be designed, characterized (physicochemical/experimental), tested for in vitro release, ex vivo dermatokinetics, and in vivo safety and anticancer efficacy.

Methods: Herbal actives undergo solubility/compatibility tests. Nanoparticles (homogenization/nanoprecipitation) are loaded into nanogels and optimized. Characterization: size, shape, entrapment, rheology, solid-state, release, dermatokinetics. Safety/efficacy: irritation, in vivo, toxicology, stability, cytotoxicity, mechanism.

Results: The optimized herbal nanogel showed uniform nanosized particles, high drug entrapment, and suitable rheology for topical use. This herbal nanogel offers a biocompatible, effective skin cancer treatment.

Conclusion: Herbal nanogels improve solubility, stability, penetration, efficacy, and safety, offering a biocompatible, patient-friendly alternative for effective skin cancer treatment.

Keywords: Skin cancer, herbal nanogel, topical delivery, antioxidant, anti-inflammatory.

JH/SECON2025/PP-124

From Mizāj to Mitochondria: The role of Unani Āhār in neurodegenerative disorders

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ABSTRACT

Background: Neurodegenerative disorders, including Alzheimer's and Parkinson's disease, are increasing globally and pose significant clinical and societal challenges. Current biomedical approaches often provide symptomatic relief but limited preventive or long-term solutions. Unani medicine emphasizes *Ilāj bi'l-Ghidhā* (dietotherapy) and maintenance of *Mizāj* (temperament) as foundational principles for brain health.

Objective: To explore the role of Unani *Āhār* in supporting cognitive function and neuroprotection, and to relate classical dietary recommendations to modern scientific evidence on neuronal and mitochondrial health.

Methodology: A narrative review of classical Unani texts (e.g., *Al-Qanun fi'l-Tibb*, *Zakhira Khwarazm Shahi*) was conducted to identify foods prescribed for brain strengthening (*Muqawwi Dimāgh*) and mood enhancement (*Mufarrih*). These recommendations were then correlated with contemporary biomedical literature on neurodegeneration, oxidative stress, and mitochondrial function.

Results: Classical Unani texts highlight almonds, walnuts, saffron, olive oil, honey, and fish as beneficial for cognition, while discouraging phlegm-producing or overly drying foods such as yogurt, cucumber, lentils, and heavily salted items. Modern studies confirm that these foods provide antioxidants, polyunsaturated fatty acids, and polyphenols that improve synaptic plasticity, reduce amyloid aggregation, mitigate oxidative stress, and support mitochondrial function. The concept of *Mizāj* aligns with modern insights on maintaining neuronal balance and preventing neurodegenerative progression.

Conclusion: Unani *Āhār* offers a promising, integrative approach for neuroprotection. Bridging classical dietary wisdom with modern cellular evidence highlights the potential of diet-based interventions in preventing or managing neurodegenerative disorders. Systematic clinical studies are warranted to validate these effects.

Keywords: Unani medicine, Āhār, Mizāj, neurodegeneration, mitochondria

JH/SECON2025/PP-125

Antidiabetic potential of Indian medicinal plants

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ABSTRACT

Introduction: Diabetes mellitus is a growing problem worldwide, entailing enormous financial burden and medical care policy issues. According to the International Diabetes Federation (IDF), the number of individuals with diabetes in 2011 crossed 366 million, with an estimated 4.6 million deaths each year. The Indian subcontinent has emerged as the capital of this diabetes epidemic. Indians show a significantly higher age-related prevalence of diabetes when compared with several other populations.

Objective: According to the World Health Organization (WHO), up to 90% of the population in developing countries uses plants and their products as traditional medicine for primary health care. The WHO has listed about 21,000 plants used for medicinal purposes worldwide, among which nearly 2,500 species are found in India. Around 800 plants have been reported to exhibit antidiabetic potential.

Result: Indian medicinal plants with antidiabetic potential include Ficus religiosa (Peepal), which contains phytosterols and flavonoids responsible for its antihyperglycemic activity. Oral administration of aqueous extract of Peepal leaves for 21 days has been shown to significantly lower blood glucose and elevate insulin levels. Eugenia jambolana (Jamun or Black Plum) has long been used in traditional Indian medicine and was once a frontline antidiabetic agent in Europe. A brew made from its seeds has shown effective hypoglycemic effects. Other common and potent Indian antidiabetic plants include *Acacia arabica, Aegle marmelos, Allium cepa, Allium sativum, Aloe vera, Azadirachta indica, Momordica charantia*, and *Mangifera indica*.

Conclusion: Herbal medicines provide a safe, cost-effective, and accessible alternative to synthetic antidiabetic drugs. Continued research and standardization of herbal formulations can further enhance their therapeutic potential in managing diabetes mellitus.

Keywords: Diabetes mellitus, Herbal medicine, Antidiabetic plants, Ficus religiosa, Eugenia jambolana, Traditional medicine

JH/SECON2025/PP-126

Enzyme Immobilization and therapeutic Approach an Advance Technique: Current Status

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ABSTRACT

Background: Enzyme immobilization is a technique of attaching enzymes to a solid support or matrix, enhancing their stability, reusability, and efficiency. In therapeutic applications, immobilized enzymes are widely explored for enzyme replacement therapy, biosensors, and drug delivery.

Objective: The main objective of this research based study, recent advances in enzyme immobilization and assess their therapeutic relevance. It seeks to analyze the advantages over free enzymes, highlight biomedical applications such as drug delivery and diagnostics, and discuss challenges and Recent advances in nanotechnology and material sciences have opened novel possibilities for clinical translation**.**

Methodology: This research study adopts a structured approach, scientific research articles, studies, and experimental outcomes related to enzyme immobilization and therapeutic applications were systematically analyzed. Special attention was given to advanced techniques such as nanocarriers, to provide an updated perspective on their effectiveness, advantages, and challenges in biomedical use.

Results: The results indicate a growing role of immobilized enzymes in medicine. By employing advanced supports such as magnetic nanoparticles and metal-organic frameworks, researchers have achieved better stability, activity retention, and targeted delivery. Therefore, these advances, ensuring safety, reproducibility, and cost-effectiveness continues to be the main challenge for clinical application.

Conclusion: Enzyme immobilization has emerged as a promising tool in Artificial Intelligence as modern modern therapeutics approach by improving advanced carriers and nanostructured supports have expanded its biomedical scope, particularly in drug delivery and biosensors with addressing biocompatibility, scalability, and regulatory challenges remains essential for successful clinical translation and future healthcare innovations.

Keywords: Enzyme immobilization; therapeutic enzymes; nanocarriers; metalorganic frameworks (MOFs); biosensors; drug delivery; biomedical applications

JH/SECON2025/PP-127

Green extraction and quantification of caffeine from tea leaves of different brands for comparative analysis

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ABSTRACT

Background: Caffeine, a naturally occurring alkaloid in tea, plays a vital role in stimulating the central nervous system. Conventional extraction methods often employ organic solvents that are hazardous and environmentally unfriendly. Green extraction techniques provide safer, sustainable alternatives while maintaining accuracy in quantification.

Objective: The present study aimed to extract caffeine from tea leaves of different commercial brands using eco-friendly solvents and to quantify the extracted caffeine for comparative evaluation.

Methods: Tea samples from multiple brands were subjected to green solvent-assisted extraction. The presence of caffeine was confirmed by chemical tests, followed by quantification using UV–Visible spectrophotometry. Comparative analysis among brands was performed to evaluate variations in caffeine content.

Results: The calibration plot of reference standard was made to find out the concentration of caffeine in different samples.All tested tea brands contained caffeine, with quantitative differences observed across samples. The green extraction method proved efficient, reproducible, and environmentally safe. Significant variation in caffeine levels was recorded, highlighting brand-dependent differences in processing and formulation.

Conclusion: Green extraction methods offer a sustainable and reliable approach for caffeine analysis in tea. Comparative evaluation of different brands provides valuable insights for consumers regarding caffeine intake and underlines the importance of eco-friendly analytical practices in food quality assessment.

Keywords: Caffeine, Tea leaves, Green extraction, UV-Vis spectrophotometry, Comparative analysis.

JH/SECON2025/PP-128

Chemical and pharmacological attributes of menthol

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ABSTRACT

Introduction: Menthol has been well known and crucial phyto-component of Mentha species, acknowledge for its cooling properties in its essential oil and shown potential as a paraben free preservative. It has peculiar odour due to this cyclic monoterpene alcohol, extracted by, hydro distillation at temperature condition of 30ºC, steam distillation at temperature condition of 35ºC to 40ºC, microwave extraction and numerous different methods.

Material and Methods: Data was collated from Google, Pub Med and repository of Library of CCP

Results and Discussion: There are eight stereoisomeric forms, but menthol from the natural source and synthesised menthol having same structure has been the most popular isomer. It has outstanding biological activities such as analgesic, antibacterial, antifungal, anaesthetic, chemoprevention and immunomodulator actions. It is an agonist of transient on the epithelium's transient receptor potential melastatin-8 (TRPM8) receptors, which have been associated with sensation of cooling effect on skin.Because of its cooling effect, employed manufacture consumer goods such as chocolate, chewing gum, oral care products such as toothpaste and some medicinal products.TRPM8 is thought to be a crucial receptor for causing cooling effect in human skin and also included cooling-related analgesic or anaesthetic effects.

Conclusion: As from above numerous biological characteristics, such as antimicrobial and pain-stimulating effects, have been attributed to menthol and the mint oils Route of administration includes oral; chewable; inhalations, inhaled and topical applications. Phytocomponent hold the potetia for exploitation at research and industrial scale.

Key words: Essential oil, Extraction, Menthol, TRPM8 receptor, Stereoisomers

JH/SECON2025/PP-129

Ziabetus (Diabetes mellitus): Evidence-based integration of Unani and allopathy

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ABSTRACT

Background: Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia due to impaired insulin secretion or action. Between 2021 and 2025, global diabetes cases rose from 537 million to 783 million, with India's burden increasing from 74.2 million to 89.8 million. Despite stable prevalence rates, the absolute rise and escalating healthcare costs (USD 1.015 trillion in 2024) highlight the urgent need for safer, cost-effective, and integrative management strategies. Conventional therapies face limitations due to adverse effects and declining efficacy, prompting exploration of Unani medicine as a complementary approach.

Aims/Objectives: To assess limitations of conventional antidiabetic pharmacotherapy; to advocate for integrative diabetes management combining Unani and allopathic approaches.

Methods: This reviews global diabetes trends from 2021 to 2025, focusing on prevalence, mortality, and healthcare costs. It analyzes clinical manifestations and complications, compares conventional antidiabetic drugs and their adverse effects, and examines three Unani-based interventions: two double-blind RCTs combining Diabeat or Tukhme Kasni extract with Metformin, and a preclinical trial evaluating Qurse Tabasheer in STZ-induced diabetic rats.

Results: From 2021 to 2025, global diabetes cases rose by 246 million, with India's prevalence reaching 11.4%. Health spending increased by 338%, dominated by the NAC region. Conventional drugs showed reduced monotherapy efficacy and notable side effects, while Unani interventions significantly improved glycemic and metabolic markers in both clinical and animal studies.

Conclusion: Diabetes care demands integrative strategies that combine conventional treatment with safe, evidence-backed Unani adjuncts. Prioritizing clinical trials, standardization, and policy integration can enhance outcomes, especially in underserved settings.

Keywords: Diabetes mellitus, Integrative medicine, Global burden.

JH/SECON2025/PP-130

Ethnopharmacological insights into diethylene glycol poisoning: Bridging traditional detoxification and modern toxicology

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ABSTRACT

Diethylene Glycol (DEG) poisoning remains a significant global toxicological issue, leading to fatal renal and hepatic damage through metabolic acidosis and oxidative stress. Despite advancements in modern medical advances, specific antidotes remain limited. Traditional systems of medicine, including Ayurveda and Unani, have long described detoxifying herbs and formulations with the potential of counteracting chemical and metabolic poisons. The review poster explores the intersection of traditional detoxification principles *Shodhana* in Ayurveda and *Tanqiya-e-Badan* in Unani with modern toxicological frameworks to develop integrative strategies for DEG management. Notable plants including *Tinospora cordifolia*, *Emblica officinalis*, *Rheum emodi*, and *Glycyrrhiza glabra* recognised for their bioactive compounds that modulate oxidative stress, inflammation, and Nrf2-related pathways. It bridges ethnopharmacological wisdom with modern biochemical insights, presenting an evidence-based framework for developing integrative toxicology approaches.

Keywords: Diethylene Glycol, Ethnopharmacology, Herbal Detoxification, Ayurveda, Integrative Toxicology

JH/SECON2025/PP-131

Formulation and evaluation of transdermal patches using natural permeation enhancer: Cinnamon oil

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ABSTRACT

Background: This study was undertaken to formulate and evaluate transdermal patches using *cinnamon oil* as a natural permeation enhancer to improve drug absorption through the skin, while ensuring sustained release and patient compliance.

Method: Transdermal patches were prepared by the solvent evaporation method, incorporating varying concentrations of cinnamon oil into a polymeric matrix. The formulations were evaluated for physicochemical characteristics such as thickness, weight uniformity, moisture content, and drug content. In vitro drug release and permeation studies were carried out, with patches lacking cinnamon oil serving as controls.

Results: The prepared patches showed uniform thickness and weight, acceptable moisture balance, and satisfactory drug loading. Incorporation of cinnamon oil significantly enhanced drug permeation compared to the control, confirming its effectiveness as a natural enhancer. In vitro release studies demonstrated a sustained and controlled release profile, suggesting better therapeutic potential. The cinnamaldehyde content in cinnamon oil was responsible for improving permeability of the stratum corneum, thereby facilitating higher drug flux. The formulations also exhibited stability and retained their properties during preliminary testing.

Conclusion: The results establish that natural permeation enhancers such as cinnamon oil can effectively enhance transdermal drug delivery. This approach not only improves bioavailability and therapeutic efficacy but also offers a safe and eco-friendly alternative to synthetic enhancers. Such patches hold promise for patient-friendly, controlled drug delivery systems with improved compliance and minimal side effects.

Keywords: Transdermal patches, drug delivery systems, cinnamon oil, skin permeability, controlled release

JH/SECON2025/PP-132

Evidence-based use of *Aloe vera* in modern Unani formulation: An introduction

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ABSTRACT

Introduction: Aloe vera (*Aloe barbadensis miller)*, also known as *sibr or alva* is one of the most widely used medicinal plants worldwide. Traditionally, aloe vera has been used as a laxative, for wound healing and to treat skin disorders. In modern science, it has also been observed that aloe vera demonstrates anti-inflammatory, gastrointestinal and anti-cancer activities.

Aim: The aim of this study is to educate and engage students on how the traditional uses of Aloe vera have been scientifically validated over time.

Methodology: A desktop search was conducted using websites such as Google Scholar, PubMed and ScienceDirect. In addition to this, some Unani books were also referred to understand the traditional utilization of aloe vera.

Result: From the desktop search, 10 scientific studies were identified to substantiate the traditional claims of Aloe vera in Unani medicine. The key reported effects included anti-inflammatory, antioxidant, and gastrointestinal benefits. Specific components such as *acemannan* were found to enhance immune function and aid in acne management, while aloin improved intestinal motility. *Barbaloin* exhibited strong antioxidant properties by protecting DNA, and *saponins* demonstrated bactericidal activity. Additionally, bioactive compounds like aloe-*emodin* were shown to restore immune balance and reduce inflammation. Recent findings also highlighted that *anthraquinones* act as phytoestrogens, potentially lowering the risk of breast cancer.

Conclusion: Aloe vera has long held an important place in Unani medicine for its remarkable healing properties. Modern scientific studies now validate these traditional claims, reinforcing the credibility and importance of Aloe vera in promoting health and prevention.

Keywords: Aloe vera, Uses, Unani Medicine, Evidence

JH/SECON2025/PP-133

Emerging roles of phytohormones and growth regulators in modulating plant immunity against viral pathogens

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ABSTRACT

Background: Viral infections are major contributors to crop yield losses and represent a significant threat to sustainable agriculture. Plants respond to virus attacks by activating sophisticated signalling cascades that initiate multiple defence mechanisms.

Aim: To understand the role and crosstalk of classical phytohormones (SA, JA, ABA, ET) and emerging plant growth regulators (melatonin, NO, BRs, H_2S, carrageenans, sulfated fucans) in modulating plant immune responses against viral infections, and to identify their coordinated defence mechanisms that suppress viral replication and movement.

Method: A comprehensive literature review was conducted to analyse recent studies (2010–2025) on phytohormones and emerging plant growth regulators in antiviral defence. Comparative evaluation focused on their signalling roles, synergistic interactions, and impact on viral replication, movement, and RNA interference activation to elucidate integrated mechanisms of plant immune responses.

Result: Evidence gathered over the years has highlighted the crucial roles of phytohormones and PGRs in regulating plant defence responses against virus infections. Emerging evidence indicates that these PGRs coordinate with phytohormones to activate various defence strategies including (a) stomatal closure to limit pathogen entry, (b) callose deposition to block plasmodesmata and restrict viral spread within host tissues, (c) attenuation of viral replication, and (d) activation of RNA interference (RNAi), a crucial antiviral defence response.

Conclusion: This study discusses the diverse functions and crosstalk among various phytohormones and PGRs in orchestrating the plant defence mechanisms, highlighting their impact on viral replication, movement, and intercellular transport. The insights gleaned from this review can potentially contribute to the development of innovative strategies for effective management and control of viral diseases in crop plants, ultimately safeguarding global food security and sustainable agriculture.

Keywords: virus, phytohormones, plant growth regulators, plant defence, RNAi

JH/SECON2025/PP-134

Quality control and nephroprotective potential of Majoon-e-Kundur and its sugar free formulation using *in vitro, in vivo* and metabolomics approaches

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ABSTRACT

Background: Majoon-e-Kundur (MK) is a classical unani polyherbal formulation traditionally used to treat urinary disorders such as frequent urination and loose bladder. Beyond these uses, MK exhibits significant pharmacological properties, including antioxidant and antihypertensive effects, making it potentially valuable in managing chronic kidney disease (CKD).

Objective: The study aimed to evaluate the nephroprotective and antioxidant potential of a modified sugar-free MK formulation against cisplatin (CP)-induced nephrotoxicity in albino rats, with a focus on its application in CKD management.

Methodology: Scientific databases including PubMed, Scopus, and Google Scholar were reviewed to identify the pharmacological activities of MK's constituent plants. The sugar-free MK formulation underwent chromatographic analysis (TLC, HPTLC, LC-MS, and GC-MS), revealing 5–6 metabolites with gallic acid and caffeic acid as major components. In vitro antioxidant and free radical scavenging assays determined total phenolic and flavonoid content. In vivo nephroprotective activity was assessed in zebrafish embryos and albino rats through biochemical and histopathological evaluations.

Results: Chromatographic and antioxidant assays confirmed strong antioxidant potential. Zebrafish toxicity studies indicated dose-dependent mortality, with the highest toxicity (50%) at 40 µg/mL. In albino rats, sugar-free MK significantly ($p<0.001$) improved kidney biomarkers and tissue structure compared to controls. The formulation demonstrated marked nephroprotective, antioxidant, and anti-inflammatory effects.

Conclusion: Sugar-free MK is a potent natural therapeutic agent for CKD, hypertension, and nephrotoxicity. Its strong antioxidant and nephroprotective properties suggest its potential as a safe, effective treatment, which could be enhanced through novel drug delivery technologies

Keywords: *Majoon-e-Kundur*, Antioxidant, Nephroprotective, Management of Chronic Kidney Disease (CKD)

JH/SECON2025/PP-135

Citrullus colocynthis: A phytochemical and ethnopharmacological review

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ABSTRACT

Introduction: *Citrullus colocynthis,* also known as bitter apple, a desert plant with long-standing traditional uses and strong potential in medicine, pharmaceuticals, and nutrition. This review summarizes all the information on its traditional uses, chemical compounds, biological activities, and safety aspects, and also identifies areas for future research.

Materials and Methods: Data was collated from Google, Pub Med and repository of Library of CCP. Traditionally, the fruit has been utilized to manageseveral conditions which includes diabetes, leprosy, asthma, bronchitis, jaundice, joint pain, cancer, toothache, wounds, gastrointestinal problems like indigestion, constipation, dysentery, and infections.

Results and Discussion: This herb holds various bioactive constituents such as glycosides, flavonoids, alkaloids, fatty acids, essential oils, cucurbitacins (A–L), and colocynthosides A and B. Studies show it has antioxidant, antidiabetic, lipid-lowering, antimicrobial, anti-inflammatory, insecticidal, and cytotoxic properties. The seed of it, rich in protein, minerals, and edible oil.

Conclusion: Overall, the herb known to be a valuable plant with proven benefits in diabetes, cancer, oxidative stress, and infections, but more research is needed to explore its role in digestive, respiratory, and heart-related disorders. It also demonstrated potential for use in pharmaceuticals and nutraceuticals, with possible synergistic effects that may enhance its safety and effectiveness.

Keywords: *Citrullus colocynthis,* Phytochemistry, Ethnopharmacology, Antidiabetic, Nutraceutical potential

JH/SECON2025/PP-136

Phytochemical analysis of aqueous extracts of selected medicinal plants

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ABSTRACT

Background: Plant-based decoctions and infusions made with water are frequently recommended as accessible and safe formulations for both medicinal and preventive reasons in the AYUSH medical system. To maintain cultural continuity and patient compliance, aqueous extracts are especially crucial because they mimic ancient preparation methods in Ayurveda. They are eco-friendly, free from organic solvents, and often enriched with bioactive compounds that are soluble in water, making them a cornerstone of AYUSH dietary and therapeutic practices. Medicinal plants have long been used in these traditional systems for their valuable pharmacological properties.

Objective: To analyze the phytochemical content and fingerprint profile of aqueous extracts of selected medicinal plants.

Materials and methods: Dried leaves of selected medicinal plants were procured. Aqueous extracts were prepared using maceration method. Phytochemical screening was carried out using standard qualitative tests. For quality control and chemical characterization, HPTLC fingerprinting was carried out on silica gel 60 F254 plates using appropriate solvent systems, and spots were visualized under UV.

Results: The phytochemical analysis confirmed the presence and absence of different classes of metabolites in selected medicinal plants. HPTLC profiles revealed characteristic bands, providing distinct fingerprints for each species.

Conclusion: Aqueous extracts of selected plants exhibit rich phytochemical diversity, and reproducible HPTLC fingerprints, validating their traditional use in AYUSH systems of medicine. The study highlights their potential for development into standardized, safe, and culturally relevant herbal formulations.

Keywords: AYUSH, aqueous extracts, phytochemicals, HPTLC, chromatography

JH/SECON2025/PP-137

Novel Strategies for androgenetic Alopecia therapy: Integrating multifunctional plant extracts with nanotechnology for advanced cutaneous drug delivery

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ABSTRACT

Background: Androgenetic alopecia (AGA) is a progressive, non-scarring hair loss disorder characterized by follicular miniaturization and gradual reduction in hair density and is the most prevalent form of hair loss affecting both men and women. The pathogenesis of AGA involves dihydrotestosterone (DHT)-mediated androgen receptor activation, genetic susceptibility, oxidative stress, perifollicular inflammation, and impaired microvascular circulation. Current therapies provide limited efficacy, delayed onset, and undesirable side effects, leading to poor patient compliance, hence highlighting the need for innovative, safer, and more effective treatment approaches.

Objective: To summarize the therapeutic potential of multifunctional plant extracts integrated with nanotechnology-based delivery systems to enhance efficacy, safety, and patient compliance in AGA management.

Methodology: A comprehensive literature review was conducted using databases such as PubMed, Scopus, and Google Scholar, focusing on studies published in the last decade on phytotherapy, nanotechnology, and their combined application in androgenetic alopecia management.

Result: Many phytoconstituents exhibit anti-androgenic, antioxidant, anti-inflammatory, and pro-angiogenic activities. These botanicals modulate DHT synthesis, improve follicular vascularization, and promote scalp homeostasis, offering promising alternatives to conventional pharmacotherapy. Advanced nanocarriers enhance solubility, stability, and targeted follicular penetration of the active phytochemicals. Formulating the constituents in nanocarriers enables the controlled drug release, improved cutaneous drug delivery, and prolonged therapeutic effects, ultimately improving patient adherence and treatment outcomes.

Conclusion: The integration of phytotherapy with nanotechnology represents a transformative, multi-targeted strategy for AGA management.

Keywords: Androgenetic alopecia, phytotherapy, nanotechnology, hair follicle targeting.

JH/SECON2025/PP-138

Holistic healing vs target-based therapy: Finding the concordance

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ABSTRACT

Introduction: Holistic healing systems, such as Ayurveda, Traditional Chinese Medicine (TCM), and Unani, emphasize balance, prevention, and treatment of the whole individual—body, mind, and spirit. In contrast, modern medicine largely relies on target-based therapy, acting on specific molecular pathways, receptors, or enzymes to deliver precise therapeutic effects. While holistic healing provides multi-targeted, preventive care with minimal side effects, target-based approaches offer precision, reproducibility, and rapid action.

Material and Methods: The data and findings presented in this review were procured from different websites such as web of science, google scholar & Pub med.

Findings: Recent advances in molecular pharmacology and systems biology demonstrate that traditional remedies often act through multiple molecular targets simultaneously, supporting their holistic claims. For example, curcumin from Curcuma longa inhibits NF-κB and COX-2; withanolides from *Withania somnifera* modulate HSP90 and reduce cortisol; and resveratrol activates SIRT1, promoting neuroprotection and anti-aging effects.

Conclusion: This poster highlights the concordance between ancient holistic approaches and modern target-based therapies, discussing strengths, limitations, and integrative applications. Such synergy offers a patient-centered, sustainable, and evidence-based model for future healthcare, bridging the gap between traditional wisdom and modern biomedical science.

Keywords: Holistic healing, Target-based therapy, Integrative medicine, Multi-target therapeutics, Evidence-based medicine.

JH/SECON2025/PP-139

Pharmacological potential of Iranian saffron *(Crocus sativus L.):* An update from tradition to modern medicine

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ABSTRACT

Introduction: Iran is the leading producer of saffron *(Crocus sativus* L.), a spice valued for its distinct color, taste, and aroma due to its major phytoconstituents crocin, picrocrocin, and safranal. Traditionally, saffron has been used in Persian and Asian medicine, while recent studies report diverse pharmacological properties, including anticancer, antidepressant, antioxidant, anti-inflammatory, and cardioprotective effects. The present review aims to provide an updated overview of the phytochemistry and pharmacological activities of Iranian saffron.

Materials and Methods: An extensive literature survey was carried out using PubMed, Google Scholar, and Science databases. Relevant articles were screened to highlight the key pharmacological properties and therapeutic applications of saffron and its constituents.

Results and Discussion: Evidence from experimental studies demonstrates that saffron and its bioactive compounds exhibit significant therapeutic potential. Anticancer activities include anti-proliferative, apoptotic, cytotoxic, and chemoprotective effects across various tumor models. Central nervous system benefits involve memory enhancement, antidepressant, and neuroprotective actions. Cardiovascular effects include improvement of cardiac hemodynamics and anti-inflammatory/antioxidant properties. Additionally, protective roles have been reported in metabolic, gastrointestinal, renal, and respiratory disorders. These findings emphasize saffron's multifunctional pharmacology and its potential for clinical translation.

Conclusion: Iranian saffron, beyond its culinary value, demonstrates broad pharmacological properties with promising therapeutic applications. Further clinical investigations are warranted to validate its efficacy and safety in human populations.

Keywords: Iranian saffron; Crocus sativus; phytoconstituents; pharmacological activity; ethnopharmacology

JH/SECON2025/PP-140

In silico techniques formulation profiling of Jawarish Zarooni

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ABSTRACT

Background: Unani formulations have been widely used for centuries in traditional medicine to manage digestive, hepatic, and metabolic disorders. Among them, Jawarish Zarooni is a polyherbal preparation traditionally prescribed for gastrointestinal health, liver protection, and as a general tonic. Despite its long history of clinical use, scientific validation of its therapeutic potential and molecular mechanism of action remains limited. With the advancement of computational biology, in silicoapproaches such as molecular docking and network pharmacology have become effective tools to predict bioactive constituents, their target proteins, and possible mechanisms of action. This provides a scientific foundation for understanding traditional formulations and supports their rational use in modern therapeutics.

Aim and Objective: This study aims to perform an in silico profiling of Jawarish Zarooni formulation using computational approaches to identify its phytoconstituents, possible molecular targets, and pathways involved in its therapeutic effects.

Method: A literature-based survey was conducted to identify the phytoconstituents present in the formulation. The chemical structures of these compounds were retrieved from ChemSketch and other chemical databases. ADMET profiling was performed to predict pharmacokinetic properties and drug-likeness. Molecular docking studies were carried out to evaluate the binding affinity of phytoconstituents with key protein targets associated with gastrointestinal and hepatic disorders. Network pharmacology analysis was used to visualizecompound–target–pathway interactions. Additionally, bioinformatics tools were employed to predict biological activities and molecular pathways involved.

Result: The in silico analysis revealed that several phytoconstituents of Jawarish Zarooni exhibit promising pharmacological profiles, with favorable ADMET properties and strong binding affinities towards target proteins such as digestive enzymes, antioxidant pathways, and liver-protective receptors. Network pharmacology indicated multi-target interactions, highlighting the synergistic therapeutic potential of the formulation. The predicted pathways were consistent with traditional claims of hepatoprotective, digestive, and metabolic benefits.

Conclusion: In silico profiling of Jawarish Zarooni formulation provided mechanistic insights into its therapeutic potential. The results demonstrated that the formulation contains bioactive phytoconstituents with favorablepharmacokinetic properties and multi-target interactions, supporting its use as a safe and effective polyherbalremedy. These findings validate traditional knowledge and establish a computational foundation for future experimental and clinical investigations.

Keywords: Jawarish Zarooni, In silico profiling, Network pharmacology, Molecular docking, ADMET

JH/SECON2025/PP-141

Formulation development and evaluation of paclitaxel loaded nanoemulgels for targeted skin cancer treatment

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ABSTRACT

Introduction: Skin cancer treatment is challenged by the poor solubility and limited skin penetration of paclitaxel, an effective anticancer agent. Nanoemulgel formulations provide an innovative approach for overcoming these obstacles by enhancing targeted topical delivery and improving local bioavailability. This study aimed to develop and evaluate a paclitaxel-loaded nanoemulgel (NPCLG) using olive oil as the oil phase along with Tween 80 and PEG 400 for improved stability and drug solubilization in skin cancer therapy.

Materials and Methods: The oil phase comprised olive oil, Tween 80 as the surfactant, and PEG 400 as the co-surfactant, combined with a gelling agent to form a nanoemulgel. Comprehensive characterization assessed sensory properties, pH (6.9 ± 0.02), spreadability (31.11 ± 0.01 g·cm/s), viscosity (315 ± 0.15 cps), droplet size (200.6 nm), polydispersity index (0.25), and zeta potential (–25.1 mV). Entrapment efficiency and in vitro drug release were evaluated and release kinetics modeled by Higuchi and Korsmeyer–Peppas equations.

Results and Discussion: The optimized Paclitaxel nanoemulgel displayed excellent sensory attributes—transparency, smoothness, uniformity, and absence of grittiness and odor—making it suitable for skin application. The formulation exhibited a uniformly dispersed, stable nanoemulsion with a high paclitaxel entrapment efficiency (81.3%). The drug release followed biphasic kinetics with an initial burst followed by sustained release, achieving 92.24% release in 12 hours while the gel matrix regulated release for prolonged local drug retention. The release mechanism was largely diffusion-controlled within the polymer gel matrix. The inclusion of olive oil, Tween 80, and PEG 400 contributed to enhanced solubilization, nanoemulsion stability, and therapeutic effectiveness. These findings suggest that such nanoemulgel formulations substantially improve paclitaxel's dissolution, stability, and targeted skin delivery, potentially increasing effectiveness against skin cancer with reduced side effects.

Conclusion: The paclitaxel-loaded nanoemulgel developed with olive oil, Tween 80, and PEG 400 showed excellent stability, high drug entrapment, and favorable skin-friendly properties. It enabled controlled, sustained release of paclitaxel, improving drug penetration and retention at the skin cancer site, while minimizing systemic exposure and side effects. This nanoemulgel formulation represents a promising, effective, and safe approach for targeted topical treatment of skin cancer.

Keywords: Skin cancer, Paclitaxel, Nanoemulgels, Topical delivery, Phytoconstituents

JH/SECON2025/PP-142

Revealing the antidiabetic potential of herbal nanoparticles

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ABSTRACT

Diabetes mellitus continues to pose a global health burden, with current synthetic therapies often limited by adverse effects and unsatisfactory long-term outcomes. Herbal phytochemicals have demonstrated promising antidiabetic activity through mechanisms such as enhancing insulin sensitivity, modulating glucose metabolism, and exerting antioxidant effects. However, their therapeutic translation remains restricted due to low solubility, instability in the gastrointestinal tract, poor absorption, and rapid metabolic clearance. Advances in nanotechnology provide a novel platform to overcome these limitations by engineering nanocarriers that improve solubility, enhance stability, and facilitate targeted delivery. A comprehensive evaluation of recent literature highlights the efficacy of diverse nanocarrier systems including liposomes, phytosomes, niosomes, solid lipid nanoparticles, self-nanoemulsifying drug delivery systems, and inorganic nanoparticles in improving pharmacokinetic and pharmacodynamic profiles of herbal antidiabetic agents. For example, berberine-phytosomes achieve a three-fold increase in bioavailability, while curcumin nanoemulsions significantly reduce hyperglycemia and neuropathic complications.Green-synthesized metal nanoparticles further demonstrate synergistic hypoglycemic and antioxidant actions. These nanoformulations not only minimize the required dose but also enhance therapeutic precision and patient compliance. Collectively, the integration of phytotherapy with nanotechnology represents a paradigm shift in diabetes management, bridging traditional medicine and modern pharmaceutical innovation. Although most evidence arises from preclinical models, the trajectory of research strongly indicates that nanoformulated herbal therapeutics could redefine the future landscape of diabetes care by delivering safer, more potent, and sustainable treatment options.

JH/SECON2025/PP-143

Synergistic anticancer effect of *Argemone mexicana* L. and artesunate in MCF-7 cells

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ABSTRACT

Background: Breast cancer is a common disease in woman and cause of cancer deaths worldwide. Drug repurposing coupled with combination therapy is a prospective approach which could overcome several side effects of conventional treatments. Numerous studies have shown that *Argemone mexicana* L. and artesunate have anticancer activity when applied separately.

Aims: This study aims to evaluate the anticancer effects of combination of AMLE (*Argemone mexicana* L. leaves extract) and artesunate against MCF-7 breast cancer cell lines. It also investigates the synergistic responses produced by the combination.

Methods: The *in vitro* anti-cancer activity of AMLE, artesunate and their combination on MCF-7 cell lines was evaluated by the MTT assay after 72 h of treatment. The synergism was evaluated by the Chou-Talalay method through the CompuSyn software.

Results: AMLE and artesunate alone had a significant inhibitory effect on MCF-7 cells. The half maximal inhibitory concentration (IC_{50}) value for AMLE and artesunate was found to be 377µg/mL and 34.12µg/mL respectively after 72 h of exposure. Three non-constant ratios of AMLE and artesunate were found to be synergistic. The combination of AMLE (250µg/mL) + artesunate (38.4µg/mL) led to maximum 79.15% cell inhibition and was found to be most synergistic with a CI value of 0.48.

Conclusion: The combinations of AMLE and artesunate could synergistically lead to cell inhibition. These results suggest that drug repurposing along with combination therapy is a promising approach for breast cancer therapy.

Keywords: *Argemone mexicana* L., artesunate, breast cancer, synergism, Drug repurposing

JH/SECON2025/PP-144

Photoprotective potential of natural products: Determination of antioxidant activity and sun protection factor

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ABSTRACT

Background: Prolonged exposure to UV rays may lead to photoaging, erythema and cancers in skin. Increased UVB exposure due to ozone layer depletion in recent years necessitates sunscreen use for photoprotection. Synthetic UV filters pose concerns such as endocrine disruption in humans and ecotoxicity, prompting the search for alternatives. Natural compounds with conjugated double-bonds absorb UV rays. Additionally, they suppress oxidation, inflammation and UV-induced gene damage.

Objective: The study aimed to assess photoprotective and antioxidant action of Propolis, Milk Thistle and Green Coffee and establish a link to their total phenol and flavonoid contents (TPC and TFC).

Materials and Methods: Samples were macerated with methanol. Total phenol and flavonoid contents were analysed using Folin-Ciocalteu's and aluminium chloride colorimetric methods, respectively. Antioxidant activity was determined using DPPH assay and SPF was evaluated using Mansur's method.

Results: SPF of Propolis, Milk Thistle and Green Coffee and their equal-volume mixture was found to be 18.94, 11.32 and 6.81, 26.47; critical wavelengths were 369, 344, 362 and 363nm; and UVA:UVB ratios were 0.89, 0.42, 0.52, 0.75. TPC and TFC values of Propolis, Milk Thistle and Green Coffee were 551.32, 151.12, 70.59 mg gallic acid equivalents/g of extract; and 689.6, 36.24, 4.39 mg rutin equivalents/g of extract, respectively. Their IC_{50} values were 29.99, 50.88 and 27.82µg.

Conclusion: Propolis showed the highest SPF, TPC and TFC. λ_c of 369nm highlighted its broad range photoprotection. Its IC_{50} shows pronounced antioxidant action. The mixture exhibited effective photoprotection possibly due to additive effect. The study thus highlighted the potential of natural products as photoprotective agents.

Keywords: Skin, Propolis, Milk Thistle, Green coffee, UV-filters

JH/SECON2025/PP-145

Phytochemical investigation of Punarnava (*Boerhavia diffusa* Linn.): An important traditional Indian medicinal plant

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ABSTRACT

Background: *Boerhavia diffusa* Linn., known as Punarnava in Ayurveda that literally means a Rejuvenator. It has diverse phytochemicals including flavonoids, alkaloids, glycosides, and phenolic compounds. Its extracts have shown significant biological activities such as antioxidant, anti-inflammatory, and antimicrobial effects, justifying its extensive use in traditional medicine.

Aim and objective: The aim of this study was to isolate and purify bioactive compounds present in the methanol extract of *B. diffusa* roots using column chromatography and to characterize their structure by spectroscopic methods.

Method: The dried roots of *B. diffusa* were extracted with methanol using Soxhlet extraction. The concentrated methanolic extract was subjected to column chromatography with silica gel as the stationary phase. Gradient elution was undertaken using a sequence of solvents with increasing polarity (hexane, chloroform, methanol and their mixtures). The collected fractions were subjected to TLC for pooling of similar fractions.

Results: A total of 68 fractions were collected. The elution is expected to follow the usual pattern, with non-polar compounds eluting first and polar compounds such as flavonoids and glycosides eluting later. TLC of pooled fractions distinctly revealed the presence of major constituent(s) with some minor impurities. Four compounds were separated from the mixture by precipitation, cooling, etc. The isolated compounds were subjected to spectroscopic analysis for identification.

Conclusion: Compounds were successfully isolated from *B. diffusa* roots confirming the efficacy of column chromatography in the isolation of compounds of interest in appreciable quantities.

Keywords: Column chromatography, Spectroscopy, Structure Elucidation

JH/SECON2025/PP-146

Nanocarrier mediated delivery of berberine for Alzheimer's disease: A therapeutic approach

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ABSTRACT

Introduction: Alzheimer's disease (AD), a leading cause of dementia, continues to lack effective treatment options. Berberine, a naturally occurring isoquinoline alkaloid, has gained attention for its neuroprotective capabilities, including combating oxidative stress, inflammation, and amyloid plaque formation. However, its low systemic absorption and difficulty in crossing the blood-brain barrier limit its use. This review explores emerging nanocarrier platforms designed to optimize berberine delivery and enhance its pharmacological impact in AD therapy.

Materials and Methods: A comprehensive review of recent literature was conducted, focusing on various nanocarrier platforms employed for berberine delivery in AD. The examined studies encompass diverse nanocarrier types, including liposomes, polymeric nanoparticles, nanostructured lipid carriers, and other innovative systems, analyzing their design, preparation, *in vitro* characteristics, and *in vivo* efficacy in preclinical AD models.

Results and Discussion: Findings across the literature reveal that nanocarrier systems substantially enhance berberine's pharmacokinetic profile, improving both systemic absorption and brain penetration. By enabling controlled and site-specific delivery, these carriers significantly strengthen berberine's neuroprotective properties. In preclinical models of Alzheimer's disease, this approach has led to decreased amyloid plaque load, inhibition of tau hyperphosphorylation, reduced neuroinflammation, and lowered oxidative stress, which together contribute to improved memory and cognitive behavior.

Conclusion: The integration of nanocarrier technology with berberine holds immense promise for revolutionizing AD therapeutics. By effectively overcoming critical delivery barriers and optimizing berberine's therapeutic window, these innovative nanoplatforms pave the way for developing highly targeted, efficient, and patient-centric interventions that could significantly alter the trajectory of AD.

Keywords: Alzheimer's Disease (AD), Berberine, Nanocarriers, Drug Delivery, Neuroprotection

JH/SECON2025/PP-147

Carbon based nanomaterials in Alzheimer's disease: Advances in diagnosis and therapy

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ABSTRACT

Introduction: Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by memory loss and cognitive decline, representing a growing global health concern. Current therapeutic approaches offer limited efficacy, prompting the need for novel strategies. Carbon-based nanomaterials—such as carbon nanotubes, graphene, carbon nanodots, carbon nanowires, fullerenes, and nanodiamonds—have emerged as promising candidates due to their unique structural properties, biocompatibility, and ability to cross the blood-brain barrier (BBB). This review explores their potential roles in both diagnosis and treatment of AD.

Materials and Methods: A comprehensive literature review was conducted, focusing on in vitro and in vivo studies evaluating carbon nanomaterials in AD models. Selected studies were analysed based on their material properties, surface modifications, interactions with amyloid-β and tau proteins, neuroprotective effects, and applications in biosensing, imaging, and drug delivery.

Results and Discussion: Carbon nanomaterials demonstrated significant therapeutic potential, including inhibition of amyloid-β plaque formation, regulation of tau protein aggregation, reduction of oxidative stress and neuroinflammation, and promotion of neuronal repair. Their large surface area, customizable chemistry, and BBB permeability make them ideal for targeted drug delivery. Additionally, these materials have shown promise in diagnostic imaging and theranostic platforms that combine therapy with real-time monitoring. However, key challenges remain, including concerns over long-term safety, toxicity, immune compatibility, and the need for scalable, standardized production methods.

Conclusion: Carbon-based nanotechnology offers a transformative approach to AD diagnosis and treatment. While current research is promising, successful clinical translation will require interdisciplinary collaboration, thorough preclinical validation, and resolution of biocompatibility and manufacturing challenges. These advancements may pave the way for more personalized and effective therapies in the fight against neurodegenerative diseases.

JH/SECON2025/PP-148

Artificial intelligence in nanomedicine: Integrating herbal therapeutics for next-generation drug delivery

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ABSTRACT

Artificial intelligence (AI) has emerged as a transformative force in nanomedicine, reshaping drug delivery, diagnostics, and personalized treatment. While nanomedicine ensures precise targeting and reduced toxicity, clinical translation is often limited by biological complexity, unpredictable in vivo behavior, and inefficient trial-and-error approaches. AI and Machine Learning (ML) are increasingly addressing these challenges across the nanomedicine pipeline from drug and target identification to nanoparticle design, toxicity prediction, and personalized dosing. Importantly, there is growing interest in combining herbal and natural product–derived molecules with nanocarriers, where AI can optimize formulation parameters, predict bioavailability, and enhance therapeutic outcomes. Models such as QSAR, MTK-QSBER, and Alchemite, along with high-throughput screening, have already enabled applications like AI-assisted herbal drug repurposing, controlled-release formulations, and cancer-specific phytochemical delivery systems. By efficiently managing multidimensional datasets, optimizing herbal nanoformulations, and tailoring treatment regimens, AI is catalyzing the development of next-generation ethnopharmacology-driven nanomedicines. However, challenges including data heterogeneity, model transparency, and regulatory bottlenecks persist. Emerging solutions, such as explainable AI, federated learning, and interdisciplinary efforts, hold promise in bridging these gaps and paving the way for the clinical translation of AI-enhanced herbal nanomedicine.

Keywords: Artificial intelligence, deep learning, machine learning, personalized treatments, nanomedicine

JH/SECON2025/PP-149

Assessment of the modulatory effects of unani formulation on the anticancer activity of standard cancer drugs against colorectal cancer

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ABSTRACT

Background: Colorectal cancer (CRC), the third most common malignancy and second leading cause of cancer deaths, is rising in India with lifestyle changes. Standard therapies like 5-fluorouracil and oxaliplatin, though effective, cause severe toxicities. Hence, identifying safe adjuvants that enhance efficacy while reducing adverse effects is urgently needed.

Aims/Objectives: To assess the modulatory effects of the unani formulation (MAJ) on the anticancer activity of standard drugs against CRC.

Methods: Methanolic extract of MAJ (MAJ-MET) was tested for cytotoxicity against HCT116 and SW480 cells. Combination therapy with 5-FU and OXP was studied for synergistic effects. GC-MS profiling followed by ADMET analysis identified bioactive compounds. Molecular docking with CRC-related proteins evaluated target interactions.

Results: MAJ-MET showed dose- and time-dependent cytotoxicity against HCT116 and SW480 cells. Combination therapy with 5-FU and OXP enhanced anticancer activity via reduced IC50, increased ROS, decreased cell migration and apoptotic morphological changes. GC-MS identified 55 compounds, and ADMET filtering highlighted the top five bioactive compounds with antioxidant and anticancer potential. Molecular docking studies revealed favourable binding affinities of these phytochemicals with key CRC-associated targets, including Bax, Bcl-2, caspases (3, 7, 9), cytochrome c, NF-κB, Nrf2, p53, and Parkin.

Conclusion: MAJ-MET shows promise as an adjuvant to chemotherapy, enhancing efficacy while reducing toxicity and resistance, supporting further molecular and in vivo validation for colorectal cancer.

Keywords: Colorectal cancer, Unani formulation, Majoon, adjuvant therapy, chemotherapy

JH/SECON2025/PP-150

Multi target in silico screening of *Punica granatum* bioactive compounds for its nephroprotective action

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ABSTRACT

Background: Diabetic Nephropathy (DN) is a progressive, multifactorial, serious complication of diabetes. The number of cases of DN are on rise. A number of treatments targeting different mechanism for instance, RAAS, oxidative stress, pro-inflammatory cytokines etc have been widely explored in this area however, the causative factors of DN are not well comprehended and the medications involved in its treatment are limited, expensive and present adverse effects. *Punica granatum* (pomegranate) is a well-documented, promising medicinal plant rich in polyphenols, ellagitannins (punicalagins), and flavonoids with reported anti-inflammatory, antioxidative, and renoprotective action. However, its role in diabetic nephropathy still remains untouched at molecular level.

Objective: The study aims to investigate the therapeutic potential of *Punica granatum* phytoconstituents using network pharmacology and molecular docking.

Material methods: To find the common gene targets of phytoconstituents of *Punica granatum* for diabetic nephropathy and find the gene targets of various molecular mechanisms of Diabetic nephropathy using various network pharmacology and docking tools.

Results: Five important *Punica granatum* compounds like Gallic acid, Delphinidin etc and four hub genes including AKT1, TP53 related to PI3K-Akt signalling pathway and many immune signalling pathways etc were discovered using network pharmacology. The compound Gallic acid and the gene AKT1 has the highest degree score of 9 and 63 respectively.

Conclusion: In silico investigation *Punica granatum* phytoconstituents highlights it as promising nephroprotective candidate against diabetic nephropathy, providing basis for future in vitro and in vivo studies.

Keywords: Diabetic Nephropathy, Punica granatum, in silico studies, Network pharmacology, Molecular docking

JH/SECON2025/PP-151

An analytical case study on *Waram-e-Lawzatayn Muzmin* (chronic tonsillitis) in the light of Unani medicine

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ABSTRACT

Background: *Waram-e-Lawzatayn* (tonsillitis) been the field of great interest in medical science. The Arabic word *Lawzah* is derived from *Lawzatayn* which means *Ghudud* (glands). According to *Ibn Hubal Bhaghdadi,* a prominent scientist and physician, tonsils are two muscles situated at the tongue's root near the pharynx, when these muscles are inflamed, known as *waram-e-lawzatayn* (tonsillitis). It is common clinical condition affecting the large number of populations worldwide. As per Unani System of Medicine, *waram-e-lawzatayn* is a type of *warme-e-harr*, involving the *hulqum* (throat) and *lawzatayn*. Diagnostic features and findings on clinical examination are described very clearly in Unani classical texts. Common signs and symptoms include throat pain, fever, difficulty in swallowing, red swollen tonsils, cough, headache, enlarged neck lymph nodes, and earache.

