



Janab Hammad Ahmed
Chancellor
Jamia Hamdard



Hamdard FOODNAAMA

Where nutrition meets technology.....

JAMIA HAMDARD

DEPARTMENT OF FOOD TECHNOLOGY



Prof M Afshar Alam
Vice Chancellor
Jamia Hamdard

THEME : FOOD SAFETY

OUR SECTIONS

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Late Janab Hakeem Abdul Hameed
Physician, Founder & Chancellor

The keen interest of beloved Chancellor towards Natural medicine specially Unani, herbs and food prompted the establishment of Department of Food Technology, 2008 with financial support from MOFPI under the School of Interdisciplinary Sciences, (SIST) with various programmes of interest such as M.Tech, B.Tech in Food Technology, M.Sc. Nutrition and Dietetics, M. Sc. in Food Sciences & Technology, and Ph.D. etc., The Department strives to provide the fundamental knowledge and skills with updated current research needed by nutrition and food technology professionals.

Food technology is a branch of food science, which is applied in manufacturing and preservation of food products. Food technologists are mainly required in food industries, mills, distilleries, packaging industry and hotels. They are employed as professionals in quality assurance, food production, analytical and research laboratories as well as for new product development. A proverb correctly coined *"When diet is wrong, medicine is of no use. When diet is correct, medicine is of no need"*.

Nutrition & Dietetics is a sub-discipline of Medicine that focuses on all the aspects of food and its effects on human bodies. This is feeding of individuals based on requirement of nutrients for survival, maintenance and growth. Nutrition and Dietetics student's work as consultant dietician in hospitals and Nutritionists in health centers and MNCs. As Sports nutritionists, food quality manager, public health nutritionist, researcher, scientists etc.

FOUNDER'S VISION

Late Janab Hakeem Abdul Hameed was a renowned physician, founder and Chancellor of Jamia Hamdard. It is due to his invaluable contribution and magnificent vision, Jamia Hamdard is known for its quality education and research. It was given the status of Deemed to be University in 1989, by the Ministry of Human Resource Development.

MEET THE EDITORIAL TEAM

EDITOR -IN - CHIEF

Dr Sayeed Ahmad
Professor & Head
(Department of Food Technology)

EDITORIAL TEAM

- Dr Bushra Shaida (Assistant Professor)
- Dr Sadia Chishty (Assistant Professor)
- Dr Vasudha Sharma (Assistant Professor)
- Dr Khalid Bashir (Assistant Professor)
- Dr Sweta Joshi (Assistant Professor)
- Dr Kulsum Jan (Assistant Professor)
- Dr Jinku Bora (Assistant Professor)

STUDENT ASSOCIATES

- S Haseeba Zaidi
- Uma Bansal

STUDENT VOLUNTEERS

- Aiman Khan
- Ibra Danish
- Zoha Fatima Khan
- Shefadaar Akbar
- Ananya Mohan

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Letter from The Editor

Welcome to the **inaugural edition** of *"Hamdard Foodnaama,"* the newsletter of the Department of Food Technology, School of interdisciplinary sciences and technology, Jamia Hamdard.

This edition focuses on the vital theme of **"Food Safety"** aiming to deepen our understanding of its pivotal role in promoting good health and safeguarding public health. In this context, insightful articles and research findings that explore various facets of food safety are presented.

"Hamdard Foodnaama" showcases a diverse array of Food and Nutrition in India and abroad specially research and regulatory requirements of industry including departmental activities meticulously collected by students and faculty members. I express my sincere gratitude to everyone who contributed to this newsletter. I hope *"Hamdard Foodnaama"* bring expansion of two disciplines together where nutrition meets technology. I eagerly anticipate your continued support to create a brighter future of Food and Nutrition at JAMIA HAMDARD. I give my best wishes to editorial team for upcoming editions. Happy reading! We offer a very sincere Thanks and Gratitude to our Honourable Chancellor: **Janaab Hammad Ahmed Sb**, Honourable Vice Chancellor: **Prof (Dr) M Afshar Alam**, Registrar: **Dr M A Sikander** and Dean: **Prof Suhel Parvez** for their continued support in upliftment of Department.

