



**ICAR sponsored 21 days Winter School on
Morphological and molecular identification including mass production
of natural enemies associated with economically important insect
pests (including invasives) of Indian agroecosystem
(16.01.2025–05.02.2025)**



Objectives of the training

1. To provide insights in morphological characterization of insect pests and their natural enemies.
2. To generate knowledge on molecular characterization of insects and the techniques involved.
3. To enlighten on mass production of natural enemies associated with economically important insect pests including invasive species.
4. To provide a holistic view on various allied green technologies for effective biological control of insect pests.

About the Training

This is a holistic hands-on training for the plant protection scientists offering morphological and molecular identification using conventional taxonomic methods and in-trend molecular techniques viz., DNA Barcoding for various species including invasive alien insect pests and natural enemies. Apart from providing detailed insights into the wet laboratory techniques viz., DNA / RNA isolation, PCR, Gel electrophoresis, and development of LAMP kits for species identification etc., it also provides training on the use of various bio-informatics tools to annotate, analyze and identify the genome sequences, generate DNA barcodes and to construct a molecular phylogeny.

This training will emphasize on advanced and reliable mass production techniques of insects hosts and their natural enemies for utilizing them in management of insect pests in fields and polyhouses.

This training will provide exposure to latest green technologies in insect pest management.

Overall this training carries a holistic approach - right from species identification to its exploitation for pest management!

Who can Apply

All Researchers/ Academicians who are in permanent position as scientists or Assistant professors in any recognized Universities/ SAUs and ICAR Institutes. Preference will be given to the Entomologists working in plant protection in ICAR Institutes and SAUs.

For more details refer: <https://cbp.icar.gov.in/HomePageAfterLogIn.aspx>

About ICAR – National Bureau of Agricultural Insect Resources (NBAIR), Bangalore

National Bureau of Agricultural Insect Resources (NBAIR) formerly, National Bureau of Agriculturally Important Insects (NBAIL) is located in Bangalore, Hebbal in the same premises at which The Commonwealth Institute of Biological Control (CIBC), Indian Station was established in 1957. The advent of CIBC marked the beginning of organized and systematic biological control research in India. During this period, our knowledge of natural enemies of crop pests and weeds increased manifold. CIBC Indian station was closed during 1987 and All India Coordinated Research Project on Biological Control of Crop Pests and Weeds (AICRP-BC&W), which was launched in 1977 under the aegis of the Indian Council of Agricultural Research was shifted to the same campus in 1988. The centre was named as Biological Control Centre and the entire programme functioned under the administrative/financial control of the National Centre for Integrated Pest Management (ICAR). In the eighth five-year plan, the project was elevated to an independent Project Directorate of Biological Control, with its headquarters in Bangalore during 1993. PDBC was the nodal agency in the country that organizes biological control research at the national level with 16 centers spread across the country. The Directorate at Bangalore carried out basic research on the biosystematics of important groups of insect bioagents. Besides, work on strain development, molecular characterization, mass production technologies, semiochemicals, biopesticides work for insect pest management was intensified. During XIth plan, PDBC was upgraded as National Bureau of Agriculturally Important Insects (NBAIL) to act as a nodal agency for collection, characterization, documentation, conservation, exchange and utilization of agriculturally important insect resources (including mites and spiders) for sustainable agriculture. In the twelfth five year plan the Bureau was re-named as National Bureau of Agricultural Insect Resources (NBAIR). *On 12th September 2012, the National Insect Museum was designated as the National Repository by the Ministry of Environment Forests & Climate for holding the agriculturally important insects, mites & spiders, the first of its kind in the National Agricultural Research Systems (NARS).*

Themes of the training program

- ❖ Use of integrative taxonomy (morphological & molecular) to explore biodiversity.
- ❖ Implications of taxonomy in insect pest management; exposure to ICZN; hands-on training on identification of common natural enemies and economically important insect pests.
- ❖ DNA-Barcoding of insects (including invasive species and natural enemies) and sequence submission protocols.
- ❖ Molecular diagnostics of entomopathogens using isothermal amplification techniques (LAMP, RPA, HDA etc.).
- ❖ Exposure to improvised techniques of mass production of insects hosts and its natural enemies.
- ❖ Recent advances in biocontrol of insect pests using green technologies viz. entomopathogenic bacteria, EPNs, entomopathogenic fungi, NPV, slow release pheromone techniques, etc.

How to apply

Interested candidates have to apply online through ICAR Capacity Building Portal (CBP) (duly forwarded by their competent authority).

Weather at Bangalore during Training period

Bangalore weather boasts of pleasant weather throughout the year, with little variations in every proceeding month. The city experiences moderate winter season from December to February. In the month of January, the temperature in Bangalore averages around 21°C during day. Temperature falls during the nights and reaching an average temperature of 15°C with occasional rains.

Total number of participants: 25 only

Last date for receiving applications: 20th December, 2024

Registration Fee: INR 50/- (Fifty rupees only)

Demand draft in favor of ICAR-NBAIR A/C, Bangalore

Bank details: Account holder - National Bureau of Agricultural Insect Resources

Account No: 10476392081

IFSC code: SBIN0001316; SBI Hebbal Branch, Bangalore

Course Director: Dr. Ankita Gupta

Course Coordinators: Dr. R. Gandhi Gracy and Dr. Richa Varshney

Training facilities available

ICAR-NBAIR is well equipped with the state-of-art National facilities like National Insect Museum, Live Insect Repository Unit, Genomics laboratories, Quarantine facility, Biopesticide Production Unit, Nanosensor laboratory etc. with all the advanced equipments required for the taxonomic studies, molecular species identification and mass production of natural enemies viz., Automontage imaging facility, PCR, RT-PCR machines, Gel Electrophoresis, Centrifuges, Walk-in-Chamber, BODs, GC-EAD etc., Facilities for various analysis, softwares and tools.

Travelling, Boarding and Lodging Facilities

The boarding and lodging will be provided by ICAR-NBAIR at the Trainee hostel/guest house. The travelling for the selected participants will be paid to and fro by the shortest route as per the entitlement. For the class of travel restricted to AC-II fair in train and are requested to produce their original along with photocopies of the tickets in support of their claim (Air route is not advisable).

For further details, please contact:

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2. Dr. R. Gandhi Gracy

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3. Dr. Richa Varshney

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Institute Mailing Address

Course Director

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