Objective: To evaluate the efficacy of Unani formulation in *waram-e -lawzatayn Muzmin*.

Methodology: This study was conducted in State Unani Medical College and hospital, Prayagraj. The subject was 28-year-old male with the history of fever with chills, cough, pain in throat and headache for two years. The patient was given 30 ml decoction as *Gharghara* (gargle) twice a day locally for 10 days. The ingredients included in the gargle were *Unnab* (6 gm), *Makoh* (5 gm) and *Masoor* (5 gm).

Result & Conclusion: Unani medicines showed remarkable reduction in Tonsillo-Pharyngitis Assessment (TPA) score which was used as an assessment criterion to assess the effect of medicines. Before treatment, the score was 16 and after treatment it reduced to 3. There was also huge regression of signs and symptoms like difficulty in swallowing, fever, enlarged tonsils, malaise, pain and burning sensation in the throat. As *Unnab* has both, antipyretic and antitussive properties which help in subsidence of fever and cough, *Makoh* acts as an anti-inflammatory whereas *Masoor* is an excellent analgesic.

Keywords: *Waram-e Lawzatayn*, Efficacy of Unani *Gharghara*, TPA Score

JH/SECON2025/PP-152

Eco-friendly hand sanitizer: A green approach to hygiene solution

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ABSTRACT

Aim: This study focuses on the formulation and evaluation of an eco-friendly hand sanitizer using natural ingredients, particularly *tea tree oil*, as a sustainable alternative to conventional alcohol-based sanitizers.

Method: A hand sanitizer gel was developed using tea tree oil as the antimicrobial agent, aloe vera gel as a soothing base, glycerin for moisturization, and a natural emulsifier for uniform blending. The formulation was assessed for pH, viscosity, and antimicrobial efficacy against *Escherichia coli* and *Staphylococcus aureus* through the agar well diffusion method.

Results: The prepared formulation exhibited notable antimicrobial activity with clear zones of inhibition against both bacterial strains. The pH (6.2) was skin-friendly, and the gel consistency was comparable to commercial products. Preliminary user feedback indicated good acceptability, with no irritation and a pleasant natural aroma.

Conclusion: The results suggest that tea tree oil–based sanitizer is an effective, eco-friendly alternative to alcohol-based products. It offers antimicrobial protection, skin compatibility, and environmental sustainability by eliminating synthetic chemicals and alcohol. Further studies on stability, antifungal potential, and extended shelf life are recommended to establish its commercial applicability.

Keywords: Eco-friendly, hand sanitizer, antimicrobial, antifungal, tea tree oil, natural formulation

JH/SECON2025/PP-153

Post-marketing safety signal detection using real-world data for locally marketed over the counter (OTC) analgesics

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ABSTRACT

Background: Over the counter analgesics such as paracetamol, ibuprofen, aspirin and naproxen are among the most widely used medications worldwide. Although considered safe at recommended doses, inappropriate or prolonged use can lead to serious side effects such as gastrointestinal bleeding, hepatotoxicity or renal impairment. Traditional clinical trials often fail to detect such rare or delayed events. Therefore, real-world data (RWD) offer valuable opportunities for post-marketing safety surveillance.

Objective: To identify, evaluate, and manage post-marketing safety signals for locally marketed OTC analgesics using real-world data sources and advanced analytical methods.

Methods: Multiple RWD sources-including spontaneous adverse event reports, electronic health records (EHRs), insurance claims, poison control data, and pharmacy sales-were utilized. Signal detection was performed using disproportionality analysis (PRR, ROR, IC) for spontaneous reports and tree-based scan statistics in EHR/claims data. Confirmatory studies, including self-controlled case series and cohort designs, were used to validate potential signals. Clinical causality assessment was carried out following WHO-UMC guidelines.

Discussions & Results: Integration of RWD from various sources enhanced the detection of safety signals associated with OTC analgesics. Commonly identified signals included gastrointestinal bleeding with NSAIDs, hepatic injury with paracetamol overdose, and acute kidney injury among elderly users. Early detection and cross-validation helped in timely regulatory assessment and public risk communication.

Conclusion: Post-marketing safety signal detection using RWD is an effective approach for continuous pharmacovigilance of OTC analgesics. Combining multiple data sources and modern analytical techniques strengthens evidence generation, ensures patient safety, and supports informed regulatory decision-making.

JH/SECON2025/PP-154

Traditional wisdom in modern times: The Unani approach to hypertension management

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ABSTRACT

Background: Hypertension is a prevalent lifestyle disorder and a significant risk factor for cardiovascular disease globally. While modern medicine offers effective pharmacological treatments, they often require lifelong use and may cause side effects. The Unani system of medicine provides a holistic, natural, and personalized approach rooted in humoral theory, aiming to restore balance and improve overall health.

Objective: To explore the Unani perspective on hypertension, its pathophysiology, and evidence-based traditional methods for its management.

Methodology: A review of classical Unani texts and recent scientific literature was conducted to understand the Unani conceptualization of hypertension, primarily as Imtila (accumulation), Sue Mizaj Damvi (blood humor imbalance), and Za'f-e-Qalb (weakness of the heart). Management protocols including Ilaj bil Ghiza (dietotherapy), Ilaj bil Dawa (pharmacotherapy), and Ilaj bil Tadbeer (regimenal therapy) were analyzed.

Results: Unani treatment emphasizes detoxification, normalization of temperament, and strengthening of the heart using diet, herbs, and physical regimens. Common herbs like *Rauwolfia serpentina* (Asrol), Unnab, Arjun, and Lehsun have shown hypotensive effects. Regimenal therapies such as Hijama (cupping), massage, steam baths, and stress reduction practices also support cardiovascular health.

Conclusion: The Unani approach to hypertension offers a comprehensive, individualized framework focusing on prevention, lifestyle modification, and natural treatment. When integrated with modern clinical care, it holds promise for safer, sustainable hypertension management. Further clinical research is recommended to validate efficacy and standardize practices.

Keywords: Unani medicine, hypertension, Ilaj bil Tadbeer, Imtila, holistic treatment

JH/SECON2025/PP-155

Synergistic effect of takmeed-har-ratab (steam fomentation) with hijamal-bil-shart (wet cupping) in knee osteoarthritis: A randomized controlled clinical study

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ABSTRACT

Introduction: Osteoarthritis (OA) is the most prevalent form of arthritis and is a leading cause of adult chronic pain and long-term disability. Osteoarthritis most commonly affects the hip, knee, and hand joints, but most joints can be involved (Steinmetz et al., 2023). Knee osteoarthritis (OA), also known as degenerative joint disease, is typically the result of wear and tear and progressive loss of articular cartilage(Hsu & Siwiec, 2025). After hypertension, it is the second most common chronic disease managed by general practitioners (Magni et al., 2021). This study evaluates the efficacy and safety of *Takmeed-Har-Ratab* (steam fomentation) combined with *Hijamah-bil-Shart* (wet cupping) versus *Hijamah-bil-Shart* (wet-cupping) alone in patients with knee OA.

Materials and Methods: A randomized, open-labeled controlled trial is being conducted at Majeedia Unani Hospital, New Delhi, over two years. Sixty patients (35–65 years, KL grade 1–3) will be allocated into two groups: Group A will receive *Takmeed-Har-Ratab* (steam fomentation) with *Hijamah-bil-Shart* (wet-cupping), and Group B will receive only *Hijamah-bil-Shart* (wet-cupping). Therapy will last six weeks with one weeks of follow-up. Outcomes include pain (VAS), function (KOOS), quality of life (SF-12), range of motion, knee circumference, and 10-meter walk test.

Results and Discussion: It is anticipated that both groups will show improvement in pain, knee function, and quality of life. However, Group A is expected to demonstrate greater reduction in VAS scores, improved KOOS and SF-12 outcomes, increased range of motion, reduced knee circumference, and faster walking times compared to Group B. The interventions are expected to be well tolerated with no major adverse events

Conclusion/Recommendation: This study may demonstrate that *Takmeed-Har-Ratab* (steam fomentation) with *Hijamah-bil-Shart (wet-cupping)* is more effective than *Hijamah-bil-Shart* (wet-cupping) alone for managing knee OA, with favorable safety and clinical outcomes. It may be recommended as a complementary therapy for OA management.

Keywords: Osteoarthritis, Knee OA, Takmeed-Har-Ratab, Steam Fomentation, Hijamah-bil-Shart, Wet cupping, Ilaj-bil-Tadabeer, Pain management

JH/SECON2025/PP-156

Bioprocess of soyabean for nattokinase production by different methods

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ABSTRACT

Introduction & Objectives: Nattokinase (NK) is a potent fibrinolytic enzyme originally discovered in natto, a traditional Japanese fermented soybean food. It is produced by Bacillus subtilis during fermentation and has gained attention for its cardiovascular benefits, especially in dissolving blood clots. Soybeans are ideal substrates for NK production due to their, High protein content, Rich nutrient profile, Compatibility with microbial fermentation. Fermentation transforms soybeans into bioactive-rich products, enhancing their health benefits and enabling NK extraction.

Objectives of the Bioprocess: The bioprocessing of soybeans for NK production aims to enhance NK yield and activity. Optimize conditions to maximize enzyme output and fibrinolytic potency. Select efficient microbial strains: Identify and use high-yielding strains like Bacillus subtilis natto or Bacillus subtilis MTCC 2616. Improve fermentation parameters: Fine-tune soaking time, temperature, inoculum size, and duration to boost NK activity.

Compare fermentation types: Solid-State Fermentation (SSF): Uses minimal water; ideal for traditional natto production. Offers high NK stability and activity. Submerged Fermentation (SmF): Involves liquid media; allows better control and scalability. Rotating Bioreactor Systems: Enhance oxygen transfer and mixing, improving NK yield. Ensure product safety and stability: Maintain enzyme activity across temperature ranges and prevent degradation. Explore health benefits: Validate NK's thrombolytic, chemoprotective, and antihypertensive effects through bioassays and clinical studies.

Materials & Methods: Soybean Varieties include black soybeans, yellow soybeans, and small-grain soybeans. Soybean selection affects water content, nutrient profile, and ultimately nattokinase yield. Microorganism like Bacillus subtilis (especially strains like JZ08-02 or Bacillus natto) is the primary fermenting agent due to its high nattokinase productivity. Fermentation Methods includes Preparation of Soybeans, Inoculation, Fermentation Conditions, Post-Fermentation Processing.

Results & Discussion: Different soybean types (yellow, black, small-grain) are soaked, steamed, and fermented with Bacillus subtilis at ~37°C for 36–48 hours. Enzyme activity is measured post-fermentation. Yellow soybeans yield the highest nattokinase activity and best texture. Black soybeans offer antioxidants but lower yield. Small-grain soybeans ferment slower with grainy texture. Soybean type strongly affects enzyme output and quality.

Conclusion: The bioprocessing of soybeans for nattokinase production demonstrates that soybean variety and fermentation method significantly influence enzyme yield, texture, and nutritional quality. Among various methods, solid-state fermentation using Bacillus subtilis on yellow soybeans consistently delivers the highest nattokinase activity and optimal sensory properties. Black soybeans offer added antioxidant benefits but lower enzyme output, while small-grain soybeans are less efficient overall. Optimizing fermentation parameters—such as temperature, time, and aeration—further enhances productivity. These findings support the tailored use of soybean types and bioprocessing strategies for efficient, scalable nattokinase production in functional food and pharmaceutical applications.

JH/SECON2025/PP-157

Protective effect of nerolidol, cyclophosphamide and their combination against 7, 12-dimethylbenz(a)anthracene (DMBA)-induced breast cancer in female Wistar rats

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ABSTRACT

Introduction: Breast cancer is one of the most frequent cancers in the world. Cyclophosphamide (CP) is a good anticancer drug, but the toxicity caused by it is a major concern. Researcher continuously trying to find out certain molecule which can reduce the toxicity and enhance the efficacy of anticancer drug. Natural bioactives are extensively being explored as they are efficient, safe, and economical. We have chosen Nerolidol (NER), a naturally derived sesquiterpene alcohol, CP and their combination to explore the anticancer effect in 7, 12-dimethylbenz [a] anthracene (DMBA)-induced breast cancer in female Wistar rats.

Material and methods: Fifty-four (54) female Wistar albino rats were allocated into 9 groups: Control; DMBA (Toxic); DMBA+NER (Co-treatment); DMBA+NER (post-treatment); DMBA+CP; DMBA + NER + CP; DMBA+TAM (Tamoxifen); NER *per se*; and CP *per se*. After 18 weeks treatment, the blood was collected & the animals were sacrificed. The body weight, Tumor weight, and Tumor volume was measured. The CA15-3, CEA, and inflammatory cytokines were determined by ELISA in serum. The biochemical, histological studies and IHC were also performed to assess the efficacy.

Results: DMBA 80 mg/kg induced breast cancer. The body weight decreased, tumor volume and tumor weight increased alongwith the increase in CA15-3, CEA, antioxidant stress, and inflammatory cytokine levels on DMBA treatment. Treatment with NER, CP, and their combination reversed this effect significantly. The H&E& IHC results also showed protective effects.

Conclusion: The NER and CP has chemo-preventive effects against DMBA induced breast cancer. The combination was more effective than NER, CP alone.

Keyword: 7,12-dimethylbenz[a]anthracene (DMBA), Breast cancer, CA15-3, Nerolidol(NER), Cyclophosphamide (CP), Oxidative stress, Inflammation.

JH/SECON2025/PP-158

Herbal crystal engineering and hybrid co-crystals: Translational pathways from febuxostat proof-of-concept to AYUSH therapeutics for enhanced potential

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ABSTRACT

Background: Poor solubility, low permeability, and batch-to-batch variability fundamentally constrain the clinical translation of many phytochemicals when considered as drug-like entities. These biopharmaceutical challenges underlie the limited success of curcumin, berberine, and related actives despite extensive pharmacological promise. The successful modification of febuxostat—a poorly soluble synthetic—via spherical agglomeration demonstrated marked gains in solubility, flow, and compactibility, serving as a translational proof-of-concept that crystal and particle engineering principles are directly applicable to phytotherapeutics.

Objectives: To present a translational perspective highlighting herbal crystal engineering (HCE) and hybrid co-crystals as strategies to enhance the solubility, bioavailability, and manufacturability of herbal actives, while mapping regulatory pathways and emphasizing future experimental validation.

Methods: A structuredreview–research workflow combined systematic literature mining, polymorph and habit mapping, co-former selection, and QbD/GbD risk analysis. Green mechanochemistry and solvent-reduced syntheses are prioritized, alongside selective in-silico modelling for co-former prioritization. Febuxostat particle engineering data anchor feasibility and process transfer.

Results: Literature synthesis and predictive modelling suggest engineered herbal forms can achieve approximately ~5–20× solubility/dissolution enhancement and 3–10× bioavailability gains. Hybrid co-crystals predict amplified anti-inflammatory and antioxidant effects, with improved flow and compressibility for scalable manufacture. Febuxostat spherical agglomeration validates the technical transferability of these approaches. CDSCO's 2025 classification of co-crystals as "new drugs" frames a clear regulatory pathway requiring robust solid-state and bioavailability evidence.

Conclusion: Herbal crystal engineering, grounded in QbD and GbD, reconciles AYUSH tradition with modern pharmaceutics. By enhancing efficacy, manufacturability, and regulatory readiness, it offers a pragmatic, sustainable route to high-performance phytotherapeutics. The poster will outline experimental validation and commercialization strategies.

Keywords: Herbal crystal engineering; hybrid co-crystals; phytochemicals; solubility; bioavailability; QbD; GbD; AYUSH; CDSCO

JH/SECON2025/PP-159

Investigating allicin's role in Alzheimer's disease: Neuroprotection via oxidative stress modulation and apoptosis inhibition

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ABSTRACT

Introduction: Alzheimer's disease (AD) is a progressive neurodegenerative disorder marked by memory loss and cognitive decline, with limited treatment options currently available. AD is characterized by amyloid-beta (Aβ) plaque accumulation, tau hyperphosphorylation, synaptic dysfunction, and neuronal loss leading to cognitive decline. The bioactive substance allicin, which comes from garlic (Allium sativum), shows encouraging neuroprotective potential for the treatment of AD. Allicin has antioxidant, anti-inflammatory, and antiapoptotic properties, restoring mitochondrial activity while lowering reactive oxygen species and proinflammatory cytokines in brain tissues.

Aim: The aim of this study is to investigate the neuroprotective effects of allicin by evaluating its antioxidant, anti-inflammatory, and antiapoptotic activities in cellular models of Alzheimer's disease.

Methodology: To measure the antioxidant, anti-inflammatory, and antiapoptotic effects of allicin in Alzheimer's disease cellular models, the following assays can be used. Antioxidant assays include reactive oxygen species (ROS) detection using DCFH-DA, lipid peroxidation measurement by thiobarbituric acid reactive substances (TBARS) assay for malondialdehyde (MDA) levels, and enzymatic antioxidant activity via superoxide dismutase (SOD) and glutathione (GSH) assays.Anti-inflammatory assays quantify proinflammatory cytokine release (TNF-α, IL-1β, IL-6) by ELISA and measure inflammation-related enzymes such as cyclooxygenase-2 (COX-2) and inducible nitric oxide synthase (iNOS) by Western blot or RT-PCR.Antiapoptotic assays include caspase-3 activity or expression analysis using colorimetric/fluorometric assays or RT-PCR/Western blot; Annexin V/propidium iodide staining with flow cytometry for apoptotic cells; and mitochondrial membrane potential assays (e.g., JC-1 staining) for early apoptosis detection.

Conclusion: Allicin improves cell viability, lowers oxidative stress, and slows down apoptosis in Alzheimer's disease models, exhibiting strong neuroprotective benefits. Reactive oxygen species levels are successfully balanced, antioxidant defenses are strengthened, and proapoptotic indicators like caspase-3 expression are decreased. These diverse effects point to allicin's potential as a medicinal drug with promise for treating the neurodegeneration associated with Alzheimer's disease.

Keywords: Alzheimer's disease, Allicin, Neuroprotection, Oxidative stress, Apoptosis.

JH/SECON2025/PP-160

From classical texts to clinical evidence: Unani approaches to memory decline and cognitive enhancement

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ABSTRACT

Unani medicine emphasizes the preservation of cognitive functions, particularly memory (*Hifz al-Dhikr*), which is considered essential for learning and psychological well-being. Within its theoretical framework, memory impairment (*Nisyan*) is attributed to an imbalance in cerebral temperament (*Mizaj*), particularly excessive coldness and dryness. Classical texts describe numerous herbal formulations for preventing cognitive decline and enhancing memory, several of which have been validated in modern research. A critical review of Unani sources highlights plants such as *Glycyrrhiza glabra* (Asl-us-Soos), *Prunus amygdalus* (Badam), *Acorus calamus* (Waj), *Boswellia serrata* (Kundur), *Myristica fragrans* (Jauzbua), and *Crocus sativus* (Zafran) as notable agents with neurocognitive potential. Their pharmacological actions include cholinergic modulation, antioxidant and anti-inflammatory activity, neuroprotection, and enhancement of cerebral circulation. Clinical studies further support their role in improving learning, recall, and attention, while also delaying age-related cognitive decline and dementia. Collectively, these *findings indicate that Unani medicine offers a rich repertoire of natural interventions for cognitive enhancement, with both traditional credibility and emerging scientific evidence. While these remedies show promise as safe and effective adjuncts or alternatives to conventional therapies, further well-designed clinical trials and pharmacological standardization are essential to establish their efficacy and integrate them into evidence-based neurocognitive care.

Keywords: Unani medicine, Nisyan, cognitive enhancers, memory decline, Zafran, neuroprotection

JH/SECON2025/PP-161

Scientific validation of traditional claims of *Nigella sativa* L. as a *nephroprotective* drug through in silico Analysis

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ABSTRACT

Background: *Nigella sativa* L. (commonly known as black seed or black cumin), from the family Ranunculaceae, is a plant that grows in countries bordering the Mediterranean Sea.

Objective: To explore and substantiate the therapeutic potential of *Nigella sativa* L. using computational approaches.

Methods: In silico analysis of *Nigella sativa* L. was done to evaluate the nephroprotective potential. Firstly, we retrieved the biologically active compounds from IMPPAT and Dr. Duke's Phytochemical databases. KEGG pathway enrichment analysis was done to screen the pathways and targets related to nephroprotection. A protein-protein interaction (PPI) network was constructed and Hub genes were identified. Gene ontology (GO) enrichment included biological process, cellular component and molecular function and was done to integrate proposed mechanism. Compound- Target and Pathway-Target network was constructed and top compounds and pathways were identified.

Results: The computational analysis revealed that *Nigella Sativa* L. has nephroprotective potential. Several compounds were retrieved among which (2Z,6E)-Farnesyl acetate, Geranylacetone, Apiole, Dithymoquinone were important. PPI network was constructed and AKT1, GAPDH, TNF, IL6 Hub genes were identified. BP, CC, MF were identified and showed various processes, component and functions.

Conclusion: The study confirms that *Nigella Sativa* L. can be validated scientifically as a drug that possess Nephroprotective properties.

Keywords: Network Pharmacology, In Silico analysis, Nephroprotection, *Nigella sativa* L

JH/SECON2025/PP-162

Exploring the fine line between remedy and poison for different Datura species

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ABSTRACT

Background: Datura, a member of the Solanaceae family, is an annual plant thriving in nutrient-rich, damp, or alkaline soils. Among its species, *D. stramonium* is the most recognized species. Rich in alkaloids, glycosides, flavonoids, and phenolics, Datura has traditional Ayurvedic uses for ulcers, wounds, inflammation, gout, and epilepsy in sub-Himalayan communities. Also proved by scientific studies.

Objective: To study the therapeutic and toxic effects of Datura species.

Methods: The literature search was conducted using PubMed, ScienceDirect, Google Scholar, Scopus, and Web of Science with keywords such as *Datura stramonium*, *D. metel, D. inoxia,* alkaloids, toxicity, and Ayurveda. Studies published in English reporting phytochemistry, therapeutic uses, and toxicity were included, while non-scientific and irrelevant reports were excluded.

Results: *Datura* exhibited therapeutic properties and some adverse effects due to varying phytoconstituent concentrations. *D. metel* and *D. stramonium* contained hyoscyamine (used for Intestinal bowel syndrome and colic)*; D. metel* had high scopolamine (sedative, antispasmodic); *D. stramonium* showed higher atropine (bronchodilator); *D. inoxia* had phenolics (antioxidant). Seeds of *D. stramonium* treat gliomas. All species contain toxic tropane alkaloids also causing delirium and hallucinations at higher doses.

Conclusion: Different *Datura* species were found to have similar phytochemicals but different proportions of alkaloids, leading to variations in therapeutic effects and toxicity. While they hold significant medicinal potential, controlled dosage and proper pharmacological studies are essential to ensure safety.

Keywords: *D. metel, D. stramonium, D. inoxia,* Datura, toxicity, Pharmacology.

JH/SECON2025/PP-163

Revisiting razi's *Bar-us-Sa'ah*: Unani emergency care through the ages

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ABSTRACT

Introduction: The Unani System of Medicine (USM) is a holistic tradition with temperament-based approaches. Although widely applied to chronic conditions, its role in emergency care has not been recognized. Razi's classical text *Bar-us-Sa'ah* presents systematic emergency interventions relevant to acute care.

Material and Methods: A qualitative review of Al-Razi's *Bar-us-Sa'ah* was conducted, focusing on therapeutic strategies for emergencies. Content was thematically categorized into neurological, gastrointestinal, dental, respiratory, and trauma-related disorders.

Results and Discussion: The review revealed a structured framework for emergency care in USM integrating regimenal therapies, pharmacological preparations, and dietary modifications. Al-Razi emphasized strategies, which include bloodletting, cupping, fumigation, topical applications, herbal formulations, and dietary regulation. These methods address diverse acute conditions by swiftly restoring humoral balance while simultaneously offering symptom-specific management. This reflects the relevance of USM to integrative emergency care.

Conclusion: Razi's *Bar-us-Sa'ah* demonstrates that the USM presents a comprehensive model of emergency care. Revisiting these strategies may enrich integrative and culturally sensitive healthcare.

Keywords: Unani, Emergency, Acute, Medicine, Holistic, Al-Razi

JH/SECON2025/PP-164

An overview of research on cardiovascular health and natural products

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ABSTRACT

Background: Cardiovascular disease (CVD) remains the leading cause of mortality worldwide, strongly linked to risk factors such as hyperlipidemia, hypertension, obesity, and diabetes mellitus. As conventional therapies often pose side effects, natural products and dietary strategies have gained increasing interest for CVD prevention and management.

Methodology: This review employed a narrative approach, analyzing peer-reviewed clinical and experimental studies published in recent decades. Sources were identified through databases such as PubMed and ScienceDirect, focusing on the impact of food-derived natural products and dietary interventions on CVD-related risk factors in human populations.

Results: Several natural products show promising cardiovascular benefits. Amaranth oil, rich in tocotrienols and squalene, may lower cholesterol and support cell membrane stability. Black sesame meal supplementation significantly reduced systolic blood pressure and oxidative stress in prehypertensive individuals. Chlorogenic acids from green coffee bean extract improved blood pressure without side effects. Beetroot juice, high in dietary nitrates, acutely reduced both systolic and diastolic blood pressure, especially in older adults. Aged black garlic extract, and general garlic supplementation showed modest antihypertensive effects, possibly through nitric oxide pathways and antioxidant activity. Additionally, a plant-based diet led to significant improvements in body weight, BMI, glycemic control, and cardiovascular biomarkers.

Conclusion: Natural products and plant-based diets demonstrate potential as supportive strategies in reducing CVD risk factors. These approaches may complement conventional treatments, particularly in early intervention or prevention strategies.

Keywords: Cardiovascular disease, natural products, blood pressure, cholesterol, plant-based diet

JH/SECON2025/PP-165

Carbon-based nanomaterials in Alzheimer's disease: Advances in diagnosis and therapy

Mohammad Ikram

ABSTRACT

Alzheimer's disease (AD) is a debilitating neurodegenerative disorder characterised by progressive memory loss and cognitive decline, posing a significant global health challenge with few effective treatments. Recent breakthroughs in nanotechnology, particularly those involving carbon-based nanomaterials, offer promising new strategies for both diagnosing and treating AD. This review provides an in-depth examination of diverse carbon nanomaterials including carbon nanotubes (CNTs), Graphene, Carbon nanodots (CNDs), Carbon nanowires (CNWs), Fullerenes, and Nanodiamonds, highlighting their unique structures, functional properties, and biomedical applications in addressing AD pathology. These nanomaterials possess exceptional advantages, including a large surface area, excellent biocompatibility, customizable surfaces and the critical ability to cross the BBB, enabling targeted delivery. We discuss how these materials can effectively inhibit amyloid β plaque formation, regulate tau protein aggregation and promote neuronal balance and repair. Beyond therapeutic potential, their roles in sensitive biosensing, advanced imaging and combined diagnostic-therapeutic applications are explored. Numerous in vivo and in vitro studies demonstrate their ability to reduce neuroinflammation and oxidative stress, while improving cognitive function. Despite these encouraging findings challenges remain regarding long term safety, toxicity, immune compatibility and scalable production. This review highlights the transformative promise of carbon-based nanotechnology in Alzheimer's disease research and treatment. Moving forward coordinated interdisciplinary efforts and rigorous preclinical validation are essential to harness these nanomaterials for personalised, effective therapies ushering in a new era in the fight against neurodegenerative diseases.

JH/SECON2025/PP-166

Rotundic acid protects against cyclophosphamide-induced nephrotoxicity by regulating inflammatory, oxidative and apoptotic pathways

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ABSTRACT

Background: Cyclophosphamide (CP) is a nitrogen mustard alkylating agent for the treatment of cancer.It is also recognized to induce severe nephrotoxicity. CP is rapidly metabolized in the liver and get converted into phosphoramide mustard (PM) and acrolein. While PM has an anti-cancer effect, acrolein shows renal toxicity.

Objective: To explore the potential effect of rotundic acid (RA) against CP-induced nephrotoxicity in Swiss albino mice.

Materials and methods: Animals were separated into six groups; Normal control, CP 200, RA 40 *per-se*, RA10 + CP 200, RA 40 + CP 200 and NER 400 + CP 200. RA (10, and 40 mg/kg, p.o.) were given daily for 14 days and CP 200 mg/kg/i.p, once on the 7th day. On the 15th day animals were weighed and sacrificed. Blood samples and kidneys were collected to assess the biochemical and histopathological parameters.

Results: CP 200 mg/kg /i.p. enhanced the level of kidney injury markers such as ALT, AST, ALP, TNF-α, interleukin-6, and reduced the level of CAT, and SOD resulting in renal toxicity due to kidney injury, oxidative stress and inflammation. In renal tissues, CP increased the level of many biomarkers such as cleaved caspase-3, which further substantiated the renal-toxicity. The concurrent administration of rotundic acid significantly reversed these pathological modifications.

Conclusion. The findings suggested that RA has the anti-cancer potential and can be utilized as an adjuvant to reduce cyclophosphamide-induced toxicity in cancer patients, however further studies are required to validate it.

Keyword: Cyclophosphamide, Rotundic acid, oxidative stress, inflammation, renal toxicity

JH/SECON2025/PP-167

Establishing quality control standards and metabolomic profiling for identification of highly adulterated seed drugs of Indian medicinal plant

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ABSTRACT

Background: *Cichorium intybus* L. (commonly known as Kasni), from the family Asteraceae, is a plant that has hepatoprotective, antiurolithiatic, antioxidant, and anti-inflammatory activities.

Objective: To evaluate the quality standards and metabolomic profiling of highly adulterated seeds of standard *Cichorium intybus* L. (S) along with its adulterant (A) and various market samples (MS).

Methods: The plant materials were extracted in methanol using the reflux extraction method. S, A and MS were differentiated on the basis of macroscopic and microscopic characters. High Performance Thin-layer chromatography (HPTLC) was carried out for the metabolomic profiling and difference in S, A and MS of the extracts using a specific solvent system along with quantification of unique compound of S. UPLC-MS analysis was performed to elucidate the structure of unique compounds of S and A.TLC-bioautographic-UP-LCMS/MS based identification of DPPH active antioxidant compounds were identified. In silico analysis of *Cichorium intybus* L. was done to evaluate the nephroprotective potential.

Results: Unique marker compound of S (at 0.39 Rf) was identified in each MS extracts using HPTLC analysis and structure was elucidated through UPLC-MS analysis. Total seven DPPH Active phytoconstituents present in S chicory at different Rf was revealed. In silico analysisrevealed that *Cichorium intybus* L. has nephroprotective potential. PPI network was constructed and AKT1, IL6 and TNF Hub genes were identified. Gene Ontology revealed several BP, CC and MF.

Conclusion: The developed method can be used to identify unique compounds and to find adulteration in seeds of *Cichorium intybus* L. along with its nephroprotective potential through in-silico analysis.

Keywords: HPTLC, *Cichorium intybus* L., UPLC-MS, Seed Adulteration, NetworkPharmacology

JH/SECON2025/PP-168

Ayush aahar through the lens of mīzāj: Personalizing diet for sustainable health

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ABSTRACT

Background: Unani medicine views Mīzāj (temperament) as a key determinant of health and disease. Diet tailored to Mīzāj forms the foundation of preventive care. The Ayush Aahar initiative provides an opportunity to reframe these principles in the context of modern personalized and sustainable nutrition.

Objectives: To highlight the relevance of Mīzāj -based dietotherapy in designing Ayush Aahar models that support personalized health and sustainability.

Methods: A conceptual review integrating Unani dietary guidelines from classical texts with emerging evidence from personalized nutrition, gut microbiome studies, and sustainable diet frameworks.

Results: Mīzāj based recommendations correspond to individualized dietary needs, echoing modern nutrigenomic approaches. The preference for seasonal, balanced, and locally available foods resonates with global sustainable diet models. This alignment underscores the potential of Ayush Aahar to address lifestyle disorders and promote eco-conscious healthcare practices.

Conclusion: Positioning Ayush Aahar through Mīzāj offers a novel pathway to integrate Unani wisdom with modern nutrition science, contributing to personalized preventive healthcare and sustainable living.

Keywords: Mizaj, Unani dietotherapy, Ayush Aahar, Personalized nutrition, Sustainability

JH/SECON2025/PP-169

From root to brain: Nanocarriers of glycyrrhetinic acid for intranasal delivery

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ABSTRACT

Introduction: Glioblastoma multiforme (GBM) is the most aggressive primary brain tumor, with poor prognosis despite multimodal therapies. Glycyrrhetinic acid (GA), a pentacyclic triterpenoid from *Glycyrrhiza glabra*, shows antiproliferative, pro-apoptotic, and chemosensitizing effects. However, its clinical use is restricted due to poor solubility, hydrophobicity, and low bioavailability. Nanostructured lipid carriers (NLCs) and intranasal delivery offer a promising strategy to overcome these limitations and enhance direct brain targeting.

Materials and Methods: Preformulation studies of GA included: (i) UV spectroscopy for λmax and solubility assessment in methanol and phosphate buffers (pH 6.4 and 7.4), (ii) Differential Scanning Calorimetry (DSC) for thermal properties, (iii) Fourier-Transform Infrared Spectroscopy (FTIR) for functional group integrity and compatibility with lipids, (iv) excipient screening for solubility in liquid and solid lipids, and (v) cytotoxicity evaluation (IC_{50}) in U87MG glioblastoma cells.

Results and Discussion: GA showed λmax in Methanol, phosphate buffers with good solubility in solid and liquid lipid. DSC confirmed crystalline nature with a sharp endothermic peak at ~307 °C. FTIR analysis revealed characteristic functional peaks without chemical incompatibility. GA exhibited dose-dependent cytotoxicity in U87MG cells with IC_{50} = 35.48 Mm, indicating strong anticancer potential. These results confirm GA's compatibility with lipid excipients and support its incorporation into NLCs.

Conclusion: Preformulation studies demonstrated strong compatibility and anticancer activity of GA. Intranasal GA-loaded NLCs hold promise for brain-targeted delivery in glioblastoma therapy. Further optimization and in-vivo validation are recommended.

Keywords: Glycyrrhetinic acid; Nanostructured lipid carriers; Intranasal delivery; Glioblastoma; Preformulation

JH/SECON2025/PP-170

Therapeutic potential of *Moringa oleifera* in HIV management: A systematic review of randomized controlled trials

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ABSTRACT

Background: *Moringa oleifera* is a nutrient-rich botanical supplement with potential immunomodulatory benefits for people living with HIV, particularly in low-resource settings.

Objective: To evaluate the clinical efficacy and safety of *Moringa oleifera* supplementation as an adjunct to antiretroviral therapy (ART) in HIV-positive individuals.

Materials and Methods: A systematic literature search was conducted in PubMed, Cochrane Library, and Google Scholar following PRISMA guidelines. Eligible studies were randomized controlled trials (RCTs) published between 2015 and 2024 involving HIV-infected adults receiving *Moringa oleifera* alongside ART. Outcomes included CD4+ T-cell count, viral load, hematologic and nutritional markers, quality of life, and adverse effects.

Results: Six RCTs conducted in Sub-Saharan Africa met inclusion criteria. *Moringa oleifera* supplementation (200 mg to 30 g/day for 3–12 months) was associated with multiple clinical benefits. Four studies reported increased CD4+ counts, two showed improvements in platelet, WBC, and RBC levels, one study reported viral load reduction, another showed decreased TNF-α, and one reported BMI improvement. Quality of life improved in physical, psychological, and independence domains. No adverse effects or ART interactions were reported.

Conclusion: *Moringa oleifera* appears to be a safe, low-cost adjunct to ART with beneficial effects on immune function, hematologic status, nutrition, and quality of life. Further multicenter RCTs are needed to validate these findings and support its inclusion in HIV care protocols, especially in resource-limited settings.

JH/SECON2025/PP-171

AI enhanced digital cupping: A revolutionary advancement in cupping therapy

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ABSTRACT

Background: Hijama (cupping therapy) is an ancient therapeutic in unani system of medicine which is widely recognized for its detoxifying nature and circulatory benefits but traditional cupping methods lack standardization, objective monitoring and customized to patients needs.The emergence of AI offers new opportunities to modernize hijama by integrating automation, precision and driven by data.

Objective: To explore potential clinical applications of AI enhanced digital cupping in improving the safety, efficacy, and standardization of Hijama therapy.

Methodology: This review is based on analysis of scientific literature and technological reports related to AI applications in cupping therapy. Data were gathered from biomedical database, technical documentation and unani medical source. The feature, mechanism and outcome of AI digital cupping therapy is to compare with conventional hijama therapy.

Results: AI enhanced digital cupping demonstrated significant improvement in treatment precision, safety monitoring and personalized therapy. Smart sensors and machine learning algorithms provided real time control of suction pressure, temperature and treatment duration.

Conclusion: AI enhanced digital cupping represents a transformation in the evolution of hijama therapy. By combining both ancient unani principles with modern AI technology ,it enhances therapeutic accuracy of hijama therapy

Keywords: Hijama, cupping therapy, Artificial intelligence, unani medicine, precision therapy

JH/SECON2025/PP-172

Camphene mitigates cyclophosphamide-induced cardiotoxicity by down regulating pro-apoptotic Caspase-3, attenuating NF-κB p65–dependent inflammatory pathways, and suppressing iNOS-mediated nitrative stress responses in Wistar albino rats

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ABSTRACT

Background: Chemotherapy-associated cardiotoxicity is a major limitation in cancer patients treated with cyclophosphamide (CP), due to excessive reactive oxygen species (ROS) generation. Natural compounds with antioxidant and anti-inflammatory properties may counteract this effect. Camphene, a monoterpene with proven ROS-scavenging and anti-inflammatory activity, was selected to evaluate its protective role against CP-induced cardiotoxicity.

Objective: To investigate the cardioprotective effect of camphene in CP-induced cardiotoxicity in Wistar rats.

Methods: Rats received a single intraperitoneal dose of CP (200 mg/kg) on day 7. Camphene was administered orally at different doses for 21 days, and animals were sacrificed on day 21. Oxidative stress parameters, inflammatory cytokines, Western blotting, and histological examinations were performed.

Results: CP administration significantly increased TBARS, pro-inflammatory cytokines (TNF-α, IL-6, IL-1β), and cardiac biomarkers (LDH, CK-MB, cTnT), with a decline in antioxidant enzymes (GR, SOD, CAT). Camphene treatment restored antioxidant status, reduced cytokine levels, and improved cardiac biomarkers. Western blotting revealed upregulation of NF-κB p65, cleaved caspase-3, and iNOS in CP groups, which was markedly attributed by camphene. Histopathological analysis confirmed reduced myocardial damage in camphene-treated groups. The cardioprotective mechanism appears to involve downregulation of oxidative stress, inflammation, and apoptotic signalling pathways.

Conclusion: Camphene demonstrated significant cardioprotective potential against CP-induced cardiotoxicity, attributed to its antioxidant, anti-apoptotic and anti-inflammatory actions. These findings supported camphene as a promising natural therapeutic for mitigating chemotherapy-induced cardiac damage.

Keywords: Camphene, Cyclophosphamide, Cardiotoxicity, Oxidative stress

JH/SECON2025/PP-173

Nano formulations of curcumin plant extracts for Alzheimer's treatment and pathways targeted

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ABSTRACT

Background: Curcumin, a polyphenol from *Curcuma longa*, exhibits antioxidant, anti-inflammatory, and anti-amyloid properties. It improves cognitive function by reducing beta-amyloid plaques, neuroinflammation, and oxidative stress, making it a promising agent for Alzheimer's disease treatment. However, its clinical use is limited by poor bioavailability and brain penetration.

Objective: The objective is to evaluate the therapeutic potential of curcumin nano formulations to enhance bioavailability and brain delivery, targeting multiple AD pathways including amyloid plaque inhibition, oxidative stress reduction, neuroinflammation suppression, and neurogenesis promotion, thereby improving cognitive functions and offering a multifunctional treatment approach for Alzheimer's disease.

Methodology: Various nano formulation approaches have been employed across studies. PLGA nanoparticles represent the most extensively studied platform, with researchers developing curcumin-encapsulated PLGA nanoparticles (Cur-PLGA-NPs) averaging 128-140 nm in diameter. Several studies incorporated targeting moieties, including CRT peptide for transferrin receptor targeting and Tet-1 peptide for neuronal specificity. Lipid-core nano capsules and low-density lipoprotein-mimic nanocarriers have also been investigated. Characterization methods included particle size analysis, encapsulation efficiency determination, in vitro release studies, and blood-brain barrier permeability assessments using bEnd.3 cell models.

Result: Various studies report nano formulated curcumin enhances cognitive function, reduces amyloid plaques, oxidative stress, and neuroinflammation, and promotes neurogenesis in Alzheimer's models.

Conclusion: Nano formulated curcumin demonstrates superior therapeutic efficacy compared to free curcumin in Alzheimer's models. Studies consistently report improved cognitive function, enhanced neurogenesis, reduced amyloid burden, and decreased neuroinflammation. The multitargeted approach addresses multiple pathological mechanisms simultaneously while achieving enhanced brain bioavailability through nano formulation strategies.

Key Words: Curcumin, Nano formulations, Alzheimer's disease, PLGA nanoparticles, blood brain barrier

JH/SECON2025/PP-174

Formulation and development of pain relief oil

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ABSTRACT

Background: Pain has a major influence on productivity and quality of life and is one of the most prevalent clinical complaints that lead to medical intervention. Despite their short-term efficacy, standard pharmacological therapies such as opioids, corticosteroids, and nonsteroidal anti-inflammatory medications (NSAIDs) are frequently associated with adverse effects such as gastrointestinal discomfort, renal impairment, and the risk of reliance or tolerance. As a result, there is a growing interest in herbal derived pain relief formulations for safer pain management.

Aim and Objective: This study will aim to formulate and evaluate an herbal pain relief oil using qualitative analysis.

Method: A literature study was performed using Google Scholar, and research publications for several plants were examined for their various activities. Network pharmacology and molecular docking was done by thoroughly analysing the interactions between genes, proteins, and small molecules. A list of herbal compounds was compiled, and a method for extracting the needed phytoconstituent from the plant source was created. Formulation studies and assessment investigations such as HPTLC fingerprinting, GC, and LC-MS were carried out.

Result: The analysis of formulated pain relief oil demonstrated significant analgesic and anti-inflammatory effects. The HPTLC fingerprints of the oil were analysed by comparing with the standard samples and volatile oils were evaluated using GC.These results indicate that the formulated oil possesses potent anti-inflammatory and analgesic properties, supporting its potential as a safe and effective topical treatment for localized pain.

Conclusion: Herbal pain relief oil with potential therapeutic action was formulated. The oil provided measurable relief in both acute and chronic pain models, with effects comparable to standard pharmacological agents, yet without observable adverse reactions or dermal toxicity. Analytical approaches were performed and their results were noted.

Keywords: Herbal pain relief oil, Medicinal plants, HPTLC, GC, LC-MS/MS

JH/SECON2025/PP-175

PAT tools in pharmaceutical crystallization: Step toward better drug stability and performance

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ABSTRACT

Introduction: Crystallization plays a crucial role in the pharmaceutical industry, directly influencing drug purity, stability, and performance. Critical attributes such as crystal size distribution, morphology, and polymorphism are key determinants of drug quality. Traditional crystallization approaches often struggle with process variability, highlighting the need for advanced monitoring and control strategies. Process Analytical Technology (PAT), endorsed by regulatory agencies like the FDA, has emerged as a valuable framework to ensure product quality through real-time process monitoring and optimization.

Materials and Methods: This review compiles published studies and regulatory perspectives on PAT tools used in pharmaceutical crystallization. Different PAT techniques such as Raman spectroscopy, NIR, ATR-UV/Vis, ATR-FTIR, FBRM, PVM, terahertz imaging, and in-line moisture analyzers are described. Representative case studies are analyzed to demonstrate their applications in monitoring nucleation, crystal growth, polymorphic transitions, and cocrystal formation. The review also evaluates the integration of chemometric approaches, multivariate data analysis, and Quality by Design (QbD) concepts to enhance process understanding.

Results and Discussion: PAT tools have been shown to effectively monitor crystallization parameters in real time, offering insights into solute concentration, particle size, and morphology. Case studies highlight their role in optimizing crystallization of APIs such as ceritinib, carbamazepine, vitamin B12, and piroxicam. The combination of PAT tools with chemometric models enables predictive control, reduces batch variability, and supports continuous manufacturing. Despite their advantages, challenges persist in scale-up, sensor calibration, data management, and real-time decision-making. Advances in artificial intelligence and machine learning are expected to further enhance PAT's capabilities in industrial crystallization.

Conclusion: PAT tools represent a transformative approach to pharmaceutical crystallization, enabling precise control over crystal growth and polymorphism. Their integration improves product quality, process efficiency, and regulatory compliance while reducing cost and waste. Although scale-up and data management challenges remain, future progress in sensor technology and advanced data analytics will strengthen the role of PAT in modern pharmaceutical manufacturing.

Keywords: Crystallization, Process Analytical Technology, Crystal Growth, Polymorphism, Real-time Monitoring, Pharmaceutical Manufacturing

JH/SECON2025/PP-176

Medicinal plants with potential anti Parkinson activity: An updated review

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ABSTRACT

Introduction: Parkinson's disease (PD) is a widespread, progressive neurodegenerative disorder that affects over 10 million people globally. While both genetic predisposition and environmental influences contribute to its onset, the exact cause of Parkinson's disease remains unclear. Typical markers of disease includes gradual damage of dopaminergic neuron in Substantia Nigra pars compacta area of the brain. It is thought that mitochondrial malfunction and oxidative stress are two of the main causes of the advancement of PD. The modern treatment available for the PD are associated with severe side effects. While the main goal of plant based therapy is to manage symptoms, especially motor symptoms. These motor symptoms typically include bradykinesia (slowness of movement), resting tremors, and stiffness in muscles and joints.

Materials and Methods: The data provided in this review was collected from databases (websites) such as Web of Science, PubMed, Google Scholar and Semantic Scholar etc. Data concerned with animal and clinical studies of medicinal plants related to PD are discussed.

Results and discussion: The findings of animal and clinical studies are discussed and summarised in this review. The results of the studies indicate that extract of medicinal plants and their ingredients have neuroprotective effects against diseases. These protective actions are mainly due to inhibition of dopamine metabolizing enzymes, reduction in oxidant markers, neuro-inflammation and increase in antioxidant activity.

Conclusion: On the basis of results of the studies summarized in this review it can be concluded that medicinal plants or herbs can be used as other treatment for PD.

Key words: Parkinson's disease**,** medicinal plants, mitochondrial dysfunction

JH/SECON2025/PP-177

CAAT box-derived polymorphism (CBDP) and start codon targeted (SCoT) based Sequence characterised amplified regions (SCARs) authenticate true-to-type *Sida cordifolia* L. and its adulterant species

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ABSTRACT

Background: *Sida cordifolia L.* (bala), a Malvaceaen Ayurvedic shrub widely distributed in India, is used for managing and treating respiratory ailments, neurological and urinary disorders, and metabolic imbalances. Pharmacological studies highlight its analgesic, anti-inflammatory, hypoglycaemic, and hepatoprotective properties, with ephedrine contributing to its stimulant activity. However, frequent adulteration with morphologically similar species such as *Sida cordata*, *Sida rhombifolia*, *Sida acuta* and *Abutilon indicum* complicates authentication and quality assurance in herbal formulations.

Methods: Genomic DNA was extracted from authenticated *S. cordifolia* accessions and common adulterant species. A total of 25 CAAT Box-Derived Polymorphism (CBDP) and 16 Start Codon Targeted (SCoT) primers were screened to identify polymorphic markers. Distinct species-specific amplicons generated by five primers (CAAT 06, CAAT 04, CAAT 03, CAAT 21, and SCoT 10) were excised, purified, cloned into pGEM-T Easy Vector and transformed into *E. coli* DH5α and validated through blue-white screening, colony PCR, and restriction with *Eco*RI. Sequencing of positive inserts enabled the design of Sequence Characterized Amplified Region (SCAR) primers.

Results: The developed SCAR markers exhibited high reproducibility, sequence specificity, and single-locus resolution. These markers unambiguously distinguished genuine *S. cordifolia* from its adulterants across tested accessions, thereby overcoming the limitations of morphological and random multi-locus markers.

Conclusion: This study establishes a robust SCAR-based precise authentication of *S. cordifolia* and its adulterants and provides a sustainable and reproducible means for quality control, and furthering its safe use in Ayurvedic preparations, modern pharmaceuticals, and nutraceuticals.