THEME CORNER- Food Safety

Food safety is a scientific field that describes how to handle, prepare, and store food in a way that minimises the risk of foodborne illness. This covers several practices that ought to be adhered to in order to prevent potentially serious health risks. In this context, food safety and food defence frequently work together to shield consumers from the ill effects of food.

Under the Food Safety and Standards Act, 2006, which consolidated numerous acts & directives that have previously addressed food-related issues in various ministries and departments. Various Acts like Prevention of Food Adulteration Act, 1954, Fruit Products Order, 1955, Meat Food Products Order, 1973, Vegetable Oil Products (Control) Order, 1947, Edible Oils Packaging (Regulation) Order 1988, Solvent Extracted Oil, De-Oiled Meal and Edible Flour (Control) Order, 1967, Milk and Milk Products Order, 1992 etc repealed after commencement of FSS Act, 2006.

The Act also aims to establish a single reference point for all matters relating to food safety and standards, by moving from multi-level to a single line of command. The Food Safety and Standards Authority of India (FSSAI) was mandated by the FSS Act, 2006 to guarantee the availability of healthy and safe food.

FSSAI established science-based standards for food articles and to regulate their manufacture, storage, distribution, sale, and import. When it comes to market-to-consumer operations, the general consensus is that food should be safe in the marketplace, with the safety of the food's preparation and distribution being the primary concerns. FSSAI has been founded firstly for framing of Regulations to lay down the Standards and guidelines in relation to articles of food and specifying appropriate system of enforcing various standards. Secondly, Laying down mechanisms and guidelines for accreditation of certification bodies engaged in certification of food safety management system for food businesses. Thirdly, Laying down procedure and guidelines for accreditation of laboratories and notification of the accredited laboratories. Fourthly, for providing scientific advice and technical support to Central Government and State Governments in the matters of framing the policy and rules in areas which have a direct or indirect bearing of food safety and nutrition. Collect and collate data regarding food consumption, incidence and prevalence of biological risk, contaminants in food, residues of various, contaminants in foods products, identification of emerging risks and introduction of rapid alert system. Creating an information network across the country so that the public, consumers, Panchayats etc receive rapid, reliable and objective information about food safety and issues of concern. Sixthly, provide training programmes for persons who are involved or intend to get involved in food businesses. Contribute to the development of international technical standards for food, sanitary and phyto-sanitary standards. Lastly to promote general awareness about food safety and food standards. Through this newsletter theme we ensure to educate and inform about the critical importance of food safety regulations and practices. By highlighting the role of FSSAI, we aim to promote awareness and adherence to standards.



WHO RESOLUTIONS FOR FOOD SAFETY

Food safety is a major determinant of health. It affects the survival, well-being, livelihood and productivity of individuals and eventually societies. Throughout the world, food borne diseases represent a considerable public health burden and challenges to overcome this WHO released:

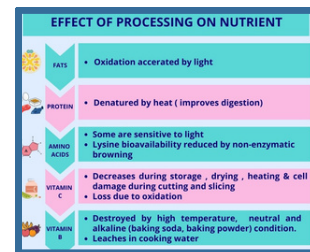
- **Sixty third world assembly-advancing food safety initiatives Recalling resolution** It requested the Director-General of world assembly members to put in place a global strategy for the surveillance of food-borne diseases and for the efficient gathering and exchange of information in and between the countries; Link: <http://apps.who.int/iris/handle/10665/79081>
- **WHO aims** to strengthen national food control systems to facilitate global prevention, detection and response to public health threats associated with unsafe food. For further reading about member states refer to the link: [by:https://www.fao.org/faowhocodexalimentarius/en/,https://www.fao.org/3/cb4964en/cb4964en.pdf#:~:text=The%20FAO%2FWHO%20Food%20Control%20System%20Assessment%20Tool%20supports,the%20relevance%20of%20their%20controls%20and%20surveillance%20systems,https://www.who.int/publications-detail-redirect/9789241580496](https://www.fao.org/faowhocodexalimentarius/en/,https://www.fao.org/3/cb4964en/cb4964en.pdf#:~:text=The%20FAO%2FWHO%20Food%20Control%20System%20Assessment%20Tool%20supports,the%20relevance%20of%20their%20controls%20and%20surveillance%20systems,https://www.who.int/publications-detail-redirect/9789241580496)

