



Department of Biotechnology (DBT)  
(Ministry of Science & Technology)  
Govt. of India, New Delhi-110 003

Sponsored

**HANDS-ON TRAINING ON**



**TECHNIQUES IN INTENSIVE PRODUCTION  
OF MARINE COPEPODS (TIPMAC-2020)**

11-15 May 2020



Organized by

MARINE PLANKTONOLOGY & AQUACULTURE LABORATORY  
Department of Marine Science  
School of Marine Sciences  
BHARATHIDASAN UNIVERSITY  
(Accredited with A+ grade by NAAC)  
Tiruchirappalli-620 024.  
Tamil Nadu  
www.mpalbdu.weebly.com

## ABOUT THE UNIVERSITY

Bharathidasan University, named after the great revolutionary Tamil Poet, Bharathidasan was established in February 1982. The motto of the University "We will create a brave new world" has been framed from Bharathidasan's poetic words ("முதுமேதூர் உலகம் செய்வோம்"). The University endeavours to be true to such a vision by creating in the region a brave new world of academic innovation for social change. With the ultimate aim of creating a brave new world, Bharathidasan University ensures the pursuit of excellence in teaching, learning, research, and extension of knowledge through higher education. The mission of Bharathidasan University is to promote scholarly, scientific and critical inquiry among the learners to move forward in the frontiers of knowledge and enrich and elevate them as the citizens of the state, the nation, and the world by offering nationally and internationally competitive learning and creative activity through quality programmes of teaching, research, and extension. Bharathidasan University endears to espouse to such core values that position the Institution on the righteous path in its relentless endeavour of creating 'A New Brave World' characterized by Creative Excellence, Community Equity, Competence Eminence and Characteristic Exemplar. The university has grown with an excellent research base, offering Post Graduate and Research programmes through 4 Faculties, 16 Schools, 37 Departments and 29 Specialized Research Centres. Bharathidasan University accredited with A+ grade by NAAC in the 3rd cycle and 60th rank among the Indian Universities in NIRF-2019.

## ABOUT THE DEPARTMENT

The Department of Marine Science was started in July 2005, with the aim of high quality teaching and research in Marine Biology, Aquaculture, Fishery Science, Oceanography, Coastal Zone Management, Marine Pharmacology, Marine Biotechnology and Marine Geology. The department offers PG, M.Phil., and Ph.D. programmes in Marine Science. The department is involved in quality scientific research and effective communication of results through publication and presentation to both academic and public audiences. It also extends technical assistance to the stakeholders in addressing marine sciences-related issues and concerns and addresses appropriate, regional, national and international issues and concerns. The Department of Marine Science has thus developed a strong expertise in various aspects of Ocean Science include Marine Planktonology & Aquaculture, Marine Biogeotechnology, DNA Barcoding and Genomics, Marine Pharmacology & Toxicology and Paleoceanography. The department so far completed nearly 15 major research projects and currently progressing nearly 7 projects sponsored by various funding agencies like, UGC, DST, DBT, MoES, MoEF&CC, SERB, TNSCST etc. The Department received financial support from University Grants Commission through UGC-Innovative Programme and Department of Science and Technology through DST-FIST-I (Level-I).

## ABOUT THE LABORATORY

Marine Planktonology & Aquaculture Laboratory functioning under the Department of Marine Science. The Laboratory has state of the art facilities like Marine Microalgae Culture Facility, Marine Copepods Culture Facility, RAS Facility for marine copepods, Gas Chromatograph, Inverted Phase contrast microscope, Inverted Epifluorescence microscope, Stereo-zoom Microscope, PCR, Gel Documentation, Gel Electrophoresis, UV-Visible Spectrophotometer, Cooling centrifuge, Circulated water bath, Deep Freezers, Automated Autoclave, Hot Air Oven, Plankton Nets etc. The Lab., conducts research in the areas of basic and applied aspects of marine plankton and aquaculture including mass production and application of marine copepods as an alternative live feed in sustainable aquaculture. The laboratory developed the technology for the intensive stock and pilot scale production of marine copepods for the first time in India. The laboratory also established India's first Recirculation Aquaculture System Facility for marine copepods in the vicinity of Bharathidasan University.

## ABOUT THE VENUE

Tiruchirappalli is situated in the central-region of the Tamil Nadu state and is famous for historic temples, educational institutions and industries. This is fourth largest city of the state and is well connected by road, train and air. The city is 380 km south of Chennai. An International Airport is also available at Tiruchirappalli. The weather is pleasant during May. The temperature ranges between 28 and 34°C during daytime but the evening temperatures will be lower up to 26°C.