Keywords: *Sidacordifolia*, adulterant species, authentication, CBDP, SCoT

JH/SECON2025/PP-178

Unveiling the bioactive profile and antioxidant potential of *Pistacia lentiscus* Gum

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ABSTRACT

Pistacia lentiscus gum has a long history of use for multiple therapeutic activities, such as antimicrobial, antioxidant, anticoagulant, antidiabetic activities, and many more; however, there is limited information available regarding its phytoconstituent composition. This study combines GC-MS analysis for phytochemical profiling and HPTLC fingerprinting, and quantitative analysis for quality control of *Pistacia lentiscus* gum aqueous and hydroalcoholic extracts. Authentication of the raw material was done using powder microscopy. Metabolite separation was achieved using sophisticated chromatographic techniques, which were then followed by quantitative analysis using HPTLC. The proposed HPTLC method was validated for linearity, accuracy, precision, robustness, and specificity by the established guidelines. DPPH and reducing power assays were used for determining the *in vitro* antioxidant potential of the extracts. GC-MS analysis was used for metabolite profiling of the gum extract. The developed HPTLC methods enabled quantification of gallic acid and ellagic acid in the samples, and the calibration plot was found to be linear, accurate, precise, robust, and specific. The antioxidant activity of the extracts demonstrated significant potential as compared to standard ascorbic acid. GC-MS analysis resulted in a total of 52 metabolites in both extracts, with eight of these being common metabolites. The developed method can be successfully applied for quality control and metabolite profiling of the standardized gum of *Pistacia lentiscus*. Further, high analytical studies (hyphenated techniques) are required to establish the phytochemical profile to support its potential development into standardized therapeutic agents.

Keywords: *Pistacia lentiscus*, Quality control, HPTLC, GC-MS, Antioxidants

JH/SECON2025/PP-179

Artificial intelligence and Unani medicine: Integrating individual, drug, and regional temperament's (*Mizāj)* in the pathway of drug development

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ABSTRACT

Background: Unani Medicine explains health and disease through the balance of *Akhlāṭ* (humours) and the *Mizāj* (temperament) of individuals. Every person and every drug has a specific *Mizāj* (temperament) such as *Ḥār* (hot), *Bārid* (cold), *Raṭb* (moist), or *Yābis* (dry). Treatment aims to restore balance by prescribing drugs with opposite *Mizāj* (temperament) mostly. In addition, Unani scholars describe *Mizāj-e-aqalim* (regional temperament), where climate and geography influence the constitution and disease patterns of populations. While this system has guided practice for centuries, its application in Unani drug discovery remains limited. Artificial Intelligence (AI) offers tools to digitize, analyze, and validate Unani knowledge, linking *Mizāj*(temperament)-based principles with personalized and region-specific medicine.

Objective: To explore how AI can be used to correlate the *Mizāj* (temperament) of individuals, drugs, and regions in Unani Medicine for advancing drug discovery and personalized therapy.

Methods: Classical Unani texts and pharmacopeias were reviewed for descriptions of individual, drug, and regional *Mizāj* (temperament). Modern AI tools such as natural language processing, machine learning, and molecular docking were considered for digitizing Unani knowledge, building phytochemical databases, predicting drug–target interactions, and integrating *Mizāj* (temperament) into personalized treatment models.

Results: AI can classify drugs according to *Mizāj* (temperament), predict pharmacological actions, and match them with patient *Mizāj* (temperament) for precise treatments. For instance, *ḤārrMizāj* (hot temperament) disorders may benefit from *Bārid* drugs like *Sibr* (Aloe vera). *Mizāj-e-aqalim* (Regional Mizaj) also matters: populations in hot, dry regions may require moist or cold drugs, whereas those in cold, moist climates may benefit from hot drugs. AI can integrate such regional and environmental data to refine drug discovery pipelines.

Conclusion: Integrating AI with the Unani concept of *Mizāj* (temperament) at individual, drug, and regional levels provides a novel pathway for drug discovery and personalized medicine. By digitizing Unani knowledge and validating *Mizāj* (temperament) with pharmacological evidence, AI can accelerate the development of safe, effective, and patient-centered therapeutics while preserving the holistic wisdom of Unani medicine.

Keywords: Artificial intelligence, Unani Medicine, *Mizāj*, Drug temperament, Regional temperament (*Mizāj -e-aqalim*)

JH/SECON2025/PP-180

Ancient wisdom, modern evidence: Unani adjuvant therapy in a rare case of kartagener syndrome

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ABSTRACT

Background: Kartagener syndrome (KS) is a rare autosomal recessive disorder under primary ciliary dyskinesia, characterized by the triad of bronchiectasis, chronic sinusitis, and situs inversus. Defective ciliary motility leads to impaired mucociliary clearance, recurrent respiratory infections, and concerns regarding fertility.

Objectives: To report a clinically confirmed case of KS and evaluate the effect of Unani adjuvant therapy in symptom management.

Methods: A 65-year-old female presented with recurrent cough, purulent sputum, nasal congestion, and dyspnoea for over three decades. Detailed clinical examination, chest imaging, and abdominal ultrasonography confirmed bronchiectasis, dextrocardia, and complete situs inversus. Standard therapy included antibiotics, inhaled corticosteroids, mucolytics, and chest physiotherapy. A Unani regimen comprising *Irsa* (Iris insata), *Katan* (Linum usitatissimum), *Asl-as-soos* (Glycyrrhiza glabra), *Arhusa* (Adhatoda vasica), and *Zoofa* (Hyssopus officinalis) decoction with Laooq Khyar Shamber was administered twice daily for one month.

Results: The patient showed marked improvement in cough frequency, sputum volume, nasal obstruction, and overall well-being with combined management, without adverse effects. **Conclusion**: Kartagener syndrome should be considered in patients with recurrent sinopulmonary infections and situs inversus. Early diagnosis and integrated management, including evidence-based Unani adjuvant therapy, may enhance symptom control, reduce disease burden, and improve quality of life.

Keywords: Kartagener syndrome; primary ciliary dyskinesia; Unani medicine; bronchiectasis; chronic sinusitis.

JH/SECON2025/PP-181

Impact of artificial intelligence in the development of traditional (Unani) system of medicine: Challenges and prospects

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ABSTRACT

Background: The integration of Artificial Intelligence (AI) into healthcare has revolutionized diagnostics, therapeutics, and personalized medicine. Traditional systems like Unani medicine, with their rich heritage and holistic approach, hold immense potential for modernization through AI applications. However, the adoption of AI in Unani medicine faces unique challenges, including limited digitalization of classical texts, lack of standardized data, and regulatory hurdles.

Objective: This study aims to explore the role and potential impact of AI in enhancing the Unani system of medicine, focusing on its applications in diagnostics, drug discovery, clinical decision support, and patient care. Additionally, it seeks to identify the major challenges and propose future strategies for effective AI integration.

Methods: A comprehensive literature review was conducted using scientific databases and classical Unani texts to assess current trends in AI application within traditional medicine. Case studies, pilot projects, and recent advancements were analyzed to evaluate the feasibility, benefits, and barriers of AI adoption in the Unani framework.

Results: AI demonstrates significant potential to transform the Unani system by enabling data-driven clinical decision-making, digitizing ancient knowledge, predicting disease patterns, and accelerating the discovery of novel formulations. Despite these promising outcomes, major challenges include insufficient digitized data, limited interdisciplinary collaboration, and the need for culturally sensitive AI models. Addressing these barriers through policy support, capacity building, and research collaboration could position AI as a powerful tool in advancing Unani medicine into the era of precision healthcare.

Keywords: Artificial Intelligence, Unani Medicine, Digital Transformation, Traditional Medicine, Healthcare Innovation

JH/SECON2025/PP-182

Shatavari (Asparagus racemosus): A unani and modern pharmacological perspective on stress, fatigue, and nervous disorders

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ABSTRACT

Background: Shatavari (Asparagus racemosus Willd.) is a well-established medicinal plant used in Unani and other traditional systems of medicine. In Unani literature, it is described with a Haar Ratab (hot and moist) Mizaj, attributed with properties such as muqawwi-e-asab (nervine tonic), muqawwi-e-badan (general tonic), and mufarrih (exhilarant). Classical physicians have recommended Shatavari in conditions characterized by weakness, nervous exhaustion, and disturbed mental state, which today can be related to stress, fatigue, and nervous disorders.

Objective: This study aims to evaluate the potential role of Shatavari in managing stress, fatigue, and nervous disorders, with special emphasis on its Unani description and modern pharmacological evidence.

Methods: Unani classical sources including Makhzan-ul-Adwiya, Al-Qanun fi'l Tibb, and Bayaz-e-Kabeer were reviewed to collect references regarding temperament, actions, and indications of Shatavari. Contemporary research articles from scientific databases were analyzed for experimental and clinical evidence.

Results: Unani texts describe Shatavari as a nutritive and strengthening agent, effective in zi'f-e-asab (nervous debility), zi'f-e-qalb (cardiac weakness), and zi'f-e-badan (general weakness). Modern pharmacological studies demonstrate its adaptogenic, anxiolytic, antidepressant, antioxidant, and immunomodulatory activities. Experimental evidence shows Shatavari reduces stress-induced biochemical changes, enhances endurance, and improves cognitive function. Clinical studies also support its role in reducing fatigue and improving quality of life, particularly in stress-related disorders.

Conclusion: The correlation of Unani principles with modern findings suggests that Shatavari holds significant promise in the management of stress, fatigue, and nervous disorders. Its dual action as a nervine tonic and adaptogen provides a holistic therapeutic approach. Further clinical validation within Unani framework can strengthen its integration in evidence-based practice.

Keywords: Shatavari, Asparagus racemosus, Unani Medicine, Stress, Fatigue, Nervous Disorders, Adaptogen

JH/SECON2025/PP-183

Skin cancer: Understanding the journey of transformation from conventional to advanced treatment approaches

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ABSTRACT

Background: Skin cancer is a growing global health concern, with cases projected to rise significantly over the next two decades if early detection is not achieved. Although treatable at an early stage, challenges such as limited novel drug discovery, clinical failures, and drug resistance hinder effective management.
Aims/Objectives: This study aims to analyze the structural diversity of skin cancers, evaluate current treatments, explore molecular targets involved in cancer growth and metastasis, and highlight nanotechnology-based approaches for overcoming multidrug resistance.
Methods: A comprehensive review of recent literature, including peer-reviewed articles and clinical trial data, was conducted. Studies focusing on skin cancer etiology, treatment strategies, molecular targets, and nanotechnology interventions were critically assessed.
Results: Conventional therapies like chemotherapy, radiotherapy, and surgery remain widely used but often face limitations such as toxicity and tumor recurrence. Phytocompounds and photothermal therapy offer promising anticancer effects with fewer side effects. Molecular targets, including growth factor receptors and signaling pathways, are key to cancer progression. Nanoparticle-based systems such as liposomes, polymeric nanoparticles, and metallic nanoparticles improve drug delivery, reduce toxicity, and show potential in overcoming multidrug resistance. Clinical trials indicate encouraging results with improved bioavailability and therapeutic outcomes.
Conclusions: Nanotechnology-based therapies, when integrated with existing treatments, offer a promising solution to current challenges in skin cancer management, paving the way for more effective and targeted interventions in the future.
Keywords: Skin cancer, Melanoma, Non-melanoma, Targeted therapy, Combination therapy, Nanotechnology

JH/SECON2025/PP-184

Amelioration of gastric ulcer using a hydro-alcoholic extract of *Mangifera indica* in Sprague Dawley rats by prevention of muco-oxidative stress

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ABSTRACT

Background: Gastric ulcer is a significant global public health concern that can result in severe complications such as gastro-intestinal bleeding, perforations, gastro-intestinal obstruction and cancer. *Mangifera indica* seed kernel, a traditional Chinese medicine, is widely available and used in China. The current study was aimed to determine gastro-protective effect of *Mangifera indica* kernel extract in preventing gastric ulcer in rats.

Methods: SD rats were divided into six groups. Each group consisted of five rats. Group-I received 1 ml/kg/day p. o. of 1 % carboxy methylcellulose. Group-II received indomethacin (20 mg/kg/day, p.o.). Group-III received Mangifera indica kernel extract (500 mg/kg/day, p.o.). Group-IV received the extract (1000 mg/kg/day, p.o.). Group-V received 50 mg/kg/day ranitidine. Group-VI (per se) received the extract (1000 mg/kg/day, p.o.). The ulcer index, mucus barrier, and histopathology were calculated. After homogenization of gastric tissue in buffer, anti-oxidant enzyme potency was also evaluated.

Results: *Mangifera indica* kernel extract significantly (p <0.01) and dose-dependently increased mucus, superoxide dismutase, and catalase levels while lowered ulcer index and thiobarbituric acid reactive substances in comparison to ulcer control group-II. According to histopathological data, indomethacin medication led to gastric ulcers whereas Mangifera indica kernel extract protected from gastric ulcer by prevention of indomethacin-induced muco-oxidative stress. Mangifera indica 1000 mg/kg/day in group-IV had ulcer prevention potency comparable to ranitidine 50 mg/kg/day in group-V.

Discussion: Thus, Mangifera indica extract possesses promising effect on amelioration of gastric ulcer and protects from gastric ulcer by prevention of indomethacin-induced muco-oxidative stress, re-inforcing the gastric mucosa, and reducing the secretion of gastric acid.

Keywords: *Mangifera indica*, gastric ulcer, ulcer index, indomethacin, oxidative stress

JH/SECON2025/PP-185

Developing bioactive heterocyclic compounds through strategic design and synthesis

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ABSTRACT

Aim /Objectives: The study focuses on designing, synthesizing, and evaluating the anticancer potential of a novel heterocyclic compound, MW01, as an EGFR inhibitor. Molecular docking was used to analyze MW01's binding affinity, hydrogen bonding, and key interactions within the EGFR active site, demonstrating its potential as a lead compound for future anticancer drug development and biological studies.

Methods: The 3D structure of EGFR was retrieved from the Protein Data Bank. MW01 was prepared and optimized using molecular modeling software. Docking simulations were performed to predict binding affinity, hydrogen bonding, and interactions within the EGFR active site. Results were analyzed to identify key interactions and potential inhibitory effects.

Results: The heterocyclic compound exhibited stable interactions with residues LEU83, GLU81, and LEU134. Docking analysis indicated strong hydrogen bonding and hydrophobic contacts, reflecting effective binding. The observed binding pattern suggests potential inhibition of the target protein, positioning the compound as a promising lead candidate.

Conclusion: Molecular docking showed the synthesized heterocyclic compound binds effectively to key active site residues (LEU83, GLU81, LEU134), highlighting its potential as a lead for anticancer drug development.

Keywords: MWO1, EGFR (Epidermal Growth Factor Receptor), Molecular Docking, Heterocyclic Compounds, Anticancer Agents, Drug Design, Binding Affinity.

JH/SECON2025/PP-186

Green crimes: Forensic insights into poisonous plants

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ABSTRACT

Background: Plant poisoning is an important concern in forensic toxicology due to the widespread availability of toxic plants and their involvement in accidental, suicidal, and homicidal cases. Many plant species contain toxic compounds such as alkaloids, glycosides, saponins, and protein toxins, which can lead to cardiotoxicity, neurotoxicity, gastrointestinal disturbances, and multi-organ failure. Despite advances in analytical technology, plant poisoning remains challenging to diagnose due to chemical instability, rapid metabolism, and subtle post-mortem findings.

Objective: Identify major toxic plants and their active compounds. Examine mechanisms of toxicity. Review forensic methods for detection. Highlight investigative challenges. Suggest preventive strategies to reduce poisoning incidents.

Methodology: A systematic literature review was conducted using PubMed, Scopus, Web of Science, and Google Scholar with keywords such as "plant poisoning," "forensic toxicology," "alkaloids," "glycosides," "Ricinus communis," and "Datura stramonium." Inclusion criteria included peer-reviewed articles, case reports, and reviews from 2000–2025 that provided chemical, toxicological, or forensic data. Non-human studies and reports lacking analytical information were excluded. Data were extracted on toxic plant types, active compounds, clinical and post-mortem features, analytical methods, and medico-legal outcomes.

Results: Cardiac Glycosides: Nerium oleander and Digitalis purpurea contain oleandrin and digitoxin, causing arrhythmias and sudden cardiac death. These plants are frequently involved in accidental and suicidal poisonings. Alkaloid-Producing Plants: Datura stramonium, Atropa belladonna, and Aconitum napellus produce tropane and diterpenoid alkaloids leading to neurotoxicity, seizures, paralysis, and hallucinations. Forensic detection uses sensitive techniques including HPLC, TLC, GC-MS, LC-MS, ELISA, DNA barcoding, and microscopic analysis.

Conclusion: Plant poisoning remains a complex forensic challenge due to chemical diversity, subtle clinical presentations, and analytical difficulties. Accurate identification requires botanical knowledge, advanced analytical techniques, and correlation with clinical, post-mortem, and circumstantial evidence. Preventive strategies such as public awareness, safe handling of toxic plants, and regulatory measures are essential to reduce accidental and intentional poisoning. Multidisciplinary collaboration among toxicologists, pathologists, and botanists enhances forensic investigation and medico-legal outcomes.

Keywords: Plant poisoning, forensic toxicology, botanical evidence, LC-MS, GC-MS, forensic investigation, toxic plants.

JH/SECON2025/PP-187

Recent update on electrospinning and electrospun nanofibers: current trends and their applications

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ABSTRACT

Background: Electrospinning is a versatile technique for producing ultrathin nanofibers, widely used in biomedical, environmental, and industrial applications. Recent advances in both electrospinning and non-electrospinning techniques have gained attention due to their simple setup and scalability.

Aim/Objectives: This review aims to provide a comprehensive overview of electrospinning and non-electrospinning methods, focusing on fabrication processes, materials, applications, challenges, and future prospects in nanofiber development.

Methods: A thorough literature review was conducted to gather information on nanofiber fabrication techniques, process parameters influencing fiber characteristics, materials used, and emerging applications across various sectors.

Results: The review summarizes critical aspects of electrospinning and non-electrospinning processes, including setup, fabrication methods, components, and key parameters determining fiber properties. It also highlights diverse applications such as smart mats, catalytic supports, filtration membranes, energy storage devices, electronic components, and biomedical scaffolds. Furthermore, recent innovations, commercial prospects, and strategies to overcome existing challenges are discussed.

Conclusions: Electrospinning and related techniques offer significant potential for advancing nanotechnology-based products. Addressing production challenges and enhancing process efficiency will enable broader industrial and biomedical applications of nanofibers in the future.

Keywords: Electrospinning, Nanofibers, Non-electrospinning techniques

JH/SECON2025/PP-188

Anti-inflammatory activity and acute oral toxicity of phospholipid complex formulation prepared using standardized flavonoid enriched fraction of *Hippophae salicifolia* D. Don

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ABSTRACT

Background: Flavonoids are hydroxylated polyphenols, which possess potent antioxidant activity, but they face various challenges such as bioavailability, poor solubility and short half-life. These factors hinder its reliability as a good anti-inflammatory and antioxidant agent. Phospholipid complexes solve these problems and enhance absorption via oral topical route, thus increases therapeutic efficacy of flavonoids.

Methods: Flavonoid-enriched fraction (HSLEE-FEF) was prepared from 70% ethanol extract (70% HSLEE) of *H. salicifolia* leaves. Standardization of enriched fraction was performed using RP-HPLC using five flavonoids. Both 70% HSLEE and HSLEE-FEF were evaluated for *in vitro* anti-inflammatory activity. HSLEE-FEF was complexed with phosphatidyl choline (HSLEE-FEF-PC) and studied for *in vivo* anti-inflammatory activity using carrageenan-induced rat paw edema assay. The acute toxicity effect of HSLEE-FEF and HSLEE-FEF-PC was evaluated in Sprague Dawley rats as per OECD TG 401.

Results: The HSLEE-FEF significantly inhibited not only NO but also pro-inflammatory cytokines (including IL-1β, TNF-α and IL-6) in a dose-dependent manner. The HSLEE-FEF-PC showed 56% inhibition in paw edema as compared to ibuprofen that showed 51% inhibition at 5 h. Both the HSLEE-FEF and HSLEE-FEF-PC showed no toxicity up to dose of 2000 mg/Kg per oral.

Conclusion: HSLEE-FEF and HSLEE-FEF-PC were found to possess potential anti-inflammatory activity and this formulation may become preferred drug therapy for anti-inflammatory treatment.

Keywords: Flavonoid-enriched fraction, phospholipid complex, inflammation, cytoki nes, acute oral toxicity.

JH/SECON2025/PP-189

Quality assessment of Tulsi during post-harvest storage

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ABSTRACT

Background: *Ocimum sanctum* commonly known as Tulsi is a popular Indian medicinal plant known for its many pharmacological properties. Post-harvest storage practices significantly influence the phytochemical content and composition and thus the overall quality of plant material. It is necessary to understand the changes during storage of Tulsi for optimizing storage practices and ensuring maximum efficacy of Tulsi-based products.

Objective: The study evaluates the impact of different post-harvest storage conditions on the physical, physico-chemical, chemical, and biological quality of Tulsi leaves.

Materials and methods: Tulsi leaves were subjected to controlled storage under varied temperature and humidity conditions for several months. Samples were periodically evaluated for their physical, physicochemical, chemical, and biological quality parameters.

Results: Storage conditions markedly influenced multiple quality parameters, with notable variations observed across temperature settings. Certain conditions were more favourable for preserving the stability of the leaves, while others led to gradual quality decline over time.

Conclusion: Storing Tulsi leaves at low temperature in a dry environment preserved theoverall quality. These findings provide valuable insights for improving post-harvest handling practices to enhance the shelf-life and efficacy of Tulsi based products.

Keywords: *Ocimum sanctum*, storage, quality control, post-harvest handling

JH/SECON2025/PP-190

Formulation and characterization of dual drug-loaded chitosan nanoparticles for enhanced Alzheimer's disease therapy

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ABSTRACT

Background: Alzheimer's disease (AD) remains difficult to manage due to its multifactorial pathology, limited drug efficacy, and associated side effects. Herbal molecules offer neuroprotective, antioxidant, and anti-inflammatory benefits, yet their therapeutic use is restricted by poor BBB penetration. Chitosan nanoparticles (CH-NPs) provide an efficient delivery platform capable of crossing the BBB and enabling controlled release. Formulating dual drug-loaded CH-NPs with both herbal and synthetic agents offers a synergistic approach to target multiple AD pathways while minimizing adverse effects.

Objective: This research focuses on the formulation and characterization of these dual drug-loaded nanoparticles, aiming to optimize their delivery properties and therapeutic impact on AD models, paving the way for a more effective AD treatment regimen.

Methodology: The herbal and synthetic drugs were characterized through organoleptic evaluation, DSC, FTIR, XRD, and UV spectroscopy, with results validated against reference standards to confirm their structural integrity and chemical consistency.

Results: The results show that the physical and chemical properties of both the herbal and synthetic drugs matched well with the reference standards. This confirms that the drugs match the purity and are suitable for treatment use.

Conclusion: - The study confirms the purity and integrity of both herbal and synthetic drugs, validating their suitability for nanoparticle formulation. These findings provide a strong basis for developing dual drug-loaded CH-NPs as a promising strategy for effective AD management.

Keywords: Alzheimer's disease, combination therapy, chitosan nanoparticles, characterization

JH/SECON2025/PP-191

Scientific validation of traditional claims of *Tribulus terrestris* L. as a *nephroprotective* drug through in silico analysis

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ABSTRACT

Background: *Tribulus terrestris* L. (commonly known as Gokhru), from the family Zygophyllaceae, is a plant that has antioxidant, anti-inflammatory, and anti-stone-forming properties.

Objective: To explore and substantiate the therapeutic potential of *Tribulus terrestris* L. using computational approaches.

Methods: In silico analysis of *Tribulus terrestris* L. was done to evaluate the nephroprotective potential. Firstly, we retrieved the biologically active compounds from IMPPAT and Dr. Duke's Phytochemical databases. KEGG pathway enrichment analysis was done to screen the pathways and targets related to nephroprotection. A protein-protein interaction (PPI) network was constructed and Hub genes were identified. Gene ontology (GO) enrichment included biological process, cellular component and molecular function and was done to integrate proposed mechanism. Compound- Target and Pathway-Target network was constructed and top compounds and pathways were identified.

Results: The computational analysis revealed that *Tribulus terrestris* L. has nephroprotective potential. Several compounds were retrieved among which harmine, linoleic acid, liquitrigenin were important. PPI network was constructed and AKT1, IL6 and SRC Hub genes were identified. BP, CC, MF were identified and showed various processes, component and functions.

Conclusion: The study confirms that *Tribulus terrestris* L. can be validated scientifically as a drug that possess Nephroprotective properties.

Keywords: Network Pharmacology, In Silico analysis, Nephroprotection, *Tribulus terrestris* L.

JH/SECON2025/PP-192

Therapeutic potential of spearmint and peppermint bioactives in hormonal, cognitive, and gastrointestinal disorders

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ABSTRACT

Background: Mentha species, including spearmint (Mentha spicata) and peppermint (Mentha × piperita), contain bioactive compounds with antioxidant, anti-inflammatory, anti-androgenic, and neuroprotective properties. These therapeutic effects have been associated with symptom improvement in Irritable Bowel Syndrome (IBS), hormonal balance in Polycystic Ovary Syndrome (PCOS), and enhanced cognitive function. Such conditions are commonly linked to inflammation, oxidative stress, and dysregulation of the hormonal or gut-brain axis.

Objective: To review the therapeutic efficacy of spearmint and its bioactive compounds in managing hormonal, cognitive, and gastrointestinal disorders.

Method: An extensive review of literature was conducted using databases such as PubMed, Google Scholar, and Cochrane etc. The term used were mint, peppermint, bioactive compounds of mint for their role in IBS,PCOS , reproductive health , GI function improvement.

Result: The therapeutic benefits of Mentha species are primarily attributed to key bioactive compounds such as menthol and rosmarinic acid. Menthol, mainly found in peppermint oil, exhibits antispasmodic effects that help relieve symptoms of Irritable Bowel Syndrome (IBS) such as cramping and bloating. Spearmint shows anti-androgenic properties that aid in reducing testosterone levels and improving hormonal balance in Polycystic Ovary Syndrome (PCOS). Regular consumption of spearmint extract has also been found to enhance memory and attention in adults without adverse effects. Overall, both spearmint and peppermint contribute to better gastrointestinal, hormonal, and cognitive health.

Conclusion: Mentha species show promising anti-androgenic, neuroprotective, andgastroprotective effects. Spearmint supports hormonal and cognitive health, while peppermint oil effectively relieves IBS, suggesting mint's potential as a natural therapeutic agent.

JH/SECON2025/PP-193

From traditional medicine to nanomedicine: Berberine as a next-generation anticancer agent

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ABSTRACT

Background: Phytochemicals, derived from natural products, are increasingly recognized as an effective chemopreventive agents that are capable of reducing tumour initiation, invasion, and metastasis. Evidence suggested that their mechanisms of action parallel those of conventional synthetic chemotherapeutics, enabling their use as adjuvants or as alternative therapeutic options in cancer management. Furthermore, they can represent distinct benefits as both adjuvants and therapeutic alternatives when compared with synthetic chemopreventive agents.

Aims/Objectives: The primary objective of this study is to explore the therapeutic potential of berberine in cancer management and to highlight the role of nanobiotechnology in overcoming its pharmacokinetic limitations.

Methodology: This review scrutinizes advanced delivery platforms such as polymeric nanoparticles, liposomes, phytosomes, transferosomes, nanoemulsions, and solid lipid nanoparticles, highlighting their role in improving solubility, stability, pharmacological activity, and clinical efficacy of herbal compounds.

Results: Berberine and other phytosubstances have been explored and studied to reflect the potential targeting in different types of cancer and solid tumour. However limited due to poor permeability, bioavailability and half-life, Nano biotechnology emerged as an effective strategy to overcome these barriers, with nanocarrier-based delivery. Currently berberine is reported to upregulate p53, bax, beclin-1, caspases activity, including caspase3/9, MAPK signalling cascade and to downregulate the expression of Bcl-2, mTOR, Wnt/β-catenin mediated tumour targeting.

Conclusion: Hybrid nanocarriers enhanced with optical and magnetic properties, when combined with drugs and targeting ligands, offer significant potential to minimize toxicity, enhance therapeutic precision, and also reduce the likelihood of cancer recurrence and metastasis. Hence incorporating phytoconstituent like berberine exhibits prominent anticancer activity and represents promising count to next-generation nanomedicine.

Keywords: Novel drug delivery systems (NDDS); herbal medicine; nanotechnology; bioavailability; phytopharmaceuticals

JH/SECON2025/PP-194

Therapeutic efficacy of syringic acid-enriched Karvi honey: Modulation of the PINK1/Parkin mediated mitochondrial fission-fusion dynamics and the induction of apoptosis in breast cancer

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ABSTRACT

Background: Mitophagy, a selective form of autophagy, plays a double-edged role in cancer by regulating mitochondrial quality control through fission and fusion processes. While the basal mitophagy supports cellular homeostasis and survival, excessive induction reduces total mitochondrial pool, disrupts bioenergetics and promotes apoptosis. The PINK-Parkin dependent mitophagy pathway can be a crucial factor of mitochondrial dynamics and cancer cell fate. Natural products like Karvi honey, enriched with bioactive constituents, may exploit this pathway for cancer cell death.

Objective: This study aims to explore the anticancer potential of Karvi honey and its major constituent syringic acid in breast cancer, with a special emphasis on PINK-Parkin dependent mitophagy and mitochondrial fission-fusion dynamics.

Methodology: LC-MS analysis of Karvi honey, *in vitro* cytotoxicity assay, ROS detection, JC1 staining, LC3 puncta formation, mitochondrial-lysosomal co-localization, TEM imaging and western blot for mitophagy markers like PINK1, Parkin, p62, ATG5, DRP1, Opa1, Mitofusion2 proteins, Annexin/PI by flow cytometry were done. Bioinformatics analysis and *in vivo* study were performed.

Results: Karvi honey triggered the excessive mitophagy, evidenced by enhanced LC3 puncta formation, mitochondrial-lysosome co-localization and a notable reduction in mitochondrial membrane potential. These were accompanied by upregulation of fission associated proteins, suppression of fusion proteins, and apoptosis by FACS analysis. LC-MS analysis revealed syringic acid as the predominant constituent, implicating its contribution to autophagic flux and apoptosis induction.

Conclusion: Findings from both *in vitro* and *in vivo* studies highlight the therapeutic potential of Karvi honey as a natural anti- cancer agent by targeting mitochondrial dynamics in breast cancer.

Keywords: Karvi honey, mitophagy, fission, fusion, apoptosis, breast cancer.

JH/SECON2025/PP-195

Exploring the therapeutic potential of eruca sativa linn in unani medicine for the management of kidney stones and various diseases: A review

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ABSTRACT

Eruca sativa Linn., commonly known as garden rocket or arugula, is a medicinal plant widely recognized in Unani medicine for its therapeutic potential. Classical Unani texts describe its efficacy in dissolving and expelling renal and urinary calculi (kidney stones), along with its beneficial effects in gastrointestinal, hepatic, and respiratory disorders. The plant is rich in bioactive constituents such as flavonoids, glucosinolates, phenolic compounds, and essential fatty acids, which contribute to its diverse pharmacological actions including litholytic, diuretic, antioxidant, hepatoprotective, anti-inflammatory, and antimicrobial effects. Recent pharmacological studies have provided scientific validation to many of its traditional claims, particularly its role in nephroprotection and the prevention of stone formation. In addition, Eruca sativa has shown promise in metabolic, cardiovascular, and reproductive health due to its antioxidative and cytoprotective properties. This review highlights the therapeutic potential of Eruca sativa Linn. with special emphasis on its role in the management of urolithiasis, supported by evidence from Unani literature and modern research. A comprehensive understanding of this plant may pave the way for its integration into evidence-based Unani therapeutics and future drug development for kidney stone management and related diseases.

Keywords: *Eruca sativa* Linn., Unani medicine, kidney stones, urolithiasis, therapeutic potential, phytoconstituents

JH/SECON2025/PP-196

Development and evaluation of DPP-4 inhibitor-based nanoformulation: Optimization and characterization for management of Alzheimer's disease

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ABSTRACT

Background: Alzheimer's disease (AD) is a neurodegenerative disorder marked by hippocampal damage and cognitive decline. Type 2 diabetes (T2D) exacerbates AD risk via insulin resistance, oxidative stress, and amyloid/tau pathology, suggesting potential therapeutic overlap of diabetes drugs in AD.

Aims/Objectives: To develop and optimize a Nanoformulation of DPP-4 inhibitor using the Centre composite design and to evaluate it for further study.

Methods: This study explores preformulation for AD management, identifying physicochemical properties and developing DPP-4 inhibitor-based Nanoformulation, optimized by design expert software, and evaluated for vesicle characteristics.

Results: Preformulation studies showed the in-depth knowledge and understanding of the characteristics of the candidate drug. Its melting point was found to be 201°C, the drug is more soluble in methanol (56 mg/ml) as compared to very slightly soluble in water (0.9 mg/ ml), and the log partition coefficient was found to be 1.6. Advanced analytical techniques like UV, FTIR, and DSC were applied for the characterization of specific DPP-4 inhibitor compound, elucidating its structure and interaction within neural environment. The characterization and evaluation of optimized nanoformulation had a particle size is 194.8 nm, PDI 0.252, and zeta potential -32.12.

Conclusion: Based on the results of preliminary studies, it can be concluded that the developed optimized nanoformulation might be a promising approach for the treatment of Alzheimer's disease. Further studies are in progress in *ex vivo* and *in vivo* animal models to validate the safety and efficacy of the developed nanoformulation.

Keywords: Alzheimer's disease, DPP-4 inhibitor, Nanoformulation.

JH/SECON2025/PP-197

Exploring the medicinal potential and therapeutic efficacy of Guduchi in disease management

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ABSTRACT

Background: *Tinospora cordifolia* (Guduchi) is a well-recognized herb in Ayurvedic and traditional systems of medicine, widely used for liver disorders, immune dysfunction, diabetes, infections, inflammation, and neurological conditions.

Aims/Objectives: To critically review and compile scientific evidence on the pharmacological properties, therapeutic applications, and safety aspects of Guduchi from human and preclinical studies.

Methods: Literature was reviewed extensively from PubMed, Scopus, ScienceDirect, and AYUSH publications (2000–2025). Studies comprised clinical trials, animal models, and in-vitro experiments examining Guduchi's pharmacological actions. Classical Ayurvedic texts and toxicological data were also reviewed, including the Ayurvedic Pharmacopoeia of India and Charaka Samhita, to assess safety and dosing standards.

Results: The plant part used in many studies was stem of the plant and leaves in few formulations. Guduchi exhibits hepato-protective, immune-modulatory, neuro-protective, anti-oxidant, anti-inflammatory, anti-diabetic, wound-healing, and radio-protective activities. Its effects are mediated through antioxidant enzyme activation (SOD, catalase), cytokine modulation (TNF-α, IL-6, IL-10), hepatocyte and β-cell regeneration, and stimulation of collagen and VEGF for tissue repair. Majority of the study's Interventions duration ranged between 2–12 weeks. Effective doses range from 200–1000 mg/day in humans. The previous research focuses on Hepato-protective and immune-modulatory effects while neuro-protective and anti-diabetic benefits were also observed.

Conclusion: Guduchi presents as a potent multi-target plant with validated therapeutic benefits. It enhances liver function, boosts immune response, reduces oxidative stress, and supports cognitive and metabolic health. Further long-term human studies are needed to standardize its application in integrative medicine.

JH/SECON2025/PP-198

Lavender oil based formulations for treatment of migraine

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ABSTRACT

Background: Migraine is a chronic disorder characterized by the paroxysmal episodes of a headache lasting for 4-72 h. Migraine attacks are 2.5 times more prevalent in women than men and usually strike the 25-44 years age. Generally, migraine attacks are characterized by four key phases; the premonitory, the aura, the headache, and the postdrome phases.

Lavender oil (*Lavandula angustifolia*) contains major constituents such as linalool and linalyl acetate, which have been shown to exert analgesic, anxiolytic, vasomodulatory, and anti-inflammatory properties. Lavender oil has been known for its medicinal properties in soothing headache and other types of pain, which offers the natural approach in relieving migraines.

Aim: To review systematically lavender oil based formulations for migraine.

Methods: Literature was systematically reviewed by manual screening from various search engines like PubMed, Google Scholar, Scopus and Science direct. Articles published in English language were screened for relevance, focusing on keywords like migraine, lavender oil, antimigraine formulation and nanocarriers of lavender oil.

Result: Analysis revealed that lavender oil exerts antimigraine effects through various pharmacological mechanism involving modulation of serotonergic pathways, inhibition of nitric oxide production, and antioxidant mechanisms. neurotransmitter modulation, Anti inflammatory and analgrsic effects etc.

Conclusion: The aroma and medicinal property of lavender oil shows substantial promise as a therapeutic option for migraine, particularly when delivered via advanced formulations that enhance stability and absorption

Keywords: Migraine, Lavender oil, Headache, Mechanistic pathways

JH/SECON2025/PP-199

Ghee as a functional food: Exploring its role in health and wellness

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ABSTRACT

Background: Ghee, or clarified butter, has been a cornerstone of traditional Indian diets for centuries, especially within the Ayurvedic system where it is valued for its nourishing and therapeutic properties. While traditionally seen as a health-promoting fat, ghee has faced scrutiny in modern nutrition due to its saturated fat content and presumed cardiovascular risks. However, emerging scientific evidence points to a more balanced understanding of its nutritional composition and health effects.

Aim: The purpose of this review is to provide a balanced understanding of ghee's health implications by exploring its nutritional value, traditional uses, and emerging scientific findings.

Methods: This review analyzes the nutritional profile of ghee, highlighting its content of short-chain and medium-chain fatty acids, essential fatty acids like linoleic and arachidonic acid, and fat-soluble vitamins A, D, E, and K. Recent animal and human studies were reviewed to assess the effects of ghee on lipid metabolism, antioxidant activity, inflammation, and metabolic health. Traditional Ayurvedic uses are included for historical context and comparison with current biomedical perspectives.

Results: Ghee contains bioactive lipids with potential anti-inflammatory and antioxidant properties. Studies have shown improvements in lipid profiles, such as reductions in LDL and triglycerides, and better nutrient absorption. Medicated ghee formulations have also demonstrated benefits in liver function, cognition, and skin health. Moderate consumption has not been consistently linked to increased cardiovascular risk.

Conclusion: Ghee's nutrient-rich composition may offer health benefits when used in moderation. It shows promise in supporting metabolic and digestive health, though further clinical research is necessary to confirm its safety and therapeutic value in broader populations.

Keywords: Ghee, Ayurvedic nutrition, Functional foods, Cardiometabolic health

JH/SECON2025/PP-200

Prospect of phytomedicine in modulating gut-liver axis

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ABSTRACT

Background: Liver disorders, including hepatitis, cirrhosis, and non-alcoholic fatty liver disease (NAFLD), represent a significant global health burden. Conventional therapies often show limited efficacy and safety concerns. Phytomedicine, derived from medicinal plants, offers hepatoprotective, antioxidant, and anti-inflammatory properties that have been traditionally employed and are now under scientific evaluation.

Aim & Objective: To study the prospects of phytomedicine for the management or treatment of liver disorders and exploring its role in modulating gut-liver axis.

Methods: A review of recent literature was conducted focusing on recent studies involving the use of phytopharmaceuticals for the treatment or management of liver disorders. Key hepatoprotective plants and their active phytoconstituents were analysed. Mechanisms of action through gut-liver axis was explored, and their limitations and challenges were assessed, alongside emerging approaches for phytomedicine development.

Results: Phytomedicines like *silymarin, curcumin, glycyrrhizin, Phyllanthus spp*., and *ashwagandha* show hepatoprotective, antioxidant, anti-inflammatory, antifibrotic, and metabolic benefits. They also modulate the gut–liver axis by improving microbiota balance, intestinal barrier, and reducing endotoxin-driven inflammation. Preclinical evidence is strong, while human trials are promising but limited by small sample sizes, poor bioavailability, and extract variability.

Conclusion: Phytomedicine holds promise as a complementary therapy for liver disorders, especially in NAFLD and fibrosis, but requires standardized extracts, improved formulations, larger clinical trials, and safety studies before routine clinical use.

Keywords: NAFLD, Phytomedicine, Antioxidant, Anti-inflammatory and Therapeutic strategies

JH/SECON2025/PP-201

Comparative micro-morphological, histological, and electron microscopic analysis of *Rauvolfia serpentina*Benth. ex. Kurz and its adulterant

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ABSTRACT

Background: Medicinal plants are the foundation of traditional medicine and a key source of modern pharmaceuticals. The efficacy and safety of botanical drugs are heavily reliant on the authenticity and purity of the raw plant material. Through the usage of *sarpagandha*, the roots of *Rauvolfiaserpentina*, aka *Indiansnakeroot*, are utilised extensively in the treatment of hypertension and psychological disorders in traditional Indian medicine. Due to the strong demand for *sarpagandha*, numerous distinct species with root morphology that are similar to that of *R.serpentina* are frequently mistaken for it and utilised as *sarpagandha*. To ensure quality control and prevent adulteration in the herbal drug market, it is essential to differentiate between these species, given their similar applications and the endangered status of *R. serpentina*. The main objective of the study was to analyze the different markers of identification in *Rauvolfia serpentina* Benth. ex. Kurz and its adulterant.

Materials and Methods: The roots of *Rauvolfia serpentina* Benth. ex. Kurz and its adulterant were selected for the study. The samples were studied for morphology, microscopy, including powder, T.S., and SEM, and phytochemistry. This study aims to identify *R.serpentina* and differentiate it from its adulterant.

Results and Discussion: Through these comparative morphoanatomical studies of the roots and the adulterant species, notable characteristics and a solid framework have been uncovered.

Conclusion: Detailed microscopy will play a significant role in the authentication of traded medicinal plants in the herbal drug industry. These findings have the potential to aid in the identification of species and the quality control process for commercial *sarpagandha*. This study guarantees the purity and integrity of herbal drugs. The development of comprehensive analytical methods is expected to drive innovation not only in research but also in regulatory bodies, following the sustainable use of botanical resources.

Keywords: Microscopic identification, Histochemical localization, SEM, TEM, Anatomy, authentication, *Rauvolfia sp*., Apocynaceae

JH/SECON2025/PP-202

Virome profiling of *Hibiscus rosa-sinensis* using high-throughput sequencing

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ABSTRACT

Introduction: *Hibiscus rosa-sinensis* (China rose), a popular ornamental plant in the Malvaceae family, renowned for its showy flowers, lush foliage and medicinal properties, is vulnerable to a variety of viral diseases that reduce its vigour and aesthetic value. Viral infections may induce or decrease production of secondary metabolites reshaping the plant's defence and interaction with vectors.

Materials and Methods: In order to comprehend the infection of viruses from *Hibiscus rosa-sinensis* we collected leaf samples from Herbal Garden of Jamia Hamdard, New Delhi. Total Plant RNA was extracted from the infected samples using conventional CTAB methods and 1 ug of it, was send for RNA seq. analysis. The raw data obtained in FASTQ files was analyzed through Galaxy Europe to identify viruses and was further validated by RT-PCR and Sanger sequencing.

Results and Discussion: HTS revealed the presence of three viruses: Hibiscus chlorotic ringspot virus (HCRSV), Cotton leaf curl Multan virus (CLCuMuV), and Jatropha leaf yellow mosaic virus (JLYMV). All these, three viruses were successfully confirmed through RT-PCR and Sanger sequencing, establishing their active infection in *H. rosa-sinensis*. These results demonstrate the utility of combining HTS with conventional molecular assays for accurate detection and validation.

Conclusion/Recommendation: The combination of HTS with RT-PCR and Sanger sequencing provides a reliable method for detecting viruses from multiple infections. The identification and validation of several viruses highlight the complexity of *Hibiscus* virome in India and serve as a foundation for epidemiological monitoring and the creation of efficient management plans for viral diseases in this plant.

Key words: CTAB, RNA Seq, RT-PCR, Sanger sequencing

JH/SECON2025/PP-203

Harnessing the potential of therapeutic oils in the management of Parkinson's disease

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ABSTRACT

Introduction: Parkinson's Disease (PD) belonging to the domain of neurological disorders is caused due to degeneration of dopamine producing neurons. It encompasses both motor symptoms such as rigidity, tremors and postural instability as well as non-motor symptoms which includes sleep disturbances and cognitive decline. In order to supplement the pharmacological treatment with conventional synthetic drug molecules, the use of naturally obtained molecules have gained lot of interest in the past few years. The use of therapeutic oils offers a complementary approach in this area.

Materials and Methods: The literature search was carried out through the use of online databases such as Pubmed, Google Scholar and ScienceDirect using keywords such as "Parkinson's Disease", "Therapeutic oils", "Essential oils" and 'Fixed oils".

Results and Discussion: Both fixed oils as well as essential oils have been utilized across different research studies, thus depicting beneficial effects. Essential oils derived from plants such as peppermint and lavender have exhibited antioxidant, anti-inflammatory, anxiolytic and neuroprotective capabilities. Aromatherapy and topical application of therapeutic oils have also been linked to lower anxiety levels, better sleep and enhanced mood of the patient, thus, improving the overall well being of the person.

Conclusion: Although, the use of therapeutic oils seems interesting, but the full potential can only be realized when studies on a large scale will be analyzed along with rigorous preclinical and clinical assessment. The emerging interest in the area of integrative medicine represents the use of therapeutic oils in PD as a promising avenue, however, their role needs to be further explored in disease management.

Keywords: Parkinson's Disease (PD), Therapeutic oils, Fixed oils, Essential oils, Disease management

JH/SECON2025/PP-204

Herbal photosensitizers-loaded nanocarriers: A transformation in photodynamic therapy for cancer

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ABSTRACT

Introduction: Cancer is one of the major reasons of deaths across the globe, attributing for approximately 10 million deaths in 2020- around one out of six deaths. Although many conventional therapies are currently available for the treatment of cancer such as chemotherapy, surgery, radiation therapy and many more, each has reported limitations Among emerging approaches, photodynamic therapy (PDT) is considered as the minimally invasive technique, utilizing a photosensitizing drug, a light source and tissue oxygen for the destruction of cancer cells. While PDT provides distinct benefits like no harm to healthy tissues, it also faces certain challenges like hydrophobicity and light sensitivity. To overcome these barriers, recent advancements have focused on using nanotechnology and herbal-based photosensitizers, targeted to improve solubility, biocompatibility and therapeutic efficiency. This review aims at transformation of conventional PDT to nanotechnology-based herbal PSs incorporating herbal PSs, highlighting their potential to overcome existing limitations and improve cancer treatment outcomes.

Materials and methods: The photodynamic reaction in PDT was reviewed with attention to the mechanisms (type I and type II)followed by PDT: a two-step approach, administering a photosensitizing agent followed by light irradiation, resulting in formation of reactive oxygen species (ROS) due to the presence of tissue oxygen and responsible for selective destruction of cancerous cells. The study also focused on herbal photosensitizers such as pheophorbide A, curcumins, anthraquinones, hypericin, hypocrellin and riboflavin. In addition, different types of organic and inorganic nanoparticles were utilized to incorporate the herbal photosensitizers.

Results and discussion: The assessment of existing studies reveals that nanotechnology and herbal-based PDT system notably improves the performance and stability of herbal photosensitizers. This helps in enhancing solubility and bioavailability and reducing side effects, resulting in increased overall therapeutic efficiency as compared to conventional PDT. Among the herbal photosensitizers studied, each revealed unique characteristics. Pheophorbide A with nanocarrier demonstrated better effectiveness in various cancers by improving solubility in water, while curcumin demonstrated increased targeting and toxicity to the cancer cells. Moreover, entrapping anthraquinones in nanocapsules resulted in enhanced cellular absorption of photosensitizer, promoting greater cytotoxicity. The conjugation of hypocrellin with nanocarriers led to a significant strategy for cancer therapy, improving the safety and efficiency of PDT and riboflavin with silver nanoparticles facilitated improved yield of singlet oxygen. Similarly, hypericin also demonstrated high efficacy and biological compatibility with different nanocarriers.

Conclusion and recommendation: Overall, the incorporation of nanotechnology with herbal photosensitizers successfully addresses key limitations of traditional PDT systems, offering enhanced solubility, controlled drug release, and improved tumor-specific accumulation.