SOME RESEARCH HIGHLIGHTS ON FOOD SAFETY

- **Development of Biosensor in smart food traceability system for food safety and security**
<https://doi.org/10.1080/21655979.2024.2310908>
- **Managing food security using blockchain-enabled traceability system**
<https://www.emerald.com/insight/content/doi/10.1108/BJJ-01-2022-0029/full/html>
- **Recent advances in magnetic molecularly imprinted polymers and their application in the food safety analysis**
<https://www.sciencedirect.com/science/article/pii/S2772566923000332>
- **Microplastics aggravate the bio-accumulation and corresponding food safety risk of antibiotics in edible bivalves by constraining detoxification-related processes**
<https://www.sciencedirect.com/science/article/abs/pii/S004896972307064X>
- **Food Safety, a Global Challenge**
<https://ncbi.nlm.nih.gov/pmc/articles/PMC4730458/>
- **Nano packaging - Progress and future perspectives for food safety, and sustainability**
<https://www.sciencedirect.com/science/article/abs/pii/S214289422001892>



NUTRIENT LOSSES DURING PROCESSING



Foods that have undergone processing may lose some of their nutritional value. Food processing techniques like cooking, canning, freezing etc. can cause degradation of nutrients present in raw foods. Heat applications during processing also result in losses, both quantitative and qualitative, with water soluble vitamins being the most severely impacted. Low molecular weight carbohydrates and micronutrients are lost in significant amounts into the processing water. When boiling, glucose and fructose are lost at a higher rate than sucrose. Severe heating can happen in the absence of reducing agents and lowers the availability of lysine and other amino acids. Cysteine is relatively sensitive and can be oxidized to disulphide at a temperature of 115°C. For example, milk is pasteurized for 15 seconds at 72°C. The unfolding of β -lactoglobulin will cause flavour synthesis to be off when temperature and time are changed. It is also known that light-induced protein oxidation results in the loss of vital amino acids and in milk. Numerous lipid-related irradiation-promoted processes lead to outcomes similar to oxidative rancidity and a reduction in fat-soluble vitamins. Along with other potentially active intermediates that may be carcinogenic, a number of carbonyl compounds may develop. During the process of leaching there is a maximum loss of mineral potassium. Foods that have been boiled or soaked in water lose nutrients like vitamin B and C when the water is discarded. The vitamin content are lost during the pruning, peeling, washing, and other processes that are performed on fruits and vegetables.

To combat these various strategies can be used at various processing stages to minimize nutritional losses. Reducing heat exposure, shortening cooking times, avoiding the leaching of water-soluble vitamins, and supplementing processed foods with certain nutrients are some useful measures.

Aiman Khan (MSc. Nutrition & Dietetics, 3rd semester)



SAFETY ISSUES IN CANNED FOODS

Canned foods offer convenience, but it's important to consider their nutritional value and safety when making choices for our diet. These foods are preserved through heat treatment in tightly sealed containers, preventing the passage of gas and microbes. If these foods are packed without proper cooling the container act as a medium for the growth of thermophilic anaerobes. Opt for canned fruits packed in water, 100% juice, or their own juices to avoid added sugars found in syrup-packed varieties. Choose canned vegetables labeled "no salt added" or "low sodium" to minimize sodium intake, and be aware that "reduced sodium" labels may still contain some sodium. Draining and rinsing canned beans and vegetables can further reduce sodium levels. For canning foods undergo high heat treatment, some soluble vitamins like vitamins C and B can be destroyed which reduces the nutritional value of food. To increase the shelf life sugar, salt, and other preservatives are often used in the canning process which affects the health and safety concerns.

When selecting canned goods, avoid containers with dents, bulges, cracks, or leaks, as these could indicate the presence of bacteria like *Clostridium botulinum*, which can cause botulism. While commercially canned goods are generally safe due to proper processing, mishandling can create conditions favorable for bacterial growth, potentially leading to foodborne illnesses.

