Hands-on Training on

Integrative Taxonomy and Phylogenetics under Tribal Sub Plan (TSP)

Dates: 19 - 28 February 2025

Background Information

Biodiversity plays an essential role in maintaining ecological balance, providing food, and supporting livelihoods worldwide. India, renowned as one of the mega-biodiverse countries, harbors a significant number of endemic species. The aquatic biodiversity, notably fisheries resources, is crucial as it offers protein-rich food, sustains livelihoods, and generates foreign exchange. However, the decline in biodiversity due to anthropogenic factors is alarming.

Integrative taxonomy, which combines classical and molecular approaches, has revolutionized the field of taxonomy. Classical taxonomy, based on morphological characteristics, has historically underpinned our understanding of species diversity. Yet, it sometimes struggles with issues like phenotypic plasticity, where organisms' appearances vary widely under different environmental conditions. Molecular techniques, such as DNA barcoding developed over the past three decades, complement traditional methods by resolving taxonomic ambiguities, uncovering cryptic species, and revealing evolutionary relationships that morphological methods alone might miss.

Despite India's diverse agro-climatic zones and its status as a mega-biodiverse country, less than half of its biodiversity has been characterized at the molecular level. Advanced methods like next-generation sequencing now enable species identification directly from environmental samples, enhancing our ability to monitor biodiversity comprehensively. The training program "Integrative Taxonomy and Phylogenetics" is specifically designed to update researchers on the powerful combination of classical and DNA sequence-based species delimitation techniques. This integrative approach is crucial for accurately cataloging India's rich biodiversity and implementing effective conservation strategies.

Course Content

- Philosophy of Taxonomy
- Tools in Classical Taxonomy
- Species Concept
- Basis of Molecular Evolution
- Concept of Molecular Clock and Genetic Distance
- Molecular Taxonomy
- Species Delimitation Methods
- Nucleotide Substitution Models
- DNA Barcoding
- DNA Sequence Analysis
- Molecular Phylogenetics
- Phylogenetic Tree Reconstruction Methods
- R-software for Phylogenetics
- Concepts of Metabarcoding
- Global Databases for Taxonomy

Intake capacity

20 participants

Eligibility

Masters and PhD Scholars of the ST category

Travel Allowance & Accommodation

Participants will be provided to and fro train fare of Sleeper III Tier tickets by the shortest route. In case of travel by air, the difference will be borne by the participants. Free lodging and boarding will be provided.

How to apply?

Application is in the following Google form which needs to be filled on or before 10th February 2025.

Organized by

Fisheries Resources, Harvest & Post-Harvest Management Division

ICAR-Central Institute of Fisheries Education, Panch Marg, Versova, Mumbai - 400061

Course Director

Dr. B. B. Nayak
Head & Principal Scientist
Fisheries Resources, Harvest & Post-Harvest Management Division
email: nayakbb@cife.edu.in

Course Coordinators

Dr. Annam Pavan Kumar
Sr. Scientist, FRHPHM Division
Email: pavankumar@cife.edu.in

Dr. Asha T. Landge
Principal Scientist, FRHPHM Division
email: ashalandge@cife.edu.in

Course Co-coordinators

Dr. Sangeeta Mandal
Dr. Monalisha Devi
Mr. Dayal Devadas

Dates to remember

Last date of submission of application
:
10 February 2025

Communication of selection
11 February2025

Confirmation by candidate
12 February 2025

For any other details, please contact:
Dr. B. B. Nayak, PS and Head, FRHPHM division, email ID: nayakbb@cife.edu.in

https://docs.google.com/forms/d/18Mzvbw-UzemlprzZ7wZLeuVbJtfWuoFNSFJ4U3JzD/edit

ICAR-Central Institute of Fisheries Education
(Deemed University)
Mumbai
www.cife.edu.in