Key words: Photodynamic therapy, herbal photosensitizers, cancer, reactive oxygen species, nanotechnology

JH/SECON2025/PP-205

NMR Spectroscopy for detecting milk adulteration and ensuring quality

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ABSTRACT

Background: Milk is widely consumed globally, making it prone to intentional adulteration for financial gain. Conventional analytical methods often lack the sensitivity and specificity to detect a variety of adulterants in complex milk matrices. Nuclear magnetic resonance (NMR) spectroscopy offers a reliable, non-destructive approach for identifying chemical adulterants in milk.

Aim/Objectives: To evaluate the role of NMR spectroscopy in milk analysis, focusing on compositional assessment, quality control, and detection of adulterants.

Methods: Milk samples were analyzed using ^{1}H-NMR and 2D-NMR to profile metabolites. Chemometric techniques, including PCA and PLS-DA, were applied for classification and adulterant identification. High-resolution NMR detected key biomarkers, while low-field TD-NMR enabled rapid, non-destructive quality checks. Spiking experiments with common adulterants validated detection sensitivity.

Results: NMR successfully identified adulterants such as melamine, urea, sucrose, whey, and soy milk, with detection limits as low as 0.005%. Subtle metabolite fingerprints, including citrate, lactose, and N-acetyl carbohydrates, allowed accurate differentiation of pure and adulterated milk. High-resolution NMR provided detailed compositional information, while low-field instruments enabled quick, real-time quality assessment.

Conclusion: NMR is a powerful and versatile tool for detecting milk adulteration. It reliably identifies even trace adulterants and differentiates genuine from counterfeit milk using natural metabolite markers. Its combination of detailed high-resolution profiling and rapid low-field analysis makes it a practical technique for maintaining milk quality and authenticity.

Keywords: NMR; milk adulteration; authenticity; metabolite markers; quality control

JH/SECON2025/PP-206

Nephroprotective role of *Zea mays* in chronic kidney disease: A systematic review in animal models

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ABSTRACT

Introduction: Chronic Kidney Disease (CKD) is a progressive, irreversible loss of kidney function affecting over 800 million people worldwide. Major risk factors include diabetes, hypertension, obesity, cardiovascular disease, and genetics. Current treatments like dialysis and transplantation are costly and risky, highlighting the need for safer, affordable plant-based alternatives. *Zea mays* (corn silk), known for its diuretic, anti-oxidant, anti-inflammatory, and nephroprotective properties, shows promise in CKD management.

Objective: To evaluate the nephroprotective potential of Zea mays in animal models of CKD and highlight methodological gaps for improved future research.

Material and Methods: A systematic search (PubMed, Google Scholar; up to 2024) included animal studies on CKD assessing renal/metabolic markers; duplicates, reviews, and non-relevant studies were excluded. Data on study details, CKD model, *Zea mays* preparation/dose, and outcomes were extracted.

Result: Thirty studies were included, mostly in rats with nephropathy mainly induced by gentamicin and other toxicants. Treatments involved corn silk powder/extracts (methanolic, polyphenolic, flavonoid-rich, polysaccharide) for 3 days to 4 weeks. Overall, corn silk lowered creatinine, urea, proteinuria, glucose, lipids, and kidney index; enhanced antioxidants (↑SOD, catalase, TAC; ↓MDA/TBARS); reduced IL-6 and TNF-α; and improved histology. Flavonoid-rich and polysaccharide extracts showed the strongest effects, including gut microbiota restoration.

Conclusion: *Zea mays* (corn silk) shows strong nephroprotective effects via antioxidant and anti-inflammatory actions. However, existing studies have key limitations, including lack of randomization and blinding, unclear sample collection, dose inconsistencies, non-uniform protocols, short durations not reflecting chronic use, and absence of clinical research. Well-designed, standardized, and long-term clinical studies are therefore needed to confirm its therapeutic efficacy.

Keywords: *Zea mays*, corn silk, CKD and diabetic nephropathy

JH/SECON2025/PP-207

Pharmacological evaluation of tributyrin and Vitamin-D in the management of glucocorticoid-induced osteoporosis in rats

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ABSTRACT

Background: Osteoporosis is a progressive skeletal disorder marked by persistent bone resorption, impaired remodeling, and negative bone balance due to osteoblast dysfunction and osteoclast hyperactivity. Current therapies are often limited, underscoring the need for novel interventions targeting both bone formation and resorption pathways.

Objective: This study investigated the therapeutic potential of a combination dose of tributyrin and vitamin D in a glucocorticoid-induced rat model of osteoporosis.

Methods: Osteoporosis was induced in rats using dexamethasone (1 mg/kg, thrice weekly) for 28 days. During the final 14 days, animals received tributyrin and vitamin D in low, medium, or high-dose regimens (250 mg/kg + 500 IU/kg; 500 mg/kg + 1000 IU/kg; 1000 mg/kg + 1500 IU/kg). Biochemical biomarkers (ALP, CTX-1, Pi, Ca^{2+}, and P1NP) were quantified. Bone mineral density and Z-scores were determined via DEXA scanning, while SEM assessed micro-architecture and porosity. Histological staining provided structural confirmation. In-silico docking was performed to explore molecular interactions.

Results: Combination therapy enhanced calcium influx, increased systemic availability, and modulated HDAC-6 and VDR pathways, leading to suppressed osteoclastogenesis and stimulated osteoblast differentiation. Biomarker levels altered in diseased groups were significantly restored by treatment. Imaging analyses revealed improved bone mineral density, reduced porosity, and preserved architecture. Histology supported these findings, showing dose-dependent efficacy. Among regimens, the medium dose (500 mg/kg + 1000 IU/kg) exhibited the most consistent improvements.

Conclusion: Tributyrin combined with vitamin D demonstrated synergistic pharmacological efficacy, effectively mitigating osteoclast activity and promoting osteogenesis, suggesting its potential as a therapeutic strategy for osteoporosis management.

Keywords: Bone remodelling; Histone deacetylase-6; Osteoporosis; Osteoclasts; Osteoblasts

JH/SECON2025/PP-208

Hydrogel-like electrospun PVA nanofibers incorporating Acacia gum and Bee Pollen extract: A natural bioactive scaffold for enhanced wound healing

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ABSTRACT

Background: Thick excisional wounds are a dangerous medical condition. It took special attention and innovative materials to rebuild the tissue. Bioactive compound-loaded electrospun nanofibers that resemble hydrogels can mimic the extracellular matrix.

Objectives: The goal of this work was to create a nanofiber incorporated with bee pollen extract (BPE) and acacia gum (AG) to improve wound healing activity while inhibiting microbial attacks.

Methods: PVA alone, PVA + BPE, PVA + AG, and PVA + AG + BPE-loaded nanofibers were created. FESEM, thin film XRD, powder XRD, FTIR, TGA, GC-MS, UV visible, contact angle, and swelling ratio experiments were carried out to better understand their morphological and physicochemical properties. The antimicrobial impact of nanofibers against *S. aureus* was tested using the disc diffusion method. *In-vitro* keratinocyte and epithelial cell lines were used to investigate cell viability, AO/EB, scratch assay, and FACS analysis. The Wistar rat model was used for the *in-vivo* study.

Results: Nanofibers are highly porous and hydrophilic, which helps in cell attachment, and BPE increases bioactivity and Biocompatibility; on the other hand, AG enhances swelling behaviour. PVA nanofiber had a basal effect in wound healing and ECM support; however, PVA+BPE and PVA+AG+BPE had shown significant activity, with fast healing, whereas PVA+AG had a nominal effect. BPE and AG+BPE-loaded PVA nanofiber had exhibited fast healing activity, and histological analysis indicated better understanding of re-epithelialization and collagen deposition.

Conclusion: These multifunctional hydrogels, like scaffolds, improve wound healing both *in-vitro* and *in-vivo* and need additional exploration for clinical applications.

Keywords: Bioactive nanofibers, Acacia gum, Bee pollen, Wound healing, Electrospinning

JH/SECON2025/PP-209

Scientific validation of unifloral honeys from Maharashtra

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ABSTRACT

Background: Honey is a natural product valued for its nutritional, therapeutic, and antimicrobial properties. Its composition varies with floral and geographical sources, necessitating systematic evaluation.

Aim/Objectives: This study aimed to authenticate unifloral honeys from *Pongamia pinnata* and *Moringa oleifera* using melissopalynology and to assess their physicochemical, biochemical, and antimicrobial properties in comparison with multifloral honeys from the Western Ghats and Satpuda regions of Maharashtra.

Methods: Melissopalynological analysis was conducted to confirm floral origin (>45% pollen from respective plants). Honey samples were analyzed for pH, moisture, viscosity, ash, and electrical conductivity using standard protocols. Biochemical evaluation included proteins, phenolics, flavonoids, and sugars. Antioxidant activity was determined using DPPH and FRAP assays, while antimicrobial activity was assessed by the disc diffusion method.

Results: All samples showed acceptable quality with acidic pH (3.5–4.7), moisture content within limits (16–20%), and glucose/fructose ratios indicating slow crystallization. Total phenolics (45–82 mg GAE/100 g) and flavonoids (21–40 mg QE/100 g) contributed to significant antioxidant activity (65–78% inhibition), positively correlated with phenolic content. Antimicrobial assays revealed inhibition zones against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Escherichia coli*, particularly for multifloral honey. No adulteration was detected.

Conclusion: The study confirms that unifloral and multifloral honeys from Maharashtra are pure, safe, and rich in bioactive compounds. Their strong antioxidant and antibacterial properties support their use as functional foods and in traditional medicine.

Keywords: Unifloral honey; Physicochemical properties; Antimicrobial effects; *Pongamia pinnata*; *Moringa oleifera*.

JH/SECON2025/PP-210

From peel to appeal: Sustainable skincare with herbal under-eye cream from potato & dragon fruit peel extracts

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ABSTRACT

Background: The under-eye region is highly delicate and prone to issues such as dark circles, puffiness, and fine lines. Conventional creams often rely solely on synthetic agents, which may irritate sensitive skin. A balanced formulation using herbal actives and safe excipients can provide an effective and skin-friendly alternative.

Objective: To develop and evaluate a stable under-eye cream incorporating herbal extracts (potato and dragon fruit peels) along with standard cosmetic excipients to ensure optimal efficacy and formulation stability.

Methods: The hydroalcoholic extract of Potato (Solanum tuberosum) and dragon fruit (Hylocereus spp.) peels was prepared by maceration. Extracts were incorporated into cream formulations (F1–F5) using emulsification with excipients such as stearic acid, cetyl alcohol, glycerin, liquid paraffin, triethanolamine, and salicylic acid. The creams were evaluated for physicochemical parameters (pH, viscosity, spreadability, stability), phytochemical profiling, and preliminary safety (skin irritation) studies.

Results: All formulations exhibited skin-compatible pH and showed stable emulsions without phase separation. Potato peel reduced puffiness and pigmentation, while dragon fruit peel enhanced antioxidant and brightening effects. Formulation F5 exhibited superior spreadability, moisturizing properties, texture, stability, and user acceptability. No irritation was observed.

Conclusion: The developed cream effectively combined herbal extracts with standard cosmetic excipients to deliver safe, stable, and functional under-eye care. This approach supports eco-friendly utilization of agro-waste while maintaining formulation quality and consumer acceptability.

Keywords: Herbal cosmetics, Under-eye cream, Potato peel, Dragon fruit peel, Synthetic excipients

JH/SECON2025/PP-211

Comparative analysis of silver nanoparticles from *Pongamia pinnata* and *Simmondsia chinensis*: Synthesis and pharmacological profile

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ABSTRACT

Background: This research presents a comparative study on the eco-friendly synthesis and biological efficacy of silver nanoparticles (AgNPs) using leaf extracts from two climatically resilient and medicinally valuable plants: *Pongamia pinnata* and *Simmondsia chinensis*. Both species are rich in bioactive compounds, like flavonoids and phenolics, which impart inherent antimicrobial, antioxidant, and anti-inflammatory benefits.

Objective: To characterize the phytochemical composition of the extracts and compare the resulting AgNPs' physicochemical stability and final pharmacological potential

Methodology: Aqueous- ethanolic extracts were prepared for qualitative phytochemical screening, confirming the presence of alkaloids, flavonoids, saponins, and phenols in test substances. The potency of the extracts was quantitatively assessed by determining the Total Phenolic Content (TPC) and Total Flavonoids Content (TFC). AgNPs were synthesized using a microwave-assisted green method, and their stability was monitored using a Zeta Sizer.

Results: Polydispersity Index (PI) values for both *P. pinnata* and *S. chinensis* AgNPs fell in the narrow range of 0.21 to 0.33, indicating excellent colloidal stability. The size range (Z-Average) was comparable: 79 nm to 856 nm for *P. pinnata* and 203 nm to 852 nm for *S. chinensis*.

Conclusion: The successful synthesis and stabilization are directly attributed to the plants' rich TPC/TFC content. These findings affirm that the green-synthesized AgNPs are highly stable and retain the therapeutic benefits of the source plants, marking them as promising Nano biomaterials for applications in wound healing and combating microbial infections.

Keywords: Wound healing, silver nano particles, karanja, jojoba,

JH/SECON2025/PP-212

Neuroprotective mechanisms of curcumin in vascular dementia: Insights and prospects

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ABSTRACT

Background: Vascular dementia (VaD) is the second most common form of dementia and arises due to chronic cerebral hypoperfusion, endothelial dysfunction, and ischemic injury. These vascular insults trigger oxidative stress, microglial activation, neuroinflammation, and blood–brain barrier disruption, ultimately causing neuronal loss and cognitive decline. Curcuma longa (curcumin), a natural polyphenol, has demonstrated potent antioxidant, anti-inflammatory, and Vaso protective effects. It is known to modulate NF-κB signalling, downregulate pro-inflammatory cytokines, enhance nitric oxide–mediated vasodilation, and protect neuronal mitochondria.

Methods: This abstract is based on a focused literature review of preclinical studies investigating curcumin's effects in VaD models. Databases including PubMed, Scopus, and ScienceDirect were searched for relevant studies. Evidence was evaluated regarding curcumin's molecular targets, pathways involved in vascular and neuronal protection, and its efficacy in improving cognitive outcomes. Experimental models commonly employed include chronic hypoperfusion and ischemia-induced vascular cognitive impairment in rodents, where curcumin treatment was assessed for its impact on oxidative stress markers, inflammatory mediators, endothelial function, and synaptic integrity.

Conclusion: Curcumin exerts multitargeted neuroprotective actions by reducing oxidative stress, suppressing neuroinflammation, improving vascular function, and supporting synaptic plasticity. Its favourable safety profile and availability make it a promising adjunct therapy for vascular dementia. However, further well-designed clinical trials are needed to validate its efficacy and optimize its dosage and formulation for therapeutic use in humans.

Keywords: Curcumin, Vascular dementia, neuroinflammation, oxidative stress

JH/SECON2025/PP-213

Antidiabetic effects of *Nigella sativa* essential oil against streptozotocin-nicotinamide-induced diabetic rats: An *in vitro* and *in vivo* study

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ABSTRACT

Aim: The goal of this study was to assess the antihyperglycemic effects of *Nigella sativa* essential oil using both in vitro and in vivo models.

Methods: The Gas Chromatography- Mass Spectrometry evaluation of essential oil exhibits 84 constituents from which thymoquinone was identified as the primary component (15.19%). In experimental rats weighing 150–200 g, fifteen minutes after Nicotinamide is administered intraperitoneally, about 110 mg/kg body weight to induce diabetes, streptozotocin of 50 mg/kg body weight was injected intraperitoneally. Diabetic rats were given oral doses of 100, 200, and 400 mg/kg b.w. of *Nigella sativa* essential oil for a duration of twenty-eight days. Samples to be taken from the pancreas, liver, and kidney for histological analysis.

Results: The results show that α-amylase and α-glucosidase extracts had IC50 values of 51 ± 0.47 and 101.63± 0.54 µg/mL, respectively, and 66.31 ± 0.55 and 70.80± 0.69 µg/mL, respectively, indicating that they had α-amylase inhibitory effects. In a dose-dependent way, oral treatment of *Nigella sativa* essential oil improved the glycemic state of diabetic rats caused by streptozotocin and nicotinamide.

Conclusion: These findings demonstrated the potential antidiabetic capability of *Nigella sativa* essential oil and can lower increased blood glucose caused by Streptozotocin without compromising liver, kidney, or pancreatic functions.

Keywords: Diabetes mellitus, *Nigella sativa*,-amylase, *α*-glucosidase, Streptozotocin

JH/SECON2025/PP-214

Clove oil as promising natural remedy for diabetes mellitus

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Clove (*Syzygium aromaticum*) essential oil has gained attention as an adjunctive strategy for diabetes mellitus treatment in recent research. Predominantly composed of eugenol and related phenylpropanoids, the oil demonstrates strong antioxidant and anti-inflammatory properties that protect pancreatic β-cells, improve insulin secretion, and attenuate insulin resistance. Preclinical studies using streptozotocin and high-fat diet rodent models report consistent reductions in fasting glucose, improved lipid profiles, and decreased markers of oxidative stress after oral or topical administration of clove oil or purified eugenol. In vitro and in silico investigations further indicate that clove constituents inhibit carbohydrate-digesting enzymes (α-amylase and α-glucosidase) and modulate pathways linked to glucose homeostasis, such as NRF2, PI3K/Akt, and inflammatory NF-κB signaling. Encapsulation and formulation efforts have improved the stability and bioavailability of volatile compounds, addressing common delivery challenges for essential oils. Clinical evidence remains limited but encouraging: small human trials and dietarysupplement studies suggest modest glycemic benefits and improved lipid parameters, though heterogeneity in preparations, doses, and endpoints complicates interpretation. Safety profiles are generally favorable at therapeutic doses, yet concerns about hepatotoxicity, mucosal irritation, and herb-drug interactions warrant cautious use alongside established antidiabetic medications. Overall, recent research positions clove essential oil and eugenol as biologically plausible adjuncts for diabetes care, meriting larger, well-designed clinical trials with standardized extracts to define efficacy, dosing, and long-term safety. Future studies should prioritize randomized controlled trials, pharmacokinetic profiling, and standardized manufacturing to translate preclinical promise into clinical recommendations, while monitoring adverse events and interactions in diverse diabetic populations and comorbid settings.

JH/SECON2025/PP-215

Use of turmeric in the treatment of oral submucous fibrosis

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ABSTRACT

Background: Oral Submucous Fibrosis (OSMF) is a chronic, progressive, and potentially malignant condition predominantly affecting populations in South and Southeast Asia. It is primarily caused by areca nut chewing and is characterized by juxtaepithelial fibrosis, restricted mouth opening, and burning sensation. Current treatments yield limited success, prompting interest in safer, natural alternatives like turmeric.

Introduction: Turmeric, a spice commonly found in Indian and Middle Eastern cooking, has been used for centuries in traditional medicine for its anti-inflammatory and antioxidant properties. Recently, researchers have explored its potential benefits in improving mouth opening, particularly in cases of Oral Submucous Fibrosis (OSMF). OSMF is a chronic condition characterized by the hardening of tissue in the mouth, leading to reduced mouth opening and difficulty in eating and swallowing. This condition can significantly impact an individual's quality of life, making it essential to explore alternative treatment options.

Materials and Methods: Studies have shown that turmeric's active compound, curcumin, exhibits potent anti-inflammatory and antioxidant properties, which can help reduce inflammation and oxidative stress in the oral mucosa. Clinical trials have been conducted to evaluate the efficacy of turmeric in improving mouth opening in OSMF patients. A study published in the Journal of Oral Pathology and Medicine found that curcumin supplementation significantly improved mouth opening in OSMF patients compared to placebo. The study involved 30 OSMF patients who received either curcumin supplementation or a placebo for a period of 3 months.

Results: The results of the clinical trials demonstrated a significant improvement in mouth opening in OSMF patients treated with turmeric. The study found that curcumin supplementation increased mouth opening by an average of 10 mm compared to the placebo group. Additionally, the patients who received curcumin supplementation reported a significant reduction in pain and discomfort while eating and swallowing.

Discussion: The findings of this study suggest that turmeric may be a useful adjunct in improving mouth opening in OSMF patients. The anti-inflammatory and antioxidant properties of curcumin may help reduce inflammation and oxidative stress in the oral mucosa, leading to improved mouth opening. Further research is needed to confirm the efficacy and safety of turmeric in the treatment of OSMF. However, the results of this study are promising and suggest that turmeric may be a valuable addition to the treatment options available for OSMF patients.

Conclusion/Recommendation: In conclusion, turmeric may be a useful adjunct in improving mouth opening in OSMF patients. Its anti-inflammatory and antioxidant properties make it a potential natural remedy for this condition. Further research is needed to confirm its efficacy and safety. It is recommended that turmeric be considered as a complementary therapy for OSMF patients. Additionally, further studies should be conducted to explore the potential benefits of turmeric in the treatment of other oral health conditions.

Key Words: Turmeric, Curcumin, Oral Submucous Fibrosis (OSMF), Mouth Opening, Anti-inflammatory, Antioxidant.

JH/SECON2025/PP-216

Natural immunoregulators found in ethnopharmacological plants

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ABSTRACT

Although the immune system is essential for preserving physiological homeostasis and protecting the body from infections, a variety of chronic illnesses, such as cancer, infections, and autoimmune disorders, are associated with immune system dysregulation. The study of traditional medical practices and natural remedies, or ethnopharmacology, offers a wealth of bioactive compounds derived from plants that have strong immunomodulatory effects. Long utilised in indigenous, Chinese, and Ayurvedic healing systems, many traditional medicinal plants have immune-regulating qualities that include boosting innate and adaptive responses, regulating cytokine production, and re-establishing immunological balance. Alkaloids, flavonoids, terpenoids, saponins, and polysaccharides are examples of phytochemicals that have demonstrated notable immunostimulatory and immunosuppressive effects in preclinical and clinical studies. Deeper understanding of their mechanisms of action, including the regulation of signalling pathways like NF-κB, MAPK, and JAK-STAT, is now possible thanks to advancements in molecular pharmacology and bioinformatics. The creation of safe, affordable, and multi-target natural immunoregulators that offer innovative treatment approaches for immune-related illnesses is highly promising when ethnopharmacological knowledge and contemporary immunological research are combined.

Keywords: Cytokines, immunomodulation, phytochemicals, immunoregulation, ethnopharmacology, and traditional medicine

JH/SECON2025/PP-217

Insights of Anti-Alopecia potential in *Salvia rosmarinus* phytoconstituents through molecular docking and LC-HRMS analysis

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ABSTRACT

Background: Alopecia is a multifactorial hair disorder involving hormonal, inflammatory, and oxidative mechanisms. Limitations of current treatments have enhanced the interest in medicinal plants as sources of bioactive compounds with multitarget potential.

Objectives: The study aims in analysis of phytoconstituents from *Salvia rosmarinus* leaves methanolic extract using LC-HRMS, evaluating their binding affinities against alopecia associated receptors through *in silico* molecular docking study, isolation and characterization of compounds.

Methods: The methanolic extract of *Salvia rosmarinus* leaves was subjected to LC-HRMS analysis, generating a library of phytoconstituents, among which two phytoconstituents were isolated and structurally characterized. All the tentatively identified phytoconstituents from LC-HRMS analysis were screened through *in silico* against the androgen receptor (PDB ID: 4K7A) and steroid 5*α*-reductase-2 receptor (PDB ID: 7BW1), to assess their interaction profiles.

Results: Tentative identification of 25 secondary metabolites were done in methanolic extract of *Salvia rosmarinus* leaves. Rosmarinic acid and apigenin 7,4' dimethyl ether was isolated using column chromatography and characterized. Among 25 identified phytoconstitunets, sagerinic acid (-7.512), rosmarinic acid (-4.309) and apigenin 7,4'-dimethyl ether (-3.986) exhibited higher binding affinities to the androgen receptor, as compared to the co-crystallized ligand minoxidil (-3.510). Similarly, for steroid 5-*α* reductase-2 receptor, luteolin-7-*O*-rutinoside (-9.456), rosmarinic acid (-7.144) and apigenin 7,4' dimethyl ether (-6.738) showed higher binding affinities, as compared to the co-crystallized ligand finasteride (-5.229).

Conclusion: The integrative approach of LC-HRMS analysis and *in silico* molecular docking study facilitated the identification of phytoconstituents from *Salvia rosmarinus* leaves with promising anti alopecia activity. These results support the rational development of novel cosmeceutical formulation for hair loss management following further bioactivity studies.

Keywords: Alopecia, LC-HRMS, molecular docking, Phytoconstituents, *Salvia rosmarinus*.

JH/SECON2025/PP-218

Evaluation of the gastroprotective effect of *Mimosa pudica* root extract against aspirin-induced gastric ulcers in albino wistar rats

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ABSTRACT

Background: Gastric ulcer disease is a prevalent gastrointestinal tract disorder primarily resulting from an imbalance between gastric mucosal defensive mechanisms and aggressive factors like gastric acid, reactive oxygen species (ROS), and non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin. Although standard treatments such as proton pump inhibitors and H2-receptor antagonists are effective, their long-term use is associated with adverse effects, prompting the exploration of alternative therapies. This study investigates the anti-ulcer and antioxidant efficacy of *Mimosa pudica* in a rat model of aspirin-induced peptic ulcer and compares its therapeutic potential with Omeprazole, a standard anti-ulcer agent.

Methods: Aspirin (200 mg/kg orally) was administered to induce gastric ulcers in adult Albino Wistar rats. The rats were then treated with ethanolic root extract of *Mimosa pudica* at doses of 100 mg/kg and 200 mg/kg for about 7 days. Omeprazole (20 mg/kg) was used as a standard control. Evaluations included ulcer scoring, ulcer index, measurement of gastric pH and acidity,ulcer protection and histological examination of gastric tissue.

Results: Administration of *Mimosa pudica* root extract led to a significant, dose-dependent reduction in ulcer severity compared to untreated control group ($p<0.05$). The extract also helped normalize gastric acidity and pH, suggesting a protective effect on the stomach lining. Histological observations confirmed a reduction in mucosal damage and improved tissue integrity in treated groups.

Conclusion: These results indicate that *Mimosa pudica* root extract exhibits considerable gastroprotective activity, supporting its potential as a natural therapeutic agent for aspirin-induced gastric ulcers.

Keywords: *Mimosa pudica*, Gastric ulcer, Root extract, Aspirin, Albino Wistar rats, Gastroprotection

JH/SECON2025/PP-219

Harnessing hCG: Bridging traditional hormonal insights with modern breast cancer immunotherapy

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ABSTRACT

Introduction: Abnormal levels of β-human chorionic gonadotropin (β-hCG) in breast cancers have been associated with aggressive tumor development and poor patient outcomes. This poster investigates how contemporary immunotherapeutic strategies can be combined with traditional hormonal principles by directly targeting breast cancer cells that express β-hCG. We emphasize advances in β-hCG–based vaccinations and passive immunotherapy utilizing polyclonal anti-β-hCG antibodies, highlighting their capability to activate immune responses against a hormone that is typically linked to pregnancy but is also incorrectly expressed in cancer.

Materials and Methods: The prophylactic study includes Balb/c female mice aged between 4-6 weeks. The test mice were immunized with four injections of the rhCGβ-LTB vaccine along *with Mycobacterium indicus pranii* (MIP) as an adjuvant, while two control groups received either PBS or MIP. This was followed by 4T1 murine model breast cancer cells inoculation through the subcutaneous route. Blood was withdrawn from each mouse at fortnightly intervals to assess the level of anti-hCG antibodies in serum. For therapeutic studies, anti-hCG antibodies purified from immunized mice serum were used. Nude female mice aged between 4-6 weeks were utilized and inoculated with the 4T1 cell line on day 0. Once the tumor became palpable, test mice were given eight doses of purified anti-hCG antibodies every third day. The Negative control received PBS, while the positive control received eight doses of 2 mg/100 µL oral cyclophosphamide. Tumor volume and mouse weight were regularly monitored for both studies.

Results and Discussion: In a prophylactic study, the tumors in the vaccinated mice were nearly 85% smaller in volume than those in the unvaccinated group, showcasing significant protective effects against this aggressive cancer. Additional therapeutic research using nude mice with existing 4T1 tumors demonstrated that polyclonal anti-hCG antibodies led to around 84% tumor regression, emphasizing their effectiveness against established hCG-expressing cancers.

Conclusion: These results collectively highlight the dual benefits of hCG-targeted immunotherapy: serving as a preventive measure in populations at risk through vaccination and acting as a therapeutic option via passive antibody treatment in advanced cases. By linking the traditional hormonal function of hCG with innovative immunotherapy, these complementary methods offer a promising framework for new strategies in managing breast cancer.

Keywords: rhCGβ-LTB, Breast cancer, 4T1 cell line, Immunotherapy.

JH/SECON2025/PP-220

Linseed (*Linum usitatissimum*) as a transgenic platform for molecular farming of podophyllotoxin from Indian mayapple (*Sinopodophyllum hexandrum):* A heterologous sustainable metabolic engineering approach

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ABSTRACT

Background: The Himalayan Mayapple *(Sinopodophyllum hexandrum* Royle.) of the family berberidaceae is a rare, endangered and threatened (RET) medicinal plant. Its rhizome contains several lignans including podophyllotoxin which possesses anti-tumor potential. An inhibitor of microtubule assembly, podophyllotoxin is an aryltetralin lignan and is used as a starting compound for the synthesis of the anti-cancer drugs, etoposide and teniposide. It is used for treating lung cancer, testicular cancer, neuroblastoma, hepatoma and other tumors. Besides its anti-tumor activity, it also shows antiviral activity. Due to over-exploitation by pharmaceutical industries, the Himalayan Mayapple is now a RET species.

Development of a sustainable, viable alternative system to conserve Himalayan Mayapple as the only source of podophyllotoxin is the need of the hour. Linseed comes as a handy sustainable system for the expression of the genes involved in podophyllotoxin synthesis and accumulation. Linseed is noted for the abundance of lignans among the plant species. The biosynthetic pathway of lignans i.e. phenylpropanoid pathway is the same in mayapple and linseed up to the common intermediate, matairesinol, after which the pathway in mayapple diversifies by **six** enzyme-catalyzed steps leading to synthesis of podophyllotoxin.

Materials & Methods: *E.coli* DH5 α and LBA4404 are the microbial strains which will be used for cloning and deployment of the construct. T-397 and JRF-2 (Tiara) are the genotypes of linseed which will be used for *Agrobacteriumtumefaciens*-mediated genetic transformation. The methodology involves developing gene-construct encoding the enzymes (six) for podophyllotoxin biosynthesis under the control of various promoters, terminators and other regulatory elements followed by genetic transformation of linseed via *Agrobacterium tumefaciens*-mediated tissue culture-based regeneration and *in planta* methods. Putative transgenic linseed plants will then be confirmed and validated at the molecular level using PCR, Southern hybridization, semi-quantitative and quantitative RT-PCR, Western blotting, and ELISA assays.

Conclusion: This work seeks to establish linseed as a promising green biofactory for sustainable production of podophyllotoxin, towards alleviating the pressure on natural *S. hexandrum* population.

Keywords: Himalayan Mayapple, linseed, podophyllotoxin, lignan, multi-gene engineering, genetic transformation.

JH/SECON2025/PP-221

Uncovering Polypharmacological Mechanisms of Sunidra Vati Against Insomnia: An Integrative Network Pharmacology and Molecular Docking Study

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ABSTRACT

Background: Insomnia affects 10-30% of adults globally, with its prevalence in India reaching 33%. This high incidence drives the need for safer alternatives to conventional treatments, which often lead to side effects like tolerance, dependence, and cognitive impairment. Sunidra Vati is a traditional Ayurvedic polyherbal formulation that has been used for centuries to treat sleep disorders.

Aim/Objectives: This study aimed to clarify the anti-insomnia mechanisms of Sunidra Vati using network pharmacology and molecular docking methods.

Methods: The phytoconstituents of polyherbal formulation were identified, and their protein targets were predicted using the Swiss Target Prediction database. Insomnia-related gene targets were collected from the GeneCards database. Cytoscape software was used to construct an active ingredient-target network, and molecular docking was performed with CB-Dock to evaluate the binding affinities between key compounds and insomnia-related proteins.

Results: The analysis identified 25 active phytoconstituents that yielded 244 predicted targets. A Venn diagram analysis showed that 230 of these targets (3.7%) overlapped with the 6,181 known insomnia-related genes.The network pharmacology model revealed a complex interaction network, supporting a synergistic, multi-target mechanism of action. Molecular docking studies confirmed strong binding affinities for active compounds, with energies ranging from -7.1 to -11.5 kcal/mol. Notably, the compound reserpine showed the highest binding affinity (-11.5 kcal/mol) with the ADORA1 receptor.

Conclusion: The results show that Sunidra Vati works through complex multi-component and multi-target mechanisms. It simultaneously modulates the GABAergic, serotonergic, dopaminergic, and adenosinergic systems. This study provides scientific validation for traditional Ayurvedic knowledge and supports Sunidra Vati's potential as a safer alternative to conventional sleep medications.

Keywords: Insomnia; Ayurveda; Network Pharmacology; Molecular Docking; Polyherbal formulation.

JH/SECON2025/PP-222

Evaluation of Unani formulations on FoxP3-Expressing regulatory T cells in the modulation of rheumatoid arthritis

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ABSTRACT

Introduction: Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by synovial inflammation and progressive joint damage. Although modern therapies exist, they are often associated with limited efficacy and adverse effects. Traditional Unani formulations such as Majun Suranjan (MS), Majun Jograj Gugal (MJG), and Majun Chobchini Banuskha Kalan (MCBK) are widely used for arthritis management, but their mechanisms remain poorly understood. This study investigated their potential in modulating FoxP3-expressing regulatory T cells and cytokine balance in RA.

Materials and Methods: Collagen-induced arthritis was developed in male DBA/1J mice and treated orally with MS, MJG, and MCBK. Arthritis scores, paw swelling, and joint histopathology were recorded. In vitro, SW982 synovial sarcoma and Jurkat T cells were treated with graded doses of the formulations. Cytotoxicity was evaluated using MTT and Trypan Blue assays. Apoptosis and cell cycle arrest were analyzed by flow cytometry and microscopy. RT-PCR was performed to assess FoxP3, Th17-related genes, and cytokines (IL-6, IL-17, TNF-α, IFN-γ, IL-10, TGF-β).

Results and Discussion: In vivo, all three formulations significantly reduced arthritis severity and histological damage. In vitro, they induced dose-dependent cytotoxicity, apoptosis, and cell cycle arrest, with clear morphological signs of apoptosis. Molecular analysis revealed upregulation of FoxP3 and increased expression of IL-10 and TGF-β, accompanied by suppression of pro-inflammatory cytokines (IL-6, IL-17, TNF-α). These findings suggest a dual mechanism of action: direct suppression of pathological cell growth and restoration of immune tolerance.

Conclusion/Recommendation: Majun Suranjan, Majun Jograj Gugal, and Majun Chobchini Banuskha Kalan show strong anti-arthritic potential through both cytotoxic and immunomodulatory pathways. They may serve as safer, multi-targeted alternatives to conventional RA therapies, meriting further clinical validation.

Key words: Rheumatoid arthritis; Unani formulations; FoxP3; Regulatory T cells; Cytokine modulation; Apoptosis; Cell cycle

JH/SECON2025/PP-223

Lavender as a natural anxiolytic agent: A review on mechanistic basis and therapeutic potential

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ABSTRACT

Introduction: Anxiety is a neurological disorder, which affects a wide range of population of all age groups. It is thought to result from a complex interplay of multiple factors, and it's prevalence varies by age: children and adolescents may experience it due to bullying (~08-18%), younger adults (~18.5-24.5%) show higher prevalence than middle-aged individuals (~07-11%), while older adults (~02-04%) display least of the symptoms.

Ethnopharmacological context: Lavender (*Lavandula angustifolia)* is largely produced in France, Spain, Italy, Bulgaria, India. It's most widely used oral preparation, Silexan (80mg/day) is widely used in Germany and also in various European and Asian countries. Lavender oil is also used in the treatment of insomnia, mood, depression and it is also used as an aromatherapy.

Aim: This review provides a concise summary of current evidence on the anxiolytic effects of Lavender.

Methods: This review is based on publications from google scholar, Pubmed, Scoups, Semantic scholar, and JSTOR

Result and discussion: Lavender has long-standing history of calming and sedative use, from ancient traditional medicine to modern evidence-based anxiolytic therapy. Anxiety involves neurotransmitters like, GABA receptors, serotonin, norepinephrine. Other than lavender, herbs/plants like Kava, Chamomile, Passionflower, Ashwagandha, St. John's Wort has shown anti-depressants and anti-anxiety effect. In this review, author found that lavender constitute of phytochemicals such as linalool, linalyl acetate, and rosmarinic acid contribute to lavender's anxiolytic effects. Lavender is versatile and supports mental health (anxiety, sleep, mood), pain management, cosmetics, and digestion.

Conclusion: It is clear that this plant is used for various treatments, across the globe and is an important plant. The clinical trails like, the randomized controlled trials, meta-analysis and systematic reviews, and, aromatherapy / Inhalation trials, shows decrease in anxiety in patients.

Keywords: Lavender, Silexan, phytochemical, anxiolytic, aromatherapy.

JH/SECON2025/PP-224

Polypharmacology in Alzheimer's disease: The promise and outward of multi target drug design

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ABSTRACT

Introduction: Alzheimer's disease (AD) is a complicated condition that affects the brain. It causes a steady decline in thinking skills, memory loss, and problems with behavior. Traditional ways of finding new drugs that focus on just one problem, like amyloid-beta plaques or tau tangles, have not worked very well in treating diseases. This shows that we really need to look for different methods.

Materials and Methods: Polypharmacology is the development or use of drugs that can work on different targets at the same time. This approach looks like a hopeful way to treat Alzheimer's disease (AD). This method recognizes that the disease is different for each person. It looks at the complex problems in the body, such as inflammation in the brain, stress from harmful molecules, issues with energy production in cells, a lack of the neurotransmitter acetylcholine, and the loss of connections between nerve cells. Multi-target-directed ligands (MTDLs) represent an innovative strategy that merges multiple active components into a single molecule.

Results and Discussion: This can create stronger treatment effects and may help lessen the need for taking many different medications. Recent improvements in computer modeling, drug design based on how molecules are structured, and fast testing have helped speed up the discovery and improvement of these compounds. Also, natural products and their related substances are becoming popular as building blocks for multi-target drug-like molecules because they have a wide range of biological activities and can affect multiple targets. Even though early research showed good results, moving to real-life medical use is still very difficult. There are problems with choosing the right targets, how the drug behaves in the body, and getting it past the protective barrier in the brain.

Conclusion/Recommendation: This review looks at the current situation, the challenges we face, and future plans for creating drugs that target multiple factors in Alzheimer's disease (AD). It emphasizes polypharmacology as a powerful method that could change how we treat this serious illness**.**

Keywords: Alzheimer's disease, Polypharmacology, Multi-target drug design, Neurodegeneration, MTDLs

JH/SECON2025/PP-225

Neuroprotective potential of Ayush-based synergistic combination and phytopharmaceutical against diabetes-induced dementia

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ABSTRACT

Background: Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycemia and insulin resistance, predisposing individuals to neurodegenerative complications. Type 2 diabetes mellitus (T2DM) often leads to cognitive decline and dementia, mediated by oxidative stress, inflammation, and insulin signaling dysfunction. Conventional antidiabetic therapies offer limited neuroprotection, necessitating exploration of Ayush-based herbal alternatives.

Objective: To develop and evaluate an Ayush-based synergistic herbal combination and phytopharmaceutical formulation using *Bacopa monnieri*, *Mucuna pruriens*, and *Centella asiatica* for the management of diabetes-induced dementia.

Methods: Aqueous and hydroalcoholic extracts were characterized through phytochemical screening, HPTLC, and LC-MS profiling. Extracts were assessed for in vitro antioxidant potential and enzymatic inhibition (α-amylase, DPP-IV, AChE). The most bioactive extract (BAPE) was selected for formulation of a synergistic combination and phytopharmaceutical. In vivo studies on zebrafish and rodent models of diabetic dementia were conducted to evaluate behavioral, biochemical, and neuroinflammatory parameters. Pharmacokinetic, metabolomic, and stability studies were performed for scientific validation.

Results: Preliminary studies revealed significant antioxidant activity and enzymatic inhibition by the developed formulation. The combination improved cognitive performance, modulated insulin and GLP-1 pathways, and reduced neuroinflammatory and oxidative stress markers in diabetic models.

Conclusion: The Ayush-based synergistic combination and phytopharmaceutical exhibit promising neuroprotective potential against diabetes-induced dementia, supporting their development as evidence-based interventions for metabolic and cognitive disorders.

Keywords: Diabetes-induced dementia, *Bacopa monnieri*, *Mucuna pruriens*, *Centella asiatica*, phytopharmaceutical, neuroprotection.

JH/SECON2025/PP-226

Elephantous scaber Linn: Pharmacological profile, chemical constituents and therapeutic benefits

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ABSTRACT

Introduction: *Elephantopus scaber* Linn., a tiny herb belonging to the Asteraceae family, is found in Africa, Asia, Europe, Australia, and the Neotropics. Throughout history, numerous nations have utilised the plant parts of this herb to treat a variety of illnesses. It has been reported that different portions of the plant include triterpenoids, flavonoids, steroids, sesquiterpene lactones, and elements of essential oils. The plant has been extensively screened for anticancer activity Deoxyelephantopin, isodeoxyelephantopin, scabertopin, and isoscabertopin are examples of sesquiterpene lactones that have been identified as important anticancer components. Numerous research publications have documented numerous more biological activities, including antibacterial, hepatoprotective, antioxidant, antidiabetic, anti inflammatory, analgesic, antiasthamatic, antiplatelet, and wound healing.

Material and Methods: The data provided in this review was collected form databases such as Web of Science, PubMed, Google Scholar.

Results and Discussion: On the basis of literature included in this review it can be concluded that medicinal plant extracts and their bioactive compounds have powerful anti-inflammatory properties by inhibiting pro-inflammatory processes, strong antioxidant properties because of flavonoids and phenolics, hepatoprotective properties because they lower liver enzymes, broad-spectrum antimicrobial activity, and anticancer activity.

Conclusion: *Elephantopus scaber* Linn., abundant in flavonoids, sesquiterpene lactones, phenolics, and alkaloids, demonstrates significant anti-inflammatory, antioxidant, antimicrobial, and hepatoprotective properties, reinforcing its traditional medical applications and therapeutic possibilities. Further it is essential to do clinical trials to establish claims of studies.

Keywords: Elephantous scaber, Asteraceae, Sesquiterpene lactones, Flavonoids, Anti-infliammatory

JH/SECON2025/PP-227

Plants as a source of novel anti-ulcer agents: A systematic review

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ABSTRACT

Introduction: The case of peptic ulcer disease remains a very concerned issue that affects all part of the world and the population is experiencing an ever-increasing amount of the illness. Proton pump inhibitors, H 2 blockers, antacids are typical drugs that assist in the symptoms but frequently cause side effects or recurrence of the ulcer. This is why it would be a good idea to consider plant-based ones, which could be safer and more efficient.

Materials and Methods: Articles on these medicinal plants and their anti-ulcer compounds were searched in scientific databases; a systematic review of the articles was done. We gave preference to studies that explain the traditional use of the plants, the active chemicals they have, lab work testing, and functionality of the plants.

Results and Discussion: There are both preclinical and clinical evidence that most of the plants can prevent the stomach lining. Companies state that such compounds as flavonoids, tannins, saponins, terpenoids, and alkaloids enhance the mucus layer, increase the number of antioxidants, reduce acid and accelerate the healing of the ulcer. One possible solution is plants Glycyrrhiza glabra, Camellia sinensis, Curcuma longa, and Aerva lanata. Such result indicate that the extent to which the plant compounds can be unrestricted to multiple targets has potential to be better than drugs that are only unrestricted to one target.

Conclusion/Recommendation: The active constituents and medicinal plants are a good asset in the designing of new anti-ulcer drugs. The future of work involves solid clinical trials and coming up with the interactive mechanisms and standardizing herbal products in order to ascertain their actual potential in the development of drugs.

Keywords: Peptic ulcer, medicinal plants, phytochemicals, gastroprotection, drug discovery

JH/SECON2025/PP-228

Exploring the therapeutic potential of synthetic & herbal nanoformulation for the amelioration of Alzheimer's disease

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ABSTRACT

Background: Alzheimer's disease (AD), causing 60–80% of dementia cases in those over 65, involves amyloid-beta buildup and tau tangles, leading to cognitive decline. Risk factors include diabetes, hypertension, and heart disease. Herbal drugs show potential due to anti-inflammatory, neuroprotective, and antioxidant effects.

Aim/Objectives: This study explores herbal & synthetic drugs therapeutic potential in AD by evaluating their physicochemical properties and suitability for future formulations.

Method: Comprehensive analyses, including UV, FTIR, DSC, melting point, partition coefficient, solubility, and UV-based drug–excipient compatibility, confirmed interactions, stability, and formulation suitability.

Result: The compound exhibited favorable lipophilicity for BBB penetration, and preliminary findings indicate the nanoformulation's promise in AD therapy. UV-based drug–excipient compatibility confirmed interactions and stability, while ex-vivo and in vivo studies are in progress to validate safety and efficacy.

Conclusion: Results show the substance's potential for neurological treatment, with anti-inflammatory and antioxidant effects that may reduce AD symptoms, supporting herbal-based therapies.

Keywords: Alzheimer's disease, herbal drugs, neuroprotection, antioxidant.

JH/SECON2025/PP-229

Kachnar: Insights into phytochemical and therapeutic potentials

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ABSTRACT

Introduction: Kachnar (*Bauhinia variegate Linn.)*, commonly referred to as mountain ebony, orchid tree, or camel's foot, is a flowering plant that belongs to the Fabaceae family. It is native to Southern China, Southeast Asia, and the Indo-Pakistan region. The different components of the plant, including flower buds, flowers, stem, stem bark, leaves, seeds, and roots, are used for treating several ailments such as diarrhoea, dysentery, goitre, tumours, piles, constipation, leprosy, and numerous others. The phytochemical analysis of *B. variegata* flowers indicated the presence of phytochemicals such as saponins, tannins, terpenoids, flavonoids, reducing sugars and cardiac glycosides. The presence of various phytochemical constituents gives it a variety of medicinal and therapeutic properties. For example, the flower bud contains syringic acid, which has antimicrobial properties; the stem bark contains rhymnocitrin, which has neuroprotective properties; and the phytoconstituents in the flowers have antioxidant and antidiabetic potential. Anti-inflammatory and ant- mutagenic properties are also present.

Materials and Methods: The information presented in this review was gathered from various databases, including Web of Science, PubMed, Google Scholar, and Semantic Scholar. In this review, we have discussed data related to animal and clinical studies concerning Kachnar.

Results and Discussion: This review discussed and summarized the findings from animal and clinical trials. According to the findings of the studies, Kachnar extract has a number of medicinal and therapeutic benefits on a variety of diseases. These medicinal effects are mostly attributable to the presence of different phytoconstituents in various regions of the Kachnar. This plant's flower and leaves are mostly utilized for its anti-inflammatory, antioxidant, antidiabetic, and antibacterial qualities.

Conclusion: Based on the findings presented in this review, it is reasonable to conclude that Kachnar *(B. variegata* Linn*.)* exhibits a diverse range of therapeutic and medicinal applications.

Keywords: Kachnar, Phytoconstituents**,** *B. variegata* Linn

JH/SECON2025/PP-230

Cytotoxic and poptotic evaluation of Pumpkin seed oil Nanoemulsion against breast cancer

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ABSTRACT

Background: Breast cancer is the most prevalent malignancy in women with 16% of all cancer deaths and current therapies frequently resulting in significant adverse consequences. Pumpkin seed oil possesses antibacterial, antiviral, cytotoxic, and anticancer effects. Nonetheless, its hydrophobic characteristics restrict bioavailability, which can be enhanced by a nanoemulsion system.

Aims/Objectives: The main objective of the study was to formulate and characterize pumpkin seed oil nanoemulsion (PSO-NE) and evaluate the cytotoxic and apoptotic potential of the formulated PSO-NE against breast cancer cell lines (MCF-7 and MDA-MB-231).

Methods: PSO-NE was formulated using Tween-80 surfactant and optimized through ultrasonication by varying surfactant concentration and sonication durations. Optimized formulation was characterized by DLS, TEM, SEM and FT-IR. Cytotoxicity efficacy was assessed using MTT assay. Cellular uptake and nuclear morphology were evaluated using rhodamine-B and DAPI through confocal microscopy. Mechanistic assays included Annexin-V FITC/PI staining for apoptosis, CFSE assay for proliferation, and PI staining for cell cycle analysis. Differential gene expression (Bcl-2, STAT-3, NF-kB, p53, Bax, caspase-3) was quantified by real-time PCR.