Ananya Mohan (B.Tech Food Technology, 6th semester)



REGULATORY CORNER

FOOD SAFETY LAWS

FOOD SAFETY

The Food Safety and Standards Act, 2006 defines Food Safety as an "assurance that food is acceptable for human consumption according to its intended use." Food Safety ensures that food is safe for human consumption and involves handling, preparation and storage of food in ways that prevent food borne illness. Food safety considerations include the origins of food including the practices relating to food labelling, food hygiene, food additives and contaminants, as well as policies on biotechnology and food and guidelines for the management of import and export, inspection and certification systems for foods.

FOOD SAFETY LAWS

- Prevention of Food Adulteration Act, 1954
- Fruit Products Order, 1955
- Meat Food Products Order, 1973
- Vegetable Oil Products (Control) Order, 1947
- Edible Oil Packaging (Regulation) Order, 1998
- Solvent Extracted Oil, De oiled Meal, and Edible Flour (Control) Order, 1967
- Milk and milk Products Order, 1992
- Any other order under Essential Commodities Act, 1955 relating to food



FSSAI NEWS SECTION

- **Union Minister of Health & Family Welfare** Dr. Mansukh Mandaviya inaugurates the country's 1st Healthy & Hygienic Food Street, PRASADAM, at Neelkanth Van, Mahakal Lok, in Ujjain, Madhya Pradesh [Updated on:12-01-2024],
- **CEO, FSSAI** Engages in Discussion with Tea Growers and Planters in Assam to Ensure Safety and Quality of Tea Production [Updated on:19-01-2024]
- **Hospitals go healthy!** FSSAI certifies 500 Hospitals across the nation as 'Eat Right Campus' [Updated on:14-02-2024]
- **43rd meeting of the Food Authority** approves amendments to streamline Food Safety and Standards Regulations [Updated on:06-02-2024]
- FSSAI UnCOVERS **Stockpile of Expired Beer**, Takes Swift Action against Violation of Food Safety and Standards Act 2006 [Updated on:19-01-2024]
- **Codex Alimentarius Commission** Praises India's Standards on Millets [Updated on:04-12-2023]
- FSSAI directs **Airline Caterers to comply with Food Safety Regulations** [Updated on:17-01-2024]
- **Suspension of Quality Research and Analytical Labs Pvt. Ltd.**, New Delhi [Updated on:13-02-2024]

INDUSTRY LEADER

MR. HAMID AHMED

Mr. Hamid Ahmed is the great grandson of late Hakeem Abdul Hameed Sb, the founder and first Chancellor of Jamia Hamdard, and son of present Chancellor Janaab Hammad Ahmed Sb, currently serving as CEO/ Trustee of Hamdard Foods India, Secretary – Hamdard National Foundation India (HECA) Gen. Secretary – Business and Employment Bureau and President of Unani Drugs Manufacturers Association (UDMA). He brings with him splendid determination, distinct vision and valuable experience. He started his career as a Director in 2000 after getting his M.B.A. from London, U.K. He is well-versed with the intricacies of India's regional diversities and consumer needs. He has been serving as CEO of Hamdard Laboratories India (HLI) from 2016, holding reins of the organisation, he joined in 2000.

Mr. Hamid Ahmed has dynamic spirit, leadership abilities and relentless commitment which makes him a professional with keen insight to lead the company ahead. Since joining Hamdard Laboratories India, he has overseen a spectacular growth in business with new ventures. A sustained vision has established him as one of India's prominent business leaders. Apart from his other contributions, one is introducing "**Hamdard Khaalis**" which is another step forward in his countless achievements. Under this brand name variety of food products are launched like powdered spices, whole spices, specialised blended spices, saffron, hing, and vermicelli. Hamdard has perfected the art of formulating food products with pure ingredients. It's range of spices is an ode to our heritage, with purity as its cornerstone. The **Khaalis** spices range brings the pristineness of flavours, and uncompromised aroma to the diverse cuisines of India.



