

Application form for participation in ICAR Sponsored Short Course On

DNA TECHNIQUES IN FORENSIC FOOD ANALYSIS

(Strategies to combat Economically Motivated Adulterations and frauds in foods of animal origin)

14-23 October, 2019

Venue: ICAR-National Research Centre on Meat, Hyderabad (To be send directly to Course Director, Short Course)

1. Name in full (Block letters) : _____
2. Designation : _____
3. Present Employer and Address : _____
4. Address for Correspondence : _____
5. Tel No: (Off/Mob) : _____
6. Email : _____
7. Date of birth and age : _____
8. Gender (M/F) : _____
9. Teaching/Research/Extension experience (in years) : _____
10. Number of Summer/Winter/Short Courses attended in last five years : _____
11. Academic Qualifications : _____

Degree	Discipline	Year	Class	University

12. Demand draft for Rs. 50/- in favor of ICAR, Unit NRC on Meat, Hyderabad or postal order for Rs. 50/- payable at Hyderabad towards registration.

Date: _____ Signature of the applicant

Certificate

This is to certify that the information furnished by the applicant was checked with office records and was found correct.

Office Seal _____ Designation of the Sponsoring Authority _____ Signature _____

Address for Correspondence

Dr. S. Vaithyanathan

Principal Scientist

ICAR-NRCM, Hyderabad

Email: svaith@gmail.com, Vaithyanathan.S@icar.gov.in

Mob: 9573761364

Dr. S. B. Barbudde

Principal Scientist

ICAR-NRCM, Hyderabad

Email: barbudhesh@gmail.com

Mob: 9518542937

Dr. Girish Patil, S.

Principal Scientist

ICAR-NRCM, Hyderabad

E mail: girishipt@gmail.com

Mobile: +919401262522; +918638156026

Dr. Vishnuraj, M. R.

Scientist

ICAR-NRCM, Hyderabad

Email: vishnurajmr@gmail.com, vishnuraj.r@icar.gov.in

Mob: 944779717; 6303158960

Important Dates

Last date for Receipt of applications: 05-09-2019

Intimation to selected candidates: 06-09-2019

Confirmation from selected candidates: 25-09-2019



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On

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Venue :

ICAR-National Research Centre on Meat, Hyderabad



Course Director

Dr. S. Vaithyanathan

Course Coordinators

Dr. S. B. Barbudde

Dr. Girish Patil, S.

Dr. Vishnuraj M. R



Organized by

ICAR-National Research Centre on Meat

(An ISO/IEC 17025:2005 & ISO 9001:2015 Certified Institute)

Chengicherla, Boduppal post, Hyderabad-500092, Telangana.

<https://nrmeat.icar.gov.in/>



Course Concept

Consumption of meat and meat products in India is growing rapidly due to higher disposable income and rapid urbanization. Being a country with diverse geography, religiously and seasonally adaptable food habits and increasing number of processed meat products in retail food market and Quick Service Restaurants, the possibilities of adulterations in food items are various in India. The high price of animal derived proteins in market makes this commodity (meat) highly vulnerable to adulteration. Also, the slaughter of cows and sale of beef are prohibited in India through enactment of law (National Commission on Cattle, 2002). In a wider sense, being a member country in WTO and under the new food regime of Food Safety and Standards Act-2006, it is mandatory to develop robust and state of the art techniques to detect such meat adulteration in a cost effective manner.

As per ISO technical committee (ISO/TC 34/SC 16) recommendations, a new international standard is under development for molecular biomarker analysis methods for the detection and identification of animal species in foods and food products (nucleic acid-based methods). Therefore, it's the requirement of the time to undertake the latest concepts in this area so that the same can be disseminated to students researchers and accordingly newer PCR based platforms can be developed to accurately detect the species and sex of origin of meat and meat products. Very few laboratories are available in India to analyze forensic cases related to meat mislabeling practices. Therefore it is timed to launch a program in parallel with the efforts of FSSAI to combat the Economically Motivated Adulterations & fraudulent practices in meat selling. During the 10 days long training programme, the participants will be trained on wider areas of application of PCR techniques in food fraud analysis including meat, meat products, game, offal, ghee and tallow/lard and provide hand on training in the state-of-the-art laboratory of NRCM, which is ISO 17025:2005 NABL accredited and a referral food laboratory for meat & meat products under FSSAI.