Results: The optimization of PSO-NE was affected by surfactant concentration and sonication duration, resulting in a droplet size of 152.0 nm, PDI of 0.189 and Zeta Potential of -23.5mV. At IC_{50} concentration (MCF-7 = 46.6µg/ml and MDA-MB-231 = 60µg/ml) PSO-NE significantly elicited morphological alterations, decreased cell proliferation, enhanced phosphatidylserine exposure, and halted the cell cycle. The expression of genes (Bcl-2, STAT-3, and NF-kB), associated with cell proliferation, was significantly downregulated, while the expression of genes (p53, Bax, and caspase 3), linked to apoptosis, was significantly upregulated compared to the untreated cell lines, indicating the activation of apoptotic gene expression.

Conclusion: The targeted cytotoxicity of PSO-NE against breast cancer and its ability to induce apoptosis and cell cycle arrest, underscores a promising anticancer drug.

Keywords: Pumpkin seed oil nanoemulsion; Cytotoxic potential; Cell cycle arrest; Apoptotic gene expression; Anticancer

JH/SECON2025/PP-231

Integrative approaches for the diagnosis and management of NAFLD in type 2 diabetes mellitus: Role of novel biomarkers and targeted therapies

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ABSTRACT

Background: Non-alcoholic fatty liver disease (NAFLD) is a common complication in patients with type 2 diabetes mellitus (T2DM), increasing the risk of liver fibrosis, cirrhosis, and cardiovascular disease. Early detection and targeted intervention are essential to prevent progression. Conventional diagnostic methods often lack sensitivity and specificity, emphasizing the need for novel biomarkers and integrative therapeutic strategies.

Aim: This study aims to explore integrative approaches for the diagnosis and management of NAFLD in T2DM, with a focus on novel biomarkers and targeted therapies to enhance early detection, treatment outcomes, and prognosis.

Methods: T2DM patients with suspected or confirmed NAFLD will undergo liver imaging (ultrasound, transient elastography), biochemical assessments, and measurement of emerging non-invasive biomarkers including Pro-C3 and cytokeratin-18 (CK-18). Management will combine lifestyle interventions, glycemic control, and pharmacological therapies targeting metabolic and fibrotic pathways. Outcomes will be evaluated through changes in biomarker levels, liver function tests, glycemic parameters, and imaging-based assessment of liver fat and fibrosis.

Expected Results: Integrative diagnostic approaches are expected to improve early detection of NAFLD and liver fibrosis. Biomarker-guided targeted therapies may enhance liver function, reduce fibrogenesis, and optimize metabolic control, enabling personalized and effective patient management.

Conclusion: Combining novel biomarkers with integrative diagnostic and therapeutic strategies has the potential to transform NAFLD management in T2DM by facilitating early intervention, slowing disease progression, and improving patient outcomes. Future clinical studies are warranted to validate these approaches.

Keywords: NAFLD, Type 2 diabetes mellitus, Liver fibrosis, Pro-C3, Cytokeratin-18

JH/SECON2025/PP-232

An integrative approach to breast cancer: Insights from modern and Unani perspectives

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ABSTRACT

Background: Breast cancer is the most prevalent malignancy among women worldwide and remains a leading cause of cancer-related mortality. Modern medicine attributes its pathogenesis to genetic predisposition, hormonal imbalance. In Unani medicine, breast cancer is described as Sartan-e-Sadi, a chronic, progressive, and non-healing swelling that arises due to derangement of Akhlat-e-Ghaleez

Objectives: To combine modern oncology with Unani principles for comprehensive management.

Methods: Classical Unani texts were reviewed to identify descriptions, causes, and management approaches for Sartan-e-Sadi. Contemporary biomedical literature was simultaneously studied for current perspectives on etiology, diagnosis, and treatment. The findings were analyzed to highlight areas of convergence and complementarity between the two systems.

Results: Unani scholars characterized Sartan-e-Sadi as a hard, immobile swelling with irregular margins, often ulcerating in advanced stages, which closely parallels the modern description of breast carcinoma. While modern medicine emphasizes molecular and hormonal mechanisms, Unani theory associates the condition with imbalance in humors and Mizaj. These approaches, if evaluated scientifically, may offer supportive benefits in prevention and improvement of quality of life.

Conclusion: Collaborative clinical studies are recommended to validate and integrate Unani therapeutic approaches for evidence-based cancer care.

Keywords: Breast cancer; Sartan-e-Sadi; Unani medicine; Integrative oncology; Asbab-e-Sitta Zarooriya

JH/SECON2025/PP-233

Elucidating the potential of edible and medicinal mushrooms to combat the ER stress: A systematic review

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ABSTRACT

Background: Endoplasmic reticulum (ER) stress plays central role in disorders1 ranging from metabolic syndrome to malignancies. Edible and medicinal mushroom contain unique bioactive compounds capable of modulating ER stress and associated inflammatory pathway. However, a comprehensive synthesis highlighting the most promising species and their bioactive molecules remain limited. This study aims to systematically explore and shortlist potent species or compounds, particularly those unexplored to support novel therapeutic strategies.

Materials and Methods: A systematic search was conducted across PubMed, Google Scholar, Cochrane Library and Embase (2000-2025). Search terms included Medical Subject Heading (MeSH): Mushrooms, Basidiomycota, Fungal proteins, Medicinal mushrooms, Bioactive compounds, Endoplasmic Reticulum Stress, Unfolded Protein Response, Inflammation, Oxidative stress, Disease. Eligible studies investigated edible/medicinal mushroom or their derived compounds with quantitative evaluation of ER stress markers (BiP, CHOP, XBP-1, ATF6, PERK, IRE1, JNK) using in-vitro, in-vivo, or clinical models. Screening and data extraction followed a standardized framework, capturing species, preparation type, experimental model, active constituents, and targeted pathways.

Results and Discussion: Preliminary synthesis suggests distinct mushroom species and their bioactive molecules can modulate branches of the unfolded protein response (UPR) and associated inflammatory cascades. Certain unexplored species and novel compound show potential as therapeutic leads. The final list of top-performing mushrooms, optimal combinations, and novel bioactive proteins/metabolites will be presented, ensuring both scientific depth and novelty.

Conclusion: This systematic review bridges traditional mushroom-based knowledge with modern mechanistic insights into ER stress modulation. Findings aim to guide future research toward targeted therapeutic applications for metabolic and malignant disease, introducing novel bioactive molecules to the scientific community.

Keywords: Edible mushrooms, Endoplasmic Reticulum (ER) stress, Unfolded protein response, ATF6/PERK/IRE1 (ER stress markers), Metabolic syndrome, Therapeutic potential.

JH/SECON2025/PP-234

Engineering sustainable defense in spinach (*Spinacia oleracea L.*) against soft leaf rot pathogen, *Pseudomonas syringae* through plant-based nanoparticles of oxides of zinc and copper

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ABSTRACT

Introduction: Nanoscale metals possess unique physicochemical properties that facilitate their wide application in medicine, agriculture, and environmental science. Green synthesis offers an eco-friendly approach to nanoparticle (NP) production by utilizing naturally occurring reducing and stabilizing agents, thereby avoiding use of hazardous chemicals.

Materials and Methods: In this study, zinc oxide (ZnO) and copper oxide (CuO) nanoparticles were synthesized using the leaf extract of *Bacopa monnieri*, a medicinal plant rich in saponins, flavonoids, alkaloids, and phenolics. Characterization by GC–MS, UV–vis spectroscopy, DLS, XRD, SEM, and TEM confirmed the true-to-type characteristic nature of these nanoparticles. Anti-bacterial potential of these NPs (naked and encapsulated form (chitosan)) was assessed by seed priming and scoring for various physiological parameters.

Results and Discussion: Green-synthesized ZnO and CuO NPs were significantly smaller (7.6 nm and 7.4 nm, respectively) than their chemically synthesized counterparts (63.3 nm and 86.6 nm). ZnO NPs displayed rough, porous surfaces, while CuO NPs were irregular and often rod-shaped; both exhibited high crystallinity. The antibacterial efficacy of the nanoparticles was evaluated against *Pseudomonas syringae*, a major pathogen of spinach (*Spinacia oleracea L.*) causing soft leaf rot. Priming of seeds of spinach with varying concentrations of green-synthesized NP (10, 50, 100 ppm) demonstrated enhanced germination and growth when compared to chemical NPs and untreated controls. To improve stability and delivery of these NPs, they were encapsulated in chitosan. At 100 ppm, these green NPs based nanosprays moderately inhibited bacterial growth without phytotoxic effects, whereas chemical NPs at similar concentrations caused necrosis and reduced plant survival.

Conclusion: These results underscore the potential of green nanotechnology, particularly chitosan-coated ZnO and CuO nanosprays, as sustainable and plant-compatible strategy for managing bacterial infections in crops.

Keywords: Green synthesis, zinc oxide, copper oxide, nanoparticles, spinach, antibacterial, chitosan, nanospray.

JH/SECON2025/PP-235

Bridging traditional temperament theory and modern microbiome science: A review toward personalized and preventive health

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ABSTRACT

Background: The human gut microbiome is increasingly recognized as a key determinant of metabolic regulation, immune function, neurobehavioral processes, and disease susceptibility. Its dynamic composition is influenced by diet, age, stress, and environmental factors, making it a central focus of modern biomedical research. In parallel, the Unani concept of *Mizaj* (temperament), classified along hot–cold and wet–dry axes, has historically guided health assessment, disease predisposition, and therapeutic interventions.

Objectives: This review aims to explore the intersections between microbiome variability and *Mizaj* typology. Specifically, it proposes that microbial diversity, metabolic pathways, immune modulation, and stress responsiveness may correspond to temperament-based distinctions described in Unani medicine.

Conclusion: By critically synthesizing contemporary microbiome research with classical Unani frameworks, this review highlights opportunities for integrative, personalized health strategies. Bridging ancient medical wisdom with modern microbiome science offers potential to enhance predictive models of disease, refine individualized dietary and lifestyle recommendations, and strengthen preventive and therapeutic paradigms in personalized medicine.

Keywords: Mizaj (Temperament); Gut Microbiome; Unani Medicine; Personalized Medicine; Microbiome Variability; Integrative Medicine; Preventive Health

JH/SECON2025/PP-236

Multi-targeted herbal interventions for the topical management of psoriasis: A comprehensive review

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ABSTRACT

Introduction: Psoriasis is a chronic inflammatory skin disorder marked by aberrant keratinocyte proliferation and immune dysregulation, resulting in significant morbidity. While conventional therapies offer symptomatic relief, they are often accompanied by adverse effects and recurrence. Herbal medicine provides a promising complementary approach to psoriasis management, leveraging the multi-targeted effects of bioactive phytoconstituents.

Materials and Methods: A systematic review spanning 2015–2025 was conducted using PubMed, Scopus, and Web of Science to assess the efficacy of selected herbal agents and formulations for psoriasis. Emphasis was placed on Salix caprea, Gaultheria procumbens, Curcuma longa (turmeric), Ammi majus, and Matricaria chamomilla (chamomile), which possess notable anti-inflammatory, immunomodulatory, and antiproliferative properties. Analysis included topical and oral formulations, insights into mechanisms of action, and advancements in delivery systems.

Results and Discussion: Numerous studies confirm that Curcuma longa's curcumin significantly reduces oxidative stress, inhibits keratinocyte proliferation, and suppresses pro-inflammatory cytokines, thereby improving psoriatic lesions. Ammi majus contributes via its furocoumarins, which promote epidermal regeneration and immunomodulation. Chamomile (Matricaria chamomilla) offers potent antioxidant and anti-inflammatory effects that help alleviate skin irritation and inflammation. These botanicals, in combination or individually, have shown efficacy in reducing erythema, scaling, and plaque thickness, with novel formulations (gels, emulsions, shampoos) further enhancing bioavailability and patient compliance. However, challenges remain regarding phytochemical standardization and the paucity of robust clinical trials.

Conclusion/Recommendation: Incorporating Curcuma longa, Ammi majus, and Chamomile into herbal-based formulations holds promise as a safe adjunct or alternative for psoriasis management. Future research should focus on standardized extraction, formulation innovation, and rigorous clinical validation to enable integration into evidence-based dermatological care.

Keywords: Psoriasis; Herbal medicine; *Curcuma longa*; *Ammi majus*; Chamomile; *Salix caprea*; *Gaultheria procumbens*; Topical formulation; Immunomodulation

JH/SECON2025/PP-237

Development of nano lipidic carrier-based topical delivery system for vemurafenib in melanoma treatment

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ABSTRACT

Background: Melanoma is a highly aggressive skin cancer with rising incidence and mortality rates worldwide. Vemurafenib, a selective BRAF V600E inhibitor, has shown significant efficacy in advanced melanoma; however, its poor oral bioavailability and systemic administration result in high dosing requirements and adverse effects including cutaneous toxicity and paradoxical MAPK activation. To enhance solubility, skin permeation, and therapeutic efficacy while reducing systemic toxicity, nanostructured lipid carriers (NLCs) present a promising strategy for topical drug delivery.

Aim/Objectives: The primary aim of this study is to design and evaluate an NLC-based topical delivery system for vemurafenib in melanoma treatment. Objectives include developing stable drug-loaded NLCs, optimizing particle size and encapsulation efficiency, and evaluating their therapeutic potential through systematic in vitro and in vivo investigations.

Methods: Formulation development will be performed using lipid–surfactant optimization to achieve stable NLCs. In vitro characterization will include particle size, polydispersity, zeta potential, encapsulation efficiency, and release profiling. Cytotoxicity and cellular uptake will be assessed on melanoma cell lines. In vivo evaluation in animal models will study pharmacokinetics, biodistribution, therapeutic efficacy, skin permeation, irritation, and tolerability.

Results: This approach is expected to overcome the limitations of systemic vemurafenib by improving drug solubility, stability, and localized delivery, thereby enhancing therapeutic action at melanoma sites while minimizing systemic side effects.

Conclusion: The research could establish NLC-based topical delivery as an innovative platform for vemurafenib, offering safer, more effective, and personalized treatment for metastatic melanoma.

Keywords: Vemurafenib, Nanostructured lipid carriers, Topical delivery, Melanoma, Controlled release

JH/SECON2025/PP-238

Acute diarrhoea: A persistent threat to child health

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ABSTRACT

Background: Acute diarrhoea is among the foremost causes of morbidity and mortality in children under five years of age, with the greatest burden seen in low- and middle-income countries. Even with substantial progress through sanitation improvement, vaccination, and the use of oral rehydration therapy, it continues to remain a persistent public health threat, adversely affecting child survival and development.

Objective: This study aims to discuss the burden, causative factors, clinical impact, and preventive strategies for acute diarrhoea with a focus on reducing its impact on child health.

Methodology: A narrative review of published literature and recent epidemiological data was conducted to assess etiological agents, environmental risk factors, and intervention strategies, alongside evaluation of effective preventive and therapeutic measures.

Results: Analysis indicates that acute diarrhoea is commonly caused by viral, bacterial, and parasitic pathogens, and is aggravated by unsafe water, inadequate sanitation, malnutrition, and limited healthcare access. The primary outcomes include dehydration, electrolyte imbalance, growth faltering, and increased susceptibility to infections. Interventions such as rotavirus vaccination, exclusive breastfeeding, safe water provision, health education, timely oral rehydration solution use, and zinc supplementation significantly decrease disease burden.

Conclusion: Acute diarrhoea continues to threaten child health worldwide. Strengthening

Keywords: Acute diarrhoea, Child health, Mortality, Prevention, Public health

JH/SECON2025/PP-239

Immunomodulatory and therapeutic potential of *Tinospora cordifolia* (Giloy) in lifestyle disease management

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ABSTRACT

Background: *Tinospora cordifolia* exhibits potent immunomodulatory and antioxidant properties, making it a promising candidate for managing lifestyle-related disorders. This study explores its bioactive compounds, mechanisms of immune regulation, and therapeutic implications in chronic diseases such as diabetes and cardiovascular conditions.

Introduction: Lifestyle diseases, including diabetes mellitus, cardiovascular disorders, and metabolic syndrome, are escalating globally due to sedentary habits and poor dietary patterns. These conditions are often associated with chronic inflammation, oxidative stress, and immune dysregulation. Traditional medicinal systems, particularly Ayurveda, have long utilized herbal remedies for holistic health management. *Tinospora cordifolia* (Giloy), a climbing shrub native to India, is revered for its rejuvenating and adaptogenic properties. Recent pharmacological studies have highlighted its immunomodulatory, antioxidant, anti-inflammatory, and antidiabetic activities, suggesting its potential role in mitigating the pathophysiology of lifestyle diseases.

Objective: To evaluate the immunomodulatory effects of Tinospora cordifolia and its therapeutic relevance in the prevention and management of lifestyle-related disorders**.**

Results: Phytochemical analyses reveal that*Tinospora cordifolia* contains bioactive constituents such as alkaloids (berberine, magnoflorine), diterpenoid lactones (tinosporide, cordifolide), and polysaccharides. These compounds enhance macrophage activation, stimulate cytokine production (e.g., IL-1, IL-6, TNF-a), and modulate T-cell responses. Experimental models demonstrate improved glycemic control, lipid profile normalization, and reduced oxidative stress markers. Clinical trials, though limited, report improved immune function and metabolic parameters in patients with type 2 diabetes and hyperlipidemia.

Conclusion: *Tinospora cordifolia* holds significant promise as a natural immunotherapeutic agent for managing lifestyle diseases. Its ability to modulate immune responses and reduce oxidative stress supports its integration into complementary medicine. Further clinical validation and standardization of extracts are essential to harness its full therapeutic potential**.**

Keywords: Immunomodulatory, anti-oxidant, anti-inflammatory and anti-diabetic.

JH/SECON2025/PP-240

Preparation and profiling of boswellic acid-rich extracts from *Boswellia serrata* Roxb.

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ABSTRACT

Background: The review of literature on *Boswellia serrata* Roxb. (Family: Burseraceae) revealed that the plant is very beneficial in treating conditions such as diabetes, asthma, and inflammatory illnesses. Its gum-resin portion is utilized to treat microbial infections, cancers, inflammatory disorders, and asthma. Taking into consideration the versatile nature of its bioactive compounds collectively known as boswellic acids, it was considered worthwhile to develop extraction protocols for their efficient extraction.

Objectives: The present study was aimed to prepare boswellic acid-rich extracts from *Boswellia serrata* and their subsequent chromatographic estimation.

Methods: The crude extract was obtained by maceration with ethanol, followed by fractionation for enrichment of boswellic acids. The process was optimized to enhance the yield and purity of the targeted compounds. The prepared extracts were subjected to HPTLC analysis to estimate the content of boswellic acids in terms of acetyl-11-keto-β-boswellic acid (AKBA).

Results: HPTLC analysis revealed that the hexane fraction showed highest efficiency in enriching boswellic acids in terms of AKBA. It was followed by ethyl acetate fraction and hexane extract. The study demonstrated that appropriate extraction and fractionation techniques can significantly improve the content of boswellic acids of fractions and ultimately their therapeutic potential by specifically concentrating the targeted components.

Conclusion: The findings support the effectiveness of specific fractionation method monitored by profiling methods for developing boswellic acid-rich fractions. The outcome of the current study may find its use in bioactivity-guided fractionation and biological screening involving *B. serrata*.

Keywords: Salai Guggul, boswellic acids, acetyl-11-keto-β-boswellic acid, HPTLC

JH/SECON2025/PP-241

Biology and evolution of spider venom in pharma: A pharmacological tool

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ABSTRACT

Background: Spider venoms contain a rich array of bioactive peptides, many of which selectively target ion channels and receptors in the nervous system. These toxins offer high specificity and potency, making them powerful pharmacological tools for studying cellular signaling and developing new treatments for pain, epilepsy, and other neurological disorders.

Aims: This study aims to highlight the advances in the spider venom peptides for therapeutic applications and its potential as a pharmacological tool

Methods: Data were collected through a systematic review of scientific literature focusing on the pharmacological activities of spider venom. Emphasis was placed on identifying bioactive peptides, their mechanisms of action, and potential applications in pain management, antimicrobial therapy, and neurodegenerative disorders.

Results: The review identified a range of spider venom components with significant therapeutic potential. Key findings included analgesic, antimicrobial, and anticancer activities, primarily mediated through the modulation of ion channels and cell signaling pathways. These properties support the potential use of spider venom as a valuable pharmacological tool in drug development.

Conclusion: Spider venom holds significant promise as a pharmacological tool, offering novel bioactive compounds with therapeutic potential. Further research is needed to translate these findings into clinically viable drugs.

Keywords: Spider Venom, Bioactive peptides, Sodium ion channels, Nociceptive receptors, Disulfide bridges.

JH/SECON2025/PP-242

Unveiling herb-drug interactions potential of *Foeniculum vulgare:* A computational and analytical approach

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ABSTRACT

Background: Herb-drug interactions (HDIs) is an important clinical consideration as bioactive compounds found in dietary herbs can influence drug metabolism and therapeutic outcomes. *Foeniculum vulgare* (fennel) is a commonly used spice and a medicinal herb. Its phytoconstituents can have the effects on cytochrome P450 (CYP450) enzymes, which may influence the pharmacokinetics properties of drugs that are taken together with fennel.

Aims/Objectives: The aim of this study was to investigate the interaction potential of *Foeniculum vulgare* by considering its potential effects on drug metabolism pathways and various compounds that could be responsible for herb-drug interactions.

Methods: An integrated approach was employed combining computational and analytical methods. *In silico* molecular docking was were carried out to predict the binding affinity of fennel metabolites towards the major CYP450 isoforms for predicting possible metabolic interactions. Physicochemical compatibility studies of herb-drug mixtures are being conducted to identify interaction risks at the formulation level. Metabolomic profiling using chromatographic technique was conducted to characterize the bioactive metabolites that may contribute to interaction potential of the herb.

Results: Docking studies found certain fennel metabolites exhibited significant binding affinity to major CYP450 isoforms, indicating a possible alteration of drug metabolism. Metabolomic assessments identified key bioactive compounds that may have an implication in potential herb-drug interactions.

Conclusion: The findings provide a scientific basis for understanding the interaction potential of *Foeniculum vulgare* and highlight the importance of caution when using fennel alongside conventional medicines. These results support the safer and more rational integration of fennel into therapeutic use, with ongoing studies still going.

Keywords: Herb-Drug Interactions, *Foeniculum vulgare*, CYP450, Drug safety

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Revisiting food-borne natural toxins through Ayurvedic and toxicological perspectives

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ABSTRACT

Background: Traditional diets, while providing essential nutrients, often contain naturally occurring toxins that may pose health risks if improperly processed or consumed in excess. Ancient medical systems such as Ayurveda and Siddha identified several foods as Visha Dravyas (toxic substances) and recommended detoxification practices including soaking, fermentation, boiling, and proper storage to reduce adverse effects.

Aims: This study reviews the pharmacotoxicological aspects of natural food-associated toxins derived from plant, fungal, bacterial, and animal sources. Examples include ricin from castor seeds, myristicin from nutmeg, amanitins from toxic mushrooms, botulinum toxin from Clostridium botulinum, and saxitoxin from marine shellfish. These toxins exert diverse mechanisms of action, including enzyme inhibition, protein synthesis blockade, sodium channel disruption, and oxidative damage, resulting in hepatotoxicity, nephrotoxicity, neurotoxicity, and gastrointestinal disturbances.

Methods: Comparative analysis of traditional practices and modern experimental findings demonstrates that many ancient detoxification methods effectively mitigate toxicity, highlighting the empirical wisdom embedded in dietary guidelines. This integration of ethnopharmacological knowledge with modern toxicological evidence emphasizes the importance of understanding food safety within cultural and historical contexts.

Conclusion: The study underscores the relevance of traditional dietary principles in contemporary pharmacotoxicology and offers guidance for the safe consumption of natural foods, while reinforcing the concordance between ancient practices and modern scientific validation.

Keywords: Food Safety, Pharmacotoxicology, Natural food toxins, Visha Dravya, Neurotoxicity and Gastrointestinal disturbances.

JH/SECON2025/PP-244

Tukhm-e-Kharbuza in traditional medicine: Health benefits and Unani perspective

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ABSTRACT

Background: Traditional medicine systems such as Tibb-e-Unani emphasize maintaining health through the balance of Mizaj (temperament) and the therapeutic use of natural foods. Kharbuza (Cucumis melo Linn.), commonly known as Muskmelon. Muskmelon seeds (Tukhm-e-Kharbuza) possess a Cold and Moist temperament and are valued for their medicinal and nutritional benefits. Traditionally, they are described as Mudir-e-Baul (diuretic), Mufatteh-e-Jigar (liver deobstruent), Mufattit-e-Hisat (lithotriptic), Mulayyan (laxative), Mughazzi (nutritive), and Muqawwi-e-Qalb wa Dimagh (cardio- and neurotonic).

Aim: The study assessed the nutritional and therapeutic significance of Tukhm-e-Kharbuza (Muskmelon seeds) in Tibb-e-Unani for the prevention and treatment of disease.

Method: The information was based on current scientific research, focusing on the nutritional composition, medicinal properties, and therapeutic applications of Tukhm-e-Kharbuza (Muskmelon seeds).

Result: Muskmelon seeds are traditionally used for various ailments, including liver and kidney disorders, urinary stones, fevers, cough, burning micturition, ascites, insomnia, and skin conditions. The recommended therapeutic dose (Miqdar-e-Khurak) ranges from 7–15 g. Nutritionally they are rich in proteins, essential fatty acids, and minerals such as iron, potassium, calcium, magnesium, and trace elements including zinc and copper, supporting overall wellness including digestion, kidney function, and detoxification. Their antioxidant and fatty acid content protects against oxidative stress, promotes heart health, and maintains cholesterol balance, making Tukhm-e-Kharbuza a valuable agent for overall health and vitality. Excessive consumption may cause headache, diarrhoea, indigestion, and spleenic disorders, particularly in individuals with cold temperament (Barid Mizaj).

Conclusion: Muskmelon seeds support health and may help manage lifestyle-related disorders, making them suitable for inclusion in functional foods and nutraceuticals.

Keywords: Tukhm-e-Kharbuza, Muskmelon seeds, Tibb-e-Unani, Mizaj, Traditional medicine, Therapeutic uses

JH/SECON2025/PP-245

The role of prebiotics, probiotic, postbiotics and neuroprotectives in managing Alzheimer's disease

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ABSTRACT

Background: Gut dysbiosis (GD) is an imbalance in the microbial community of the gut and is increasingly recognized as a significant factor in various gastrointestinal diseases, including inflammatory bowel disease and neurodegenerative diseases. Alzheimer's disease (AD) is a chronic irreversible neurodegenerative disorder characterized by memory loss, cognitive decline, and behavioral impairment. AD has also been shown to alter gut microbiota along with the relationship between gut bacteria and the human brain with a network of the gut-brain axis.

Objective: This study aimed to explore the therapeutic potential of combining probiotics with anti-neurodegenerative agents to modulate the gut-brain axis, thereby reducing neuroinflammation and slowing AD progression.

Methodology: Parameters assessed were changes in cognitive function, inflammatory markers, oxidative stress levels, and amyloid plaque formation. A critical evaluation of recent literature and meta analysis by pubmed was performed, incorporating findings from metagenomics, metabolomics, and systems biology. Both clinical and preclinical studies were reviewed to understand the biological basis of dysbiosis and its association with disease states.

Results: Gut trio may reduce inflammation, oxidative stress, and amyloid plaque formation in the brain, which are key factors in Alzheimer's disease. Anti-neurodegenerative agents targeting the pathological features of Alzheimer's disease, such as amyloid plaques and neurofibrillary tangles, represent a significant step forward in the search for effective treatments

Conclusion: The interplay between the gut microbiota and brain health is pivotal in AD pathogenesis. Combining probiotics, prebiotics and postbiotics agents presents a multifaceted therapeutic approach that potentially mitigates neuroinflammation and cognitive decline.

Keywords: Gut dysbiosis, probiotics, prebiotics, postbiotics, neuro protectives, Alzheimers' disease

JH/SECON2025/PP-246

The imperative of menstrual hygiene management: Unveiling its profound impact on the well-being of adolescent girls

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ABSTRACT

A crucial element of teenage health and wellbeing is menstrual hygiene management, or MHM. Adolescent girls' general development and health are greatly aided by effective menstrual hygiene management (MHM). Their academic achievement, mental health, and physical health are all significantly impacted by having access to hygienic menstruation products, sufficient sanitation, and trustworthy information. Particularly in low and middle-income nations, this research examines the complex effects of MHM on social integration, gender equity, health, and school attendance. Additionally, it highlights evidence-based therapies and suggests all-encompassing approaches to enhance MHM results.This review looks at the effects of MHM on health outcomes, social inclusion, gender equality, and school participation, especially for teenagers in low- and middle-income countries. Additionally, it offers comprehensive strategies and evidence-based interventions to improve menstrual health practices.

Keywords: Menstrual Hygiene Management, Health and Wellbeing, Sanitation, Low- and Middle-Income Countries, Menstrual Education.

JH/SECON2025/PP-247

Understanding clinical and pre-clinical scenarios related to drug-induced nephrotoxicity: Mechanistic insights, risk stratification, and emerging prevention strategies

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ABSTRACT

Drug-induced nephrotoxicity (DIN) is a leading contributor to acute kidney injury (AKI) and chronic kidney disease (CKD), particularly in hospitalized and critically ill patients. In intensive care units, nearly 20–30% of AKI cases are associated with nephrotoxic drugs. Agents such as aminoglycosides, nonsteroidal anti-inflammatory drugs (NSAIDs), and cisplatin impair renal function through oxidative stress, tubular cell toxicity, and changes in renal hemodynamics. Understanding mechanisms, recognizing at-risk patients, and applying preventive measures are critical for reducing the burden of DIN.

Introduction: The kidneys, due to their high blood flow and filtration capacity, are highly vulnerable to drug-induced injury. DIN often goes unnoticed until renal dysfunction occurs, making it a major clinical concern. Increasing use of nephrotoxic agents necessitates effective strategies for early detection and prevention.

Materials and Methods: This review compiles evidence from clinical and experimental studies examining nephrotoxic drugs. Data on mechanisms of injury, high-risk patient profiles, biomarkers, and preventive strategies were analyzed, with emphasis on aminoglycosides, NSAIDs, and cisplatin.

Results and Discussion: DIN develops via oxidative stress, mitochondrial dysfunction, tubular epithelial toxicity, and reduced renal perfusion. Vulnerable groups include the elderly, patients with CKD, and those exposed to multiple drugs. Serum creatinine is a late marker, while emerging biomarkers such as NGAL and KIM-1 allow earlier diagnosis. Preventive strategies such as hydration therapy, drug dose adjustment, and careful selection of therapeutic agents have shown clinical benefits.

Conclusion/Recommendation: DIN remains a critical challenge in modern medicine. Mechanism-based risk assessment, biomarker-guided monitoring, and preventive interventions should be integrated into routine practice to reduce kidney injury and long-term complications.

Keywords: Drug-induced nephrotoxicity; Acute kidney injury; Chronic kidney disease; Risk assessment; Preventive strategies

JH/SECON2025/PP-248

Network Pharmacology of various secondary metabolites of the herbal components of Unani formulation *Khamira-e-Gaozaban Sada*

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ABSTRACT

Introduction: *Khamira Gaozaban Sada* (KGS), a classical Unani polyherbal formulation, is traditionally consumed for its neuroprotective effects. However, the molecular mechanism underlying its therapeutic efficacy remains unclear. Network pharmacology provides a systematic approach to elucidating the interactions between secondary metabolites, their molecular targets, and disease-associated pathways.

Objectives: To investigate the network pharmacology of secondary metabolites, present in the herbal components of KGS and elucidate the potential mechanisms responsible for its neuroprotective activity.

Materials and Methods: Phytoconstituents of KGS were screened, and their potential targets were identified from public databases (DisGeNET, Swiss Target). A phytoconstituent–target–disease interaction network was constructed using Cytoscape, and key hub genes were identified through PPI network analysis. Common target genes were obtained using Venny 2.0 and further explored via STRING for pathway enrichment. Molecular docking and dynamic simulation studies were performed to validate the binding interactions of key phytoconstituents with core protein targets. ADMET profiling and pharmacokinetic properties were analysed using Schrodinger Maestro.

Results and Discussion: Several hub targets, including AKT1, GAPDH, ALB, TNF, and MAPK3, were identified as central regulators linking phytoconstituents with neurological disorders. Pathway enrichment highlighted multi-pathway involvement, including TNF signaling, AGE-RAGE signaling, and IL-17 signaling pathways, which are crucial in neuroinflammation and neuronal survival. Selected phytoconstituents demonstrated favourable docking scores (up to –8.7) and stable binding interactions with AKT1, confirmed by RMSD and RMSF analyses.

Conclusion/Recommendation: Network pharmacology analysis of the secondary metabolites of *Khamira-e-Gaozaban Sada* reveals a multi-target, multi-pathway mechanism underlying its neuroprotective potential. These findings provide a mechanistic rationale for its traditional use and support its potential in the prevention and management of neurological disorders.

Keywords: Network pharmacology, *Khamira Gaozaban Sada*, Unani medicine, secondary metabolites, neuroprotection, molecular docking, AKT1, hub genes

JH/SECON2025/PP-249

Aloe vera gel: A natural alternative for wound healing and skin inflammation

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ABSTRACT

Background: Skin problems like wounds, burns, and inflammation are very common. While synthetic medicines are often used, they may cause irritation, side effects, or sometimes slow down healing. *Aloe vera*, a widely available herbal plant, has been traditionally used for its soothing and healing properties. Its natural compounds (like aloin and acemannan) may help reduce inflammation, fight infection, and speed up skin repair.

Objective: This study explores the potential of *Aloe vera* gel as a safe and effective option for wound healing and management of skin inflammation.

Methods: Recent research articles and clinical studies were reviewed from scientific databases. Findings on wound healing, reduction of swelling, antimicrobial activity, and patient recovery were compared between *Aloe vera* preparations (gel, ointment) and standard chemical treatments.

Results: Most studies showed that *Aloe vera* helps wounds close faster, promotes collagen formation, and reduces redness and swelling. It also supports infection control due to its antibacterial action. In patients with minor burns and skin irritation, *Aloe vera* gel was found to be more soothing and better tolerated than some synthetic creams.

Conclusion: *Aloe vera* shows clear promise as a natural, affordable, and safe alternative in skin care and wound management. While current evidence is strong, more standardized clinical trials are needed to confirm its wider use in dermatology.

Keywords: *Aloe vera*, Wound Healing/drug effects, Skin Diseases/therapy, Phytotherapy, Anti-Inflammatory Agents, Non-Steroidal/pharmacology

JH/SECON2025/PP-250

Nanoparticle-based therapeutics: A novel frontier in cardiovascular disease management

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ABSTRACT

Background: Cardiovascular diseases remain the leading cause of mortality worldwide, often requiring long-term pharmacotherapy. However, conventional drug delivery is limited by poor bioavailability, off-target effects and systemic toxicity. Nanoparticle-based drug delivery systems offer a promising approach by enabling targeted, controlled and efficient delivery of therapeutic agents.

Objective: To evaluate the potential of nanoparticle- based drug delivery platforms in the prevention and treatment of cardiovascular therapeutic diseases, focusing on design strategies, therapeutic application and translational challenges.

Methods: A comprehensive review of recent experimental and clinical studies was conducted, highlighting different nanoparticle platforms including lipid nanoparticles, polymeric nanoparticles, dendrimers. Their role in drug encapsulation, surface modification for active targeting, and controlled release mechanisms was analyzed.

Results: Nanoparticle enhances drug solubility, prolong circulation time and achieve site- specific delivery to diseases myocardium and vasculature. Promising outcomes have been demonstrated in delivering antioxidants, anti-inflammatory agents, siRNA and growth factors for treatment of atherosclerosis, myocardial infarction and heart failure. Despite these advances, challenges such as immunogenicity, large-scale manufacturing and regulatory approval remains barrier to clinical translation.

Conclusion: Nanoparticle-based drug delivery holds significant promise for revolutionizing cardiovascular therapeutics by improving efficacy and minimizing adverse effects.

Keywords: Cardiovascular disease, Nanoparticle, Drug delivery

JH/SECON2025/PP-251

rDNA technology as an advanced integrated approach for drug carrier development: Recent updates

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ABSTRACT

Background: The efficacy of modern therapeutics, especially biologics such as proteins, peptides, and nucleic acids, is often limited by poor stability, low bioavailability, and off-target effects. Advanced drug carriers are essential to overcome these barriers.

Objective: This study aims to elucidate the integral role of Recombinant DNA (rDNA) technology, methodology as a powerful tool for the rational design, development, and scalable production of next-generation, intelligent drug delivery systems. Highlight recent advancements and future directions in the field. Additionally, rDNA technology has evolved from merely producing therapeutic agents to playing a pivotal role in engineering the very carriers that deliver them.

Methodology: The approach involves the use of rDNA techniques to: design and produce specific targeting ligands (antibodies, peptides), biosynthesize self-assembling carrier components (virus-like particles, elastin-like polypeptides) and generate the therapeutic cargo molecules (mRNA, siRNA, proteins) for encapsulation within nanocarriers.

Results: The integration of rDNA has led to the development of highly precise and efficacious carriers with high specificity to carriers functionalized with recombinant ligands show enhanced target tissue accumulation, scalable production to rDNA enables consistent, large-scale manufacturing of complex carrier systems.This approach is validated by the clinical success of mRNA-LNP vaccines and adeno-associated virus (AAV) vectors for gene therapy.

Conclusion: rDNA technology is the cornerstone of advanced drug carrier development. It provides an unparalleled ability to create customized, scalable, and effective delivery platforms, pushing the boundaries of personalized and targeted medicine. The future lies in further integrating rDNA with AI and synthetic biology for smarter therapeutic solutions.

Keywords: Advance approach, drug-delivery, rDNA, development, nano-carriers

JH/SECON2025/PP-252

Greco–Arab legacy in understanding of metabolic disorders with special reference to diabetes

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ABSTRACT

Background: The Greco–Arab medical tradition, founded on the works of Hippocrates, Galen, Al-Razi, and Ibn Sina, offered a profound understanding of metabolic processes centuries before modern endocrinology emerged. Metabolic disorders, particularly diabetes mellitus, were conceptualized within the framework of humoral theory, emphasizing the balance of the four humors and the functional harmony of organ systems. Classical physicians described clinical features resembling diabetes, including excessive urination, intense thirst, and weight loss, and linked these manifestations to derangements in digestion, assimilation, and transformation of food into humors.

Objective: This study aims to explore the contributions of Greco–Arab scholars to the understanding of metabolic disorders, with a particular focus on diabetes, and to examine how their conceptual frameworks parallel or inform modern biomedical perspectives.

Methods: A comprehensive review of classical Greco–Arab medical texts, including *Al-Qanun fi'l-Tibb* by Ibn Sina and *Al-Hawi* by Al-Razi, was undertaken. Descriptions of disease etiology, symptomatology, pathophysiology, and therapeutic approaches related to metabolic imbalance and diabetes were analyzed and compared with current scientific knowledge.

Results: Greco–Arab scholars attributed diabetes to humoral imbalance, defective hepatic metabolism, and impaired transformative power (*quwwat-e-mughayyira*). Therapeutic interventions included dietary regulation, lifestyle modification, and plant-based remedies, many of which align with current preventive and management strategies. Their holistic approach emphasized individualized treatment and systemic balance, reflecting principles now central to metabolic disease management.

Keywords: Greco–Arab Medicine, Unani, Diabetes Mellitus, Metabolic Disorders, Humoral theory

JH/SECON2025/PP-253

Insomnia and anxiety: Managing with lifestyle modification in the light of Asbab-e-Sitta Zaruriya

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ABSTRACT

The terminology "insomnia" originates from the Latin language where "in" means no and "somnus" means sleep that means no sleep. Insomnia is a psychosomatic condition and considered as a subjective sense of discontent with the quantity and/or quality of sleep. Estimations indicate that people with insomnia are five times more likely than those without insomnia to present with anxiety or depression.

Insomnia which is termed as *Sahar* and anxiety which is termed as *Malankhuliya* can be found across all types, individuals with melancholic temperament *(Saudawi)* are most prone to developthese disorders which results from an imbalance or predominance of *sauda* (black bile), that alters the temperament of brain. In Unani, both lifestyle and dietary therapies (dietotherapy) are part of the holistic approach aimed at addressing both insomnia and anxiety.

Along the treatment with unani drugs, modification in *Asbab-e-sitta zarooriyah* plays a pivotal role in the management of insomnia and anxiety. Moving to a peaceful and pleasant place, consuming easily digestible food having wet and cooling temperament viz. pumpkin, spinach, cucumber, pomegranate etc. Engaging in regular physical activity like brisk walk and jogging. Taking adequate rest and sound sleep. Proper evacuation of bowel and bladder are the main stay of *Asbab-e-sitta zarooriyah*. Compound medicines like *Sharbat Sandal*, *Sharbat Ahmed Shahi*, local application of *Roghan Kahu*, *Roghan Labub Saba* etc along with use of perfumes and good smelling flowers that are mufarreh wa musakkin (exhilarant and calming) is helpful.

Keywords: *Sahar, Sauda, Mufarreh wa Musakkin, Asbabe sitta zarooriyah*

JH/SECON2025/PP-254

Waram-e-Kabid: Unani perspective on hepatic inflammation and therapeutic interventions

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ABSTRACT

Introduction: In Unani medicine, *Kabid* (liver) is pivotal for generating *Harārat-e-Gharīziyya* (innate metabolic heat), producing and balancing *Akhlaṭ* (humors), and preserving physiological equilibrium. Disturbance of its *Mizaj* (temperament) can lead to *Waram-e-Kabid*, a pathological swelling or inflammation analogous to hepatitis. Unani classification describes multiple types — *Damawī, Safrāwī, Balghamī, & Saudawi / Sulb Sartani* — depending on which humor predominates.Etiologically, imbalance of humors, external provocations, dietary errors, toxins, infections (including viral agents), and temperament disturbance may contribute to hepatic swelling. In *Waram Kabid Ḥād* (acute hepatitis), common symptoms include anorexia, nausea, right upper quadrant pain, fever, and jaundice. Over time, chronic inflammation may localize, leading to suppuration *Dubayla al-Kabid*, i.e. hepatic abscess.

From a modern perspective, viral hepatitis etiologies differ according to the specific virus, with implications for prognosis and therapeutic strategies. The traditional Unani pharmacopeia includes botanical remedies — *Bhui Amla* (*Phyllanthus fraternus*), *Tukhme Kasni* (*Cichorium intybus*), *Revand Chini* (*Rheum emodi*), *Sumbul Tib* (*Nardostachys jatamansi*), and *Maku* (*Solanum nigrum*) — which in experimental studies have demonstrated anti-inflammatory, antioxidant, antiviral, and hepatoprotective effects.Unani treatment is organized around four pillars: *Tadbīr* (regimen), *Ghizā* (dietotherapy), *Dawā* (pharmacotherapy), and, when needed, *Yad* (procedural intervention). In abscessive cases, evaporation of pus is essential, followed by medicines endowed with *Dāfi'-i-Ḥummā* (antipyretic), *Dāfi '-i-Ta'affun* (antiseptic), *Muḥāfiẓ-i-Jigar* (hepatoprotective), and *Muqawwī-i-Jigar* (liver tonic) actions.

Conclusion: The Unani concept of *Waram-e-Kabid* reflects a sophisticated humoral-temperamental framework integrated with botanical therapeutics, bridging traditional theory and evolving scientific evidence in the management of hepatic inflammation.

Keywords: Warm-e-Kabid; Hepatitis; Unani Medicine

JH/SECON2025/PP-255

Development and evaluation of herbal nutraceutical formulation for male sexual health and wellness

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ABSTRACT

Introduction: Male sexual health is an important determinant of overall well-being, yet it is often adversely affected by stress, aging, hormonal imbalance, and lifestyle-related factors. Synthetic drugs provide symptomatic relief but are frequently associated with adverse effects and limited long-term acceptability. Herbal nutraceuticals offer a safe, natural, and holistic alternative for improving male sexual function. The present study was designed to develop and evaluate a herbal nutraceutical formulation for enhancing male sexual health and wellness.

Materials and Methods: Some medicinal plants with reported aphrodisiac and adaptogenic potential such as *Withania somnifera Mucuna pruriens, Tribulus terrestris, and Panax ginseng* were selected for the development of formulation. Extracts will be standardized and subjected to phytochemical screening and *in vitro* antioxidant assays. The developed formulation will be evaluated in male Wistar rats for sexual behavior indices, serum testosterone and luteinizing hormone levels, and safety parameters.

Results and Discussion: The developed formulation will be expected to show significant improvements in mounting frequency, intromission frequency, and reduction in mounting latency compared to control. Serum testosterone levels are anticipated to increase substantially in treated groups, with maximum improvement likely to be observed in the combination group. Strong antioxidant activity will be expected to indicate potential in reducing oxidative stress, a key factor in sexual dysfunction. No adverse effects are expected to be recorded, confirming the safety of the formulation. These findings will highlight the potential synergistic effects of selected herbs in enhancing sexual performance and hormonal modulation.

Conclusion/Recommendation: The developed herbal nutraceutical formulation is expected to demonstrate promising efficacy and safety in preclinical evaluation. It may serve as a potential natural alternative for improving male sexual health and wellness.

Key words: Herbal nutraceuticals; Male sexual health; Aphrodisiac herbs; Testosterone modulation; Antioxidant activity.

JH/SECON2025/PP-256

In Silico analysis of phytoconstituents from *Azadirachta indica* (Neem) on uropathogenic bacteria using network pharmacology and molecular docking

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ABSTRACT

Background: Urinary tract infections (UTIs) are the second most common type of bacterial infection after respiratory infections. UTIs are mainly caused by *Escherichia coli&Klebsiella pneumoniae*, respectively. Immeasurable use of broad-spectrum antibiotics has led to widespread bacterial resistance. Medicinal plants contain diverse phytochemicals like coumarins, flavonoids, alkaloids, and terpenoids which exhibit antibacterial properties that could combat antibiotic-resistant bacteria, particularly in UTIs.

Aim/Objectives: To evaluate *Azadirachta indica* phytoconstituents' potential as a treatment for uropathogenic bacteria utilizing *in silico* methods, such as network pharmacology and molecular docking.

Methods: Network pharmacology was used to explore the interactions of *A. indica's* phytoconstituents with biological targets and identify possible mechanisms of action. Selected phytochemicals' binding affinities with important bacterial proteins linked to resistance and pathogenicity were evaluated using molecular docking.

Results: Network pharmacology revealed multiple interactions of *A. indica* phytoconstituents such as azadirachtin, nimbin, and quercetin with arnA gene. The **arnA gene** (also called **pmrI**) is an important bacterial gene linked with **antibiotic resistance**, plays a crucial role in polymyxin resistance by modifying the bacterial outer membrane. Molecular docking demonstrated strong binding affinities of selected compounds with essential bacterial proteins such as arnA, suggesting their capacity to inhibit pathogenic mechanisms and drug-resistance pathways.

Conclusion: Phytoconstituents of *Azadirachta indica* show significant therapeutic potential against antibiotic-resistant uropathogenic bacteria. These findings provide a scientific basis for developing plant-based alternatives or adjuvants to conventional antibiotic therapies.

Keywords: Urinary tract infections (UTIs), Antibiotic resistance, Medicinal plants, Network pharmacology, Molecular docking.

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Nanophytosomes for enhanced delivery of herbal drugs

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ABSTRACT

Herbal medicines have been widely used for centuries due to their therapeutic benefits, safety, and cultural acceptance. However, their clinical potential is often limited by poor solubility, instability, low bioavailability, and inefficient absorption. To solve these issues, nanophytosomes have been developed as a new and advanced delivery system.Compared to normal phytosomes, nanophytosomes are smaller in size and can carry herbal compounds more effectively. They improve solubility, protect the active ingredients from breaking down, and help them pass through body membranes more easily. This means better absorption, stronger action, and improved results. This structural modification not only protects the phytoconstituents from degradation but also facilitates better permeation across biological membranes, resulting in superior pharmacokinetics and therapeutic outcomes. Research has shown that nanophytosomes work well in delivering natural compounds like flavonoids, terpenoids, alkaloids, and polyphenols, with higher bioavailability and better therapeutic effects. This makes nanophytosomes an innovative approach that combines traditional herbal medicine with modern nanotechnology, offering safer, more effective, and patient-friendly treatments.

JH/SECON2025/PP-258

Unmasking the hidden dangers: A scientific perspective on food adulterants in daily diets

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ABSTRACT

Background: Food adulteration poses a serious global health threat that undermines food quality, nutritional value and consumer safety. In India, and other developing nations, common food items such as milk, and milk products, edible oils, species, and processed foods condiments are frequently adulterated. Both intentional adulteration and inadvertent contamination contribute to chronic health risks like gastrointestinal disorders, organ toxicity, carcinogenic effects. Within the Unani framework, which focuses on purity (*tayyib*) and balance (*mizaj)*, ensuring the authenticity of food is essential for maintaining health and preventing diseases. Analytical advances have improved detection, but awareness among consumers and regulatory enforcement remain variable.

