



**High End Workshop**

**On**

**No Registration  
& Course Fee**

## **Advanced Microbiological and Biochemical Techniques for Improving the Analytical & Technical Skill of Post Graduate Students**

**Under the KARYASHALA Scheme - a SERB Initiative**

**Course Director**

**Dr. Ramesh Chand Kasana  
Principal Scientist (Ag. Microbiology)**

**Course Coordinators**

**Dr. Rahul K. Anurag  
Senior Scientist (Food Technology)**

**Dr. Poonam  
Scientist (Plant Biochemistry)**



आईएसओ 9001-2015 प्रमाणित संगठन  
भा.कृ.अनु.प.—केन्द्रीय कटाई—उपरान्त अभियांत्रिकी एवं प्रौद्योगिकी संस्थान,  
लुधियाना .141004(पंजाब)

An ISO 9001-2015 certified organization

**ICAR-Central Institute of Post-Harvest  
Engineering & Technology**  
Ludhiana, 141 004 (Punjab)

### **About KARYASHALA**

'KARYASHALA' is aimed to improve research productivity of promising PG and PhD students from universities/colleges through high-end workshops on specific themes. This program aims to provide opportunities to acquire specialized research skills and provide hands-on experience to the students primarily from universities, colleges, private academic institutions, and newly established institutes in handling/troubleshooting of high-end scientific instruments and such skill development on themes required for research work. The program is meant to support motivated PG and Ph.D. level students, who are having a strong willingness to get excellence in their scientific and engineering research pursuits.

### **About ICAR-CIPHET**

ICAR- Central Institute of Post-Harvest Engineering & Technology Ludhiana, Punjab is a nodal institute under the umbrella of Indian Council of Agricultural Research (ICAR). The institute was established in 1989 on October 3, and now has two stations with head quarter at Ludhiana and regional station at Abohar. Institute works for R&D of post-harvest mechanization, processing and value addition of commodity of agriculture and allied sector. The institute is also a coordinating centre for two All India Coordinated Research Projects (AICRP's)- i.e., Post-Harvest Engineering Technology (PHET) and Plastic Engineering in Agriculture Structures and Environment Management (PEASEM) and a Consortium Research Platform on Secondary Agriculture (CRP on SA). The institute presently hosts five divisions namely, Automation and Sensor Technology (A&ST), Agricultural Structures and Environment Control (AS&EC), Food Grains and Oilseeds Processing (FG&OP), Horticultural Crop Processing (HCP) and Transfer of Technology (TOT). The institute also has a Krishi Vigyan Kendra (KVK) at Abohar Campus.

### **Objective of Workshop**

The focus of this workshop will be on exposing post-graduate students to various advanced techniques and instruments used in microbial, biochemical, and molecular-biology laboratories. Practical's and demonstrations on isolation and selection of industrially important microorganisms, DNA isolation, PCR amplification, Gel Electrophoresis, identification of bacteria using 16S rRNA sequencing, Electron Microscopy, purification of proteins and enzymes, Gas chromatography, High performance liquid chromatography, Microencapsulation of bioactive. They will also visit advanced food testing laboratory of the institute.

### **Course Content**

The course has been structured in a series of modules with classroom lectures and practical hands-on demonstrations in laboratories, facilities of the institute, collaborating institute (Punjab Agricultural University)

#### **Module 1**

- Microbial and biochemical laboratory techniques
- Isolation and selection of industrially important microorganisms
- Molecular identification and preservation of microorganisms

## Course Content

### Module 2

- Preparation of biochemical solutions
- Extraction, separation and purification of biomolecules
- Chromatographic techniques (Gas Chromatography, HPLC),
- DNA isolation, PCR amplification & Gel Electrophoresis
- Electron Microscopy

### Module 3

- Purification techniques for enzymes, proteins
- Fermentation Techniques
- Microencapsulation Technology
- Field Visit to Bioproduct Processing/ Manufacturing Unit/ Industry

## Nominations

Interested candidates fulfilling the eligibility conditions may apply through proper channel with the approval of competent authority. Twenty (20) students will be selected based on the merits/ suitability of the candidates.

## Eligibility

Students pursuing Master's Degree / Ph.D. in any discipline of Agricultural Sciences/ Life Sciences/ Basic Sciences/ Agricultural Microbiology, Plant Biochemistry, Food Technology, Foods and Nutrition or P.G/Ph.D. with research specialization in agriculture and allied sciences.

## Important Dates

Last Date for Receipt of Applications: **08 March, 2024**

Information to Selected Candidate: **10 March, 2024**

Workshop Date: **18-27 March, 2024**

## Registration

Interested eligible candidates can register through google form link by uploading application form duly signed by head of the Recommending Authority / Head of the Institute.

[https://docs.google.com/forms/d/e/1FAIpQLSdD8UIDErn9FrTuHbRQC8MZGnFAHFexGd\\_pUpABktXy2LNZsw/viewform](https://docs.google.com/forms/d/e/1FAIpQLSdD8UIDErn9FrTuHbRQC8MZGnFAHFexGd_pUpABktXy2LNZsw/viewform)

## Travel and Accommodation

The participants will receive reimbursement for their travel expenses, including the journey to and from the event location. However, it is important to note that the travel expenses for participants will be limited to the sleeper class in trains or buses. Boarding and lodging will be free, Guest house accommodation will be provided on sharing basis in institute.

## Certificates

On successful completion of workshop, certificates will be issued by the organizing institute.

## For registration related queries and any correspondence may be addressed to

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## How to Reach ICAR-CIPHET

Ludhiana city is well connected by Road and Rail transportation. The distance of institute from main bus stand is about 10 Km and from Ludhiana Railway Station is about 9 Km.

