



BRIC National Agri-Food and Biomanufacturing Institute (BRIC NABI)

Hands-on-Training on “Elemental and Surface Characterization Techniques (CHNS/Physisorption/Chemisorption)”

5-7th March 2025

Subject: Hands-on-Training on CHNS analyzer, Physisorption and Chemisorption (Analytical Techniques and Methods)

Schedule: 3 Days (5-7 March 2025) from 9.00 am to 5.30 pm.

Proposed Program: This program outlines comprehensive hands-on training focused on CHNS (Carbon, Hydrogen, Nitrogen, Sulfur) elemental analysis, Physisorption (surface area and pore size analysis) and Chemisorption (surface acidity of catalysts). These techniques are indispensable tools in various scientific fields, including material science, chemistry, environment, pharmaceuticals, agriculture etc. This training course is designed to equip users with the knowledge of the equipment's software and hardware, as well as the ability to interpret the data generated.

Brief Details of Central Instrumentation Facility: Central Instrumentation Facility (CIF) at NABI, Mohali, has been extending its services to researchers for 12 years, and it was established by the Department of Biotechnology (DBT), Ministry of Science and Technology in 2012. This facility helps develop the analytical skills of scientists, research personnel, and students engaged in R&D activities. CIF also offers training programs on science and technology advancements to wide users across India and is offering time to time training in advance equipment's. CIF facility is also available to outside professionals for sample testing at very nominal rates.

Scope of Training: Training includes techniques like CHNS analyzer, Physisorption and Chemisorption.

- ❖ **Fundamental Knowledge:** Presentation of the underlying principles of measurement techniques and the operation of relevant instruments.
- ❖ **Experimental Design:** Develop well-structured experiments that prioritize data accuracy and reliability.

- ❖ **Sample Handling:** Conduct thorough sample preparation before measurements and utilize appropriate software for data analysis.
- ❖ **Data Analysis and Troubleshooting:** Interpret measurement results effectively and identify and resolve any experimental challenges.
- ❖ **Hands on Training:** Operation of CHNS, Physisorption and Chemisorption.
- ❖ **Practical Experience:** Participate in laboratory visits, engage in discussions, and receive a certificate of completion.

Brief note on the techniques:

1. CHNS Analyzer (Elementar – Vario Macro Cube)

CHNS elemental analyzers provide a rapid determination of carbon, hydrogen, nitrogen and sulfur content in organic materials. It is capable of handling a wide variety of sample types in the fields of pharmaceuticals, polymers, chemicals, environment, food and energy. The technique is reliable and cost-effective for assessing the purity and chemical composition of compounds.

2. PHYSISORPTION (Anton Paar - AsiQ-XR-XR-AG)

Physisorption analyzes the physical adsorption of gas molecules on a solid surface and serves as the basis for an important analysis technique for the measurement of the specific surface area of materials. By using physisorption analysis, one can determine the surface area and porosity of the sample. Physisorption analysis is used in quality control and research and development across various research markets, including Pharmaceutical, Nanotechnology, Metallurgy Materials Science, and more.

3. CHEMISORPTION (Microtrac-BELCAT II)

Chemisorption analyzer enables comprehensive catalyst evaluation and characterization by using the following techniques: Pulse chemisorption, NH₃-Temperature programmed desorption (TPD) and Temperature programmed reduction (TPR).

Fee details:

Sl. No.	Equipment Name	Fee per student
1	CHNS analyzer	₹ 2,500 + 18% GST
2	Physisorption analyzer	₹ 2,500 + 18% GST
3	Chemisorption analyzer	₹ 2,500 + 18 % GST
4	Special discounted combined package (all 3 techniques)	₹ 5,000 + 18% GST

Note:

- The training fee excludes the accommodation charges. Limited seats are available in Guest House which can be provided at nominal rates to participants on first come first serve basis.

- The training Program includes provision of morning and evening tea along with lunch to all the participants of the Program.

Criteria and Eligibility of Training Program: The details are as follows:

- **Educational Qualification:** BSc/B.Tech/MSc/M.Tech/PhD degree holders and perusing candidates may participate in the training program.
- Since seats are limited, the selection criteria of the participants will be purely on **First come, First Service Basis** with the fulfilment of the above eligibility conditions.

General Conditions:

- Interested candidates must fill out the registration form latest by 21-02-2025 and send a request to Email ID: sandhya.yd@ciab.res.in (Sandhya Yadav – 0172-5221-515).
- The Google link for the form is as follows:
<https://forms.gle/yzKPoeMYTq4pc1yGA>
- In addition, the STUDENT RESEARCH SCHOLAR may need to submit the **NO OBJECTION CERTIFICATE and DECLARATION (formats available in the same document at the end)** by 21-02-2025 via email.
- All candidates whose candidature is accepted by competent authority for the training Program shall be informed latest by 28-02-2025. Post confirmation of candidature acceptance from NABI, Mohali, Candidates must deposit the fees and share proof of payment with sandhya.yd@ciab.res.in latest by 01-03-2025, 5.00 PM. **Late payments or confirmation will lead to cancellation of candidature and no separate intimation will be sent in this regard.**
- Training will be held from **05-03-2025 to 07-03-2025**
- Fees once paid, will not be returned even if the candidate wishes to withdraw his/her application for the training program.
- BRIC NABI also provides guest house accommodation on a paid basis at ₹ 900/- per day (Taxes and food charges extra), subject to the availability of rooms.
- All participants during their presence in the campus must adhere to the conduct & discipline rules applicable inside the campus.

Payment details: By online payment as per bank details provided below:

Beneficiary Name: Center of Innovative and Applied Bioprocessing

A/c No: 32618124859

Bank Name: State Bank of India

Branch Code: 1828

IFSC Code: SBIN0001828

MICR Code: 160002023

GST No. in r/o CIAB is 03AABAB8297N1ZC



BRIC National Agri-Food and Biomanufacturing Institute (BRIC NABI)

(Formerly Center of Innovative and Applied Bioprocessing, Mohali)

NO OBJECTION CERTIFICATE

The applicant Prof. /Dr. /Mr. /Ms. _____

from our institution will be permitted to attend the “Hands-on Training on CHNS, Physisorption and Chemisorption” to be held from 05-03-2025 to 07-03-2025 at the BRIC National Agri-Food and Bio-manufacturing Institute (BRIC NABI), if selected for the same.

Place:

Signature

Date:

(Head of the Institution with seal)

DECLARATION BY THE CANDIDATE

I agree to abide by the rules of the **BRIC National Agri-Food and Biomanufacturing Institute (BRIC NABI)**, Mohali. If selected, I shall participate in the course for the entire duration.

Date:

Place:

Signature by the Candidate

(Scanned copy should be submitted in advance through email to sandhya.yd@ciab.res.in)

How to Reach BRIC NABI:



<https://maps.app.goo.gl/jLq9Kwgck6vy15vm6>

[CIAB & NABI Sector 81 - Google Maps](#)



NABI & CIAB: [Sector-81 \(Knowledge City\), PO Manauli, S.A.S. Nagar, Sahibzada Ajit Singh Nagar \(Mohali\), Punjab 140306](#)

Link: <http://www.ciab.res.in/page.aspx?id=32>

Campus Tour: <https://www.youtube.com/watch?v=FakjOcrckOw>



<https://www.facebook.com/CIAB.India/>
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