Aims: The present review aims to search recent literature on types, prevalence and health implications of food adulteration in daily diets. It further summarizes the current detection techniques and preventive measures. Additionally, it evaluates the role of government regulations and policies in mitigating adulteration and ensuring food safety.

Methods: A comprehensive literature search was conducted using peer-reviewed journals and scientific databases such as PubMed, ScienceDirect, and Google Scholar. Data were compiled from studies focusing on the occurrence, detection and health effects of adulterants in commonly consumed foods along with global findings relevant to routine dietary items and public health.

Conclusion: Food adulteration continues to pose a silent yet significant threat to health and food ethics. Strengthening public awareness, regulatory vigilance and affordable detection technologies is crucial. Integrating modern science with Unani principles (purity and balance) offers a promise path to promote safe dietary practices and enhance community well-being.

Keywords: Food Adulteration, Food Safety, Consumer Awareness, Public Health, Detection and Policies

JH/SECON2025/PP-259

Development of quality standards for a proprietary polyherbal Churna intended for arthritis pain

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ABSTRACT

Background: Arthritis can affect people of all ages, genders, and ethnic backgrounds, although it becomes more common with age. Arthritis management is best approached with a combination of medical treatment, lifestyle changes, and emotional support. Preparation of churna by the most novel ingredients are: Turmeric, Black cumin, Dry ginger, Carmon seed, Ashwagandha, fenugreek, Cumin seeds, Black Pepper, and cinnamon.

Aim: This study focused on establishing comprehensive physicochemical and phytochemical quality control standards for a proprietary nine-ingredient polyherbal Churna formulated for arthritis pain, and evaluating the feasibility of converting the powder into a more palatable pill form.

Method: This involves rigorous pharmacopoeial testing, including determining key parameters like Loss on drying, Total ash value, and extractive values. Primary phytochemical profiling using Thin Layer Chromatography (TLC), pH determination, was conducted.

Results: It successfully performed all the pharmacopoeial testing, and the results of each parameter is reported: Loss on drying (8.5%), Total ash value (5%), Water soluble ash value (2.5%), ethanol soluble extractive value (62.8%). However, while the developed pill formulation was more palatable than the powder.

Conclusion: the foundational quality standards for the Churna powder were successfully established for batch consistency, but the pill formulation requires further developmental work to optimize excipients and ensure proper drug release and pharmaceutical acceptability.

Keywords: Churna, Arthritis Pain, Quality Standards, Herbal Formulation, pharmacopoeial testing.

JH/SECON2025/PP-260

Formulation and evaluation of instant mushroom soup premix enriched with black garlic: A functional food approach

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ABSTRACT

The development of functional foods has gained increasing attention due to growing consumer demand for convenient, health-promoting products. This study formulated and evaluated an instant mushroom soup premix enriched with black garlic powder to enhance nutritional quality and sensory acceptability. Button mushrooms (Agaricus bisporus) were selected for their proteins, dietary fibre, micronutrients, and bioactives, while black garlic (fermented Allium sativum) was incorporated for its higher polyphenols, S-allyl cysteine, and antioxidant capacity. Five formulations with graded black garlic levels underwent proximate, physicochemical, antioxidant, and sensory assessments. Black garlic addition decreased moisture, fat, and water-holding capacity, while significantly increasing total soluble solids, bulk density, and tapped density, indicating improved packing efficiency and potential shelf stability. Antioxidant activity rose proportionally with black garlic concentration, supporting its functional role. Sensory evaluation (9-point hedonic scale) showed that the highest black-garlic formulation achieved superior taste, aroma, texture, and overall acceptability, attributed to enhanced umami and mild sweetness. Collectively, findings indicate that black garlic is a promising functional ingredient for mushroom-based instant soups, improving both biofunctional attributes and consumer appeal. The mushroom–black garlic synergy offers a feasible pathway to develop shelf-stable convenience foods aligned with modern dietary trends and functional food innovation.

JH/SECON2025/PP-261

Pharmacological and therapeutic role of flavonoids in hypertension

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ABSTRACT

Background: Flavonoids form a large group of polyphenolic compounds that occur abundantly in fruits, vegetables, tea, cocoa, soy, and medicinal plants. Researchers classify them into flavanols (quercetin, kaempferol), flavones (apigenin, luteolin), flavanones (hesperidin, naringenin), isoflavones (genistein, daidzein), and anthocyanidins (cyanidin, delphinidin). Onions, apples, citrus fruits, berries, and green tea supply rich dietary sources. Flavonoids display antioxidant, anti-inflammatory, and vasoprotective actions. They lower blood pressure by enhancing endothelial nitric oxide production, reducing oxidative stress, and relaxing vascular smooth muscle.

Aim: This review highlights the therapeutic and pharmacological benefits of flavonoids in hypertension, focusing on their ability to reduce blood pressure and protect vascular health.

Methods: The content was collected from PubMed and ScienceDirect databases and includes only authentic, peer-reviewed sources on flavonoids and hypertension.

Results: Quercetin lowers both systolic and diastolic blood pressure, particularly at doses ≥500 mg/day, by improving nitric oxide bioavailability and limiting vascular constriction. Hesperidin reduces systolic blood pressure, enhances arterial flexibility, and decreases inflammatory markers in hypertensive individuals. Apigenin shows strong antihypertensive activity in experimental models by preventing vascular remodelling and oxidative injury. Isoflavones, such as genistein, reduce blood pressure in postmenopausal women by activating oestrogen receptor–mediated vasodilation. Anthocyanidins from berries improve endothelial function, increase nitric oxide release, and correlate with lower population blood pressure. Naringenin exerts antihypertensive effects by modulating the renin–angiotensin system and reducing vascular oxidative stress. These findings confirm that multiple flavonoids act through complementary pathways to regulate blood pressure.

Conclusion: Flavonoids demonstrate strong antihypertensive potential. Quercetin and hesperidin provide the most consistent human evidence, while apigenin, isoflavones, anthocyanidins, and naringenin strengthen the therapeutic scope. Future studies should confirm these outcomes through standardized dosing, improved bioavailability, and long-term evaluations, positioning flavonoids as valuable adjuncts in hypertension management.

Keywords: quercetin; hesperidin; apigenin; naringenin; isoflavones; anthocyanidins; antihypertensive.

JH/SECON2025/PP-262

Global research trends and HPTLC analysis of *Boerhavia diffusa*

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ABSTRACT

Background: *Boerhavia diffusa* (BD) also known as Punarnava in Sanskrit is a highly valued plant in traditional system of medicine, well known for its wide range of pharmacological actions and healing property It has been used for treating arena of disease ranging from neurological disorder to kidney disorders. It has rich phytochemical profile with constituents ranging from alkaloids to retinoids attributed for its therapeutic activity.

Objective: This study aimed to explore the nephroprotective potential of *Boerhavia diffusa* in chronic kidney disease (CKD) using an integrative approach that combining bibliometric analysis and HPTLC based quality assessment.

Methods: Bibliometric mapping of BD research (2010-2025) was performed using Scopus and VOSviewer to scrutinize global research trends. Simultaneous quantification of mixed markers was done to confirm and quantify phytoconstituents for standardization of methanolic extract.

Results: Bibliometric analysis (n=44) publications highlights increasing global interest, with India, Saudia Arabia and China as leading contributors, with nephroprotection as a dominant research theme. HPTLC confirmed the presence of gallic acid (0.0078%w/w) and caffeic acid (0.01532% w/w) supporting quality control of the extract.

Conclusion: The findings confirm BD as an emerging nephroprotective phytomedicine based on the analysis. However, phytochemical variability and limited clinical trials remain a hurdle for formulation design, regulatory approval. Future studies need to be directed to in depth phytochemical analysis and quantification of bioactive metabolite by LC-MS, GC-MS etc. Clinical trials to validate the therapeutic claims for global recognition and regulatory approval.

Keywords: *Boerhavia diffusa*, Bibliometric Analysis, HPTLC, Chronic Kidney Disease

JH/SECON2025/PP-263

Molecular docking study of AAO1 as a potential EGFR-targeted anticancer agent

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ABSTRACT

Aim/Objectives: To investigate the molecular interactions and binding affinities of synthesized compounds with the target receptor through computational docking to elucidate potential lead candidates for therapeutic development.

Methods: The target protein (EGFR, PDB ID: 1M17) was obtained from the Protein Data Bank and prepared using Schrödinger Maestro. The active site was defined around key residues Asp831, Cys773, and Met769.Designed ligands were optimized using the LigPrep module, followed by Glide docking (XP mode) to predict binding orientations and affinities.Docking results were analyzed based on GlideScore and hydrogen bond interactions to identify the most stable ligand–receptor complexes.

Results: Molecular docking of designed ligands against EGFR (PDB ID: 1M17) was performed using the Glide XP module. All compounds showed significant binding affinity toward the active site residues (Asp831, Cys773, Met769).

Compound Code	GlideScore (kcal/mol)	H-Bond Interactions	Key Residues Involved
C1	-8.42	2	Asp831, Met769
C2	-7.85	3	Cys773, Asp831
C3	-9.13	2	Asp831, Met769
C4	-6.97	1	Cys773
C5	-8.75	3	Asp831, Met769, Cys773

The compound C3 exhibited the lowest GlideScore (-9.13 kcal/mol) and formed stable interactions with key catalytic residues, suggesting its potential as a lead EGFR inhibitor.

Conclusion: Molecular docking analysis demonstrated that the designed ligands possess significant binding affinities toward the EGFR active site.Strong hydrogen bond and hydrophobic interactions with key residues Asp831, Cys773, and Met769 suggest their potential as promising EGFR inhibitors.The top-performing compounds identified through Glide docking warrant further in vitro and in vivo evaluation to validate their anticancer potential.

Keywords: Molecular Docking, AAO1, EGFR-Targeted, Anticancer Agent

JH/SECON2025/PP-264

From roots to algorithms: Integrating AI with traditional medicine

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ABSTRACT

Background: Traditional medicine has contributed significantly to global health for centuries, yet its clinical acceptance is limited due to variability in formulations, lack of standardization, and insufficient large-scale validation. On the other hand, Conventional drug development is often slow, expensive, and unsuccessful. With the rapid growth of artificial intelligence (AI), advanced computational tools provide opportunities to systematically study, modernize traditional practices, and speed up drug discovery.

Aim/objective: To explore the applications of AI in validating, standardizing, and personalizing traditional medicine for evidence-based healthcare integration.

Methods: A literature-based review approach was adopted. Relevant articles were collected from search engines, including PubMed, ScienceDirect, Scopus, and Google Scholar. The keywords used for the search included artificial intelligence, machine learning, traditional medicine, ethnopharmacology, drug development. Articles were selected based on relevance, clarity of objectives, language, and scientific merit.

Results: AI applications reveal promising outcomes in accurately identifying bioactive ingredients, predicting therapeutic targets, and tailoring herbal dosages based on patient-specific factors. Additionally, AI-enabled text analysis has successfully extracted and structured crucial knowledge from historical medical manuscripts. The integration of AI with genomics and metabolomics profiles furthers mechanistic understanding and supports precision therapy development.

Conclusion: Artificial intelligence acts as a transformative enabler in merging traditional medicinal wisdom with rigorous scientific validation, promoting standardized, personalized, and scalable healthcare solutions. Overcoming challenges related to ethical data use, quality assurance, and interdisciplinary coordination will be vital to fully realize this potential.

Keywords: artificial intelligence, traditional medicine, machine learning, ethnopharmacology, drug development

JH/SECON2025/PP-265

Nephroprotective potential of Fenugreek (*Trigonella foenum-graecum*) in chronic kidney disease: HPTLC-based phytochemical profiling and bibliometric analysis

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ABSTRACT

Background: Fenugreek is a well-known medicinal herb in many traditional medical systems. *Trigonella foenum-graecum* has garnered considerable interest due to its potential as a treatment for metabolic disorders, including chronic kidney disease (CKD). Its nephroprotective properties are a result of its varied bioactive profile, which includes flavonoids, alkaloids, saponins, especially diosgenin, and other phytoconstituents.

Objective: The purpose of this study is to evaluate the nephroprotective potential of fenugreek in CKD and to identify key phytochemical markers using TLC and HPTLC. Also, to explore global research trends through bibliometric analysis.

Method: The nephroprotective qualities of fenugreek were thoroughly assessed in this work using HPTLC and TLC bioassay approaches by quantification of markers. A bibliometric analysis of Fenugreek was performed (2015-2025) using Scopus and VOSviewer to examine research trends.

Result: Antioxidant and anti-inflammatory fractions were identified using HPTLC, revealing the presence of caffeic acid that can reduce inflammation and oxidative stress, two key factors in CKD development. A bibliometric analysis of 56 publications from 2015 to 2025 highlighted global research trends. India emerges as the leading contributor, Jamia Hamdard as the main institution, and oxidative stress, antioxidant, and renal protection as primary research themes.

Conclusion: All of these results suggest that Fenugreek is a potential nephroprotective adjuvant medicine in the management of CKD. Despite that, to verify the safety and effectiveness of fenugreek in humans, future research should include carefully planned clinical trials in addition to well-structured *in vitro* and *in vivo* experiments

Keywords: *Trigonella foenum-graecum,* Chronic Kidney Disease, Bibliometric analysis, HPTLC.

JH/SECON2025/PP-266

Hijama (Cupping therapy): A holistic approach to healing

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ABSTRACT

Unani medicine, also known as Greco-Arabic medicine, employs three primary modes of treatment, among which *Ilaj-bil-Tadbeer* (regimenal therapy) holds a significant place. Within this mode, *Hijama* (cupping therapy) is one of the most renowned and widely practiced regimens. As one of the oldest therapeutic methods, Hijama has been used by Unani physicians since antiquity, with evidence of its practice dating back nearly 5,000 years. Its earliest documentation is found in the *Ebers Papyrus*, one of the oldest known medical texts. Hippocrates, regarded as the Father of Medicine, also employed cupping to restore balance among the body's humors, based on the belief that disease arose from their imbalance. *Hijama* was further emphasized in Islamic tradition, as the Prophet Muhammad (PBUH) both practiced and recommended it, encouraging its use as a therapeutic measure. In the Unani system, it is prescribed for a variety of ailments, particularly musculoskeletal disorders such as neck and back pain, osteoarthritis, and rheumatoid arthritis. The term *Hijama* is derived from the Arabic root *Al-Hajm*, meaning "to suck." The therapy involves the local removal or redirection of harmful humors by applying a horn (*singhi*) or cup to the skin, creating negative pressure through heat or mechanical suction. Despite its long history, the precise mechanism of action of cupping therapy remains not fully understood. However, six potential mechanisms have been proposed, with three specifically addressing its role in pain relief: the pain-gate theory, conditioned pain modulation, and the reflex zone theory. Hijama serves both preventive and therapeutic purposes, particularly by diverting morbid matter from diseased regions of the body. Classical Unani texts classify it into two main types: *Hijama bi'l Shart* (wet cupping, involving skin incisions) and *Hijama bila Shart* (dry cupping, without incisions), differentiated by their methods of application.

Keywords*: Hijama, Hijama bila shart, Ilaj-bit-tadbeer*, Cupping therapy, Morbid matter

JH/SECON2025/PP-267

The effect of probiotics for polycystic ovary syndrome (PCOS)

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ABSTRACT

Background: Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders affecting 20–25% of women of reproductive age. It is characterized by hyperandrogenism, anovulation, irregular menstrual cycles, insulin resistance, and the presence of multiple ovarian cysts. Emerging research highlights the gut–ovary axis as a key player in the pathophysiology of PCOS. Dysbiosis, or imbalance in the gut microbiota, has been linked to metabolic and hormonal disturbances associated with PCOS. Probiotics may help restore gut microbial balance, thereby modulating systemic inflammation, insulin sensitivity, and androgen levels, offering a novel therapeutic approach for PCOS management.

Methods: A thorough review of the literature was conducted focusing on the effects of probiotics on PCOS symptoms. Clinical trials and in vivo studies involving probiotic supplementation were analyzed to assess their role in improving metabolic, hormonal, and inflammatory markers in PCOS patients.

Results: Studies demonstrate that probiotics can improve insulin resistance, reduce systemic inflammation, regulate lipid profiles, and help rebalance reproductive hormones in PCOS. Specific strains such as *Lactobacillus acidophilus*, *Lactobacillus rhamnosus*, and *Bifidobacterium lactis* have shown promising results. Probiotics also help modulate the gut microbiota and improve intestinal barrier function, thereby reducing endotoxemia—a known contributor to metabolic dysfunction in PCOS.

Conclusion: This review highlights the promising role of probiotics as a therapeutic strategy for PCOS. By targeting the gut microbiota, probiotics may alleviate both metabolic and reproductive symptoms. Larger, well-controlled clinical trials are needed to determine optimal strains, dosages, and treatment duration. An integrative, microbiome-focused approach could enhance current PCOS management and support long-term reproductive and metabolic health in affected women.

JH/SECON2025/PP-268

NLRP3 inflammasome as a therapeutic target in chronic inflammatory diseases: A theoretical review with preliminary insights

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ABSTRACT

Introduction: The NLRP3 inflammasome is a multiprotein complex that plays a central role in innate immunity by activating caspase-1 and promoting the maturation of pro-inflammatory cytokines interleukin-1β and interleukin-18. Aberrant activation of NLRP3 has been associated with a wide range of chronic inflammatory and metabolic disorders, including rheumatoid arthritis, type 2 diabetes, neurodegenerative diseases, and cardiovascular complications. Understanding its regulation and therapeutic modulation has become a critical area in pharmacological research.

Materials and Methods: This study presents a theoretical review based on recent literature (2015–2024) regarding molecular pathways of NLRP3 priming and activation. Relevant data were compiled from PubMed, Scopus, and Google Scholar to evaluate current therapeutic approaches. Preliminary insights were also generated through in-silico screening of phytochemicals reported for anti-inflammatory activity, analyzing their potential binding with NLRP3 target proteins using available computational tools.

Results and Discussion: The review highlights two-step activation of NLRP3—priming via NF-κB and activation via diverse cellular stress signals including ion flux, mitochondrial dysfunction, and reactive oxygen species. Dysregulation of these processes contributes to chronic disease progression. Therapeutic strategies under investigation include small-molecule inhibitors (MCC950, dapansutrile), biologics, and natural compounds such as curcumin, resveratrol, and quercetin. Preliminary computational insights indicate that selected phytochemicals may exhibit favorable binding profiles with NLRP3 and associated signaling proteins, supporting their potential as lead candidates for drug development. These findings underscore the translational potential of targeting NLRP3 while emphasizing the need for further experimental validation.

Conclusion/Recommendation: The NLRP3 inflammasome is an attractive pharmacological target for chronic inflammation-driven diseases. While this work is primarily theoretical, preliminary computational results provide supportive evidence for the role of phytochemicals as potential modulators. Future studies should integrate advanced in-vitro and in-vivo models to validate these findings and accelerate clinical translation.

Keywords: NLRP3 inflammasome; Chronic inflammation; NF-κB; Therapeutic targets; Phytochemicals

JH/SECON2025/PP-269

To evaluate the role of metformin in L-NAME induced animal model of Preeclampsia

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ABSTRACT

Introduction: Preeclampsia is a pregnancy disorder characterized by hypertension and proteinuria, maternal acute kidney injury, liver dysfunction, among others. It may lead to fetal growth restriction and is associated with anomalous activation of innate immune complement system and ischemic placenta. Metformin is safe in pregnancy and is also reported to activate AMPK, which enhances the expression and activity of eNOS levels leading to increased NO production and enhanced endothelial function. Our study aims to highlight the role of metformin in preeclampsia by upregulation of NO levels.

Methods: The study will evaluate hemodynamic profile, oxidative stress and expression of soluble factors (eRNA, eDNA, vWF, HMGB1, Decorin, HSP70 and 90, HIF-1a and TNF-a) in blood and tissue samples of normal and preeclamptic animal models. Techniques such as Real-Time Polymerase-Chain-Reaction, western blotting and Immunohistochemistry will be used.

Results: We observed that metformin significantly improved high blood pressure, proteinuria, and fetal and placental weights in the L-NAME-Metformin group compared with the L-NAME group. In addition, metformin effectively decreased inflammatory markers and significantly improved oxidative stress markers.

Implications: Further studies might identify novel targets and diagnostic biomarkers for early identification and formulation of effective therapeutics to prevent preeclampsia. This would also help understand early and late onset preeclampsia.

JH/SECON2025/PP-270

Traditional Unani approaches to premature greying of hair (*Shayb*): A review

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ABSTRACT

Introduction: Premature greying of hair (*Shayb*) refers to the whitening of hair before the expected age, often leading to cosmetic and psychological concerns. In the Unani system of medicine (USM), it is attributed to humoral imbalance, particularly the predominance of *balgham* and the decline of innate heat, which affects blood quality and hair nourishment. Unlike age-related greying, premature greying is regarded as preventable and manageable in USM.

Methods: Unani classical texts were reviewed to explore the theoretical concepts related to *Shayb*. The content was thematically categorized into etiological factors, symptomatology, lifestyle influences, and interventions.

Results and Discussion: Unani literature presents multiple causes of *Shayb*: hereditary tendency, nervous debility, psychological stress, and humoral disturbances. Therapeutic measures include dietary modifications, *mufradāt* (single drugs), *murakkabāt* (compound formulations), and regimenal therapies.

Conclusion: *Shayb* is considered manageable in Unani medicine when it occurs before natural aging. USM therapeutic strategies have the potential to prevent or reverse premature greying; however, further scientific validation is necessary.

Keywords: Premature greying, *Shayb*, Unani medicine, humoral imbalance, regimenal therapy.

JH/SECON2025/PP-271

A clinical study to evaluate the efficacy and safety of Jadwar (*delphinium denudatum*) in the management of chronic sinusitis

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ABSTRACT

Background: Chronic sinusitis is inflammation of the paranasal sinuses lasting over 12 weeks, commonly involving the maxillary, ethmoid, frontal, and sphenoid sinuses. It arises from mucosal inflammation, ciliary dysfunction, and drainage obstruction, often triggered by infections.Treatment includes antibiotics, antihistamines, decongestants, corticosteroids, and surgery, but long-term use can cause dryness, sedation, dependency, and systemic effects. The condition significantly impairs quality of life and is increasing in India, particularly in polluted urban areas.The Unani system of medicine emphasizes a holistic approach using natural remedies to balance the body's humors with minimal side effects. Conditions similar to sinusitis are described under Nazla, with *Nazla Barid Muzmin* most comparable to Waram Tajaweef-e-Anf Muzmin (chronic sinusitis), attributed to Su'-e-Mizaj (abnormal temperament) and waram (inflammation).This study focuses on Jadwar (Delphinium denudatum) an Unani herb traditionally used for respiratory and neurological disorders. Rich in diterpenoid alkaloids, it shows anti-inflammatory and analgesic effects, helping reduce sinus inflammation, improve drainage, and relieve symptoms, with fewer side effects than conventional therapies.

Keywords: Unani, Chronic Sinusitis, to Waram Tajaweef-e-Anf Muzmin, Jadwar

JH/SECON2025/PP-272

PCOS x Obesity: The vicious loop – from fat to fertility and back

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ABSTRACT

Background: Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder in reproductive-aged women, characterized by hyperandrogenism, anovulation, and metabolic abnormalities. Obesity, particularly central adiposity, is frequently observed in PCOS and significantly worsens reproductive and metabolic outcomes.

Objective: To explore the bidirectional relationship between PCOS and obesity, highlighting shared mechanisms, clinical consequences, and therapeutic strategies to break the vicious cycle.

Methods: A comprehensive review of current literature was conducted focusing on the interplay between obesity and PCOS, emphasizing insulin resistance, hyperinsulinemia, adipokine imbalance, inflammation, and hypothalamic-pituitary-ovarian axis dysregulation.

Results: Obesity exacerbates insulin resistance and hyperinsulinemia, leading to increased ovarian androgen production and reduced sex hormone-binding globulin (SHBG), thereby aggravating hyperandrogenism, menstrual irregularities, and infertility. In turn, hyperandrogenism promotes visceral fat accumulation and weight gain, reinforcing a vicious cycle. This interaction contributes to long-term risks, including type 2 diabetes, metabolic syndrome, non-alcoholic fatty liver disease (NAFLD), and cardiovascular disease. Evidence demonstrates that modest weight loss (5–10%) through lifestyle modification improves ovulation, insulin sensitivity, and fertility outcomes. Pharmacological interventions such as metformin, GLP-1 receptor agonists, and ovulation induction agents (letrozole) further enhance management.

Conclusion: PCOS and obesity are interlinked through metabolic, endocrine, and inflammatory pathways. Breaking this cycle via early lifestyle modification, pharmacological support, and fertility interventions is critical to improving reproductive, metabolic, and psychological health in affected women.

Keywords: PCOS, obesity, insulin resistance, hyperandrogenism, adipokines, metabolic syndrome, fertility, inflammation.

JH/SECON2025/PP-273

Ashwagandha: Its role in Alzheimer's disease

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ABSTRACT

Background: Alzheimer's disease (AD) is a chronic neurodegenerative disorder and the most common form of dementia. It is characterized by neuronal dysfunction, memory loss, cognitive decline, and functional impairment. The pathology of disease involves buildup of extracellular amyloid-β plaques and neurofibrillary tangles, along with increased oxidative stress that leads to neuronal damage. Allopathic treatments available for AD are associated with serious adverse effects. Herbal drugs have shown promising results in alleviating symptoms of AD. Among such drugs, Ashwagandha (*Withania somnifera*) has gained popularity for its neuroprotective and antioxidant properties.

Objective: The aim of this review is to summarise the findings about the neuroprotective properties of Ashwagandha and find out which phytoconstituents are responsible for anti-alzheimer activity.

Methods: All data was collected from PubMed, Google Scholar, and ScienceDirect using the keywords "Ashwagandha," "*Withania somnifera*," and "Alzheimer's disease." Peer-reviewed articles focusing on the neuroprotective effects of Ashwagandha were included.

Results: On the basis of literature search, it can be observed that phytoconstituents like withanolides, withaferin A and withanone obtained from Ashwagandha show neuroprotective effects in AD.

Conclusion: On the basis of results of literature searched, it can be observed that Ashwagandha can be used as an alternative source for treatment of AD. Phytoconstituents of Ashwagandha given in literature can be used in AD but some clinical trials are required to confirm scientific claims regarding this drug and establish its neuroprotective effects.

Keywords: Alzheimer's disease; Ashwagandha; Phytoconstituents; Neuroprotective effect

JH/SECON2025/PP-274

Enhancement of solubility and dissolution of diosgenin using solid dispersion technique

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ABSTRACT

Background: Diosgenin (DG), a steroidal sapogenin derived from *Dioscorea nipponica*, *Smilax china*, and *Trigonella foenum-graecum*, exhibits poor aqueous solubility, which limits its therapeutic application despite possessing antioxidant, anti-inflammatory, anticancer, and wound healing properties.

Aims/Objectives: The present study aimed to enhance the solubility and dissolution rate of DG using the solid dispersion technique.

Methods: Solid dispersions of DG were prepared using Kollidon 12PF, a hydrophilic polymer with skin-repairing benefits, as the carrier. The prepared solid dispersion was evaluated for physicochemical characteristics and crystallinity. Differential scanning calorimetry (DSC) and scanning electron microscopy (SEM) were employed to analyse the crystalline nature of DG, while Fourier-transform infrared spectroscopy (FTIR) was used to detect possible drug–polymer interactions.

Results: DSC and SEM studies confirmed the transformation of DG from crystalline to amorphous form, while FTIR spectra revealed no significant drug–polymer interaction. The solid dispersion exhibited improved dissolution characteristics compared to pure DG.

Conclusion: The study demonstrated that solid dispersion using Kollidon 12PF is an effective and simple strategy to improve the solubility and dissolution of poorly water-soluble diosgenin, thereby enhancing its potential therapeutic applicability.

Keywords: Diosgenin, Solid dispersion, Kollidon 12PF, Solubility enhancement, Dissolution rate

JH/SECON2025/PP-275

Osteogenic differentiation potential of Chyura honey mediated green synthesized silver nanoparticles through mild ER stress in C3H10T1/2 cell lines and alleviating Glucocorticoid induced osteoporosis in Wistar rats

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ABSTRACT

Background: Osteoporosis is a highly prevalent bone disease characterized by low bone mass and the clinical use of therapeutic drugs are restricted because of their high cost and side effects. Honey has played a key role in traditional medicine for thousands of years and is considered as friendly reagent in nanomaterial synthesis. But till now, no specific studies have been done in establishing the anti-osteoporotic potential of silver nanoparticles synthesized using honey.

Aim: To study the effect of Chyura honey mediated green synthesis of silver nanoparticles (HAgNP) in alleviating Osteoporosis.

Methods: The HAgNP was synthesized, and characterization were performed. To verify the cytotoxicity, in-vitro tests were conducted on the C3H10T1/2 cell line. Alizarin Red S and von-Kossa staining were used to visualise the extracellular matrix mineralisation for both *in vitro* and GIOP models. The transcriptional and translational levels of ALP, Runx-2, OPN, BIP and CHOP genes were analysed and to validate the osteoporotic bone architecture SEM & µ-CT analysis were performed.

Results: The HAgNPs obtained at pH9 were spherical in size, 10-20 nm. Furthermore, its exposure was found to be nontoxic in C3H10T1/2 cell line at a dose of 2.5 and 5µg/ml for 14days. HAgNP treatment enhanced the expression of both the osteogenic and ERS marker genes, encouraging the osteoblast differentiation. Preclinically, osteogenic serum markers further confirmed the osteogenic potential of HAgNP, as well as liver and kidney histological sections verified that the doses of HAgNP in GIOP rats did not cause any adverse effects.

Conclusion: This study depicts the beneficial role of Indian honey mediated green synthesis of HAgNPs in enhancing osteoblast differentiation of mesenchymal stem cells and attenuating GIOP in Wistar rats.
Keywords: Osteoporosis, Honey, Nanomaterials

JH/SECON2025/PP-276

PCR advance techniques and potential approach in therapeutic applications: In-depth and current

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ABSTRACT

Background: Over the past decades, Polymerase chain reaction (PCR) has undergone remarkable technological advancements, resulting in enhanced sensitivity, specificity, and rapidity. Modern approaches such as quantitative PCR (qPCR), digital PCR (dPCR), loop-mediated isothermal amplification (LAMP), and CRISPR-based detection have extended PCR role beyond traditional diagnostics.

Objective: The objective of this study is to provide an in-depth evaluation of advanced PCR methodologies and their translational potential in therapeutic applications, highlighting both current progress and future perspectives. PCR has transformed molecular biology since its development, becoming an indispensable tool for nucleic acid amplification.

Methodology: A systematic review of peer-reviewed literature research studies published in past decades across major scientific databases. Research was analyzed focusing on the analytical sensitivity, specificity, clinical performance, and translational utility of advanced PCR technologies, including qPCR, dPCR, isothermal amplification platforms, and CRISPR-assisted assays.

Results: The findings indicate that dPCR allows absolute quantification and ultra-sensitive detection of minimal residual disease (MRD) and rare mutations, thereby supporting oncology-based therapeutic decisions, viral load monitoring, guiding antiviral therapy and patient management. Additionally, LAMP and CRISPR-Cas9 based assays demonstrate exceptional specificity and rapid turnaround, providing opportunities for point-of-care diagnostics and real-time therapy guidance.

Conclusion: Advanced PCR platforms and AI are revolutionizing the interface between diagnostics and therapeutics. Their integration with next-generation sequencing, microfluidics, and artificial intelligence holds promise for advancing personalized and precision medicine. Continued innovation in PCR methodologies is expected to further expand their role in clinical practice and therapeutic applications.

Keywords: PCR, digital PCR, isothermal amplification, CRISPR diagnostics, therapeutic applications, precision medicine.

JH/SECON2025/PP-277

Neuroprotective potential of *Clitoria ternatea* L. extract: *In-vitro* and *in- vivo* studies

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ABSTRACT

Background: Alzheimer's disease (AD) is a progressive neurodegenerative disorder associated with cholinergic dysfunction and oxidative stress. Natural plant-derived compounds with antioxidant and cholinesterase inhibitory properties offer promising therapeutic approaches.

Aims/Objectives: The study aimed to evaluate the cholinesterase inhibitory activity and *in- vivo* neuroprotective effects of *Clitoria ternatea* L. flower hydro-alcoholic extract in scopolamine-induced cognitive impairment, with additional assessment of antioxidant activity.

Methods: *In-vitro* acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) inhibitory activities were determined using Ellman's method. *in-vivo* anti-Alzheimer potential was studied by scopolamine induced learning and memory impaired mice model. Through Y-maze, Morris water maze, and novel object recognition tests, supported by biochemical estimations of cholinesterase activity, acetylcholine levels, and antioxidant enzymes. Antioxidant activity was evaluated by DPPH assay.

Results: The extract showed potent AChE and BChE inhibition with IC50 values of 141.7 ±

0.01 µg/mL and 138.2 ± 0.13 µg/mL, respectively, compared with galanthamine. In *in-vivo* study, the high dose (400 mg/kg) significantly improved spatial learning and memory, as evidenced by reduced escape latency, increased spontaneous alternations, and higher novel object discrimination compared to the disease control group. Biochemical analysis confirmed reduced cholinesterase activity, improved acetylcholine levels, and enhanced antioxidant enzyme status. Antioxidant potential was observed *in-vitro* with an IC50 of 129.0 ± 0.12 µg/mL.

Conclusion: *Clitoria ternatea* L. flower extract exerts potent neuroprotective effects by inhibiting cholinesterase enzymes and improving cognitive performance *in-vivo*, supporting its potential role in Alzheimer's disease management.

Keywords: *Clitoria ternatea* L., Alzheimer's disease, cholinesterase inhibition, cognitive function, neuroprotection

JH/SECON2025/PP-278

Germplasm collection, molecular and biochemical characterisation of *Boswellia serrata* (Traina & Planch) for its conservation with special reference to Madhya Pradesh

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ABSTRACT

Background: *Boswellia serrata*, a medicinally important plant which demonstrates significant economic and medicinal value due to its extensive use in Ayurvedic and other traditional practices. Its pharmacological efficacy is mainly due to boswellic acids, which are used as bioactive markers to ensure quality control.

Aim: The present study aimed to extract, purify, and quantify boswellic acids from oleogum resin of *Boswellia serrata* using various analytical approaches for standardization.

Methods: Different extraction processes—maceration, Soxhlet extraction, and hydroalcoholic extraction—were employed for resin processing. The preliminary identification of boswellic acids was carried out using thin layer chromatography (TLC). Purification of crude extract was performed through column chromatography, yielding enriched boswellic acid fractions. Quantitative analysis was achieved by developing and validating an HPLC method using a standard boswellic acid reference. The method was optimized for retention time, linearity, and reproducibility.

Results: Among the tested methods, hydroalcoholic extraction provided maximum yield of boswellic acids. TLC confirmed the presence of characteristic spots comparable to standard. Column chromatography successfully isolated enriched fractions, while the HPLC method demonstrated high linearity ($R^2 > 0.99$) and reproducibility.

Conclusion: This study established a workflow for the extraction, purification, and HPLC-based quantification of boswellic acids from *Boswellia serrata*. The findings provide a basis for standardization and quality control of resin-based formulations, aligning with modern analytical approaches in natural product research.

Keywords: *Boswellia Serrata*, Hydro-alcoholic Extraction, Thin Layer Chromatography, HPLC.

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Development of cellulose-based polymers from spent lemongrass: Sustainable applications

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ABSTRACT

Background: Cellulose, a renewable and biodegradable polymer, offers a sustainable alternative to petroleum-based plastics. Spent lemongrass (SLG), an underutilized industrial by-product of essential oil production, is rich in cellulose (35–40%), hemicellulose (25–30%), and lignin (25–30%), making it a promising source for sustainable materials.

Aims: This study aimed to extract cellulose from SLG and develop it into eco-friendly packaging materials.

Methods: SLG biomass was subjected to sequential alkaline (NaOH), acidic (HNO_3), and bleaching ($NaOCl/H_2O_2$) treatments. Optimal pretreatment with 0.5% NaOH and 0.25% HNO_3 achieved a cellulose yield of 69.5%. Extracted cellulose was blended with cassava starch, soluble starch, and polyvinyl alcohol (PVA) to improve flexibility, porosity reduction, and structural strength.

Results: The composites showed high water-holding capacity (215.6–408%), beneficial for wound dressings and packaging. FTIR confirmed lignin and hemicellulose removal with characteristic cellulose peaks (-OH, -CH, C–O). SEM revealed reduced fibre size, void filling, and sheath-like structures, indicating successful composite formation. TGA/DSC showed thermal stability up to 250 °C, with starch- and PVA-based composites exhibiting enhanced stability.

Conclusion: SLG-derived cellulose can be efficiently extracted and transformed into multifunctional composites for packaging. The process reduces dependence on fossil-based plastics while supporting the bio-circular economy through agricultural waste valorization.

Keywords: Spent lemongrass (SLG) · Sequential pretreatment · Cellulose · Soluble starch · Cassava starch · Polyvinyl alcohol

JH/SECON2025/PP-280

Nanotechnology-based enhancementof antimicrobial activityof traditional medicinal plants

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Traditional medicinal plants have long produced bioactive chemicals with antibacterial qualities, but batch-to-batch variability, low bioavailability, poor solubility, and chemical instability frequently hinder their translation into reliable, strong clinical or commercial applications. Recent developments in using nanotechnology to get around these restrictions and boost the antibacterial activity of phytochemicals and extracts from plants are summarized in this study. We look at delivery systems that use nanoparticles, such as metal and metal-oxide nanoparticles, polymeric nanoparticles, liposomes, nanoemulsions, solid-lipid nanoparticles, and nanofibers, to improve solubility, shield labile components, allow for targeted or sustained release, and have synergistic antimicrobial effects. The following mechanistic insights are discussed: enhanced membrane penetration and interaction, elevated local concentration at infection sites, bacterial damage mediated by reactive oxygen species (for certain inorganic NPs), and destruction of biofilms.The review further discusses various formulation approaches, characterization methods, and both in vitro and in vivo studies that demonstrate the enhanced antimicrobial performance of plant-based nanocarriers. It also highlights instances where the use of nanotechnology has lowered the required effective doses or expanded the range of antimicrobial action. Additionally, key challenges and limitations are addressed, such as achieving consistent large-scale production, ensuring compatibility between phytochemicals and nanomaterials, minimizing toxicity and environmental risks, meeting regulatory requirements, and establishing standardized testing protocols. The article concludes by outlining a future research roadmap that promotes interdisciplinary collaboration, comprehensive safety evaluation, and effective clinical translation to responsibly advance nanotechnology applications in plant-derived antimicrobial therapies.

Keywords: traditional medicinal plants, nanocarriers, antimicrobial activity, bioavailability, nanoformulations.

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Nature's pharmacy: Unlocking health with functional foods

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ABSTRACT

Introduction: The word "nutraceutical" describes dietary items that, either as a whole or as individual ingredients, have both nutritional and therapeutic advantages. Growing interest in these cutting-edge solutions for health maintenance and renewal is a result of the increased frequency of metabolic and degenerative disorders worldwide, which are frequently connected to dietary inadequacies. This abstract examines the growing importance of nutraceuticals, especially in developing countries like India where non-communicable diseases are exacerbated by a lack of nutritional understanding. The main objective is to impart basic knowledge about nutritional supplements, their several uses in the treatment of illnesses, and the regulations governing product registration. A variety of health-promoting qualities, such as immune-boosting, antioxidant, anti-inflammatory, and cardioprotective actions, have made nutraceuticals well-known. In the end, they offer a higher standard of living. This paper provides an overview of the state of science in this area and emphasizes how conventional wisdom—like Ayurveda's focus on food as medicine—can stimulate fresh, creative research methods in the rapidly developing field of nutraceuticals.

Materials and Methods: A thorough analysis of the body of current scientific literature served as the foundation for this poster. Several academic databases, including PubMed, Scopus, and Google Scholar, were thoroughly searched using terms like "nutraceuticals," "dietary supplements," "botanicals," "phytopharmaceuticals," "health benefits," "disease prevention," and "Ayurveda." To guarantee the accuracy of the data, the search was restricted to peer-reviewed papers, reviews, and conference abstracts released in the previous 15 years. Sources were chosen on the basis of how well they addressed the nutritional and medicinal uses of these substances. All of the data was compiled and arranged to give a comprehensive picture of the state of science, industry developments, and regulatory issues surrounding nutraceuticals, with an emphasis on their potential in developing nations.

Results and Discussion: According to our thorough analysis, there is mounting evidence that nutraceuticals offer a variety of health advantages. Important discoveries show their effectiveness as anti-inflammatory, immune-boosting, and natural antioxidants. Along with its anti-diabetic and cardioprotective properties, they have also shown great promise in the management and prevention of metabolic and degenerative diseases. A worldwide trend toward a more proactive, preventative approach to health and wellbeing is highlighted by the spike in market interest. According to these results, nutraceuticals can be a useful adjunct to traditional therapy in correcting dietary deficiencies that lead to chronic disease.

Conclusion/Recommendation: In summary, nutraceuticals bridge the gap between medicine and nutrition and constitute an important and growing category of healthcare goods. An increasing amount of scientific research supports their function in encouraging proactive health management and preventing chronic diseases. To further confirm the effectiveness and safety of certain nutraceutical formulations, we advise that future research concentrate on high-quality clinical trials. Simplified regulatory systems are also obviously needed to guarantee customer trust and product quality, particularly in emerging nations. Modern scientific techniques combined with traditional medical expertise provide a rich environment for creating next-generation nutraceuticals that are both technically sound and culturally appropriate.

Key words: Nutraceuticals; Healthcare products; Nutrition and medicine; Proactive health management; Chronic diseases; Scientific evidence; High-quality clinical trials; Efficacy and safety; Regulatory frameworks; Emerging markets; Traditional medical knowledge; Modern scientific methods; Next-generation nutraceuticals

JH/SECON2025/PP-82

Metabolite profiling and integrated network pharmacology-based mechanism of *Houttuynia cordata* Thunbleaves against non-insulin-dependent diabetes mellitus

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ABSTRACT

Background: *Houttuynia cordata* Thunb (Saururaceae) is an essential food plant of North-East India possessing antihyperglycemic and antihyperlipidemic activities.

Objective: The objective included comparative estimation of α-glucosidase and α-amylase enzyme inhibition potential of *Houttuynia cordata* fractions prepared by microwave-assisted extraction and prediction of metabolite interaction against non-insulin-dependent diabetes mellitus (NIDDM) by metabolite profiling-based network pharmacology analysis.

Methods: A validated microwave-assisted extraction method was employed to obtain different fractions of *Houttuynia cordata* leaves. The in vitro enzyme assay was done with *p*-nitrophenyl-α-D-glucopyranoside and acarbose as a standard to evaluate antidiabetic potential. The phytomolecules present in the active fraction were identified by UHPLC-QToF-MS/MS analysis. Network pharmacology analysis gave possible gene and disease association, a combination synergy network, and predicted probable mechanism of action.

Results: The highest enzyme inhibition potential (IC_{50}) was shown by the ethyl acetate fraction (0.546 ± 0.17 mg/mL and 1.134 ± 0.42 mg/mL) compared to acarbose (0.298 ± 0.08 mg/mL and 0.532 ± 0.38 mg/mL), respectively, for α-glucosidase and α-amylase addressing the potential role in ameliorating NIDDM. Metabolite profiling resulted in the identification of 27 metabolites, and a synergy between the identified molecules suggested multimolecule action in the amelioration of non-insulin-dependent diabetes mellitus through insulin resistance pathway, AMPK signaling pathway, PPAR signaling pathway, and PI3K–Akt signaling pathway. Combination synergy of identified molecules was observed through a multitarget approach to manage non-insulin-dependent diabetes mellitus.

Conclusion: Polyphenol-enriched fraction of *Houttuynia cordata leaves* and identified phytocompounds ameliorate non-insulin-dependent diabetes mellitus. Thus, enriched extract of *Houttuynia cordata* can be further investigated in order to develop high-quality, safe, and effective products for the management of NIDDM.

Keywords: *Houttuynia cordata* (Thunb.) | enzyme inhibition kinetics | microwave- assisted extraction | network pharmacology | NIDDM | UHPLC- QTOF- MS/MS

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Bridging the chemical profile and biomedical effects of türkiye medicinal and aromatic plantsâ€™ essential oil: a new approach toward aromatherapy

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JH/SECON2025/PP-284

Beyond the rhizome: Unraveling the ethnobotanical and pharmacological signicance of *Curcuma caesia*

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ABSTRACT

Introduction: Black turmeric, Kali Haldi, or *Curcuma caesia* Roxb., is a rare and endangered medicinal plant that is a member of the Zingiberaceae family. This plant has a wide range of ethnobotanical uses, including the treatment of inflammation, respiratory conditions, epilepsy, skin conditions, and as a general tonic. Indigenous populations throughout India have long used it. Its rich phytochemical profile, which includes curcuminoids, essential oils, and flavonoids, is largely responsible for the antioxidant, antibacterial, anti-inflammatory, analgesic, and anticancer properties that modern pharmacological studies have revealed, validating many of its traditional claims. In order to highlight the significance of *C. caesia* in contemporary herbal medicine as well as the necessity of conservation and sustainable use, this study attempts to compile the most recent findings about its ethnobotany and pharmacological potential.

Background: A uncommon member of the Zingiberaceae family, black turmeric (*Curcuma caesia Roxb.)* has long been used to treat skin conditions, inflammation, and respiratory disorders. Packed with bioactive substances like ar-turmerone and camphor, it has anti-inflammatory, antibacterial, and antioxidant qualities. Its rhizome is its most well-known feature, although other plant sections have medicinal potential as well. Limited clinical research and conservation issues underscore the need for more thorough investigation and sustainable use.

Aim: To comprehensively review and evaluate the ethnobotanical relevance and pharmacological properties of *Curcuma caesia*, while identifying its therapeutic potential and emphasizing the importance of its conservation.

Methods: This methodology outlines the necessary steps taken out to unravel the botanical and pharmacological activities of *Curcuma caesia* such as its collection identification, extraction and its phytochemical investigations.

Results:*Ethnobotanical Use*: Commonly used in traditional medicine, particularly in the tribal areas of Central and Northeastern India, to treat pain, fever, wounds, and asthma.The phytochemical profiling includes flavonoids, terpenoids, curcuminoids, and essential oils (camphor, ar-turmerone, and xanthorrhizol). The pharmacological properties proves potent anti-inflammatory, anti-cancer, anti-inflammatory, anti-oxidant, and neuroprotective effects both in vitro and in vivo. Overharvesting and

habitat degradation have led to the listing of this species as endangered; conservation measures, including as micropropagation and sustainable harvesting, are desperately needed.

Conclusion: With a variety of medicinal uses, *Curcuma caesia* offers a promising natural source of pharmacologically active chemicals. Its ethnobotanical relevance is emphasized by traditional knowledge, yet scientific evidence still supports its potential for medical use. However, it is now endangered due to ecological challenges and unsustainable exploitation, necessitating urgent conservation measures. Future studies should concentrate on extract standardization, clinical validation, and biotechnological propagation methods.

Key words: *Curcuma caesia*, black turmeric, ethnobotany, pharmacology, phytochemicals, traditional medicine, Zingiberaceae.

JH/SECON2025/PP-285

Flavonoids in therapeutic and nutraceuticals dual approach

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ABSTRACT

Background: Flavonoids are a diverse group of naturally occurring polyphenolic compounds found abundantly in fruits, vegetables, tea, cocoa, and medicinal plants. Through pharmacological action, flavonoids exert a variety of therapeutic functions; usually, antioxidants; anti-inflammatory; cardioprotective; neuroprotective; hepatoprotective; and anticancer. Their importance lies in dual potential: being integral to nutraceuticals as key ingredients in functional foods and dietary supplements, as well as becoming wonderful therapeutic leads in drug discovery.

Aim: This endeavors to give an outline of the dual nature of flavonoid activities in nutraceutical and therapeutic intervention fields, focusing on their pharmacological properties and mechanisms of action, as well as the translational processes associated with human health.

Methodology: The literature was analyzed with respect to pharmacological effects, structure-activity relationship, and application of flavonoids in functional food formulations as well as therapeutics.