## SCOPE AND OBJECTIVES OF THE TRAINING

Brine shrimp (*Artemia*) and rotifers have been extensively used in aquaculture hatcheries for fish and shrimp larval rearing, yet the use of these traditional live feeds has been limited for many marine fish and shrimp species. Traditional live feeds often lack the essential attributes required for larval rearing, particularly those that are relevant to the feeding requirements of the early larvae of fish/shrimp species. For example, traditional live feeds are often too large to be ingested by larvae with small mouth gapes at first feeding, are of poor nutritional value (e.g., containing low levels of docosahexaenoic acid "DHA" and eicosapentaenoic acid "EPA") and do not elicit larval foraging responses in some species. Alternatively, as the natural prey of fish and shrimp larvae, copepods are seen as an ideal substitute to rotifers and *Artemia* for larval live foods because they have been shown to greatly enhance larval survival at first feeding. In addition, copepods have a positive impact on subsequent larval development, stress resistance, pigmentation and deformity reduction. Copepods are the most common metazoans in the marine environment, with approximately 12,000 described species. Copepods are also known to be crucial to larval recruitment in the wild. Unlike traditional live feeds, copepod nutritional profiles are rich with essential fatty acids, free amino acids, enzymes and other essential micronutrients. Moreover, the small size of copepod nauplii is vital for larval first feeding of various fish and prawn species with small mouth gape sizes. Copepods also stimulate strong feeding responses in fish and shrimp larvae through their distinctive swim-and-sink motion pattern. Although copepods have several potential advantages as live feed, still they are not commercially used by the aquaculture industry in India due to lack of technology for their mass production. Therefore, the training on "Techniques in Intensive Production of Marine Copepods (TIPMAC-2020)" is aimed.

As a part of a Major Research Project (BT/PR28606/AAQ/3/921/2018; Dated, 16.05.2019) entitled, "High Density Continuous Production of Domesticated Marine Copepods (*Pseudodiaptomus annandalei*, *Dioithona rigida* & *Nitokra affinis*) Through Selective and Induced Breeding Using RAS: A Way Forward Towards the Culture Supply and Technology Dissemination" of the Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India, New Delhi, this Training Course is planned at the Department of Marine Science, Bharathidasan University during 11-15 May, 2020. The Training Course is organized by Dr. P. Santhanam, Associate Professor & Principal Investigator, DBT Project and sponsored by the Department of Biotechnology (DBT), Govt. of India, New Delhi. The Course aimed at providing Aqua Farmers, Hatchery Technicians, Aquaculture Entrepreneurs, Feed Manufacturers, Ornamental Fish Entrepreneurs, Graduate Students, Research Scholars, Post-Doctoral Fellows, Academicians and Scientists in India with comprehensive knowledge on the taxonomy, biology and culture of coastal and marine copepods and methods dealing with these subjects, with emphasis on the practical aspects of collection, identification, isolation, intensive stock and mass production of domesticated marine copepods using Recirculation Aquaculture System (RAS) for high density continuous production. In addition, methods of isolation, indoor stock and mass culture of marine microalgae will also imparted in this training.

## DATE AND VENUE

The training will be held during **11-15 May, 2020** at Department of Marine Science, Bharathidasan University, Tiruchirappalli-24, Tamil Nadu.

## PARTICIPANTS

The participants would include stake holder like Aqua Farmers, Hatchery Technicians, Aquaculture Entrepreneurs, Feed Manufacturers, Ornamental Fish Entrepreneurs, Graduate Students, Research Scholars, Post-Doctoral Fellows, Academicians and Scientists. Only 15 participants will be selected based on their need and on first come first basis.

## CONTENT OF THE TRAINING

- Collection and identification of marine copepods.
- Isolation and intensive stock culture of marine copepods.
- Large scale production of marine copepods using RAS
- Collection, isolation and indoor stock culture of marine microalgae
- Out-door mass scale culture of marine microalgae.

## REGISTRATION

Participants are requested to send the registration form duly filled along with brief note about how did this training is useful. The selected participants would be informed. Based on the confirmation, the participants are requested to send the prescribed fee through online transfer. The Bank Account details will be furnished during the time of selection intimation.

