



DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY NEWSLETTER 2022: ISSUE 1

Dear Reader,

We are going to publish our First Departmental Newsletter 2022: FST, MAKAUT, containing all the Student/Faculty achievements already done and upcoming activities of Department of Food Science & Technology from the beginning till date (28.02.2022). In this issue we are going to emphasize the General Concept of Food Drying.

Drying is an unit operation process in which heat transfer and mass transfer take place simultaneously. It is a preservation process based on the principle "Removal of moisture". It is one of the oldest processes of food preservation. Dryers can be classified based on different methods of heating systems.

- Drying using Convective heat –Tray Dryer, Tunnel Dryer, Fluidised Bed Dryer, L.S.U. Dryer, Spray Dryer.
- Drying using Conductive heat – Drum Dryer
- Drying using Microwave –e.g. Micro oven
- Freeze Drying – Freeze Dryer

Advantages of Drying-

- Refrigeration is not needed for dried foods.
- Chemical preservatives are not required to be added.
- Dried foods can be stored for a long time.
- The volume and weight of dried foods are reduced compared to wet food materials from which it is obtained, hence it needs less volume and space for storage and transportation.

Limitations of Drying-

- Proper packaging is required for dried foods otherwise it will reabsorb moisture from the air and microbial growth will take place.
- The cost of drying process is high.
- The flavour, texture, colour, nutritional value is changed after drying. Case hardening, shrinkage may occur.

To overcome problems like change of flavour, colour, nutritional value and to prevent shrinkage and case hardenings, the heat-sensitive materials are dried by freeze-drying. Meat and yeast extract, medicines, antibiotics, proteins and amino acid solutions are dried in a freeze dryer. Freeze drying is a gentle dehydration process also known as lyophilisation. It is a two-step process: Freezing followed by drying at low pressure or vacuum.

Freeze drying equipment

The main components of freeze-drying equipment are:

- Refrigeration System
- Vacuum System
- Control System
- Drying Chamber

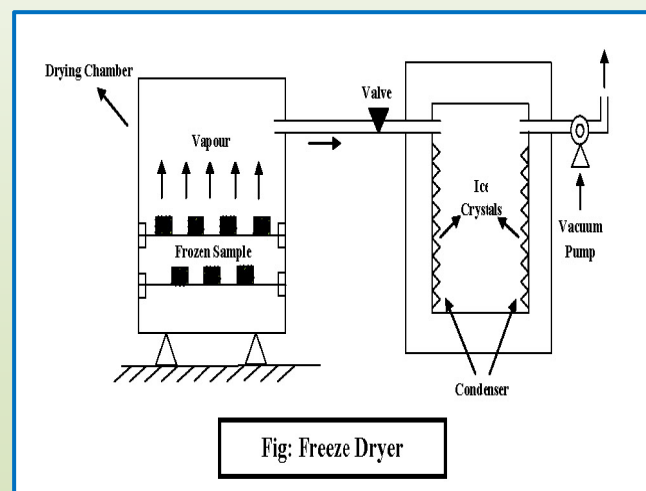


Fig: Freeze Dryer

Published by: Dr. Anju Paul,
Assistant Professor,
Department of FST, MAKAUT, West Bengal

Departmental Activities

E-technical exhibition

A e-technical exhibition "Tech-Success" was coordinated by Dr. Anju Paul & Dr. Niladri Chakraborty and participated by B.Sc. FST MAKAUT students on 31.07.2021.

E-exhibition

A e-exhibition "From Dustbin to the Cabin" was coordinated by Prof. Sebak Ranjan Roy & Dr. Sonia Kundu and participated by M.Sc. FST MAKAUT students on 30.06.2021.

Promotional Activities

An interactive webinar was presented by the speakers Prof. Saikat Maitra (Vice Chancellor, MAKAUT, WB), Prof. Pranabesh Chakraborty (Director, School of Food, Pharmaceutical and Medical Science & Technology), Prof. Sebak Ranjan Roy (HoD, Food Science and technology), Dr. Niladri Chakraborty, Dr. Anju Paul and Dr. Sonia Kundu (Assistant Professor, Dept. of Food Science and Technology) and participated by all school and college students on 02.06.2021.

