



# सीएसआईआर-एकीकृत कौशल विकास CSIR-Integrated Skill Development Initiative

## के अंतर्गत आयोजित आवासीय प्रशिक्षण कार्यक्रम Residential Training Program



CSIR Integrated Skill Initiative

# Training on Advanced Instrumentation & Analytical Techniques for Natural Products [AIAT-24]

[15 – 19 January 2024]

## CIRCULAR

### About CSIR-CIMAP

CSIR-CIMAP is a national R&D Laboratory of CSIR, having a unique mandate on medicinal and aromatic plants for their production and exploitation as a value-added product for the industry and society. The research and development program of the institute is greatly supported by modern, sophisticated instrumentation to provide a base for the development of technologies through plant sciences, Lucknow “The Historical City of Nawabs“ has developed as an advanced city of science education and research with a good number of prestigious R & D and academic institutions like CDRI, NBRI, IITR, IISR, IET, BSIP, KGMU, SGPGI, IIM and many more including Lucknow University.

### Background

Photochemical, particularly small molecules, have several applications. The harnessing of herbs for human health management is centuries-old science practiced in our country. Natural products serve as a basic skeleton and are crucial in modern drug discovery programs. The number of drugs and supplements used today are derived from natural products. The process of drug development and quality control requires multi-skill. Identifying lead molecules and quality assurance control of herbs/products require skill and knowledge of analytical instrumentation. The requirement for consistently high standards of competence in chromatography-spectroscopy and analytical science is now, more than ever, a matter of priority for industries of pharmaceutical, chemical, and biotechnological research organizations mandated for applied research. Over the years, the development of these tools has become increasingly sophisticated to make their use simpler, and now these have become indispensable tools for R & D work. To keep pace with the sophistication of these tools, it is necessary to simultaneously upgrade the skills of all concerned in this field as a human resource development venture. To fulfill this important objective, CSIR-CIMAP is organizing five days of summer training on applications and principles of working sophisticated instrumentation from 15-19 January 2024.

## Training objective

The course will provide sound knowledge in natural product extraction, separation, purification, and identification practices of phytochemicals. The focus of the training program was to enhance the experience and practical knowledge of chromatographic and spectroscopic research in natural product development and develop human resource capacities by offering training to personnel from industry, academic institutions, and government laboratories.

## Who should participate?

- The type of training/exposure has been planned to be equally useful for scientists, academicians, industry, and research scholars.
- No doubt students/ scholars related to the fields will benefit greatly as they will be exposed to modern R&D tools. This course is designed to keep the requirements of both beginners and intermediate-level users.
- The lectures, supplemented by problem sets, PowerPoint slides, and hands-on training, will provide the fundamentals to understand the techniques and instrumentation. *No prior experience in advanced computation, theoretical chemistry, or physics is required for this course.*
- Some experience in chromatography or introductory knowledge of chemistry is desirable but not necessary.

## Course Content

There will be theory lectures on basic instrumentation principles, applications and hands-on practical exposure to sophisticated instruments and data analysis during the course.

- 1 **Module 1:** Introduction to Medicinal and Aromatic Plants (MAPs) Analysis
- 2 **Module 2:** Isolation and purification of natural products
- 3 **Module 3:** HPTLC-Basics, Instrumentation and its Application MAPs
- 4 **Module 4:** HPLC-Basics, Instrumentation and its Scope in natural products
- 5 **Module 5:** GC & GC-MS-Basics, Instrumentation, and its scope
- 6 **Module 6:** LC-MS-Basics, Instrumentation and its scope
- 7 **Module 7:** FT-NIR & Inductively coupled plasma atomic emission spectroscopy (ICP-AES) -Basics, Instrumentation and its Scope
- 8 **Module 8:** NMR-Basics, Instrumentation and its Application in small organic molecule structure elucidation





## Fee structure

- Duration** : 05 days (Residential course).  
**Batch size** : 20 [First come, first served basis]  
**Mode of Registration** : Interested candidates must submit the Registration Form and the course fee (**Download from CSIR-CIMAP website**).  
**Registration Fee** : Students: INR 7,500/-  
Industries/Institution sponsored: INR 15,000/-  
**Payment mode** : The **demand draft** in favour of “**Director, CSIR-CIMAP, Lucknow**“, payable at Lucknow or through **online transfer**.

### *Bank Detail for online transfer-*

Account No. : 30267691783  
Account holder : Director, CIMAP, Lucknow  
Bank Address : State Bank of India, Main Branch,  
Hazaratganj, Lucknow  
Branch Code : 000125  
IFSC code : SBIN0000125  
MICR code : 226002002

**Note:** No Refund is permissible in any circumstances. The selected candidates will be informed by phone/email.

- Accommodation** : Accommodations on a twin-sharing basis will be provided in our guest house.  
**Dates** : **15 – 19 January 2024**  
**Timings** : **9:30 AM to 6:00 PM**

## How to Apply

The application and brief bio-data should be forwarded to the **Director, CSIR-CIMAP, Lucknow**. The selection criteria will be the applicant's relevance with training and covering maximum geographical and institutional (R&D/ academic/ industries) representation. The last date for receiving the application is 05 January 2024. **No TA/DA will be admissible to the participants for attending the training/school.**

## Course Structure

There will be lectures and practical demonstrations by the faculty of leading scientists and experts in different fields. The training school will be of five days' duration with long working hours from early morning to late evening. The participants will be exposed to different aspects.

of natural product chemistry like Isolation, chromatographic purification, and characterization of molecules with the help of modern, sophisticated instruments. The participants are expected to fully involve themselves in training without leave. The hostel stay will be compulsory for residential trainees due to their late working hours.

## **For further communications, write or call:**

### **Director**

**CSIR-Central Institute of Medicinal and Aromatic Plants**

**PO- CIMAP**

**Lucknow-226015 [Uttar Pradesh]**

Phone: 0522-2718505

Fax : 0522-2719072

E-mail: [director@cimap.res.in](mailto:director@cimap.res.in),

Website: [www.cimap.res.in](http://www.cimap.res.in)

### **Course Coordinator**

**Dr. Karuna Shanker**

Phone: 0522- 2718580/579; Mobile: 09415329718

E-mail: [k.shanker@cimap.res.in](mailto:k.shanker@cimap.res.in)

## **Contact Persons for accommodation & registration:**

- Dr. Karuna Shanker (9415329718);
- Dr. Neerja Tiwari (08447654304)