Result: Flavonoids, such as quercetin, kaempferol, catechins, and anthocyanins, have therapeutically been proven, i.e., efficaciously on a chronic level, against cardiovascular disorders, diabetes, neurodegeneration, and cancer. The antioxidant and anti-inflammatory nature gives these compounds opportunities to be used as nutraceuticals, dietary supplements, food additives, and herbal formulation products. Clinical studies have established that their bioavailability remains a big constraint; however, the usefulness of such approaches is increasing through newer delivery systems such as encapsulation with nanoparticles and phytosomes. This incorporation associates preventive nutrition with pharmacotherapy.

Conclusion: From every perspective, flavonoids are a rare class of natural product, making these agents suitable for dual use as therapeutic agents and nutraceuticals. The research needs to continue in the implementation of formulation strategies, clinical studies, and regulatory aspects for the faster inclusion of these compounds into modern healthcare as multifunctional, safe, and effective agents.

Keywords: Flavonoids, Nutraceuticals, Therapeutics, Hepatoprotective

JH/SECON2025/PP-286

PhytoBrigh: A polyherbal depigmentation powder based on ayurvedic herbs for safe and sustainable skin brightening

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ABSTRACT

Background: Dark spots, melasma, acne marks, and tanning are common skin problems. Many chemical products like hydroquinone and kojic acid reduce pigmentation but often cause side effects such as irritation and skin damage. Ayurveda mentions several herbs with skin brightening properties, which are safe and suitable for long-term use. Aim: The aim of this work was to prepare PhytoBright, a new herbal depigmentation powder using Ayurvedic plants that can give safe and natural skin brightening.

Methods: The powder was made using Glycyrrhiza glabra -liquorice – reduces melanin turmeric – antioxidant, Aloe Vera controls pigmentation. sandalwood – cooling, skin brightening. and Neem – prevents acne marks. The dried herbs were powdered, mixed with natural bases like kaolin and oat flour, and checked for texture and stability.

Results: The herbal blend showed good potential to reduce pigmentation through melanin control and antioxidant action. The powder was smooth, easy to apply, and stable during storage.

Conclusion: PhytoBright is a novel Ayurvedic herbal cosmetic that offers safe and natural skin depigmentation. Its unique mix of herbs makes it suitable for future cosmetic products and patent protection.

Keywords: PhytoBright, Ayurveda, Herbal depigmentation, Skin brightening, Natural cosmetics

JH/SECON2025/PP-287

Preeclampsia prediction via artificial intelligence: Driven analysis of blood, biochemical and inflammatory markers

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ABSTRACT

Preeclampsia continues to be a primary contributor to maternal and perinatal morbidity and mortality on a global scale, largely as a result of its unpredictable nature and the scarcity of effective early diagnostic tools. The early detection of individuals at increased risk is crucial for enabling timely therapeutic interventions; however, conventional diagnostic approaches, which primarily rely on blood pressure measurements and proteinuria assessments, frequently identify the condition only after overt clinical symptoms have manifested. In recent years, the integration of artificial intelligence (AI) with clinical, biochemical, and inflammatory marker data has opened up new avenues for predicting PE. This review explores the emerging role of AI-driven approaches in the prediction of preeclampsia, with a focus on blood-derived biomarkers such as soluble fms-like tyrosine kinase-1 (sFlt-1), placental growth factor (PlGF), C-reactive protein (CRP), interleukin-6 (IL-6), and neutrophil-to-lymphocyte ratio (NLR). Additionally, it examines multi-omics datasets and novel inflammatory mediators like HMGB1 and Decorin, which have shown promise in enhancing model accuracy. Machine learning models, including random forest, support vector machines and deep neural networks, have demonstrated superior predictive performance, achieving area under the curve (AUC) values up to 0.99 in some studies. Despite these advancements, significant gaps remain—particularly in data standardization, external validation, model interpretability and clinical integration. The present study highlights current progress, comparative model performance, and key challenges while proposing future directions for more robust, explainable, and ethically aligned AI applications in obstetric care. Leveraging AI in conjunction with validated biomarkers could revolutionize preeclampsia screening and enable personalized risk stratification early in pregnancy.

Keywords: Preeclampsia, Artificial Intelligence, Inflammatory markers, Haematological parameters, Biochemical parameters

JH/SECON2025/PP-288

Molecular analysis of potato latent virus associated with the medicinally important plant *Withania somnifera*

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ABSTRACT

Background: *Potato Latent Virus* (PotLV), a member of the *Betaflexiviridae* family and *Carlavirus* genus, is typically asymptomatic but poses a hidden threat to crop productivity through undetected transmission and genomic variability. Monitoring its molecular evolution is essential for effective disease control.

Aims/Objectives: This study aimed to characterize PotLV isolated from *Withania somnifera* and to identify mutation patterns, hotspots, and phylogenetic relationships within its genome.

Methods: Symptomatic leaves of *W. somnifera* were used for total RNA extraction, followed by high-throughput sequencing. The obtained raw reads were analysed using bioinformatic pipelines to identify the complete 7890-nucleotide genome of PotLV and to assess substitution patterns, mutation frequencies, and phylogenetic relationships.

Result: The RNA-dependent RNA polymerase (RdRp) region was identified as a mutation hotspot, exhibiting over 600 synonymous and 200 missense substitutions. No insertions or deletions were detected, and transition mutations (508) predominated over transversions (107). Phylogenetic analysis revealed two major clusters: European strains and the Indian isolate from *W. somnifera.*

Conclusion: The identification of high mutation rates in the RdRp region emphasizes the evolving nature of PotLV. Ongoing genomic monitoring will be crucial for assessing its adaptation potential and for devising strategies to mitigate virus transmission in both crop and medicinal plants.

Keywords: Potato Latent Virus, *Carlavirus*, *Betaflexiviridae*, RdRp, Mutation analysis, *Withania somnifera*, Phylogenetic analysis

JH/SECON2025/PP-289

Clinical validation of traditional nasal drug delivery system: Ethnopharmacological assessment of Viola odorata oil for sleep disorder management

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ABSTRACT

Introduction: Sleep disorders affect approximately 33% of the adult population globally, with conventional pharmacotherapy often presenting dependency risks and adverse effects. Traditional Unani medicine has historically employed intranasal administration of herbal oils for neurological conditions. Viola odorata (Banafsha), documented in classical Unani texts as a brain tonic with sedative properties, represents an underexplored therapeutic option. The main objective was to validate the clinical efficacy of traditional nasal drug delivery using Roghan-e-Banafsha for chronic insomnia through evidence-based assessment.

Materials and Methods: A prospective, single-arm pilot study was conducted at Majeedia Unani Hospital, New Delhi. Twenty adult patients (18-65 years) with chronic insomnia were enrolled following ethical approval and informed consent. Standardized Roghan-e-Banafsha (2 drops, 0.1ml per nostril) was administered at bedtime for 28 days. Primary outcome measure was Insomnia Severity Index (ISI) assessed at baseline, day 14, and day 28. Secondary measures included safety parameters and temperamental assessment according to Unani principles. Statistical analysis employed paired t-test and ANOVA for temporal changes.

Results and Discussion: Demographic analysis revealed 75% female participants, 65% young adults (20-29 years), and 85% exhibiting Balghami temperament. ISI scores demonstrated progressive improvement: baseline (15.3±2.1) → day 14 (14.2±1.9) → day 28 (12.65±1.8), representing 17.226% overall reduction ($p<0.0001$). The nasal route facilitated direct nose-to-brain delivery via olfactory and trigeminal pathways, bypassing hepatic metabolism. No adverse events were reported, establishing excellent safety profile. The study validates traditional knowledge through modern clinical methodology, demonstrating significant therapeutic potential of ethnopharmacological approaches in sleep medicine.

Conclusion/Recommendation: Roghan-e-Banafsha nasal drops offer a safe, effective alternative for insomnia management, bridging traditional wisdom with contemporary drug delivery science. This study supports integration of evidence-based traditional medicine into mainstream healthcare.

Key words: Ethnopharmacology; Nasal drug delivery; Traditional medicine; Viola odorata; Sleep disorders

JH/SECON2025/PP-290

Combinatorial drug delivery for neuropathic pain: Preformulation and *in silico* approaches towards nanoformulation development

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ABSTRACT

Neuropathic pain (NP) is a debilitating chronic condition with complex etiology and limited treatment options. NP affects nearly 15% of the global population. Current pharmacological agents often provide only partial relief and are burdened by adverse effects, underscoring the need for novel therapeutic strategies. A combinatorial approach that integrates synthetic agents with phytomedicine offers promise by simultaneously modulating neurotransmission, reducing inflammation, and promoting neuroprotection. We propose a novel nanoformulation incorporated into a transdermal delivery system to address the shortcomings of conventional therapy. Transdermal administration bypasses first-pass metabolism, enhances bioavailability, and ensures localized delivery to pain-transmitting nerves, while controlled release improves patient compliance. The inclusion of phytomedicine components provides additional benefits, including antioxidant, anti-inflammatory, and neuroregenerative effects, which may reduce oxidative stress and support repair of damaged nerve fibers. This dual-targeted platform offers a significant advancement over monotherapy by addressing multiple mechanisms underlying NP. By combining the precision of nanotechnology with the therapeutic potential of phytomedicine, this strategy holds translational value for achieving improved pain relief, reduced side effects, and enhanced quality of life in NP patients.

Keywords: Pain, Nano formulation, phytomedicine, Nanotechnology

JH/SECON2025/PP-291

Astragalus mongholicus as a novel traditional herbal candidate for neuroprotection in amyotrophic lateral sclerosis

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ABSTRACT

Background: Amyotrophic Lateral Sclerosis (ALS) is a progressive neurodegenerative disorder characterized by motor neuron degeneration, muscle weakness, and respiratory failure. Existing therapies such as riluzole and edaravone offer only limited benefits, underscoring the urgent need for new, multitargeted therapeutic approaches. Astragalus mongholicus (Huangqi), a well-known traditional Chinese medicinal herb, has long been associated with vitality, longevity, and neurological well-being. Its active compounds may hold potential for neuroprotection in ALS.

Aims/Objectives: This review aims to assess the therapeutic potential, mechanisms of action, and translational prospects of Astragalus mongholicus in ALS.

Methods: A structured literature review covering 2010–2025 was conducted through PubMed, Web of Science, and Google Scholar. Both in vitro and in vivo preclinical studies focusing on neurodegeneration, motor neuron survival, and pharmacological actions of Astragalus extracts were included.

Results: Astragalosides and polysaccharides demonstrate antioxidative, anti-inflammatory, mitochondrial-protective, and neurotrophic effects. Additional actions include autophagy promotion and blood–brain barrier stabilization. Although studies specific to ALS remain limited, these mechanisms align closely with key pathogenic processes. Importantly, Astragalus shows a favorable safety profile across both traditional use and modern pharmacological studies.

Conclusion: Astragalus mongholicus is a promising candidate for complementary ALS therapy. Rigorous validation in ALS-specific preclinical models and subsequent clinical trials are required to establish efficacy, optimize formulations, and define its role in integrative treatment strategies.

Keywords: ALS; Astragalus mongholicus; Neuroprotection; Oxidative stress; Traditional medicine

JH/SECON2025/PP-292

To evaluate the efficacy of herbal mouthwash vs chlorhexidine mouthwash as an adjunct to mechanical plaque control in the treatment of gingivitis: A randomized clinical trial

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ABSTRACT

Introduction: Gingivitis is a gum condition that happens due to plaque accumulation. Scaling and using chlorhexidine (CHX) mouthwash are often used to treat it, but using CHX for a long term can cause adverse effects. Nowadays herbal alternatives are used for their anti-inflammatory and antimicrobial properties with minimal adverse effects.

Materials and Methods: Sixty patients between the ages of 20-50 with gingivitis were allocated into three groups: Group A had only scaling, Group B had scaling plus CHX mouthwash, and Group C had scaling plus herbal mouthwash. They were instructed to mouthwash twice daily for 14 days. The Modified Gingival Index (MGI), Plaque Index (PI), and Bleeding Index (BI) were assessed on day 7 and day 14.

Results and Discussion: All groups showed improvements. By day 14, the herbal mouthwash had a greater reduction in gingival inflammation and bleeding scores. CHX was better at controlling plaque. The herbal mouthwash showed more consistent results. Although no statistically significant differences were observed, herbal rinses emerged as effective alternatives to CHX, particularly for patient's intolerant to its side effects. These findings support the adjunctive use of herbal mouthwashes for personalized gingivitis management.

Conclusion/Recommendation: Patients who want to seek natural ways might find herbal mouthwash to be a good alternative. It helped reduce gingival inflammation and bleeding, particularly for patients sensitive to CHX side effects. CHX will remain superior for plaque control, but some herbal options may enhance anti-inflammatory benefits. These findings suggest that herbal treatment could be useful in personalized gingivitis care. More long-term studies are needed to confirm these findings.

Keywords: Gingivitis, herbal mouthwash, chlorhexidine, anti-inflammatory, plaque control

JH/SECON2025/PP-293

Pharmacological potential of Kanghi (*Abutilon indicum* L.)

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ABSTRACT

Introduction: Kanghi (*Abutilon indicum*)is a well renowned plant from ancient times for its enormous medicinal uses. It is a small, perennial shrub belonging to the family Malvaceae. It is a native to tropical and subtropical regions. The plant is admired for its Medicinal ecological, ornamental and cultural significance. The famous Unani botanist Dioscorides (Ist cent. A.D.) mention it in his literature with the name Abutyolon. Arabs also used this name for the plant. Its Botanical name Abutilon is derived from its Unani name Abutyolon. Its Hindi name Kanghi is given due to the comb like structure of its fruit. (Kanghi means comb)

Material and Methods: this study on Abutilon Indicum was conducted through a thorough bibliographic investigation by analyzing worldwide accepted scientific data base (Google scholar, research gate, Springer, Pub Med, Scifinder, Scopus and Web of Science), thesis, recognized books, non- impact and non- indexed journals. Standard Unani terms were taken from recognized Unani books.

Results and Discussions: Almost all parts of the plant (Leaves, Flowers, fruits, Seeds, Barks, Roots) have medicinal properties. Roots and barks are used as aphrodisiac, anti–diabetic, nervine tonic and diuretic. Seeds has been used in urinary disorders, as laxative in piles and in the treatment of cough. Leaves are generally taken orally in order to relieve body pain. Different parts of plant are used as anthelmintic, antiemetic, and anti-inflammatory. It is used in treatment of fever, Dry cough, bronchitis, Gonorrhoea and Leprosy. Flowers are used to increase semen in men. It has a diverse phytochemical composition, including alkaloids, flavonoids, and polysaccharides, which contribute to its wide-ranging biological activity. Abutilon indicum extracts possess noteworthy pharmacological effects, including anti-oxidant, anti-inflammatory, anti-microbial, anti-diabetic, nephroprotective and hepatoprotective properties. In addition to its immunomodulatory effects, larvicidal, anti-convulsant, neuroprotective, and cognitive-enhancing capacities have gained attention in recent years and serve as natural alternatives to available allopathic medicine.

Conclusion: Despite of much research work has been done on the plant, further clinical research is needed to validate its full therapeutic potential and ensure its safe integration in modern healthcare.

Keywords: *Abutilon indicum*, flavonoid, amyrin, antioxidant property, nephroprotective

JH/SECON2025/PP-294

Structural dynamics and functional characterization of NDK isoforms: Advancing anti-leishmanial drug discovery

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ABSTRACT

Background: Leishmaniasis is a neglected tropical disease with scarce therapeutic options and increasing drug resistance. Among potential molecular targets, the Nucleoside Diphosphate Kinase (NDK) family plays a pivotal role in nucleotide homeostasis and cellular signalling, representing an underexplored therapeutic target with roles in proliferation, stress adaptation, and DNA repair.

Objectives: This study investigates the structural and functional features of *Leishmania donovani* NDK isoforms (NDK1–3) in comparison with human homologs (NME1–10), with an emphasis on their druggability and potential for selective inhibitor design.

Materials & Methods: A multi-tiered computational strategy was employed, encompassing physiochemical property analysis, motif/domain annotation, secondary structure prediction, and homology-based 3D stereochemical validation. Active-site mapping and structural models were validated. Evolutionary relationships were assessed through multiple sequence alignment and phylogenetic analysis. Virtual screening of the ZINC natural product library was performed against NDKs, and protein interaction networks were generated to assess functional associations.

Results & Discussion: NDK isoforms demonstrated highly conserved structural folds with well-defined druggable catalytic pockets amenable to ligand binding. Comparative analysis highlighted evolutionary conservation with parasite-specific features. Virtual screening identified several natural scaffolds with strong binding affinity to the active pocket of NDKs, while network predictions further underscored key cellular pathways potentially disrupted upon NDK inhibition.

Conclusion and Future Perspective: The study establishes NDKs, particularly NDK1, as viable and promising anti-leishmanial drug targets. These findings provide a structural and functional framework to future experimental validation and rational development of parasite-selective kinase inhibitors, paving way for the novel therapeutic strategies against leishmaniasis.

Keywords: Leishmaniasis, Nucleoside Diphosphate Kinases, Human NMEs, In silico drug discovery, Natural product scaffolds, Parasite-specific inhibition.

JH/SECON2025/PP-295

In-vitro evaluation of the anti-arthritic potential of *Soymida febrifuga* (Roxb.) A. Juss. Bark extract

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ABSTRACT

Background: Oxidative stress and protein denaturation are critical contributors to arthritic inflammation and joint degeneration. *Soymida febrifuga* (Roxb.) A.Juss. is a member of the meliaceae family has been traditionally employed in the management of inflammatory ailments, yet its scientific validation remains limited.

Aims/Objectives: This study aimed to evaluate the antioxidant potential and in-vitro anti-arthritic activity of the hydro-alcoholic bark extract of *S. febrifuga*.

Methods: Anti-arthritic potential was evaluated in vitro using protein denaturation (bovine serum albumin and egg albumin) with standard diclofenac. Also, in vitro antioxidant ability was appraised by DPPH radical scavenging assay. Moreover, total flavonoid, total phenolics content of hydroalcoholic (70:30) bark extract were performed.

Results: In the albumin denaturation assay, the extract showed strong concentration-dependent protection, achieving 90.12% inhibition at 400 mg, thereby reflecting potent anti-arthritic potential. The content of total phenolics present in the extract was determined using the Folin- Ciocalteu's reagent and expressed in terms of gallic acid equivalent was found to be 46.92 ± 0.13 mg of GAE/g of extract. The amount of total flavonoids present in extract was expressed in terms of rutin equivalent and the estimated amount was found to be 73.71 ± 0.11 mg of RUE/g of extract. Additionally, plant exhibited remarkable anti-oxidant activity. Moreover, phytochemical analysis revealed polyphenols and flavonoids.

Conclusion: The present study reveals that bark of *S. febrifuga* possess anti arthritic activity. The activity may be due to presence of phenols, tannins, and flavonoids present in the plant. Further studies are warranted to isolate bioactive compounds and validate efficacy in in-vivo models.

Keywords: *Soymida febrifuga*, antioxidant, anti-arthritic, DPPH assay, protein denaturation

JH/SECON2025/PP-296

Genetically modified crops and ayurvedic practice: evaluating potential risks and ethical dilemmas in herbal medicine

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ABSTRACT

Background: Genetically modified (GM) foods are created by altering the genetic structure of crops to improve their yield, nutrition, and resistance to pests. While offering significant agricultural advantages, such modifications may compromise the natural characteristics of plants, an essential aspect of Ayurveda, which views food and medicine as inherently interconnected. The use of GM crops in herbal medicine raises ethical and safety concerns due to the potential disruption of the plants' intrinsic properties.

Aim/Objectives: This review aims to critically assess the development of GM crops and their implications—agricultural, health-related, and ethical—within the framework of the Ayurvedic philosophy. It explores their alignment with traditional ecological values and the safety of ayurvedic medicinal plants.

Methods: The analysis is based on a comprehensive review of the scientific literature, policy documents, and classical Ayurvedic texts, along with meta-analytical data on crop performance and health outcomes.

Results: GM crops have shown benefits, such as a 22% increase in yield and 37% reduction in pesticide usage. However, risks including allergenicity, gene transfer, and cross-contamination, as seen in the Bt brinjal case, pose challenges to Ayurvedic standards of purity and efficacy

Conclusion: Although GM technology supports agricultural advancement, its compatibility with Ayurvedic practices remains uncertain. An integrative approach is needed—one that upholds ecological integrity, cultural values, and public health while ensuring the safety and authenticity of traditional herbal medicines.

Keywords: Genetically Modified, Ayurveda, Bt Brinjal, Medicinal Plant Safety, Biodiversity Conservation

JH/SECON2025/PP-297

Aza arene: Empowering anticancer drug discovery

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ABSTRACT

Introduction: Cancer continues to be one of the most significant global health challenges, and the efficacy of current anticancer therapies is restricted by poor selectivity, safety concerns, adverse reactions, and the emergence of resistance. There is therefore an urgent need for novel scaffolds that combine target specificity with favorable pharmacological profiles. Nitrogen-containing heterocycles are among the most versatile and widely used frameworks in medicinal chemistry, with more than 85% of bioactive drugs incorporating at least one heteroatom.

Materials and Methods: This work reviews recent literature focusing on the medicinal chemistry of nitrogen-containing heterocycles with anticancer potential. The analysis includes representative scaffolds such as indoles, triazoles, and related derivatives. Computational studies, including molecular docking and structure–activity relationship (SAR) approaches, were examined to highlight their role in rational drug design and optimization.

Results and Discussion: Nitrogen-based heterocycles demonstrate diverse mechanisms of anticancer activity, ranging from inhibition of key enzymes to modulation of signaling pathways. Their structural adaptability allows for the development of derivatives with enhanced potency and selectivity. Computational modeling provides valuable insights into binding interactions and aids in optimizing lead molecules. These findings underline the potential of nitrogen-containing heterocycles as customizable scaffolds for next-generation anticancer agents.

Conclusion: Nitrogen-containing heterocycles hold strong promise in anticancer drug discovery due to their structural diversity and broad pharmacological relevance. Future work should integrate computational predictions with experimental validation to accelerate the translation of these scaffolds into clinically effective and safer therapeutics.

Keywords: Cancer, Anticancer agents, Aza arene compounds, Medicinal chemistry, Drug design, Structure–activity relationship

JH/SECON2025/PP-298

Design and development of electrospun nanofiber co-loaded with bioactive glass nanoparticle and therapeutics for the treatment of peri-implantitis

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ABSTRACT

Background: Peri-implantitis, a biofilm-mediated inflammatory disease, leads to progressive bone loss and implant failure. Conventional therapies are often inadequate, whereas localized drug delivery systems provide site-specific action and reduce systemic side effects. Electrospun nanofibrous scaffolds, when integrated with bioactive glass nanoparticles and therapeutics, not only offer targeted antimicrobial and anti-inflammatory effects but also support tissue regeneration and implant integration.

Aims/Objectives: To perform pre-formulation studies of drugs and to develop, optimize, and characterize drug loaded bioactive glass nanoparticles (Drug–BGNs) for subsequent incorporation into electrospun nanofibers for localized peri-implantitis therapy.

Methods: Pre-formulation included physical characterization, UV analysis, FTIR, and XRD of the selected drugs was done. Drug–BGNs were synthesized via ultrasound-assisted sol–gel method and optimized using Central Composite Design to achieve minimal particle size and stable zeta potential. Optimized nanoparticles were further characterized by TEM, FTIR, XRD, and in vitro release studies. The nanoparticles co-loaded with therapeutics were electrospun into nanofibers and characterized by SEM.

Results: Pre-formulation confirmed chemical integrity and reliable analytical methods. Optimized nanoparticles exhibited a narrow nanoscale size distribution, negative surface charge, and characteristic FTIR bands confirming structural integrity. Release studies demonstrated a sustained release profile over several days. Nanofibers displayed uniform morphology of the nanoparticle system.

Conclusion: This study successfully established pre-formulation protocols and optimized drug-loaded bioactive glass nanoparticles with favorable physicochemical properties and sustained release, providing a robust electrospun nanofiber platform for localized treatment of peri-implantitis.

Keywords: peri-implantitis; ultrasound-assisted sol–gel; bioactive glass nanoparticles; dexamethasone; clindamycin phosphate.

JH/SECON2025/PP-299

Design and development of folic acid decorated drug loaded biomimicking dendrimeric nanosystem for targeted breast cancer therapy

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ABSTRACT

Background: Breast carcinoma remains the most prevalent malignancy among women worldwide, yet therapeutic outcomes are limited by poor tumor specificity, multidrug resistance, and systemic toxicity. Poly (amidoamine) (PAMAM) dendrimers have emerged as promising nanoscale carriers owing to their hyperbranched structure, internal cavities, and modifiable surface functionalities. Advances such as PEGylation and folic acid conjugation enable receptor-mediated uptake, while biomimicking surface coatings improve biocompatibility, prolong systemic circulation, and facilitate immune evasion, thereby enhancing targeted drug delivery and therapeutic precision.

Aims/Objectives: To perform pre-formulation studies of drug and to develop, optimize, and characterize a folic acid-decorated drug-loaded biomimicking dendrimeric nanosystem for targeted breast cancer therapy.

Methods: Pre-formulation included physical characterization, UV analysis, DSC, and FTIR was done for the drug. The dendrimeric nanosystem was optimized using Central Composite Design to achieve minimal particle size and stable zeta potential. Optimized formulations were further characterized for morphology, structural confirmation, and in vitro release behavior.

Results: Pre-formulation confirmed the chemical integrity of drug and established reliable analytical methods. The optimized dendrimeric nanosystem exhibited a uniform nanoscale size distribution, stable surface charge, and characteristic FTIR bands indicating successful drug encapsulation. Release studies demonstrated a sustained and controlled drug release profile under simulated physiological conditions. The folic acid decoration is expected to enhance receptor-mediated uptake, thereby improving tumor-specific targeting.

Conclusion: This study successfully established pre-formulation protocols and optimized a drug-loaded folic acid-decorated dendrimeric nanosystem with favorable physicochemical properties and sustained release, providing a robust platform for targeted breast cancer therapy.

Keywords: PAMAM dendrimers, Biomimicking nanosystem, Folic acid targeting, Breast cancer

JH/SECON2025/PP-300

Formulation and evaluation of herbal gel with anti microbial properties for dental applications

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ABSTRACT

The development of new gel formulations with enhanced antimicrobial activity is crucial in addressing various Tooth infections and improving wound care improve the solubility and stability of volatile oils with anti- microbial properties (green tea and Tulasi oil) focusing on their pharmacological and rheological characteristics. The antimicrobial activity of the optimized gels was evaluated against common pathogenic microorganisms, including Staphylococcus aureus, *Escherichia coli*, and *Candida albicans*, using standard microbiological assays. The increasing awareness of the side effects associated with synthetic oral care products has lead to growing interest in herbal alternatives. This study focuses on the formulation and evaluation of herbal tooth gel of an using natural ingredients known for their anti-microbial, anti- inflammatory, and astringent properties. The results showed that increasing the Carbopol concentration significantly enhanced the yield stress, consistency index, and viscosity, with gel B, containing 1% Carbopol, 1.5% tea tree essential oil, and 1.5% Tulasi oil, demonstrating optimal stability and rheological properties. Additionally, the optimized gels demonstrated good stability, non-irritating properties, and patient acceptability.

Keywords: Tooth gel, Volatile oils, Anti- microbial activity, Staphylococcus aureus.

JH/SECON2025/PP-301

Dietary phytocompound luteolin enhances cisplatin bioavailability via PPARγ-mediated upregulation of CTR1 in lung cancer

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ABSTRACT

Background: Cisplatin resistance and its toxic side effects are significant challenges in lung cancer treatment. One of the primary factors in cisplatin resistance is the reduced bioavailability of the drug within cancer cells, largely due to the downregulation of its influx transporter, Copper transporter 1 (CTR1). This study investigates the potential of luteolin, a predominant phytocompound found in Indian monofloral honey, Kartik honey, in the transcriptional regulation of CTR1, thereby improving cisplatin uptake.

Objectives: This study aims to investigate whether luteolin regulates CTR1 expression and localization in lung cancer cells, and to explore the role of peroxisome proliferator-activated receptor gamma (PPARγ) in this regulation, thereby improving cisplatin bioavailability and therapeutic response.

Methods: Luteolin content in honey was quantified using LC-MS and intestinal absorption assessed via the Caco-2 model. A549 and NCI-H460 cells were treated with cisplatin and luteolin. Cytotoxicity, proliferation, and colony formation assays were performed. CTR1 expression at gene and protein levels was assessed by qRT-PCR and Western blot, while localization was investigated by immunofluorescence. PPARγ expression and nuclear translocation and its correlation with CTR1 expression and cisplatin bioavailability was evaluated.

Results: Luteolin significantly increased CTR1 expression at both mRNA and protein levels and enhanced its plasma membrane localization. Mechanistically, luteolin promoted nuclear translocation of PPARγ, which positively correlated with CTR1 expression.

Conclusions: This study establishes that luteolin enhances cisplatin bioavailability in lung cancer cells through PPARγ-mediated upregulation of CTR1, establishing a novel regulatory link between PPARγ activation and CTR1 expression. These findings not only highlight luteolin as a nutraceutical adjuvant but also a novel transcriptional mechanism to overcome cisplatin resistance.

Keywords: Luteolin, Cisplatin bioavailability, CTR1, PPARγ, Lung cancer.

JH/SECON2025/PP-302

Exploring the anticancer potential of *Ocimum sanctum* and *Phanera variegata* as natural plant-based therapeutics for breast cancer with emphasis on molecular mechanisms in triple negative sub-type

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ABSTRACT

Background: Breast cancer is one of the most prevalent malignancies among women worldwide and is classified into various subtypes, including hormone receptor-positive and triple-negative breast cancer (TNBC). TNBC is particularly aggressive due to the absence of estrogen, progesterone, and HER2 receptors, making it difficult to treat with targeted therapies. Plant-based natural compounds are increasingly being investigated as alternative or adjunctive options for cancer therapy.

Objective: To explore the therapeutic potential of Clove Basil (Ocimum sanctum) and Phanera variegata in breast cancer, with emphasis on triple-negative breast cancer.

Methods: A comprehensive review of published literature was carried out to evaluate the anticancer properties of Ocimum sanctum and Phanera variegata. Their bioactive compounds, mechanisms of action, and reported effects on breast cancer cell lines such as MCF-7 were critically assessed. The analysis focused on their ability to induce apoptosis, regulate genes, modulate immunity, and exert antioxidant and cytotoxic effects.

Results: Ocimum sanctum demonstrated significant antiproliferative and pro-apoptotic effects against breast cancer cells through mitochondrial pathway activation and gene regulation. Phanera variegata, rich in flavonoids and other bioactive compounds, showed promising results in inducing apoptosis, reducing tumor growth, and providing antioxidant benefits. Both plants revealed multiple mechanisms of action supporting their potential in breast cancer management, particularly in hard-to-treat TNBC.

Conclusion: The findings suggest that Ocimum sanctum and Phanera variegata hold promise as natural, less toxic therapeutic agents against breast cancer. Continued molecular and preclinical studies are essential to establish their efficacy and potential role in integrative cancer treatment.

Keywords: Breast cancer, Triple-negative breast cancer, Ocimum sanctum, Phanera variegata, Natural therapeutics, Apoptosis

JH/SECON2025/PP-303

Survey on awareness of oral/periodontal health and hygeine among the college students

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ABSTRACT

Background: Oral diseases are the major public health concern owing to their high prevalence and effects on the quality of life. The systemic health of an individual depends on the degree of oral hygiene maintenance. It is well known that a periodontal disease, if left untreated, leads to recession, loss of attachment and mobility, eventually leading to loss of tooth.

Aims & Objective: To assess the periodontal status and treatment needs of college students and investigate the influence of demographic factors (age and gender) and oral hygiene practices (tooth brushing technique, frequency of brushing, use of interdental aids, dental visit patterns etc.) on periodontal health.

Methods: A questionnaire with 28 questions including general awareness about periodontitis /oral health and its impact on systemic health were given to patients and were asked to select their preferred option of Yes/No or Don't know.

Results: 182 responses were recorded and found that the percentage of subjects brushing their teeth wice were less ¼th percentage of students change their toothbrush in 3 months, 1/3rd of the students brush their teeth using horizontal method and only half of them were using dental floss.

Conclusion: The level of awareness was quite less and emphasizes the urgent need for educating and motivating them to use efficient method for oral health care.

Key words: Oral hygiene, periodontal health, college students.

JH/SECON2025/PP-304

Therapeutic evaluation of alogliptin and metformin in high-fat diet and streptozotocin-induced diabetic osteoporosis in *Wistar Rats*

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ABSTRACT

Background: Diabetes mellitus (DM) is a metabolic disease, involving inappropriately elevated blood glucose levels and that can also effect on tissues and their physiological functions at molecular and biochemical levels. Diabetic osteoporosis is one of the chronic diseases of bone metabolism effected by and characterized by augmented risk of osteoporotic fractures and destroying of bone microarchitecture.

Objective: This study evaluated the effect of Alogliptin and Metformin alone and in combination, in the treatment of diabetic osteoporosis induced by high fat diet (HFD) and streptozotocin (STZ) in *Wistar* rats.

Methodology: Wistar albino rats were kept on the HFD for 4 weeks after that STZ injected (35 mg/kg body weight, i.p.) to induce diabetic osteoporosis. Alogliptin (20mg/Kg), metformin (100mg/Kg), and their combination were administered to the diabetic rats from the 5th-12th week. Femur microarchitecture with bone mineral density (BMD) were evaluated using μCT. Further, metabolic and diabetes related parameters were measured.

Results: HFD and STZ impaired the femur microarchitecture and reduced BMD. HFD and STZ also induced diabetes and metabolic abnormalities (body weight, FBG and HbA1c). Interestingly, Alogliptin and Metformin alone and in combination improved the impaired bone microarchitecture and BMD. Alogliptin and Metformin successfully restored the diabetes and metabolic abnormalities.

Conclusion: Alogliptin and Metformin, both individually and in combination, effectively ameliorated diabetic osteoporosis. The study demonstrated that these compounds possess significant antidiabetic and osteoprotective properties in HFD-STZ induced T2DM model in rats.

Keywords: Alogliptin, metformin, high fat diet, streptozotocin, and osteoporosis

JH/SECON2025/PP-305

Ashwagandha authentication methods

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ABSTRACT

Background: During the COVID-19 pandemic, there was an increased use of Ashwagandha, particularly for respiratory issues. This growing global demand led to an increased risk for adulteration, while significant phytochemical constituent variation has raised concerns regarding quality and safety. Therefore, establishing authentication methods is both useful and important.

Aims: To authenticate Ashwagandha using traditional and modern methods.

Methods: Macroscopic and microscopic evaluations of powder samples of Ashwagandha were performed for structural analysis. Its authenticity was analysed using DNA barcoding with genetic markers like rbcL, matK, ITS2, and mini-ITS2. According to ICH Q2(R1) guidelines, HPLC and UHPLC-PDA(Ultrahigh-Performance Liquid Chromatography with Photodiode Array Detection) was carried out. Structural analysis was performed using Triple Quadrupole Mass Spectrometry (TQ-MS/MS) and Drift-Tube Ion-Mobility Quadrupole Time-Of-Flight Mass Spectrometry (DT-IM-QTOF-MS) and other standardization methods included HPTLC fingerprinting, organoleptic and physicochemical evaluation for Ashwagandha formulations.

Result: From the studies of literature reviewed, it was found that only approximately 64-77% contained the expected species; the rest, 22-35%, were either substituted or mixed with some undeclared plant materials like *Mucunapruriens*, *Tigonellafoenum-graecum*, *Sennaauriculata*, and other herbs when DNA barcoding was performed on market samples. Across commercial supplements, marked variability was found in Withanolide/Withonaside content through analytical studies. Standardization methods includes HPLC and HPTLC fingerprinting, thus confirming the presence of Withaferin-A.

Conclusion: From reviewed studies, it can be concluded that morphological analyses using macroscopic and microscopic methods and some modern methods like DNA barcoding, HPLC/UHPLC-PDA, and HPTLC fingerprinting thus provide a reliable framework for authentication of Ashwagandha.

Keywords: Ashwagandha; Authentication; DNA barcoding; HPLC;

JH/SECON2025/PP-306

Calendula: A natural treatment for Urolithiasis

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ABSTRACT

Background: Urolithiasis, or kidney stone disease, is a major global health concern with increasing prevalence. Despite advancements, current medical and surgical treatments are often expensive, have side effects, and do not guarantee against recurrence, necessitating the search for effective, natural alternatives.

Aim/Objectives: This study aimed to evaluate the in vitro antiurolithiatic activity of an aqueous extract of *Calendula* L. flower (AEC). The research sought to validate the traditional use of this plant and to determine its mechanism of action.

Methods: The *in vitro* study assessed AEC's antioxidant properties via DPPH assay and its ability to inhibit calcium oxalate crystal nucleation.

Results: The *in vitro* analysis confirmed AEC's significant antioxidant activity and its ability to inhibit crystal nucleation. These findings demonstrate that AEC can effectively prevent crystal formation in a controlled environment.

Conclusion: This study demonstrates that the aqueous extract of *Calendula*possesses significant antiurolithiatic properties. It effectively inhibits the initial stages of renal stone formation by acting as an antioxidant and inhibiting crystal nucleation. The findings support the traditional medicinal use of this plant and suggest it is a promising candidate for developing a safe and effective herbal treatment for urolithiasis.

Keywords: Antiurolithiatic activity; Calendula; Nephrolithiasis; Kidney Stone; Diuretics

JH/SECON2025/PP-307

Antifungal efficacy of phytochemicals in combination against *Candida* cell membrane: *in vitro* and *in silico* study

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ABSTRACT

Background: Candidemia is a major problem in immunocompromised patients. Azole antifungal drugs target lanosterol-14 α-demethylase (erg11p), critical to ergosterol biosynthesis, membrane fluidity and integrity in *Candida albicans*.

Aims/Objectives: This study uses phytochemicals in combination against fungal cell membranes to overcome drug resistance and toxicity.

Methods: Microbroth dilution method and disc diffusion assays investigated antifungal susceptibility while checkerboard assay evaluated synergistic interaction of compounds in combination. Cell membrane disintegration was estimated by measuring ergosterol levels, H^+ efflux, and cellular leakage. Binding affinity with erg11p was evaluated by molecular docking while ADMET properties defined drug-likeliness and toxicity.

Results: Minimum inhibitory concentration of compoundA and compoundB was 330 and 345µg/ml, respectively. The fractional inhibitory concentration index was less than 5 indicating synergistic interaction between the compounds, which in combination showed greater ZOI. Significant reduction was observed in ergosterol levels in both the test compounds; reduction being stronger in combination. The cells treated with compounds in combination showed highest absorbance at 260nm. *In silico* analysis showed that both compounds, have good binding affinity for erg11p (binding energy of -6.3 and -6.1 kcal/mol, respectively) which is comparable to fluconazole (binding energy -6.8 kcal/mol). Further, the ADMET properties reveal that both compounds follow the Lipinski's rule of five which qualifies them for oral usage and shows no hepatotoxicity and carcinogenicity unlike fluconazole.

Conclusion: The selected phytochemicals in combination can be applied as the potent inhibitors of erg11p and other membrane components.

Key words: *Candida albicans*; phytochemicals; erg11p; cell membrane; combination therapy

JH/SECON2025/PP-308

Decoding herbal legacy: planar chromatography in traditional medicine

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ABSTRACT

Introduction: Traditional medicine preparations are complex matrices of natural compounds, requiring reliable analytical techniques for quality measurement and standardization. Chromatography is a technique that enables the isolation, purification, and identification of the components of a mixture for their qualitative and quantitative analysis. Planar chromatography, mainly Thin-layer chromatography (TLC) and High-performance thin-layer chromatography (HPTLC), offers a simple, cost-effective, and powerful solution for the analysis of these complex mixtures.

Objectives: The primary objective of this study was to review the utility of planar chromatography for the routine analysis of traditional medicine, focusing on authentication, quality control, and screening for adulterants.

Methods: A literature-based review approach was adopted. Relevant articles were collected from search engines, including PubMed, ScienceDirect, and Google Scholar. The keywords used for the search included planar chromatography, HPTLC, TLC, traditional medicine. Approximately 200-300 relevant articles were considered for review, with emphasis on analytical methods such as TLC, HPTLC, HPTLC-MS for traditional medicine.

Result: Planar chromatography generates distinct, reproducible chromatographic fingerprints, allowing for rapid distinction between authentic and non -authentic samples. The review indicated that earlier techniques like TLC, lacked automation and photo documentation. In contrast, current methods such as HPTLC, offer automation, photo documentation and accurate estimation. HPTLC method is utilized to assess plant medicines from traditional Chinese medicine, AYUSH and other medicinal plants used in phytotherapy.

Conclusion: Planar chromatography is a versatile, efficient, and essential tool for the comprehensive quality control and standardization of traditional medicine, providing rapid, high-output analysis for qualitative and quantitative assessment.

Key words: Planar chromatography, HPTLC, Traditional medicine.

JH/SECON2025/PP-309

Development and evaluation of fumaric acid loaded chitosan nanoparticles

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ABSTRACT

Background: A naturally occurring organic acid that comes from *Fumaria indica*, fumaric acid is known for its potent anti-inflammatory, immunomodulatory, and antioxidant qualities, yet its therapeutic potential is limited by poor solubility and stability. Nanoparticle-based delivery systems offer a promising approach to enhance bioavailability and targeted action. Chitosan, a biodegradable and biocompatible polymer, has gained significant attention as a carrier for drug loaded nanoparticles due to its mucoadhesive nature and controlled release properties.

Aim: To formulate, characterize and evaluate fumaric acid loaded chitosan-based nanoparticles using the ionic gelation method for enhanced stability and potential biological activities.

Material and Method: It was prepared using an ionic gelation method in which fumaric acid, along with chitosan, was dissolved in an acetic acid solution (0.5 % -3% w/v). An Aqueous solution of sodium tripolyphosphate was then added dropwise to the drug loaded chitosan solution under continuous stirring, leading to the formation of nanoparticles. The nanoparticles were centrifuged, lyophilized and incorporated into a gel base using Carbopol and triethanolamine.

Results and Discussion: The formulated nanoparticles exhibited a mean particle size of 150 -1000 nm with a positive zeta potential, indicating good stability. Different nanoparticle sizes and morphologies were confirmed using TEM.

Conclusion: the fumaric acid loaded chitosan-based nanoparticles were successfully prepared and evaluated using standard analytical techniques such as zeta sizer, zeta potential analysis, TEM and Colorimetry. The results indicate that chitosan-based nanoparticles can serve as an effective carrier system for fumaric acid, potentially enhancing its therapeutic efficiency for antioxidant and anti-inflammatory applications.

Keywords: Fumaric acid (FA) , chitosan nanoparticles (ch-NPs), Ionic gelation, TEM.

JH/SECON2025/PP-310

Analysis of differentially expressed genes and molecular pathways in peanut allergy induced dynamic changes involved in peanut-specific immune responses: A systematic and bioinformatics approach

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ABSTRACT

Background: Peanut allergy poses a significant global health concern, triggering hypersensitivity reactions upon exposure to peanuts. Understanding the molecular mechanisms governing peanut-specific immune responses is imperative for developing effective therapeutic approaches.

Objective: This study aimed to investigate differentially expressed genes (DEGs) and associated molecular pathways implicated in peanut allergy-induced immune responses.

Methods: Employing a systematic and bioinformatics-driven approach, we analyzed gene expression profiles from peanut-allergic individuals and healthy controls using RNAseq Next-Generation Sequencing (NGS) data.

Results: Enrichment analysis of DEGs revealed their involvement in various inflammatory conditions, including autoinflammatory, allergic, and respiratory disorders. Additionally, pathway enrichment analysis highlighted perturbed molecular pathways such as Asthma, IL-17 signaling pathway, and Inflammatory bowel diseases, underscoring their role in modulating peanut-specific immune responses. Protein-protein interaction network analysis identified central regulatory hubs, elucidating the intricate molecular interplay underlying the immune response to peanut allergens. Overall, our findings offer comprehensive insights into the molecular landscape of peanut allergy, delineating key DEGs and pathways associated with peanut-specific immune responses.

Conclusion: This systematic and bioinformatics-driven approach enhances our understanding of allergic reactions to peanuts, providing potential targets for the development of novel therapeutic interventions and diagnostic biomarkers for peanut allergy management.

Keywords: Peanuts; Allergy; NGS; RNASeq; DEG; Pathways.

JH/SECON2025/PP-311

Shankhpushpi: From ancient Medhya Rasayana to modern neurotherapeutics

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ABSTRACT

Background: Shankhpushpi (*Convolvulus pluricaulis*), a prominent Ayurvedic herb, is traditionally revered as a *Medhya Rasayana* for its memory-enhancing and brain-tonic properties. It has long been used to manage cognitive decline, stress, anxiety, respiratory and skin ailments, and to promote hair growth. Modern pharmacological studies support its neurotherapeutic potential, reporting neuroprotective, anxiolytic, antioxidant, immunomodulatory, antidiabetic, and cardioprotective activities. Its transition from ancient Ayurvedic texts to contemporary research highlights its relevance in cognitive health and neurodegenerative disorders.

Objective: To consolidate the traditional uses, phytochemistry, and pharmacological properties of Shankhpushpi, with a focus on its cognitive benefits and potential in managing neurodegenerative disorders like Alzheimer's disease.

Methodology: A systematic search was performed in PubMed, Google Scholar, and ResearchGate up to 2025 to identify literature on Shankhpushpi and cognition. Only English studies focusing on neuroprotective, memory-enhancing, or therapeutic effects were included, while non-English, agricultural, and unrelated pharmacological studies were excluded.

Results: Literature reveals that extracts from aerial parts exhibit nootropic and neuroprotective activities. Phytochemical analyses identify alkaloids (convolamine), flavonoids (kaempferol), phenolics (scopoletin), β-sitosterol, and ceryl alcohol across roots, stems, leaves, and flowers. Preclinical studies highlight antioxidant, memory-enhancing, and acetylcholinesterase-inhibiting properties contributing to delayed neuronal degeneration. These effects support its role in cognition, stress management, cardiovascular health, and as a promising candidate for Alzheimer's and cognitive disorders.

Conclusion: Shankhpushpi bridges traditional Ayurvedic wisdom and modern validation. Its broad therapeutic properties, especially in neuroprotection and cognition, underscore potential in managing age-related decline. Further well-designed clinical studies are needed for evidence-based neurotherapeutics.

Keywords: Shankhpushpi, Brain tonic, neuroprotective, *Convolvulus pluricaulis*

JH/SECON2025/PP-312

Formulation and evaluation of skin whitening herbal soap

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ABSTRACT

Introduction: Land degradation has been one of the major causes of diminishing soil quality. Restoration of degraded lands involves careful planning and adopting land use options. The main objective of the study was to assess the changes in soil organic carbon pools as affected different eco-restoration strategies involving trees and grasses.

Materials and Methods: The study site is located at Jhansi, India. Three fodder trees, namely, *Ficus infectoria, Morus alba, Acacia nilotica and* a shrub i.e. *Leucaena leucocephala* (occurring naturally in most of arid and semiarid regions) were selected. Combination of three grass species viz., *Cenchrus ciliaris, Chrysopogon fulvus and Panicum maximum* were tried along with tree component. Soil samples were collected in four replicates from each eco-restored land at two depth layers (0–15 and 15–30 cm). Carbon management index (CMI), biological activity index (BAI), and eco-restoration efficiency of each system (ERE) were calculated.

Results and Discussion: Land under *Ficus, Morus, Acacia and Leucaena* had ~ 63, 105, 87 and 81% greater TOC than fallow land in surface layer and 78, 97, 109 and 77% greater TOC than fallow land in subsurface layer, respectively. *Ficus, Morus, Acacia* and *Leucaena* boosted up CMI by 51, 84, 71 and 65% at surface layers, respectively over fallow land. Grasses although improved CMI over fallow land, but their impacts were similar at surface layers. BAI describes the overall improvement in nutrient cycling in the ecosystems as it encompasses the activities of C, N and P cycling enzymes. However, BAI under *Ficus, Morus, Acacia* and *Leucaena* were ~a) 3.6, 6.2, 3.7 and 4.5 times and b) 3.8, 4.6, 8.8 and 4 times greater than fallow land at surface and subsurface soil layers, respectively (Table 1). Based on ERE values, we found that *Morus* and *Acacia* were the most efficient trees for restoration of degraded land and *Panicum* was the most efficient grass for restoration of degraded land under tropical climate of *Bundelkhand* region of India and their ecorestoration efficiency was ~10 times greater than fallow land.