Awards

1. Received Outstanding paper award by Dr. Sonia Kundu for oral presentation entitled "New generation biopolymer film for decontamination of surface water" in 4th Regional State Science and Technology Congress (Southern Region), 24.12.2019, jointly organized by WB-DST & MAKAUT, WB.
2. Received 1st prize by Dr. Sonia Kundu in innovative idea competition for poster presentation entitled "Development of carboxymethyl guar gum-gelatin smart hydrogels for controlled release of antibiotics" in Innovation & Entrepreneurship Workshop, 14.08.2019 at IISER, Kolkata, India.
3. Received Best Research Award by Dr. Sonia Kundu in International Scientist Awards on Engineering, Science and Medicine on 31.12.2021.

Faculty Publications:-

Book Chapter: .

1. Preservation of Food by Drying and Freezing Individually and / or Combined. In *Recent Innovations in Food and nutritional Sciences*. Levant Books Publication, Kolkata. ISBN: 978-93-88069-61-8, by Dr. Niladri Chakraborty.

Journal Publications:

1. "Polyphenol capping on gold nanosurface modulates human serum albumin fibrillation", *Materials Advances (I.F. pending)*, 2020, DOI: [10.1039/D0MA00274G](https://doi.org/10.1039/D0MA00274G) by Dr. Sonia Kundu.
2. "Guar gum cinnamate ouzo nanoparticles for bacterial contact killing in water environment", *Carbohydrate Research (I.F. 2.104)*, 2020, <https://doi.org/10.1016/j.carres.2020.107983>. by Dr. Sonia Kundu.



Teachers' Day Celebration

Upcoming Events:

1. Webinar will be held on 26.03.2022 on the topic Indian Spices History, Medicinal Properties & Therapeutic Potentialities Presented by Prof. (Dr.) A.B. Sharangi, Professor Dept. of Plantation, Spices, Medicinal and Aromatic Crops, Faculty of Horticulture, BCKV.
2. Publication of e-magazine by Food Science and Technology Department in April 2022.