## REGISTRATION FEE

Industrialist/Entrepreneurs	: ₹ 10000
Faculty/ Scientist	: ₹ 7000
PDF's/Research Scholars with fellowship	: ₹ 5000
Non stipend Research Scholars/Students	: ₹ 3000

The registration fees include training kit, breakfast, lunch, dinner and refreshments. Accommodation will be arranged for the participants on the request through payment basis.

## IMPORTANT DATES

Submission of Registration Form	: 22 April 2020
Confirmation	: 24 April 2020
Submission of Registration Fee	: 27 April 2020
Acceptance Notification	: 29 April 2020

## ORGANIZING COMMITTEE

Chief Patron	: <b>Dr. P. MANISANKAR</b> Vice-Chancellor, Bharathidasan University
Patron	: <b>Dr. G. GOPINATH</b> Registrar, Bharathidasan University
Chairman	: <b>Dr. R. ARTHUR JAMES</b> Professor & Head, Department of Marine Science
Convener	: <b>Dr. P. SANTHANAM</b> Associate Professor, Department of Marine Science
Co-convener	: <b>Dr. R. RAJARAM</b> Assistant Professor, Department of Marine Science
Executive Members	: <b>Dr. N. MANOHARAN</b> Associate Professor, Department of Marine Science <b>Dr. V. YOGANANDAN</b> Assistant Professor, Department of Marine Science
Advisors	: <b>Dr. A. R. THIRUNAVUKKARASU</b> Principal Scientist & Head (Rtd.), ICAR-CIBA, Chennai <b>Dr. P. PERUMAL</b> UGC-BSR Faculty Fellow, Department of Marine Science
Exec. Members	: <b>Dr. T. Veeramani</b> , UGC-PDF <b>Dr. N. Manickam</b> , UGC-DSK-PDF <b>Dr. S. Ananth</b> , NFDB-Fishery Consultant <b>Dr. S. Dinesh Kumar</b> , UGC-PDF <b>Dr. K. Nanthini Devi</b> , UGC-DSK-PDF <b>Dr. C. Rajthilak</b> , SERB-NPDF <b>Dr. C. Premkumar</b> , DBT-TA <b>Dr. M. Kaviyarasan</b> , Senior Technician <b>Mr. P. Raju</b> , MoEF & CC-PF <b>Ms. M. Divya</b> , DBT-TA <b>Ms. F. Leena Grace</b> , Research Scholar <b>Ms. P. Bharatharathna</b> , UGC-RGNF <b>Ms. N. Krishnaveni</b> , BDU-URF <b>Ms. Krishna Viswas</b> , DBT-PA <b>Mr. S. Gunabal</b> , DBT-TA

## CONTACT FOR INFORMATION

### Dr. P. SANTHANAM

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## HANDS-ON TRAINING ON TECHNIQUES IN INTENSIVE PRODUCTION OF MARINE COPEPODS (TIPMAC-2020) 11-15 May 2020

## REGISTRATION FORM

Name	:	
Gender	:	
Date of Birth	:	
Educational Qualification	:	
Designation	:	
If Research Scholar, please mention: Fellowship/Non-Fellowship about the fellowship details		
Department/Division	:	
Official Address	:	
Mobile No.	:	
E-mail	:	
Accommodation required	:	Yes / No
Food preference	:	Veg / Non-veg
* Please brief your interest to register for this Training and its usefulness in your present or future research program(s) (less than 300 words). Use a separate sheet.		
Signature of the Applicant	:	Signature of the Guide/HOD with Seal

NB: The selected candidates upon intimation may send the NEFT for the amount specified..

To register, complete the above registration form and send the scanned copy of filled in undersigned application forwarded by the authority to Dr. P. Santhanam, Associate Professor & Convener, TIPMAC-2020, Department of Marine Science, Bharathidasan University, Tiruchirappalli-620 024 on or before 22<sup>nd</sup> April, 2020 to the following e-mail: tipmacbdu@gmail.com.

NB: Applications can also be downloaded from the websites: www.mpalbdu.weebly.com and www.bdu.ac.in.



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**11-15 May 2020**

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Name :  
Gender :  
Date of Birth :  
Educational Qualification :  
Designation :  
If Research Scholar, please mention about the fellowship details : Fellowship/Non-Fellowship  
Department/Division :  
Official Address :  
  
Mobile No. :  
E-mail :  
Accommodation required : Yes/No  
Food preference : Veg/Non-veg

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