Mr. Hamid Ahmed

LEADING INDUSTRY HAMDARD KHAALIS MASALA



Hamdard is an iconic institution, with legacy brands like RoohAfza in its portfolio. Hamdard, meaning '**companion in suffering**' was started as a small clinic in undivided India in the year 1906 by Late **Hakeem Hafiz Abdul Majeed Sb**. Hamdard grew into a household name under the **noble vision of renowned Unani physician** Late Janaab **Hakeem Abdul Hameed Sb**. Hamdard aims to provide high quality products to its customers by following the process of '**Farm to fork**' where company has invested in growing ingredients in its own farms and making the products in its own state of the art facilities. Hamdard has extended its portfolio in newer food & beverages categories with Hamdard Honey, Hamdard Nariyal Paani (Coconut water), Hamdard Glucose-D, and Edible oils like Hamdard Olive Oil, and Hamdard Kachi Ghani Mustard Oil. These are all part of offering to the consumers, and have received widespread acceptance. The latest addition to the offering is the **range of Hamdard Khaalis Spices (Masale)** with an assortment of pure, whole & blended spices manufactured at Hamdard's Manesar plant. Hamdard has also launched more products under the brand name Hamdard Khaalis, like Powdered Spices, Whole Spices, Specialised blended Spices, Saffron, Hing, and Vermicelli. The ingredients are selectively sourced and carefully curated by Hamdard's experts. Presently, **Mr. Hammad Ahmed**, Chief Trustee is steering the growth of Hamdard. **Mr. Hamid Ahmed, CEO and Trustee of Hamdard Foods India** has diligently working for quality control, natural and additives free spices. Celebrity **Chef Kunal Kapur is Brand Ambassador for Hamdard Khaalis**.

Company has invested in new technologies and machineries in its manufacturing plants for better quality control on the final products offered to the customers. The key attribute of these spices is that no additive, no preservatives and chemical is added. Cryogenic Grinding and low temperature grinding of spices with an innovative technique to decrease the temperature of the spice to retain the natural color, odour and flavour with improved product quality. Hamdard is more focused in developing natural and healthy food products.



EDUCATIONAL TOURS

- **Indian Agricultural Research Institute (IARI), PUSA, New Delhi Global Millets, (Shree Anna Conference),** 18th March, 2023.
- **CPSEs Roundtable and Exhibition 2023, Pragati Maidan,** 25 September, 2023.
- **Hamdard Laboratories India, Manesar,** 10 July, 2024
- **Dabur India Ltd Food Division, Ghaziabad,** 17 June 2024
- **National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Sonipat,** 2nd February, 2024.



INTERSHIPS

Successful completion of internship by students from renowned Hospitals and Food Industries

- **Industries:** Haldiram, Nestle, Britannia, Parle, Nestle, Bikaner etc.
- **Laboratories:** AVON FOOD Lab Pvt. Ltd. FICCI Research and Analysis Center (FRAC) Labs, FARE Labs Pvt. Ltd, (Central Food Technological Research Institute (CFTRI).
- **Hospitals:** PSRI multispecialty hospital, Batra hospital and medical research centre, Safdarjung hospital, National Heart Institute, Max Hospital, Al-Shifa Multispecialty Hospital.

STUDENT ACTIVITIES

- **Mega Food Mela,** 27th October, 2023 Jamia Hamdard, Delhi.
- **Community Education Program,** November, 2023 by students of MSc. Nutrition & Dietetics.
- **Rice Fortification Seminar,** 27th September, 2023, Centre of Excellence in Unani medicine, Jamia hamdard, Delhi.
- **Workshop** on Launch of "Capacity building program of labs to build their Micro nutrients Testing Capacity in Fortified Edible Oil & Wheat Flour" 10th January, 2024. Centre of Excellence in Unani medicine, Jamia hamdard, Delhi.
- **Workshop** on "Nutritional management of maternal and child health" 7th February, 2024, Jamia hamdard, Delhi.