Webinars

Date	Topic of The Webinar	Speaker(s)	Participants
05.09.20	Analytical Challenges & Way Forward in Food Safety Value-Chain	Dr. Balwinder Bajwa, Director & CEO, Eduward Food Research and Analysis Centre Limited, Kolkata	B.Sc. & M.Sc. FST MAKAUT Students
01.10.20	Modern Techniques of Microbiological Analyses of Food	Dr. Avik Mukherjee Associate Professor Department of Food Engineering & Technology, Central Institute of Technology, Kokrajhar	B.Sc. & M.Sc. FST MAKAUT Students
11.10.20	Evolution of food: from Fortification to Medical Foods through Encapsulation	Dr. Dilip Ghosh Director, Nutriconnect Director, Trigonella Lab Adjunct-NICM Health Research Institute, Western Sydney University Ambassador-GHI Sydney, Australia	B.Sc. & M.Sc. FST MAKAUT Students
18.10.20	Latest Trends in Packaging of Food and Pharmaceutical Products	Mr. Bidhan Das, Deputy Director & Regional Head of IIP, Kolkata Centre	B.Sc. & M.Sc. FST MAKAUT Students
21.11.20	Metataxonomic and Predictive Metagenome Functionalities of Ethnic Fermented Foods and Beverages of India	Dr. Jyoti Prakash Tamang, Prof. of Dept. of Microbiology, School of Life Sciences, Sikkim University	B.Sc. & M.Sc. FST MAKAUT Students
13.12.20	Entrepreneur and Business Management in the context of Food Sector	Manjira Roy, JIS Faculty	B.Sc. & M.Sc. FST MAKAUT Students
20.12.20	Food Supply Chain and Retail Management	Manjira Roy, JIS Faculty	B.Sc. & M.Sc. FST MAKAUT Students
21.02.21	An overview of Milk Processing	Dr. Subrata Kumar Bag, Prof. & HOD of Department of Dairy Engg., West Bengal University of Animal & Fishery Sciences	B.Sc. & M.Sc. FST MAKAUT Students
21.02.21	An overview of Meat, Egg and Seafood processing	Partha Pratim Ddeb Nath, Asst. Prof., West Bengal University of Animal & Fishery Sciences	B.Sc. & M.Sc. FST MAKAUT Students
07.02.21	An Introduction to Fish Processing and Preservation (Session I)	Dr. Rupak Dasgupta. Dept. of Fisheries. West Bengal	B.Sc. & M.Sc. FST MAKAUT Students
14.02.21	An Introduction to Fish Processing and Preservation (Session II)	Dr. Rupak Dasgupta. Dept. of Fisheries. West Bengal	B.Sc. & M.Sc. FST MAKAUT Students
15.05.21	Chemistry of Oils and Fats	Dr. Mahua Ghosh, Associate Professor, Dept. of Chemical Technology, University of Calcutta	B.Sc. & M.Sc. FST MAKAUT Students
18.12.21	Scientific and Hygienic Meat Processing including Poultry and Value Addition (Session I)	Dr. Gopal Patra, Asst. Prof. Dept. of Livestock and Products Technology, West Bengal University of Animal & Fishery Sciences	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
05.01.22	Scientific and Hygienic Meat Processing including Poultry and Value Addition (Session II)	Dr. Gopal Patra, Asst. Prof. Dept. of Livestock and Products Technology, West Bengal University of Animal & Fishery Sciences	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
08.01.22	Mechanization and Automation in Food Packaging	Mr. Bidhan Das, Deputy Director & Regional Head of IIP, Kolkata Centre	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students

Date	Topic of The Webinar	Speaker(s)	Participants
12.01.22	Milk and Milk Products: Processing and Analysis (Session I)	Dr. Subrata Kumar Bag, Prof. & HOD of Department of Dairy Engg., West Bengal University of Animal & Fishery Sciences	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
12.01.22	Milk and Milk Products: Processing and Analysis (Session II)	Dr. Anindita Debnath, Asst Prof. , Department of Dairy Tech., West Bengal University of Animal & Fishery Sciences	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
12.02.22	Inauguration of Departmental News letter and Cultural Program	Hon'ble Vice-Chancellor, MAKAUT	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
13.02.22	Regulatory and social aspects of biotechnology of food	Dr. Raib Majumder Assistant professor, Department of Biotechnology, ADAMAS University	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
19.02.22	Fermented alcoholic beverage industry: The process and performance improvement	Dr. Sibabrata Mukherjee Technical Service Representative, Leaf by Lesaffre, India	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students
26.02.22	Nutra meets Pharma: The current of illness to wellness transition	Dr. Dilip Ghosh Director, Nutriconnect, Sydney, Australia And Director, Trigonella Labs pvt. Ltd., Sydney, Australia.	B.Sc. FST & M.Sc. FST & FSN MAKAUT Students

Student Internship:

Name of Students	Name of Industry
Sahnawaj Ahmed, Riya Ghosh, Suman Manna, Sukriti Bera, Raktim Singha, Soumita Ghosh, Megha Debnath, Riki Mondal, Sariyah Hossain, Ayesha Ziya	Paradise Bakery
Samrat Ganguly, Victry Samanta, Susmita Datta, Sweety Konai	Haringhata Dairy

Project

A Project on the topic “Post harvest management, storage and processing of raw fruits/vegetables to develop the socio-economic circumference” sponsored by The National Academy of Sciences (NASI), India. is sanctioned to Dr. Animesh Naskar, Assistant Professor of Department of Food Science of Technology, MAKAUT.



Delegation with FSSAI and AIIMS representatives



Students in Laboratory