



**High-End Workshop (Karyashala)
on**

**Training on GC-MSMS for quantification of
pesticides and metabolite profiling**

22-31 July 2024

Chief Patron

**Dr. A. K. Nayak
Director, ICAR-NRRI**

Patron

**Dr. S. D. Mohapatra
Head, Crop Protection Division, ICAR-NRRI**

Course Director

**Dr. Totan Adak
Senior Scientist, ICAR-NRRI**

Course Coordinators

**Dr. Basana Gowda G,
Scientist, ICAR-NRRI
Dr. Arabinda Mahanty,
Technical Assistant, ICAR-NRRI**

**ICAR-National Rice Research Institute
Cuttack-753006, Odisha, India**



A BRIEF ON 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.

A BRIEF ON ICAR-NATIONAL RICE RESEARCH INSTITUTE

ICAR-NRRI (formerly Central Rice Research Institute) was established by the Central Government, on April 23, 1946 at Bidyadharpur, Cuttack, Odisha to intensify research on all aspects of rice crop. Subsequently, in 1966, the administrative control of the Institute was transferred to the Indian Council of Agricultural Research (ICAR). The Institute was renamed as ICAR-National Rice Research Institute (NRRI) in the year 2015. The institute has five research divisions viz. Crop Improvement Division, Crop Production Division, Crop Protection Division, Crop Physiology and Biochemistry Division, Social Science Division. National Rice Research Institute (NRRI) has released more than 180 varieties for different ecosystems of the country. India grows NRRI varieties in 18% of its rice area with 17% of rice production. The Institute has advanced laboratories to cater the need of the researchers, farmers and policy makers. One such laboratory is Pesticide Residue laboratory in the Crop Protection Division. The laboratory is well equipped with LCMSMS, GCMSMS, UPLC and GC.

ABOUT THE WORKSHOP

GC-MSMS is an high end analytical technique which has wide range of applications like environmental monitoring, food and fragrance analysis, chemical ecology, biological sciences, forensic sciences and many other industrial applications. In this workshop , the participants will be provided with hands –on-training on the quantification of pesticides and metabolite profiling using GC-MS.

Course Content

The course has been structured in a series of modules with classroom lectures and hands-on practical sessions on pesticide residue analysis and metabolite analysis using GC-MS.

Module 1: Introduction to the topic

- GC-MS: Principles, Applications and recent advances
- Steps in Pesticide Residue Analysis

Module 2: Sample preparation, method development and analysis of pesticides

- Pesticide residues in food: regulatory perspectives
- Development of GC-MS method for identification / quantification of pesticides (Qualitative detection of target pesticides, Identification of Quantifier, Qualifier, Energy etc.)
- Method validation and quality control procedures for pesticide residues analysis in food
- Introduction to ISO/IEC 17025:2017 for accreditation of laboratories.
- Sampling, Extraction, Cleanup of pesticides from rice matrix
- Pesticide residue in seafood: issues and concerns

Module 3: Volatolome profiling as part of untargeted metabolomics and quantification of 2- Acetyl-1-Pyrroline from rice grain

- Untargeted metabolomics techniques for discovery of bioactive compounds
- Quantification of 2-acetyl pyrroline and other volatiles as rice grain quality markers.
- Volatile organic compounds and their role in plant-insect interaction
- Analysis of plant leaf volatiles by GC-MS

Module 4: Metabolite extraction, derivatization of metabolites and GC-MS analysis

- Metabolite extraction, derivatization of metabolites and GC-MS analysis.

Module 5: Compound identification and software packages used in metabolomics studies

- Compound identification and software packages used in metabolomics studies: Xaclubur, AMDIS, Metaboanalyst and MS-DIAL and other software packages

Nominations

Interested candidates fulfilling the eligibility conditions may apply through proper channel with the approval of competent authority. Twenty 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 and allied sciences/Environmental Sciences/Basic Sciences with research specialization in agricultural chemistry/chemical ecology/metabolomics.

Important Dates

- Last Date for Receipt of Applications: 30th June, 2024
- Information to Selected Candidate: 1st July, 2024
- Workshop Date: 22-31 July, 2024

Registration

- Interested eligible candidates should register through google form link <https://docs.google.com/forms/d/e/1FAIpQLScfVQBRrmFH45u3CTYLR46u34GqWsd1-NkEghsTruf7PjUj8A/viewform?vc=0&c=0&w=1&flr=0&pli=1> by uploading application form duly signed by head of the Recommending Authority / Head of the Institute.
- Application in email or in hard copy will not be accepted.

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 AC-III** in trains or buses.
- The participants will be provided travel, lodging and boarding as per SERB guidelines at ICAR-NRRI, Cuttack

Certificates

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

APPLICATION FORM
DST-SERB Sponsored High End Workshop “KARYASHALA”
On
Training on GC-MSMS for quantification of pesticides
and metabolite profiling

22-31 July 2024

1.	Full Name (in BLOCK letters)				
2.	Highest degree (pursuing with specialization)				
3.	Present Institute Name				
4.	Address for Correspondence				
5.	E-mail address <i>Mobile Number</i>				
6.	Date of Birth				
7.	Sex (Male/Female/other)				
8.	Education Qualification:				
	Degree	Subject	Year of passing	Class/Division/ Equivalent	University/Institute
	Bachelors Masters Ph.D. Any Other				
9.	Level of Knowledge in GC-MS				
10.	Area of present research work				
11.	Expectations from the workshop				

Signature of the Applicant with date

CERTIFICATE

It is certified that information furnished above is correct and the candidature is being sponsored. Travel, Boarding and Lodging allowances will not be paid by this office

*Signature of the Recommending Authority/
Institute along with Seal*

For any registration related queries contact

Dr. Totan Adak

Senior Scientist (Agricultural Chemistry)

Crop Protection Division,

ICAR-National Rice Research Institute, Cuttack-753006, Odisha, India

Office: +91-671-2367757/67; Mob: 7205622574

E-mail: totan.adak@icar.gov.in; totanadak@gmail.com