STUDENT ACHIEVEMENT

- **Aiman Khan** (MSc Nutrition & Dietetics 2nd year) **won 1st prize in Best Oral Presentation.** Topic Entitled: "Indian Traditional Food Kanji Drink: A Boost For Vitamin B12" in International Conference ICESN'24 organised by Seethalakshmi Ramaswami College, Tamil Nadu on 30-31st, January, 2024.
- **Saafiya Khan** (MSc Nutrition & Dietetics 2nd year) **won 2nd prize in Best Oral Presentation.** Topic entitled "Unveiling the Nutritional benefits of Beetgreens" in International Conference ICESN'24 organised by Seethalakshmi Ramaswami College, Tamil Nadu on 30-31st, January, 2024.
- **Avni Verma** (MSc Nutrition & Dietetics 2nd year) **won 1st prize in Best Oral Presentation.** Topic Entitled: "Iron An Important Nutrient: Bioavailability, Fortification And Nano-encapsulation" International Conference ICESN'24 organised by Seethalakshmi Ramaswami College, Tamil Nadu on 30-31st, January, 2024.
- **Ananya Mohan** (B.Tech Food Technology: 6 Sem.) **won 1st prize** in Scientific Poster Competition, International Conference on Hunger to Hope: Building a Sustainable future through Nutrition and Food Security Organised by the CESD, Jamia Hamdard on 16th, Oct, 2023.

Ph.D AWARDED /RECENT PUBLICATIONS

Ph.D. AWARDED

- **Dr. Aastha Bhardwaj** entitled “Development of biodegradable packaging material make from agricultural waste and assess its suitability for food products” under the supervision of **Dr. Hinna Hamid**.
- **Dr. Aayena Altaf** entitled “Studies on fermented wheat, its chemical evaluation and role in maintaining bone health” under the supervision of **Dr. Showkat Ali Mir**.
- **Dr. Sarushi Rastogi** entitled “Development of cysteamine functionalized gold nanoparticle sensor for colorimetric detection of oxytocin in fruits and vegetables” under the supervision of **Dr. Vasudha Sharma**.
- **Dr. Tahreem Kausher** entitled “Development and shelf life study of herb and dietary fiber incorporated meat products for health benefits” under the supervision of **Dr. A.A. Azad**
- **Muneed Ahmad Malik** entitled “Vitamin D Bioconversion, Stability and Bioavailability in Edible Mushrooms” under the supervision of **Dr. Afrozul Haq**.
- **Dr. Omeera Ayob** entitled “To study the effect of non-thermal techniques of preservation on the quality and shelf life of Himalayan (Kashmiri) Red chilli” under the supervision of **Dr. A.A. Azad**
- **Dr. Yasmin Jan** entitled “Fortification of whey based jamun juice with vitamin D and its therapeutic effect” under the supervision of **Dr. Afrozul Haq** and **Dr. Sayeed Ahmad**

RECENT PUBLICATIONS

- **Optimisation of multigrain seera from sorghum, green gram and finger millet: effect of ingredients on functional, structural and thermal properties.** <https://link.springer.com/article/10.1007/s13197-023-05854-5>
- **Formulation and Optimization of Multigrain Fermented Noodles: A Healthy and Palatable Convenience Food Option.** <https://www.hindawi.com/journals/jfpp/2023/8813705/>
- **Development and Characterization of Chitosan and Beeswax-Chitosan Coated Biodegradable Corn Husk and Sugarcane Bagasse-Based Cellulose Paper.** <https://link.springer.com/article/10.1007/s12649-022-01952-1>
- **Characterization of Food and Agricultural Wastes: Global Scenario of Waste Generation** <https://www.taylorfrancis.com/chapters/edit/10.1201/9781003282327-1/characterization-food-agricultural-wastes-global-scenario-waste-generation-entesar-hanan-farhan-ahmad-vasudha-sharma-omar-bashir-muneeb-malik-yasmeena-jan>
- **Asian fermented root and tuber-based products.** <https://scholar.google.co.in/citationsview>
- **Gamma Irradiation of Starch.** https://link.springer.com/chapter/10.1007/978-981-99-5390-5_7
- **Encapsulation Technologies: Principles and Applications in the Food Industry.** https://scholar.google.com/citations?view_op=view_citation&hl=en&user=N5PsbCkAAA&citation_for_view=N5PsbCkAAA:LkGwnXOMwfcC

RECENT PATENTS

- Patent published entitled “Eco-Friendly, Fully Biodegradable Paper Products For Sustainable Packaging”(202111022364), Published 05/26/2023.
- Patent filed entitled “A Probiotic Bael Based Nutraceutical And A Process Of Preparation Thereof” (202211012630), Granted 01/12/2024

DEPARTMENT OF FOOD TECHNOLOGY