Plan of Course

- Animal slaughter acts in India.
- Food Safety Act, 2006; food safety standards and regulations and Role of FSSAI Referral laboratories.
- Understanding DNA, DNA technology and its applications in food forensics.
- Universal Primer Technology and its application in Food/wild life forensics.
- Species specific PCR and PCR-RFLP for animal species identification.
- Sex identification of meat samples using PCR.
- Sample analysis using DNA macro array (Chipron) technology.
- Sequencing and Data analysis of PCR products for species identification.
- Wild life forensic through BOLD system analysis.
- Application of quantitative real time PCR (qPCR) in meat authenticity studies.
- Digital droplet PCR in food authenticity studies (meat/ghee/vegetable fat).

- Capillary electrophoresis techniques on microsatellite analysis & RNAQC.
- mtRNA-qRT-PCR for offal meat detection.
- DNA and RNA quality control analysis on spectrophotometer, in-gel & capillary.
- Next generation sequencing / deep sequencing of small RNA.
- Detection of Ghee adulteration (qPCR & dd-PCR).
- Meat species identification by Loop Mediated Isothermal Amplification (LAMP) technique.
- ISO Methods for detection of food borne pathogens.
- Good Food Laboratory Practices (GFLP) & ISO/IEC 17025.
- Preparation of SOP, document control and internal calibration.
- The Road to NABL Laboratory Accreditation: Experiences of ICAR-NRC on Meat.
- FSSAI & ICMSF standards and sampling plan for meat and meat products.
- Recent Developments in Animal Biotechnology to improve quality & safety of farm outputs.
- Alternate methods for animal species identification.

Practical

- Introduction to the lab and case studies from MSIL, ICAR-NRCM.
- Dos and don'ts of collection, preservation, packaging and transportation of samples.
- Isolation of DNA/RNA from meat, meat products, ghee, vegetable fat and animal body fat.
- Quantification of DNA & PCR amplification from various types of samples.
- PCR based detection of food borne pathogens.
- Experiences of MSIL with most difficult samples for species identification.
- Detection of ghee adulteration using real time PCR/droplet digital PCR.
- Simultaneous detection of multiple species from one meat sample/product.
- Detection of organ meat in skeletal muscle meat through miRNA-qRT-PCR.
- Visit to export oriented APEDA registered slaughter house.
- Troubleshooting & Report preparation.

The course is open to professionals with master's degree or equivalent, working not below the rank of Scientist/Assistant Professor or equivalent in the concerned subjects under Agriculture/Veterinary/Dairy/Fisheries Universities (SAU)/ICAR Institutes/ ICAR recognized institute/ Central Agriculture Universities.

Eligibility

Duration of the course

Outstation participants will be required to arrive latest by night of 15th October, 2019 and plan to leave after 15:00 hours on 23rd October, 2019.

Accommodation

The participants will be provided free boarding and lodging in the Institute guest house on sharing basis. Participants are advised not to bring their families, as accommodation for them will not be entertained.

How to apply

The participants will have to apply online at the CRP portal at <https://cbp.icar.gov.in>. After filling the online application, take a printout of the application and get it approved by the competent authority and upload the scanned copy on or before 05-09-2019. An advance copy (via email) may be sent directly to the Course Director and approved copy by post along with DD/Postal order for Rs. 50/- only drawn in favor of "ICAR, Unit -NRC on Meat" (non-refundable).

Travel Allowance

The participants will be paid TA for to and fro journey by rail/bus/public transport by the shortest route, but restricted to AC-II normal train fare only (on producing documentary evidence).

How to reach

NRCM campus is about 17 km from Secunderabad railway station/JBS bus Station, 40 km from RGIA Airport. Prepaid taxi/auto can be availed at railway/bus station to reach NRCM, Cherigcherla, Hyderabad.

The Institute

Over a decade of the existence, the institute has contributed substantially to the growth and development of meat sector through its research in meat quality improvement. NABL accredited laboratory for animal species identification, traceability in meat value chain, analysis of pesticide, heavy metals and veterinary drug residues, development of shelf stable meat products and variety of value added meat products, packaging interventions for shelf life understanding and improvements and identification of potential microbial hazards in meat value chain. Apart from these, the institute functions as National Referral Laboratory for meat and meat products under FSSAI and presently in the process of up gradation to National Reference Laboratory. Besides the core research activities, NRCM conducted several entrepreneurship training programs, faculty development programs, awareness creations, exhibitions, workshops, popularization of products and seminars. NRCM conducted Good Food Laboratory Practices training through FSSAI. NRCM established model experimental abattoir and pilot meat products processing plant with well equipped state of the art products processing facilities. So far more than 1000 entrepreneurs are trained in the facilities. NRCM is an ISO 9001:2015 certified and ISO/IEC 17025:2005 accredited institute.