

## ORGANIZING COMMITTEE

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Associate Professor, Dept. of Botany, University of Kerala

### HOW TO APPLY

We invite applications from junior faculty and research scholars in Botany, Plant Biotechnology, and Agriculture. Participation in the workshop will be by invitation only. The number is limited to 30 participants. Details are available at [www.keralauniversity.ac.in](http://www.keralauniversity.ac.in). Applications including address, contact number, email ID, area of specialization / area of interest, and a write-up on the reason for participation in the workshop (about 100 words) may be submitted by Google form <https://forms.gle/rMsEryVtScFhmjAz5> on or before November 25, 2022. The selected candidates will be informed by email.

Registration Fee: Faculty members/Scientists: = 4000/-

Research Scholars: = 3000/-

Participants who wish to have accommodation facilities should pay an extra amount which will be informed later. The mode of payment will be communicated to the selected candidates in due course.

### Address for correspondence

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National Workshop on

# Tools and Techniques in Plant Science Research

December  
**12 - 16  
2022**

**DEPARTMENT OF BOTANY  
UNIVERSITY OF KERALA**

(NAAC Accredited with A++ grade)

**KARIAVATTOM, THIRUVANANTHAPURAM**

## BACKGROUND AND SCOPE

Workshops and training are the platforms to update researchers in their field of research. Such programmes provide exposure to novel tools and methods and thus enable young researchers to take up the challenging, emerging fields of research in plant science. Often first-hand exposure and acquisition of various skills, mold the researchers to address their problems effectively and efficiently.

In the recent past, life science research and, in particular, plant science have undergone significant advancement due to the advent of most modern instruments, with automation and artificial intelligence in the field. For instance, conventional Soxhlet - based plant extraction has now largely transformed with highly efficient automated extraction, ultrasonic extraction, microwave-assisted extraction, or supercritical fluid extraction. For the detection and quantification of metabolites instead of conventional methods, HPTLC, LCMS, are recommended nowadays. Due to the backing of ultra-powered computation and analysis, *in silico* molecular docking and drug design efficient, more accurate *in vitro* and *in vivo* pharmacological evaluation of drug molecules is made possible now. In the case of microscopy, advancements such as scanning tunneling electron microscopy (STEM) and confocal microscopy are widely applied to plant research. In plant genotyping, SNP - based methods and the development of capillary electropherogram-based nucleic acid and protein characterization are getting attention. In gene expression studies, researchers are getting largely rely on the qRT-PCR profile.

In brief, the proposed workshop entitled 'Tools and techniques in Plant Science Research' aims to provide hands-on experience with modern research tools to young researchers.

### Major objectives of the workshop are;

- To familiarize modern plant extraction techniques, sample preparation for various detection and quantitation of metabolites
- To provide training on the handling of various computational data analyses and molecular docking tools
- To make aware of detailed sample preparation methods and advanced microscopy such as STEM, confocal microscopy, etc.

- To provide exposure to modern tools in plant genotyping and analysis of molecular data
- To acquaint with qRT-PCR operation and maintenance.
- To gain hands-on acquaintance to the antimicrobial techniques and Screening of antibiofilm activity of phytomolecules against human pathogenic strains

The workshop is expected to serve as a platform for hands-on training on modern aspects of plant science research. Lecture classes will follow the practical sessions in diverse fields during the course.

The organizers have invited a galaxy of eminent scientists from reputed National institutions or technical experts from private labs to lead training and demonstrations in various sessions. Major training components of the workshop are expected to cover technical lectures and practicals on phytochemical analysis, molecular docking and drug design and development, molecular techniques- (SCAR markers, SNPs, miRNA, DNA barcoding), gene expression studies, data analysis, microscopy (confocal and SEM), Scientific writing, reference management, and IPR. It is a matter of great pleasure to invite faculty members, scientists, and researchers to participate in the workshop.

## ABOUT THE DEPARTMENT

Department of Botany, University of Kerala was established in the year 1959 at Kariavattom, Thiruvananthapuram, Kerala, by Late Prof. (Dr.) A. Abraham, a visionary, an institution builder, and a doyen in Cytogenetics and Plant Breeding. The Department actively serves society by disseminating knowledge and training the younger generation through unique courses and offering training in frontier areas of Plant Sciences. The Department is internationally known for its major contributions in Cytogenetics and Cytotaxonomy. Department is conducting two postgraduate programmes; viz., I. M.Sc Genetics and Plant Breeding ii. M.Sc Botany specialisation in Biodiversity and Conservation. The Department is active in Plant Biotechnology research and has well-established Cell/Tissue culture and Molecular Biology Laboratories. More than 190 students/teachers have taken Ph.D. from the Department on diverse topics, and more than 300 students have completed their M.Phil programme in Advanced Botany.