



ICAR-CIFT Trainee
Hostel



ICAR-CIFT, Kochi

Important Dates

Late date of application : 24th October 2025
Intimation of selection : 25th October 2025
Confirmation of participation
by participants with payment : 27th October 2025

Training program on **Nanoparticle Synthesis and In Vitro Toxicity Evaluation**

29th October - 7th November, 2025
Venue: ICAR-CIFT, Kochi, India

PROGRAM DIRECTOR

Dr. George Ninan
Director, ICAR-CIFT

COURSE DIRECTORS

Dr. T. Raja Swaminathan
Dr. R. Anandan
Dr. Toms C. Joseph

COURSE COORDINATORS

Dr. Visnuvinayagam Sivam
Dr. Murugadas Vaiyapuri

For more information :

Director

ICAR - Central Institute of Fisheries Technology
Matsyapuri P.O, Willingdon Island, Kochi - 682029, Kerala, India
Phone : 91 (0) 484 - 2412300

Email : aris.cift@gmail.com, cift@ciftmail.org

Web : www.cift.res.in

Organized by

Microbiology, Fermentation and Biotechnology Division

ICAR-Central Institute of Fisheries Technology

Matsyapuri P.O., Willingdon Island, Kochi, Kerala, India
Pincode: 682 029. Ph: 0484-2412417; Email: mfbdv@gmail.com

About ICAR-CIFT

The ICAR-Central Institute of Fisheries Technology (ICAR-CIFT), set up in 1957, is the only national institute in the country where research in all disciplines relating to fishing and fish processing is undertaken, i.e. harvest and post-harvest technologies in fisheries covering both inland and marine sectors. The institute started functioning at Kochi in 1957. Research centers function at Veraval (Gujarat), Visakhapatnam (AP), and Mumbai (Maharashtra). The institute works on basic and strategic research in fishing and processing, designing and developing energy-efficient fishing systems for responsible fishing and sustainable management, seafood safety, development of implements and machinery for fishing and fish processing, and human resource development through training, education and extension. Within it is bestowed with state-of-the-art infrastructure for researching harvest and post-harvest fisheries activities. ICAR-CIFT is an NABL-accredited laboratory for testing fish and fishery products, and the institution is recognized as a national referral and reference laboratory for testing fish and fishery products by FSSAI, Govt. of India. ICAR-CIFT has given several consultancies and transferred technologies to various beneficiaries and stakeholders. ICAR-CIFT is involved in the development of standards for various fish and fishery products.



About MFB Division

The MFB Division at ICAR-CIFT undertakes basic, applied, and strategic research related to seafood microbiology, aquatic animal disease surveillance, and antimicrobial resistance (AMR). It works on identifying emerging and re-emerging pathogens in fish and shellfish, mapping antimicrobial resistance, and developing control measures.

A strong emphasis is placed on bioprospecting marine microbial biodiversity to explore novel bioactive molecules and useful genes for industrial applications. The division also researches probiotics for aquaculture, gut microbiome profiling of aquatic animals, microbial composting, aquatic phage therapy, nanotechnological approaches for controlling bacteria, and molecular source tracking of pathogens.

On the applied aspect research, the division is involved developing protocols and diagnostic tools: isolation & identification of seafood-borne pathogens, real-time PCR, automated bacterial identification and susceptibility testing systems, genotyping, whole genome and metagenomic profiling of pathogens, and AMR surveillance.

MFB division also offer training, consultancies, and contract research services: helping seafood and aquaculture industries with microbial testing; guiding labs in setting up diagnostics; training students, scientists, and stakeholders in advanced molecular and microbiological methods; and facilitating compliance for water quality, etc.



About the training program

The training programme on “Nanoparticle Synthesis and *In Vitro* Toxicity Evaluation” aims to provide participants with hands-on experience and in-depth knowledge of nanotechnology applications in biological and environmental systems. This programme is designed to equip researchers, students, and industry professionals with the fundamental and practical aspects of synthesizing various types of nanoparticles using chemical methods.

Participants will be trained in key techniques for characterizing nanoparticles, including UV-Vis spectroscopy, dynamic light scattering (DLS), zeta potential analysis, Fourier transform infrared spectroscopy (FTIR), and electron microscopy. Emphasis will be placed on the reproducibility, stability, and scalability of nanoparticle formulations.

In addition to synthesis, the programme will cover *in vitro* toxicity evaluation, focusing on cellular responses to nanoparticles. Trainees will learn standard cell culture practices, cytotoxicity assays such as MTT and resazurin assay for assessing genotoxicity and cellular uptake.

This training will not only bridge theoretical knowledge with practical implementation but also highlight current trends, regulatory aspects, and safety concerns related to nanomaterials. It will be especially beneficial for those involved in biomedical research, drug delivery, environmental safety, and material science.

Brief outline of the training program module

The training programme is structured to provide participants with a comprehensive understanding of nanotechnology, with a focus on its synthesis, characterization, applications, and safety evaluation. Trainees will begin by learning the fundamentals of nanotechnology and its practical applications, particularly in the food sector and antimicrobial resistance (AMR) control. Through hands-on sessions, participants will gain experience in the preparation of nanoparticles and the use of various analytical techniques for nanoparticle characterization. The programme emphasizes the biological relevance of nanoparticles by exploring their antibacterial activity through well diffusion, Minimum Inhibitory Concentration (MIC) and Minimum bactericidal Concentration (MBC). A dedicated module on nanotoxicology will cover toxicity mechanisms and mitigation strategies. In addition, trainees will be introduced to animal cell culture techniques, including the preparation of cultures and conducting *in vitro* cytotoxicity assessments using nanoparticles. By the end of the programme, participants will have both theoretical knowledge and practical skills necessary for designing, evaluating, and applying nanoparticles safely and effectively in scientific and industrial contexts.

Who can apply or participate

The programme is open to early career faculties, scientists, industrial partners, scholars, researchers, who wish to work on nanotechnology across India with experience in microbiology. A maximum of 15 participants will be selected based on their experience, area of working and first come first serve basis.

Applying for the training

The interested candidates may send their applications in the enclosed form through google form to the Course Director or any one of the mail ID

✉ mfbdvnttraining@gmail.com ; mfbdvn@gmail.com

Course fee, Boarding and Lodging

The training fee for the program is Rs. 8000 + 18% GST. This fee includes the training fee, training manual kit, working lunch and refreshments for all the working days. The travel, breakfast, dinner and accommodation should be borne by the candidates. If participants require accommodation at ICAR-CIFT guest house/ trainees hostel will be on first come first serve basis at reasonable rate. The participants should abide by the rules and regulations of the Institute trainees' hostel or guest house.

Google form for the registration



<https://docs.google.com/forms/d/e/1FAIpQLScmENSprl2Uv4hGxiNMos10waoOZ41tYFJAXq8wnA7qwaYWug/viewform>

QR code / Google form for the payment



Name : ICAR UNIT CIFT
Bank : State Bank of India
Branch : COCHIN PORT TRUST
IFSC ; SBIN0006367

*Please share the payment details to aticcift@gmail.com