WINTER SCHOOL
on
Advanced techniques and novel approaches for quality and safety evaluation of dairy foods

17 November to 07 December 2015

Sponsored by
Education Division
Indian Council of Agricultural Research

BACKGROUND
Recent trend indicates that consumers are demanding innovative as well as safe food. Among the various categories of food, dairy foods are often linked with various kinds of food borne illness and other hazards due to the presence of contaminants and adulterants. To meet the challenge of safe dairy food, regulatory bodies require tools to assess the quality of food. Instrument based methods are often used to assess the quality of foods, particularly to rule out the possibility of contaminants. As the demand of functional and value added dairy foods is increasing, so is the requirement of developing newer analytical techniques to assess their quality and also for validating their health claims. Many new instrument based techniques are now available which can meet such challenges. The course curriculum of this winter school has been designed to provide the participants hands-on-training on such new techniques.

OBJECTIVES
1. To acquaint the participants with the principle and analytical methodology for assuring the quality of dairy foods using various advanced instruments.
2. To provide hands-on-practical training to the participants on latest techniques being used in the area of dairy chemistry and dairy microbiology.

COURSE CONTENTS
Course curriculum has been designed to comprehensively cover various technologies having potential for assuring chemical and microbiological quality of dairy foods. Emphasis will be given on analytical techniques using various instrument based methods. It comprises of theory lectures as well as practical demonstration by resource persons from NDRI and invited personals from dairy and food industry.

SELECTED TOPICS TO BE COVERED
- Application of GCMS in assessing the quality of milk fat
- Surface Plasmon resonance (SPR) - its role in real time monitoring of contaminants in food matrix
- Real time monitoring of hygiene bacterial counts in milk using flow cytometry based D-count system
- LC-MS/MS – a technique for the identification of protein
- Elemental analysis using Atomic Absorption Spectrophotometer
- Quality assessment of milk by FTIR
- Aptamer – an innovative tool for the quality evaluation of milk
- Enzyme linked immunosorbent assay – theory and practical
- Characterization of protein using SDS-PAGE
- Differentiation of cow & buffalo milk using PCR
- Recent approaches for detection of adulteration of ghee
- Concept of A1 and A2 milk and analytical approaches for their differentiation
- Application of electrochemical sensor for detection of analyte of interest in food matrix
- Estimation of protein in milk and milk products using automatic Kjeldahl procedure
- Lateral flow technique - its application in analytical food science
• Bacterial spores as biosensor- role in bio-recognition and assessment of contaminants in milk
• Biochip fabrication for sensor development
• Rapid monitoring of pathogenic bacteria in milk using developed kits and immune fluorescence based VIDAS system
• Microbial receptor and lateral flow assay for detection of aflatoxin M1, antibiotic and pesticide residues in milk
• Current regulatory microbiological standards, sampling plan and laboratory requirements for testing of milk and milk products
• PCR based approaches in detection of microbial pathogens in milk

Apart from this, there will be lectures on allied subjects such as statistical techniques, intellectual property rights, commercialization of technologies etc.

ELIGIBILITY FOR PARTICIPATION

Participation is invited from those working in the cadre of Assistant professor and above or equivalent in the National Agricultural Research System (NARS) including State Agricultural Universities (SAUs), Deemed to be Universities (DUs), Central Agricultural University (CAU) and Central Universities (CUs) in the area of Dairy/Food Science/ Livestock Products Technology etc. and engaged in teaching or research or extension. The selection of the participants will be based on likely benefits of their participation to the sponsoring Institute/ organization.

Maximum number of participants: 25

TRAVEL AND ACCOMMODATION

Selected participants will be paid for the journey, to-and-fro, restricted to AC-II-tier train fare by the shortest route or bus on submission of ticket. Free boarding and lodging at NDRI will be provided as per the ICAR norms.

IMPORTANT INSTRUCTIONS

As per the ICAR instructions, the interested candidates should register and apply online through ‘Capacity Building Programme’ (CBP) portal as follows:

1. Visit the website http://www.iasri.res.in/cbp/
2. Login using your user ID and Password. To create user ID use “Create New Account” link.
3. After login, click on “Participate in Training” link and fill the Performa.

Take a printout and send duly signed copy through proper channel to the Course Director of Winter School (Dr. Rajan Sharma) by post along with registration fee.

The last date for receiving the nomination is 15th September, 2015. The advance scanned copy of the nomination may be sent by email.

Note: The candidates will be notified about selection latest by first week of October, 2015.

COURSE COORDINATORS

Mr. Raghu H.V., Scientist
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Dr. Laxmanna Naik N., Scientist
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REGISTRATION FEE

The participants are required to pay the sum of Rs 50/- as registration fee (non-refundable) along with the application form in the form of Indian Postal Order/ Demand Draft in favour of “ICAR UNIT, NDRI” payable at Karnal.

ALL CORRESPONDENCE MAY BE ADDRESSED TO

Dr. Rajan Sharma
Course Director & Principal Scientist
Division of Dairy Chemistry
ICAR-National Dairy Research Institute
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IMPORTANT DATES

| Last date of application | 15th September, 2015 (Tuesday) |
| Communication to Participants | 6th October, 2015 (Tuesday) |
| Commencement of training programme | 17th November, 2015 (Tuesday) |