NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA

FIVE-DAY HIGH-END KARYASHALA WORKSHOP ON PLANT PROTEINS

OFFLINE MODE ONLY

ABOUT NIT, ROURKELA

National Institute of Technology Rourkela is an Institute of national importance created under the act of parliament. NIT Rourkela has been ranked at 271-280 and 15th position in QS Asia University and NIRF (Engineering) 2022, respectively. Times Higher Education has figured NIT Rourkela in the group of 601-800 in World University Ranking 2022. The institute provides quality education in a diverse and multicultural environment. The mission of the institute is to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate and post graduate studies. The institute is offering undergraduate, postgraduate and PhD programmes in 21 branches of Engineering. The institute research centres are engaged in consultancy and research activities of several government bodies such as DST, DAE, CSIR, DRDO, BARC, ISRO and private industries

DEPARTMENT OF FOOD PROCESS ENGINEERING

The Food Process Engineering department at National Institute of Technology Rourkela blends engineering disciplines with a strong understanding of food and food science and offers B. Tech, M. Tech., and Ph.D. in Food Process Engineering discipline.

The academic and research activities in the department focus on the frontier areas of food process engineering such as food properties and prediction, post-harvest operations, food quality and safety, transport process and kinetics, product development and ingredients innovation, food packaging and storage engineering, computer aided food engineering, energy efficiency, process control and efficiency, automation, and manufacturing systems.

REGISTRATION LINK

3rd JULY 2023 - 7th JULY 2023

Last date of registration 25th June 2023

PLANT PROTEINS:

ROLE OF CUTTING-EDGE TECHNOLOGIES ON THE MODIFICATION OF PLANT PROTEINS TECHNO-FUNCTIONALITIES AND APPLICATIONS IN FOOD SECTORS

OBJECTIVE OF THE COURSE

Proteins are essential dietary components and have a significant effect on the food quality. Proteins may be used to enhance the nutritional, textural and other qualities of food products. In recent years, the development of protein-rich foods has received a lot of attention. Furthermore, plant proteins derived from sources like pulses offer other advantages that appeal to consumers over animal proteins. Plant proteins have a well-balanced amino acid content and bioavailability and are derived from agricultural crops, which might help to address global nutritional, environmental, and food security problems. But to enhance plant protein utilization and applications basic knowledge about plant proteins is of utmost importance. Overall, the course will provide comprehensive details about the basic concept of plant protein chemistry, extraction, techniques involved in the analysis of proteins and chemical, functional and structural properties of different proteins. Different advance thermal and non-thermal processing technologies can affect the structure of proteins, and thus their solubility as well as their functional properties. The course highlights the opportunities and challenges involved with these technologies in relation to protein functionality and strcture.

TARGET AUDIENCE

Faculty, Research scholars, PG Scholars, participants from Government, Industry who are actively engaged in food processing sector. This workshop will be best suited for food & agricultural engineering/science researchers and those who are working in food and allied industries.

Only 25 participants will be selected as per the scheme.

OUTCOMES OF THE WORKSHOP

The audience will get the opportunity of interacting with the inspiring and successful professionals working in different sectors of food process industry and academia. This will provide a platform where scientists, scholars, academicians, and businessperson will also get an opportunity of increasing their network. Young students and scholars working or aspiring to work in the industry and academia will get information about what are the different opportunities available and challenges for the future of this field. It will be a collaborative, experiential, and outcome-based teaching and learning experience for the participant through live sessions, discussions and practical demonstrations.

COURSE CONTENT

1. Proteins scenario in India: Alternative, major and underutilised plant proteins sources; proteins blending; nutritional status; guidelines by FAO and FSSAI.
2. Proteins structure: basic concept, properties, estimation of protein.
3. Proteins extraction and estimation techniques and effect of ultrasonication/ microwave in proteins extraction.
4. Rheology and pasting properties of plant proteins and Characterization of proteins (FTIR/DSC/XRD)
5. Proteins interaction with other biomolecules and effect of processing on proteins properties.
6. Enzymatic and chemical modifications of plant proteins
7. Application of cold plasma treatment on functionality of protein-based food ingredients
8. Protein-Based 3D Biofabrication of Biomaterials
9. Novel plant-based food ingredient development using high pressure homogenisation technology
10. Irradiation effects on proteins functionality and applications
11. Plant based foods (Beverages and meat analogue) and technological challenges.
12. Proteins functionality in bakery products, regulatory aspects and technological issues

Training session for the following equipment/analysis

Protein analysis
FTIR analysis of protein rich flour
Rheology of protein rich flour
Cold plasma treatment of protein rich flour
Microwave and Ultrasonicator effect on protein extraction

ORGANIZING COMMITTEE

Patron

Prof. K. Umamaheshwar Rao
Director, National Institute of Technology Rourkela

Coordinator

Dr. Rachna Sehrawat
Assistant Professor, Dept. of Food Process Engineering
(E-mail: sehrawatr@nitrkl.ac.in; Ph. No. 8059190123)

Co-coordinator

Dr. Winny Routray
Assistant Professor, Dept. of Food Process Engineering
(E-mail: routrayw@nitrkl.ac.in; Ph. No. 7008195656)

Student Coordinators

Ankan Kheto
PhD Scholar
Email: ankankheto711@gmail.com
Ph. No. 9932155209

Ram Prasad
PhD Scholar
Email: rpbebartta0911@gmail.com
Ph. No. 9728418745

For more info click here