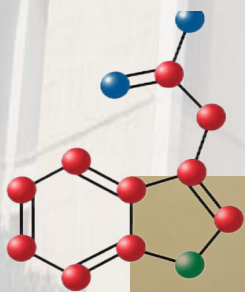




Four days *Hands-on workshop* on “Liquid Chromatography- Mass Spectrometry”

Organized by
Central Instrumentation Facility
Established under ICAR/NAHEP-Centre for Advanced
Agricultural Science & Technology (CAAST) Program

December 21-24, 2022





University of Agricultural Sciences, Bangalore

Central Instrumentation Facility



(Established under ICAR/NAHEP-Centre for Advanced Agricultural Science & Technology (CAAST) Program)

Hands on Training on Liquid Chromatography- Mass Spectrometry

December 21-24, 2022

Central Instrumentation Facility, UAS Bangalore

Agri-innovation is needed to provide opportunities for farmers to increase productivity while efficiently managing natural resources. To keep pace with the innovative technologies in agricultural sciences, the University of Agricultural Sciences, Bangalore (UASB) has strived to maintain a dynamic curriculum, adopt the latest educational tools, and be equipped to deal with newer challenges in meeting the food and nutritional security. In line with these initiatives, the UASB under the aegis of the Centre for Advanced Agricultural Sciences and Technology (CAAST) program of the National Agricultural Higher Education Project (NAHEP) of ICAR, established a Central Instrumentation Facility (CIF) at the GKVK campus. Dr Trilochan Mohapatra, Honourable Secretary DARE and DG-ICAR inaugurated the Central Instrumentation Facility on 20 March 2021. Scanning Electron Microscope (SEM), Liquid Chromatography-Mass Spectrometer (LC-MS/MS) and the Laser Scanning Confocal Microscope (LSCM), are the major equipment housed in this facility and recently, the facility has been strengthened with the addition of new equipment/facilities.

Liquid/Gas chromatography-mass spectrometry (LC/GC-MS/MS) is an analytical tool used to separate, identify and quantify biomolecules/compounds in a complex mixture. The LC coupled with mass spectroscopy (MS/MS) makes it a powerful tool for analyzing organic compounds commonly found in complex samples of biological origin. In this system, the sample components are first separated by ultra-high-performance LC (UHPLC) or gas chromatography (GC) under higher operational pressure based on their physicochemical properties. Individual components are then ionised and separated based on the mass-to-charge ratio (m/z) in the mass analyser, creating a spectrum that provides the elemental signature of the sample.



Workshop Overview

This hands-on workshop aims to introduce the participant to liquid chromatography-mass spectrometry (LC/MS/MS) and the use of LC/MS/MS in screening/detecting compounds (phytohormones) from biological specimens. The training includes lectures and laboratory activities to illustrate the general principles and applications.

The workshop will include basic operation and maintenance. It will allow the participant hands-on experience in method development, instrument readiness, basic sample processing and identification. Calibration curves and an individualized analysis of unknowns (plant hormones) will also be introduced.

Hands on laboratory session:

- Introduction to LC-MSMS, working principle and operation
- Method development and analysis using UPLC-PDA detector
- Sample preparation
- Method development for LC-MSMS with Electron spray ionization (es⁺ and es⁻ modes) Software handling, Data analysis and interpretation
- GC-MS with Atmospheric pressure ionization, Method development, Data analysis and interpretation
- Application in life science with special emphasis on Agri-based applications
- Do's and Don'ts on handling the equipment

Learning resources

Waters TQD LC-MSMS, GC-MSMS, UPLC system

Learning Outcomes

After the Workshop, the participant will acquire the knowledge to:

- Understand general principles of liquid chromatography-mass spectrometry
- Perform basic (plant) sample processing
- Perform unknown sample evaluation to determine possible analytes present
- Understand the data output and interpret the results

Note:

- Duration: Four days
- One participant from an institute will be selected
- Teaching faculty and researchers will be given preference
- Maximum of 10 participants for hands-on training
- The workshop will be conducted at the Central Instrumentation Facility, UASB, by the specialists

Eligibility criteria

- Teaching faculty and researchers are given preference.
- The participants should have LC-MS facility as the training involves hands-on experience.
- One participant from an institute will be selected
- Maximum of 10 Participants for hands on training will be selected
- Accommodation will be provided by the organizer
- TA/DA will not be provided by the Organizer

Last Date of submission of application: November 30, 2022

Contact: Dr. N. Nataraja Karaba

Principal Investigator

ICAR-CAAST project

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APPLICATION FORM

Hands on Training on

Liquid Chromatography- Mass Spectrometry

(under ICAR/NAHEP-Centre for Advanced Agricultural Science & Technology
(CAAST) Program)

Full Name (In Block Letters)				
Date of Birth				
Sex (Male/Female)				
Address				
Telephone/Mobile No.				
E-Mail				
Discipline/Specialization				
Educational Qualification	Degree	University	Subject	Year
Presently Pursuing (Masters/PhD.) Details				
Any Knowledge on Analytical Instruments/Chromatographic Techniques				
Have you attended any training / workshop on the present topic				
	Signature of Applicant			
Recommendations of Forwarding Institute				
	Signature of Forwarding Authority with Seal and Date			

Application have be submitted via mail to uasbcif@gmail.com by 30/11/2022