Conclusion/Recommendation: Hence, *Morus* + *Panicum*, *Acaia* + *Panicum* could be effective restoration strategies for eco-restoration under degraded lands of tropical climates.
Key words: Land degradation; Carbon sequestration; Carbon management index; Biological activity index

JH/SECON2025/PP-313

Magna pads: The magnetic and mineral revolution for pain-free menstruation

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ABSTRACT

Background: Menstrual discomfort, cramps, and hygiene-related challenges remain persistent issues affecting women's quality of life. Current sanitary solutions provide protection but fail to address pain management and holistic menstrual care.

Aim: This study aims to develop Magna Pads, an innovative sanitary pad integrating magnetic and mineral-based technologies, to provide pain relief, hygiene, and enhanced menstrual comfort.

Methods: Magna Pads were designed combining therapeutic and protective elements. The anion chip layer releases negative ions to improve blood circulation and reduce cramps. Magnesium hydroxide gel was incorporated for its muscle-relaxing effect, while activated charcoal enhanced odour control. Copper nanoparticles provided antimicrobial protection, and liquorice extract was included for skin depigmentation benefits. A breathable perforated mesh layer was added to maintain dryness and comfort.

Results: Magna Pads demonstrated a multi-functional approach by simultaneously addressing pain relief, odour management, microbial control, and skin health and magnetic elements contributed for cramp reduction, while the antimicrobial ensured hygiene and freshness.

Conclusion: Magna Pads represent a novel menstrual care solution that goes beyond protection to offer therapeutic relief, hygiene, and skin wellness. This innovation may contribute to improving women's menstrual health and quality of life.

Keywords: Pain-free menstruation, Magnesium hydroxide gel, Anion chip, Antimicrobial, Breathability

JH/SECON2025/PP-314

Integrative assessment of *Cucumis melo*) seeds in chronic kidney disease: A combined network pharmacology, bibliometric analysis and HPTLC-based phytochemical study

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ABSTRACT

Background: *Cucumis melo L.* (Cucurbtaceae), commonly known as muskmelon or cantaloupe, has been traditionally employed in ayurveda (Sheetala) and Unani (Kharbooja) medicine for its cooling, diuretic, and lithotriptic properties. Its bioactive constituents, including cucurbitacins, phenolic acids, flavonoids, and phytosterols, have demonstrated antioxidant, anti-inflammatory, and nephroprotective potential.

Objectives: This study aimed to explore the therapeutic relevance of *Cucumis melo* seeds in chronic kidney disease (CKD) through an integrative approach combining Network Pharmacology, bibliometric analysis and HPTLC based phytochemical profiling.

Methods: Network pharmacology was employed to predict compound-target interactions of *Cucumis melo* against CKD related pathways.Bibliometric mapping of Cucumis melo research (2004-2025) was performed using Scopus and VOSviewer to identify global research trends. Simultaneously mixed markers were quantified, for verification and quantification of phytoconstituents for extract standardisation.

Results: Network Pharmacology was used to analyse the main constituents (alpha-Terpinol, 24-Methylene-24-dihydroparkeol and alpha-Amyrin) may interact with molecular targets (AKT1, TNF and TP53) involved in CKD pathways.Bibliometric analysis (N=33 publications highlights increasing global interest, with India, Pakistan, and Egypt as leading contributors, and CKD as a dominant research theme. HPTLC confirmed the presence of caffeic acid (0.069% w/w) and quercetin (0.23% w/w), supporting quality control of the extract.

Conclusion: This integrative study demonstrated that *Cucumis melo* possesses significant nephroprotective potential supported by Network Pharmacology, bibliometric evidence and phytochemical validation. The presence of key antioxidant markers underlines its role in combating CKD related oxidative and inflammatory stress. Future research should emphasize in vivo and clinical validation, advanced delivery systems, and global collaborations to establish *Cucumis melo* as a safe, natural nephroprotective agent.

Keywords: Chronic Kidney Disease, *Cucumis melo*, HPTLC, Bibliometric analysis

JH/SECON2025/PP-315

Medicinal plants with anti-arthritic potential: Ethnopharmacological perspectives

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ABSTRACT

Intoduction: Medicinal plants have been widely utilized around the world for the treatment of arthritis, especially in developing countries where modern healthcare resources have been limited. This article mainly highlighted the properties of several plants traditionally utilized by various tribes and ethnic groups for arthritis management. This review highlights various plants traditionally employed by different tribes and ethnic groups for arthritis treatment. Examples include *Zingiber officinale* (ginger), *Curcuma longa* (turmeric), *Boswellia serrata* (Indian frankincense), and *Withania somnifera* (ashwagandha), which are widely valued for their anti-inflammatory and pain-relieving effects.

Materials and Methods: Data was collated from Google, Pub Med and repository of Library of CCP

Results: A total of 485 plant species from 100 families has been recorded as traditionally utilized against the arthritis. Families such as Malvaceae (16 species), Fabaceae (13 species), Compositae (20 species), Solanaceae (12 species), Liliaceae (9 species), Euphorbiaceae (7 species), Araceae (7 species), and several others contributed significantly. Majority of the research were documented from developing countries, including India, China, Korea, and Nigeria, showing the importance of ethnomedicine in these regions.

Conclusion: This article explored the potential of various herbs, utilized in the management if arteritis. The documented species and their pharmacological data may help researchers identify beneficiary candidates for further study. Plants such as *Curcuma longa*, *Boswellia serrata*, and *Tinospora cordifolia* stand out as strong candidates for developing safe and effective herbal treatments for arthritis.

Keywords: Arthritis, Medicinal plants, Ethnopharmacology, Anti-inflammatory herbs, Traditional medicine

JH/SECON2025/PP-316

Ethno pharmacology as catalyst for novel anti-cancer drug discovery

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ABSTRACT

Background: Cancer remains one of the leading causes of global mortality, and despite advancements in synthetic drug discovery, challenges such as resistance, toxicity, and high costs persist. Ethnopharmacology, which bridges traditional medicinal knowledge with modern pharmacological research, provides a powerful pathway for identifying novel bioactive molecules with anticancer potential.

Aims/Objectives: The objective of this study is to explore the role of ethnopharmacology in accelerating anti-cancer drug discovery by analyzing traditional plant-based remedies and their translation into modern therapeutics.

Methods: A literature-based evaluation of medicinal plants traditionally used in Ayurveda, Siddha, and Tribal medicine was carried out. Data on bioactive compounds such as alkaloids, flavonoids, terpenoids, and phenolics with proven cytotoxic activities were compiled. Recent approaches integrating ethnobotanical knowledge, high-throughput screening, and molecular docking were also considered.

Results: Several phytoconstituents such as vinca alkaloids, taxanes, and camptothecins, originally identified through ethnopharmacological leads, have been successfully developed into clinically approved anticancer drugs. Ongoing studies on curcumin, withaferin A, and resveratrol further highlight the therapeutic promise of ethnopharmacology in oncology.

Conclusion: Ethnopharmacology plays a critical role as a catalyst for novel anticancer drug discovery. It not only validates the scientific basis of traditional medicine but also offers sustainable, cost-effective, and innovative approaches to address the global cancer burden.

Keywords: Ethnopharmacology, Anti-cancer drugs, Phytoconstituents, Traditional mediciion

JH/SECON2025/PP-317

Hepatoprotective activity of Calycopteris floribunda on Atorvastatin induced hepatic damage in rodents

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ABSTRACT

The present study aimed to test the pre clinical hepatoprotective potential of hydroalcoholic leaf extract of *Calycopteris floribunda* against liver damage caused by Atorvastatin. Atorvastatin was delivered intraperitoneally for 14 days at 80 mg/kg, while leaf extract was given orally for the same period at 200 mg/kg and 400 mg/kg. To evaluate the impact of the leaf extract on the atorvastatin induced liver damage, many biochemical markers, serum glutamate pyruvate transaminase (SGPT), serum glutamate oxaloacetate transaminase (SGOT), total protein, and serum alkaline phosphate were measured. Blood samples from mice given hydroalcoholic *C. floribunda* leaf extract showed a noteworthy decrease in serum indicators, suggesting that the leaf extract had an impact on the hepatocytes' ability to operate normally again. On the other hand, the mice receiving atorvastatin treatment showed increased levels, which suggested serious liver injury. Silymarin (100 mg/kg) was given as a benchmark. The current investigation found *C. floribunda* hydroalcoholic exract significantly protected the liver against atorvastatin induced hepatic damage.

Keywords: Hepatoprotective, *Calycopteris floribunda*, atorvastatin, oxidative stress, liver injury, rodents

JH/SECON2025/PP-318

Integrating traditional medicine phytochemicals with microbiome research: Evidence-based pathways to future therapeutics

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ABSTRACT

Background: Traditional medicine has long relied on plant-based remedies for health maintenance and disease management. Modern pharmacognosy has identified numerous bioactive phytochemicals, yet their mechanisms remain incompletely understood. Recent studies indicate that the gut microbiome significantly influences drug metabolism, bioavailability, and therapeutic outcomes. Exploring the interaction between traditional medicinal phytochemicals and the microbiome can provide a scientifically grounded framework for novel therapeutics.

Aim & Objectives: To investigate how phytochemicals from traditional medicinal plants modulate the gut microbiome and their potential implications for evidence-based therapeutic development.

Methods: A comprehensive review of literature on pharmacognosy, microbiome studies, and preclinical/clinical evidence was conducted. Key plants with documented microbiome-modulating effects were analysed. Mechanistic pathways, including microbial metabolism of phytochemicals and resultant bioactive compounds, were examined in relation to therapeutic potential.

Results: Phytochemicals from polyphenols, alkaloids, saponins, and polysaccharides were found to enhance beneficial gut bacteria like Bifidobacterium and Lactobacillus, improving metabolic, immune, and anti-inflammatory responses. Polyherbal formulations and fermented plant preparations exhibited synergistic effects on microbiome diversity. These findings link traditional medicine practices with measurable microbiome-mediated pharmacological effects.

Conclusion: Integrating traditional medicine phytochemical with microbiome research provides a translational, evidence-based framework for future therapeutics. This approach supports rational drug discovery, enhances phytochemical bioavailability, and offers novel interventions targeting metabolic, immune, and neurocognitive disorders. Clinical validation and microbiome profiling are recommended to further substantiate these pathways.

Keywords: Microbiome, Phytochemicals, Bifidobacterium, Lactobacillus and Pharmacological effects.

JH/SECON2025/PP-319

Formulation and optimization of herbal drug delivery system for osteoarthritis

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ABSTRACT

Background: Among all diseases, osteoarthritis (OA) ranks fifth, impacting 10% of the global population. The medications that are now on the market have a number of adverse effects and don't stop the condition from becoming worse. Furthermore, no such effective osteoarthritis therapy has been discovered too far in any of the several medical systems. There have been notable clinical advances in treatment of osteoarthritis using herbal medications.

Objective: The aim of present study was to design, optimize & characterize polyherbal tablet for osteoarthritis.

Methods: By the direct compression method, polyherbal tablet of berberine, boswellic acid, curcumin and guggulsterone can be safely made. A response surface D-optimal design was applied to study effect of Avicel & banana powder on breakdown time & hardness of tablet. Polyherbal tablet were examined by FTIR, DSC, Pre-formulation, Pre-compression, Post-compression and in vivo osteoarthritic activity.

Results: There was a noteworthy impact of independent parameters on the mechanical properties of the prepared mixes. The ideal concentration of Avicel and banana powder was found to have the right breakdown time and stiffness. Rats were used to examine the anti-osteoarthritic activity of a monosodium iodoacetate (MIA) induced model. Compared to normal, polyherbal tablets had excellent anti-osteoarthritic properties.

Conclusion: The design results showed Polyherbal tablet revealed good physical and anti-osteoarthritic action for treatment of osteoarthritis in animals. More plants & their mixes should be studied to get steady; safe & effective recipes can compete with made drugs.
Keywords: Osteoarthritis, Herbal, Drugs, Polyherbal, Tablet, Berberine, Boswellic acid, Curcumin, Guggulsterone

JH/SECON2025/PP-320

Nutritional profiling of food samples using advanced analytical techniques: A methodological study and an innovative functional food formulation

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ABSTRACT

Diabetes is one of the world's most common noncommunicable diseases. It is the fourth leading cause of death in the majority of developed nations. According to recent forecasts, 285 million individuals globally (6.6%) between the ages of 20 and 79 would have diabetes in 2010, and by 2030, 438 million people (7.8%) of the adult population will have the condition. The current healthcare system has historically been unprepared to deal with the growing global impact of diabetes, necessitating an urgent need for better and more innovative solutions. One promising avenue is functional foods—foods that provide health benefits beyond basic nutrition due to the presence of bioactive compounds. Functional foods contain physiologically active components that have been related to improved physiological health in the prevention and treatment of chronic illnesses such as type 2 diabetes. Numerous studies have shown that functional meals can enhance glycaemic control, reduce oxidative stress, change inflammatory responses, and increase insulin sensitivity in the treatment of diabetes. In this study we will evaluate the anti-diabetics effects of some of the superfoods and develop an innovative functional food formulation. The study continues with the selection of ingredients like moringa, spirulina etc. in total of 13 ingredients chosen on the basis of protein, carbohydrate, vitamins, fibre, fats and mineral content. The analysis of these nutritional factors is done by Kjheldal, Standard AOAC 2016 manual calculation, HPLC, Manual digestion standard AOAC method by Soxhlet and Mass-ICPMS respectively. On the basis of the above ingredient results the formulation will be prepared in the ratio of the nutritional factors which is 1:2:1 i.e. Carbohydrate: protein: fibre. Also prepared in a way that it will match the daily calorie need of the diabetic patient. The nutritional factors of the formulation will be analysed as some of the ingredients. The prepared formulation results to have 50% of protein of the total weight of the formulation, 13% of the fat content, 11% of the fibre content and 22% of the mineral content. the nutritional content in the formulation states that the formulation prepared is ideal for diabetic patients and can be a best health supportive food formulation. Which can further be commercialised as this kind of formulations are limited in the market and can be a novel functional food product beneficial in blood glucose management and diabetes.

Keywords: Diabetes, Functional food, superfoods, HPLC, Bradford Assay, Mass- ICPMS.

JH/SECON2025/PP-321

Neuroprotective role of plant-based phytoconstituents in ameliorating Alzheimer's pathology associated with cognitive impairments

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ABSTRACT

Introduction: Dementia, a prevalent condition among the elderly, is rapidly increasing worldwide, with a significant rise observed in India. The leading cause of dementia is Alzheimer's disease (AD), a progressive neurodegenerative disorder characterized by memory loss, cognitive decline, and impaired daily functioning. AD pathology includes cholinergic dysfunction, β-amyloid plaque deposition, and neurofibrillary tangles (NFTs), along with other contributing factors such as neurotransmitter imbalances, advanced glycation end products (AGEPs), oxidative stress, mitochondrial dysfunction, neuroinflammation, and both genetic and environmental influences.

Materials and Methods: Current therapeutic approaches for AD primarily involve anticholinesterase agents, N-methyl-D-aspartate (NMDA) receptor antagonists, and disease-modifying drugs. However, these treatments do not significantly alter disease progression. Over the past decade, nearly 200 potential therapeutic candidates have failed in clinical trials, highlighting the complexity of AD pathogenesis. In response, plant-based medicines have gained popularity as complementary and alternative therapies. These phytoconstituents target multiple pathological mechanisms of AD and are being evaluated in ongoing clinical trials.

Results and Discussion: Plant-based therapies have demonstrated promising effects on key AD targets, including reduction of oxidative stress, modulation of neurotransmitter systems, and anti-inflammatory activity. Herbal combinations are under clinical investigation and may offer synergistic benefits when integrated with conventional treatments. This integrated approach—combining existing pharmacological agents with plant-derived bioactives and alternative therapies—could pave the way for more effective AD management strategies.

Conclusion/Recommendation: An integrated therapeutic model involving conventional drugs, plant-based phytoconstituents, and alternative medicine holds potential for improving outcomes in Alzheimer's disease. Further research is recommended to validate efficacy and optimize treatment protocols.

Keywords: Dementia, Alzheimer's Disease, β-Amyloid, NFTs, Oxidative Damage, Neuroinflammation, Phytoconstituents

JH/SECON2025/PP-322

Immunoblotting techniques: ELISA, western blotting, southern blotting and applications in development

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ABSTRACT

Background: Immunoblotting techniques, including ELISA, Western blotting, and Southern blotting, arefundamental molecular biology tools used for the detection, quantification, and characterization of proteins and nucleic acids. These methods have significantly advanced biomedical research, diagnostics, and therapeutic development.

Objective: The objective of this study is to provide a comprehensive overview of immunoblotting techniques-ELISA, Western blotting, and Southern blotting-highlighting their principles, protocols, comparative strengths, and applications in biomedical sciences, diagnostics, and drug development.

Methodology: This work is based on a critical literature review of published research articles, case studies, and experimental protocols indexed in scientific databases from pas decades. The study systematically analyzes the principle, working mechanisms, and procedural steps of each technique and examines their diverse applications in research and clinical practice.

Results: ELISA is found to be highly sensitive and suitable for large-scale diagnostic screening, while Western blotting provides specific protein identification and post-translational modification analysis. Southern blotting, though less commonly used today due to advanced molecular methods, remains relevant for DNA analysis and genetic studies. Collectively, these techniques demonstrate versatility in disease diagnosis, vaccine development, biomarker discovery, and therapeutic monitoring.

Conclusion: Immunoblotting techniques continue to play a vital role in molecular biology and clinical diagnostics. While newer molecular approaches are emerging, ELISA, Western blotting, and Southern blotting remain gold-standard methods due to their reliability, specificity, and adaptability. Their integration with modern technologies promises further advancements in translational research and personalized medicine.

Keywords: Immunoblotting; therapeutic Application; biotechnology; healthcare; biomedical.

JH/SECON2025/PP-323

From data to discovery: AI in predicting herbal synergy for cancer

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ABSTRACT

Background: Polyherbal formulations combine many plants for increased efficacy, utilising a diverse range of active phytoconstituents. The enormous variety of possible herb combinations and complicated interactions make it difficult to predict which combination will perform best in a synergistic manner. Artificial Intelligence (AI) simplifies this process of selection by analysing chemical, clinical, and biological data to identify the most promising synergistic herb combinations.

Objective: To apply Artificial Intelligence methods for predicting synergistic effects among polyherbal formulations, enabling faster identification of effective herb combinations for therapeutic use, with a focus on Breast Cancer treatment.

Methodology: The methodology involved compiling phytochemical profiles and biological activity data of herbs (Prunella vulgaris and Taraxacum mongolicum) from scientific databases and published research, followed by standardizing chemical structures and curating biological information for consistency. Relevant compound properties and biological targets were identified from the data, and AI algorithms were applied to predict which herb combinations would likely exhibit synergy based on compound-target interactions. The AI-predicted combinations were then tested in laboratory assays on Breast Cancer cell line to confirm their synergistic activity.

Results: The AI predicted combination - T1685, showed the strongest anti-cancer effect, with an IC50 value of 21.50 µM and combination index of 0.27, performing better than individual herb extracts. Laboratory validation confirmed these combinations inhibited cancer cell growth more effectively than individual herbs. Further analysis revealed that these combinations regulated key cancer pathways, including apoptosis and cell cycle control.

Conclusion: AI-driven prediction of synergistic polyherbal formulations offers a robust, efficient tool for drug discovery. It reduces experimental burden by focusing validation on the most promising therapeutic combinations, improving personalized and effective treatment options in phytomedicine, especially for cancer therapy.

Keywords: Polyherbal formulations, Artificial Intelligence (AI), Breast Cancer treatment

JH/SECON2025/PP-324

Babchi: Unveiling the healing power of *Psoralea corylifolia*

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ABSTRACT

Background: Psoralea corylifolia (Babchi) is a traditional medicinal herb used in Ayurveda, Tamil Siddha, and Chinese medicine. It grows in sandy and loamy soils of Central and East India and contains bioactive compounds like flavonoids (bavachin, corylin), coumarins (psoralen, angelicin), meroterpenes, and benzofurans, essential oils, and resins. Its seeds, roots, leaves, and oil are used to treat Kidney, liver, skin, digestive, bone, and genitourinary disorders and act as an aphrodisiac.

Aim/Objectives: This review aims to provide a comprehensive overview of the phytochemical composition, traditional uses, and pharmacological properties of *Psoralea corylifolia*, supporting further research and development of novel plant-based therapeutics.

Method: An extensive literature survey was conducted, examining ethnobotanical records, chemical studies, and pharmacological research on seeds, seed oil, roots, leaves, and fruits. The focus was on reviewing on identifying bioactive compounds and their therapeutic effects.

Results: *P. corylifolia* exhibits multiple pharmacological activities, including antibacterial, antifungal, antioxidant, anti-inflammatory, estrogenic, immunomodulatory, and antitumor effects. PCL has compounds such as psoralen, isopsoralen, bakuchiol, and bavachin that may harm the liver, causing enlargement, fat accumulation, and liver cell death, depending on the dose and treatment length. Coumarins increase cAMP/GMP and inhibit Th2 response to ease inflammation (Asthma), Bavachin suppresses NF-κB and cytokines, protecting brain cells(Neuroprotection), Bakuchiol boosts antioxidants and reduces ROS, protecting kidneys(Diabetic Nephropathy), Bakuchiol enhances mitochondria and lowers MDA, limiting damage (Ischemia–Reperfusion), Psoralen and bakuchiol promote osteoblast activity and bone growth (Anti-Osteoporosis), Psoralen and isopsoralen increase tyrosinase, restoring skin pigmentation (Vitiligo).

Conclusion: *Psoralea corylifolia* is an important medicinal plant that combines traditional knowledge with scientific validation. Further research on its bioactive compounds can help develop new plant-based treatments, reinforcing its significance in modern medicine.

Keywords: *Psoralea corylifolia*; Babchi; phytochemicals; traditional medicine; antioxidant; herbal therapeutics

JH/SECON2025/PP-325

Neuroprotective effect of ginseng extract against cisplatin induced neurotoxicity in male sprague dawley rats

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ABSTRACT

Introduction: Chemotherapy with cisplatin is a common and effective treatment for various cancers but is often accompanied by serious neurotoxic side effects. These toxic effects on the brain can lead to cognitive deficits, memory impairment, and motor dysfunction. Oxidative stress, neuroinflammation, neurotransmitter imbalance, and neuronal apoptosis are key mechanisms underlying cisplatin-induced neurotoxicity. And Ginseng having proven anti-inflammatory and Anti Apoptotic properties can therefore mitigate these adverse effects to improve patient quality of life during chemotherapy.

Aims and Objectives: This study aimed to investigate the neuroprotective potential of ginseng extract against cisplatin-induced neurotoxicity in male rats. The objectives were to evaluate behavioral changes, biochemical oxidative and inflammatory markers, neurotransmitter levels, and hippocampal neuronal integrity following treatment with cisplatin alone and in combination with ginseng.

Method: Male Sprague-Dawley rats were divided into four groups: 1. control, 2. ginseng-treated (100 mg/kg orally for 90 days), 3. cisplatin-treated (4 mg/kg intraperitoneally once weekly for 90 days), and 4. combined treatment. Behavioral tests including the Morris water maze and rotarod were employed to assess cognitive and motor function. Brain tissues were analyzed for oxidative stress markers, inflammatory cytokines, neurotransmitters, apoptosis proteins, and histopathology.

Result and Conclusion: Results demonstrated that cisplatin caused significant cognitive decline, motor impairment, oxidative damage, increased proinflammatory cytokines, neurotransmitter disruption, and neuronal apoptosis. Ginseng co-administration significantly ameliorated these deficits by reducing oxidative stress, inflammation, and apoptotic markers, restoring neurotransmitter balance, and preserving neuronal structure. These findings support ginseng's role as a promising neuroprotective agent to counteract cisplatin-induced neurotoxicity.

Key words: Cisplatin induced Neurotoxicity, Ginseng, Oxidative Stress, Inflammation, Neuronal Apoptosis, Neurotransmitter, Cognitive deficits, Motor dysfunction.

JH/SECON2025/PP-326

Understanding gingivitis through Unani humoral theory and treatment

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ABSTRACT

Gingivitis, or gum inflammation, is a widespread oral health issue that can lead to more serious problems if ignored. From a Unani perspective, this condition arises due to an imbalance in the body's humors—especially an excess of black bile (*sauda*) and phlegm (*balgham*)—usually triggered by poor oral hygiene and changes in the body's natural temperament (*Mizaj*). While Unani medicine has a long history of treating gingivitis with natural remedies, blending this ancient wisdom with modern research is essential for a fuller understanding. This work aims to shed light on how Unani medicine views gingivitis, explore the herbal and regimen-based treatments it offers, and highlight scientific findings that support these traditional methods. By examining classical Unani texts alongside contemporary studies, we identified key plants and multi-ingredient preparations that have been used for generations to tackle gum inflammation. The results show that herbs like Aloe vera, Clove, Turmeric, and the Miswak stick possess strong anti-inflammatory and antibacterial properties. Combined with regimenal therapies that restore humoral balance, these treatments effectively reduce gum swelling and bacterial buildup. This supports the idea that Unani approaches offer real therapeutic value in oral care. In conclusion, Unani medicine offers a holistic, balanced, and practical approach to managing gingivitis. By integrating its time-tested principles with scientific validation, we can expand the toolkit for oral health, promoting natural and preventive care worldwide.

Keywords: Gingivitis, humoral balance, herbal treatment

JH/SECON2025/PP-327

In-vivo screening of aqueous extracts of leaves and seeds of *Neolamarckia cadamba* for antimalarial activity

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ABSTRACT

Neolamarckia cadamba plantbelongs to family *Rubiaceae* has drawn attention as source to obtain a therapeutic candidate against infection of malaria parasite because of its non-toxic nature and richness in phytochemicals. In this study an effort was made to validate the traditional use of *N. cadamba* in treating fever, anaemia and infection by ascertaining antimalarial activity through In-vivo screening as per Peters 4-day test of aqueous extracts of leaves and seeds prepared in the laboratory.

In this challenge test experiment, the effect of aqueous extracts of leaves and seeds was observed at three doses 10,25, 40 mg/kg b.wt. administered through I/P route dissolved in normal saline in Chloroquine sensitive *Plasmodium berghei*-infected BALB/C mice. Both leaves and seeds extracts at 40mg/kg b. wt. achieved 46.02% and 36.56% suppression of parasitaemia respectively without weight loss and mortality in extract treated groups up to 21 days. While Chloroquine phosphate, the standard drug treatment 5 mg/kg b.wt. administered through I/P showed 100% parasite suppression. Animals in control group showed lesser average survival time and comparatively lesser gain in average body weight, suggestive of no adverse implications on the physiology of animal in Chloroquine phosphate treated groups were recorded normal.

Although aqueous extract of leaves and seeds were not found effective as standard drug Chloroquine phosphate, however, these findings may be useful for further exploration and development on this plant by using other suitable solvents and fractionation technologies in order to confirm its antimalarial activity more appropriately in future.

Keywords: Extracts, Antimalarial, Suppression, Traditional

JH/SECON2025/PP-328

Cinnamon in contemporary pharmacology and traditional medicine: The role of coumarin

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ABSTRACT

Introduction: For ages, traditional medical systems like Ayurveda, Unani, and Traditional Chinese Medicine have relied heavily on cinnamon due of its medicinal, digestive, and fragrant qualities. Coumarin, a benzopyrone derivative, is one of its bioactive components that has attracted a lot of pharmacological interest. A balanced assessment is necessary due to its contribution to cinnamon's medicinal profile, coumarin is also linked to possible hepatotoxicity.

Materials and Methods: Pharmacopoeias, ethnomedical literature, and current biomedical research indexed in PubMed, and Google Scholar were the sources of the data. The pharmacological range of coumarin was highlighted through an analysis of reports on in vitro, in vivo, and clinical studies.

Results and Discussion: According to the bioactivities of coumarin, cinnamon was used in traditional medicine as a stimulant, carminative, and treatment for digestive and respiratory conditions. However, dose-dependent hepatotoxicity is revealed by contemporary toxicological investigations, which results in stringent regulation restrictions for food and herbal products, particularly in US and European pharmacopeias. High-performance liquid chromatography (HPLC) is one of the standardization techniques that have been established for quality control of the coumarin concentration in cinnamon formulations.

Conclusion: Coumarin connects the modern pharmacological validity of cinnamon with its historic medicinal claims. Although its pharmacological potential is still encouraging, new formulation techniques, safety monitoring, and regulated dosage are necessary to optimize advantages and reduce hazards. There's a need of clinical trials to establish its pharmacological claims.

Keywords: Hepatotoxicity, Pharmacology, Cinnamon, Coumarin, Standardization.

JH/SECON2025/PP-329

Aragvadha,'the disease killer' therapeutic significance of *Cassia fistula* Linn.

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ABSTRACT

Introduction: Amaltas (*Cassia fistula* Linn.), family Fabaceae, also known as the golden shower plant, has been popular since ancient times as a frequent remedy of choice for Ayurvedic physicians due to its therapeutic properties like laxative, antibacterial, analgesic, anti-tumorous, anti-diabetes, etc. In Ayurveda, it is known as "aragvadha," which means "disease killer." It grows abundantly in Indian habitats and the South East Asian part.

Traditional Uses and Phytochemistry and methodology: Acharya Charak has categorized Amaltas in Kushthar gana (skin curing) as well as Kandhur gana (relieves itching).Amaltas phali (pod) is also beneficial in balancing Kapha dosha and because of its mild purgative properties.In ayurvedic terms its medicinal qualities suggest -Jvar : helps in relieving fever , Hrudy rog: helps to digest indigested food, Tyachya : useful in skin problems, improve skin tone, Pittasar: helpful in bleeding disorders , Vata-Udavarta : helpful in relieving bloating and gas, Shula: relieves abdominal colic pain . Modern studies suggest it has vast therapeutic importance; it also possesses properties such as flatulence, anti-inflammatory, anti-diabetic, treatment for hepatobiliary disease, constipation, skin disease, fever (especially Blackwater fever), worm infestation, analgesic, anti-colic, and blood diseases, etc. Excellent source of iron (Fe) and manganese is found in the edible fruit tissue. It contains alkaloids, tars, flavonoids, rhein glucoside, fisulic corrosive, beta-sitosterol, and hexacosanol.

Herbal Medicines Containing Amaltas: Manasmitra Vadakam, Mahamangshistha Kadha, Aragvadhadi Kwath, Lauq Sapistan,

Conclusion: Amaltas stands out as a powerful herb in traditional as well as modern medicine as it offers a natural range of solutions for ailments with its rich blend of anti-inflammatory, anti-diabetic, anti-oxidant, antifungal, and antibacterial properties. It continues to be a valuable asset in Ayurveda and folk healing systems, and as a part of modern medicine, research continues to explore its full potential for the medicinal and pharmaceutical industry.

Keywords: Skin cure, anti-diabetic , laxative, ayurvedic

JH/SECON2025/PP-330

Nephroprotective Functional Foods for CKD: A Review of GuidelineBased Dietary Strategies

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ABSTRACT

Background: Chronic Kidney Disease (CKD) affects nearly 697 million people globally, posing a major health and nutritional challenge. Dietary management remains central to its care, as appropriate nutrient regulation can delay disease progression and prevent complications. However, adherence to renal diets is often hindered by restrictive nutrient guidelines and limited variety. Functional foods and bioactive ingredients, when integrated into evidencebased dietary patterns, offer a promising approach to improving nutritional adequacy and renal protection.

Aim: This review evaluates foods and functional ingredients recommended by current CKD guidelines (KDOQI 2020, KDIGO 2024) with proven nephroprotective potential.

Methodology: A literature review was conducted using databases such as PubMed, and Google Scholar, along with evidence from established CKD nutrition guidelines (KDOQI 2020, KDIGO 2024). Studies and reviews were screened for foods and bioactive components with nephroprotective properties. Identified ingredients were classified based on their functional roles in CKD dietary management.

Results: Six major functional groups were identified: (i) plant-based proteins (legumes, soy, quinoa); (ii) mineralmodulating foods and natural phosphate binders (isabgol, sesame, chitosan); (iii) antioxidantand phytochemicalrich sources (turmeric, moringa, berries); (iv) fiberand prebioticrich foods (oats, barley, fruits); (v) herbal adaptogens (astragalus, cinnamon, fenugreek); and (vi) healthy fats and anti-inflammatory agents (olive oil, flaxseeds, omega-3s). Evidence supports their role in reducing oxidative stress, improving mineral homeostasis, and slowing renal function decline.

Conclusion: The inclusion of diverse functional foods aligned with CKD dietary guidelines can enhance patient adherence, ensure nutritional adequacy, and provide holistic nephroprotection in chronic kidney disease management.

Keywords: CKD, Nephroprotective, Food, Kidney health

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Advances in PCSK9 inhibitors for cardiovascular disease: From pharmacology to translational research

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ABSTRACT

Background: Cardiovascular disorders (CVD) are a major factor for death globally, leading to approximately 18 million deaths annually. CVD increases the risk for hypertension, diabetes, and premature mortality. To address this crisis, proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors have emerged as an important regulator in circulating low-density lipoprotein-cholesterol (LDL-C) levels by promoting the LDL receptor degradation. This mechanism has gained attention, especially as classical statin therapy was associated with challenges, comprising multiple side effects.

Aim: The primary goal of the review is to provide a comprehensive overview of the development stages of PCKS9 inhibitors, their mechanism of action, the structure of the PCKS9 protein, and key pharmacokinetic and pharmacodynamic parameters. Furthermore, the review comprises recent findings in the preclinical and clinical trials showing therapeutic relevance on lipid parameters, helping in the treatment and prevention of cardiovascular disorders.

Methodology: The available information on various PCSK9 inhibitors was collected from various scientific sources. Relevant literature was explored through a comprehensive search using variations of the keywords "PCSK9 inhibitors," "LDL-C reduction," "hypercholesterolemia," "cardiovascular diseases," and related terms across PubMed, ScienceDirect, Springer, and Google Scholar databases.

Result: PCSK9 inhibitors have shown potent LDL-C reduction in several preclinical trials and favorable pharmacokinetics and safety in clinical trials. PCSK9 inhibitors are also associated with inherent anti-autophagic, anti-inflammatory, and antioxidant properties in endothelial cells. Additionally, it has demonstrated significant impact on cardiovascular outcomes of patients with diabetes mellitus.

Conclusion: PCSK9 inhibitors introduced a transformative change in lipid management by novel therapeutic approaches. Their ongoing development offers better accessibility, enhanced long-term effects, and potential incorporation into personalized cardiovascular care.

Keywords: "PCSK9 inhibitors", "LDL-C", "hypercholesterolemia", "cardiovascular diseases".

JH/SECON2025/PP-332

Bridging centuries: Traditional diets and modern nutrition science for holistic health

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ABSTRACT

Background: In recent years, there has been a noticeable shift towards a comprehensive view of human health, addressing the value of blending traditional remedies with essential nutrients and exploring the influence of ancient food practices and local biodiversity on conventional Indian diets, which affect gut health, nutrient intake, inflammation, and metabolism. These effects impact the outcome of overall health.

Aim/Objective: This review highlights the promotion of overall well-being by combining traditional dietary practices with modern nutritional studies and emphasizing their cultural value, generation-long knowledge, and scientific foundations that demonstrate their relevance in contemporary medicine.

Methods: The methodology involves a multidisciplinary review of literature focusing on traditional food combinations, preparation techniques, and cross-cultural dietary interactions. Emphasis is placed on fostering collaboration between traditional knowledge systems and evidence-based nutritional research.

Results: Research shows that conventional plant-based and minimally processed foods are associated with improved lipid profiles, decreased glycemic response, and increased production of short-chain fatty acids by gut microbes. These physiological effects correlate with a reduced prevalence of cardiometabolic disorders and markers of inflammation-related diseases among individuals practising traditional diets.

Conclusion: The synthesis emphasises that integrating traditional dietary concepts into modern nutritional frameworks enables evidence-based, culturally relevant health interventions. A systems-oriented approach, integrating food biodiversity, nutritional epidemiology, and molecular nutrition, can enhance global preventive healthcare. Future research should quantify the synergy of bioactive compounds and establish standardized criteria linking traditional dietary adherence to biomarker-based health outcomes.

Keywords: Traditional Indian diet, Gut microbiota, Holistic health, Glycemic index


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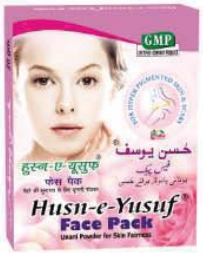
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A-REST TABLETS

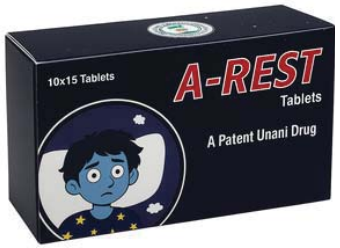
Herbal Harmony for Mind & Sleep

PRODUCT OVERVIEW:

A-REST is a premium Unani herbal formulation designed to naturally support mental wellness, promote restful sleep and ease symptoms of stress and anxiety.
Crafted with potent plant-based ingredients known for their calming and adaptogenic properties, A-REST helps restore the body' s natural balance, encouraging deep relaxation without causing drowsiness or dependency.

KEY BENEFITS:

- Supports Natural Sleep Cycles
- Reduces Stress & Anxiety
- Enhances Mental Clarity
- Balances Emotional Wellbeing



Made with authentic Unani herbs traditionally used to pacify the nervous system and rejuvenate mental function. Free from artificial additives, A-REST is safe for long-term use under proper guidance.

Directions for usage:

one tablet at bed time after meals or as directed by the registered medical practitioner.

SS-GACID TABLETS

FAST & NATURAL RELIEF FROM GASTRIC DISCOMFORT

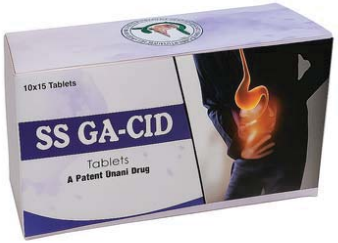
PRODUCT OVERVIEW:

SS-GACID is a specialized Unani herbal formulation crafted to provide fast and effective relief from acidity, gas, bloating, and related digestive discomforts.
Combining potent carminative and antacid herbs, SS-GACID is ideal for those experiencing chronic acidity, indigestion, flatulence or post-meal heaviness. It promotes a healthy digestive environment without side effects or dependency.

KEY BENEFITS:

- Neutralizes Excess Stomach Acid
- Reduces Gas & Bloating
- Improves Appetite & Digestion
- Soothes Gastric Irritation

Made using time-tested Unani ingredients with carminative, antacid, and anti-inflammatory properties. SS-GACID is free from harmful chemicals, offering safe, long-term support for your digestive health.



Directions for usage:

one tablet twice a day after meals or as directed by the registered medical practitioner.

SS-OXI CAPSULES

Herbal Power for Metabolism, Immunity & Weight Balance

PRODUCT OVERVIEW:

SS-OXI is a potent Unani herbal supplement formulated from pure Moringa leaf powder, known as one of nature's most nutrient-rich superfoods. Packed with essential vitamins, minerals, antioxidants, and bioactive compounds, SS-OXI is designed to naturally boost metabolism, aid in weight management, and support overall health through its powerful anti-inflammatory and detoxifying properties.

In Unani tradition, Moringa is celebrated for its Muqawwi (strengthening) and Musaffi (blood-purifying) properties—making SS-OXI a natural ally for modern wellness and immunity.



Made from 100% pure Moringa leaf powder, carefully processed to preserve its natural nutrients. Free from artificial additives, SS-OXI offers a holistic, safe, and effective solution for modern health concerns.

KEY BENEFITS:

- Boosts Metabolism
- Supports Healthy Weight Loss
- Rich in Antioxidants
- Anti-Inflammatory Action
- Enhances Energy & Immunity

Directions for usage:

one capsule at bed time after meals or as directed by the registered medical practitioner.

AKSEER-E-JIGAR TABLETS

Herbal Excellence for Liver Health

PRODUCT OVERVIEW:

AKSEER-E-JIGAR is a powerful Unani herbal formulation specially developed to support liver health and treat a wide range of hepatic disorders. It is particularly effective in managing fatty liver, elevated liver enzymes, and conditions arising from poor liver function, detoxify the liver, regenerate liver cells, and restore its vital functions. It helps maintain liver enzyme balance, improves bile flow, and enhances overall metabolic performance—making it an ideal choice for those seeking a natural liver care solution

KEY BENEFITS:

- Supports Liver Detoxification
- Regulates Liver Enzymes
- Protects & Regenerates Liver Cells
- Improves Digestion & Appetite
- Combats Fatty Liver



Prepared using traditional Unani herbs known for their liver-protecting, anti-inflammatory, and antioxidant properties. AKSEER-E-JIGAR is a safe, non-toxic, and effective natural remedy for restoring and maintaining liver health.

Directions for usage:

one tablet twice a day after meals or as directed by the registered medical practitioner.

SS-PAIN NIL TABLETS

Natural Relief for Joint, Body & Muscle Pain

PRODUCT OVERVIEW:

SS-PAIN NIL is a carefully formulated Unani herbal remedy designed to provide effective relief from joint pain, muscular aches, body stiffness, and inflammatory conditions. Developed using time-honored Unani principles and potent medicinal herbs, this natural formulation targets the root causes of pain—offering lasting comfort without the side effects commonly associated with synthetic painkillers,

SS-PAIN NIL works to soothe inflammation, enhance mobility, and support musculoskeletal strength.

KEY BENEFITS:

- Relieves Joint & Muscle Pain
- Supports Joint Flexibility
- Soothes Muscle Fatigue
- Reduces Inflammation
- Ideal for Arthritis & Rheumatic Pain



Enriched with powerful Unani herbs known for their analgesic, anti-inflammatory, and circulation-boosting properties. SS-PAIN NIL is free from harmful chemicals, making it a safe and natural choice for pain relief and improved mobility.

Directions for usage:

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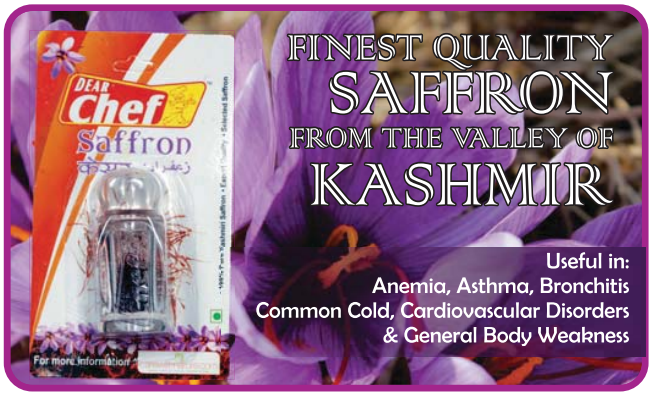
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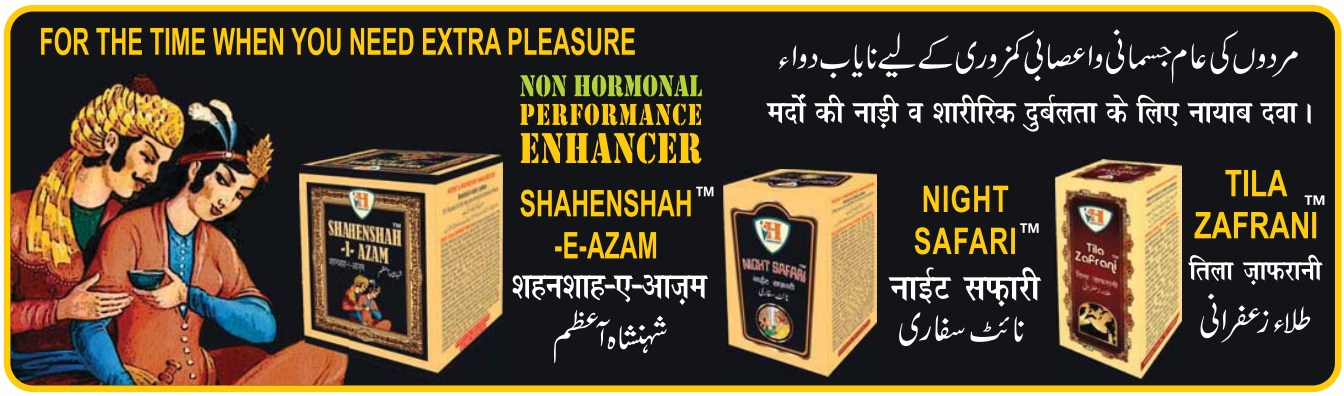
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- Provided financial assistance to economically poor people in their medical treatment.
- Provided financial assistance in building and construction of their shelter and homes especially to indebted people.
- Assisted needy people in arrangement of their daughter's marriage.
- Organized Medical camp for free eye check- up in March-2013, with free distribution of spectacles. Cleaning derives conducted on the occasion of Swachh Bharat Abhiyan





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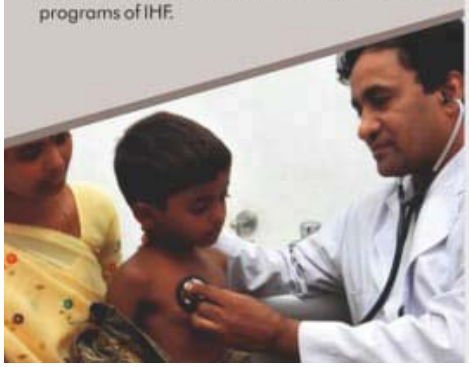
An Introduction, Steps and Vision

Towards a Healthy Society

Good health is the greatest gift and is better than wealth. The need of good health is not limited to a particular religion, caste, creed or gender. Seldom do we give attention to our mind and soul, which the time and resources we spend in trying to fulfill our physical needs and desire, we are still unable to achieve lasting peace and happiness through satisfaction of bodily needs. This is because we have not learned how to listen to our mind and soul.

Islahi Healthcare Foundation

IHF is a non-governmental and non-profit organization working in the field of health primarily, but stretches its arms to a vast extent till education and social work. This organization came into existence with the help and immense support of doctors, hakims, educationists, social workers, philosophers and IT engineers from across the world. To make the people realize the importance of such health IHF (Islahi Healthcare Foundation) was established in 2010, so that people should be healthy from all aspects of health. All its well-wishers belong various professional but they all are like-minded people whose commitments are tremendous. The organization received a plenty amount of appreciation and praises from the side of stakeholders involved into the programs of IHF.



A Visionary Goal

The organization engages itself into various meaningful activities both pertaining to health and literary-cultural activities. The domain of health is observed as an isolated field from mainstream socio-cultural issues-thus we observe the measurable rift between physical and social health. The fundamental philosophy of IHF is to connect and create a space for health among people across communities. The core objectives of the organization are given below:

- Organizing free camps and provide free medical assistance to the needy section of the society.
- Organizing conference, seminar, symposium, etc. to discuss different medical issues and to publish information bulletins, pamphlets, journals and books regarding pertinent issues in health.
- Conducting scientific researches in the field of AYUSH.
- Establishing charitable, diagnostic centers, hospitals and dispensaries to provide medical aid to the poor and create awareness about hygiene, life style, drug addiction, pollution, and ecology, etc.
- Collaborating and coordinate with world health organizations, government agencies and voluntary organizations for attainment of the objective.



IHF is committed to create the environment of social awareness in terms of health education and the importance of healthy food and sanitation practices in personal lives and communities as well. In response to observe the community participation, the organization aims at opening literary dialogues with primary (beneficiaries) and secondary (donors) stakeholders.

Way Forward

IHF seeks for greater involvement in social welfare activities and constantly engages other stakeholders to build a healthy society. IHF caters the needs of marginalized groups through providing direct services in times of urgent needs and especially, with promoting promotional, creative and literary activities. Given the context of limited healthcare services, it has a longstanding vision to establish a multi-specialty hospital and ultra-modern medical research centre consisted on around 200 beds with latest medical technologies.

We always look for your constant support.

Activities at Glance

- Organised Urdu ke Farogh mein Madrasatul Islah ka Kirdar 2019.
- Organised National Unani Congress 11 February 2020.
- Organised National Seminar Tibb e Unani Masayel o wasayelon11th February 2022.
- Prof. Manzar Azmi aur Unke Ilmi Karname 5th March 2022.
- Book Released Prof. Ahmad Mahfooz "Ghubar-e-Hairani 4th February 2023.
- Organised Felicitate to Dr N Zaheer Director General CCRUM 24th June 2023.
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खजूर: आयरन, फलोरीन, फाईबर और विटामिन्स का ख़ज़ाना है, शरीर को ताक़त देती है।

काजू: विटामिन्स, फाईबर और मिनरल्स का ख़ज़ाना है, डिप्रेशन से बचाता है।

बादाम: प्रोटीन, मेगनीशियम, आयरन के साथ साथ विटामिन ई का ख़ज़ाना है, जो दिमाग़ के लिए बहुत लाभदायक है।

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