



## **Preface**

Microalgae are tiny single/multi-cellular photosynthetic cells that can increase rapidly and generate colossal biomass. They are classified based on their various sizes, structures, and forms. Microalgae, in general, consist of several essential metabolites, such as sugars, protein, lipids, bio-silica, etc. Microalgae have gradually drawn the attention of scientists, and entrepreneurs for their high-value products, feed supplements for humans and animals, transport fuels, industrial chemicals, pharmaceuticals, etc. The past decades have witnessed continued and substantial progress to establish microalgae as a unique source of high-value compounds and therapeutic substances as a promising biofuel feedstock in response to the uprising energy crisis, climate change, and depletion of natural sources. Microalgae being an excellent source of various pigments like carotenoids and phycobiliproteins, proteins, vitamins, enzymes, minerals, amino acids, lipids,  $\gamma$ -linolenic acid, and biopolymer, have received attention in the integrated processes for industrial applications, including food, feed, fuel, and pharmaceuticals, considering its unique chemical composition, if exploited efficiently through optimized upstream and downstream processing. Due to their potential high-value applications, these intracellular and extracellular compounds are a pure culture of a possible strain required to develop to produce large-scale bio-mass. Downstream processes for extracting valuable products also need skills to handle such microorganisms for large-scale biotechnological applications. Through digital and practical demonstrations, this program will generate awareness of the importance of microalgae, the downstream and upstream processes, and the products. This program will also generate awareness towards the importance of initiating entrepreneurship on large scale biomass production of microalgae, various products from there off and the relevant information.

## **PROGRAM DETAILS**

**Avenues of Products from Microalgae**

**Morphology and Diversity of Microalgae**

**Mass cultivation techniques of Microalgae**

**Downstream processing of Microalgae**

**Issues related to Entrepreneurship Development**



केन्द्रीय नमक व समुद्री रसायन अनुसंधान संस्थान  
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद, भारत)  
गिजूभाई बधेका मार्ग, भावनगर 364002 (गुजरात)

CSIR- Central Salt & Marine Chemicals Research Institute  
(Council of Scientific & Industrial Research)  
Gijubhai Badheka Marg, Bhavnagar – 364 002 (Gujarat)  
www.csmcri.res.in



CSIR Integrated Skill Initiative

“CSIR-Integrated Skill Initiative”

## Application Form (आवेदन पत्र)

### Microalgal diversity and their biotechnological potentials

1.	Name of the Candidate उम्मीदवार का नाम	:		Photo
2.	Father's / Guardian's Name पिता/ पति का नाम	:		
3.	Date of Birth जन्म तिथि	:		
4.	Category वर्ग	:	General / OBC / SC / ST	
5.	Address (Permanent) पता (स्थायी)	:		
6.	Address (Communication) पता (पत्र व्यवहार)	:		
7.	Educational Qualifications शैक्षणिक योग्यता	:		
8.	Phone No. फोन/ मोबाइल नंबर	:		
9.	E mail ईमेल	:		
10.	AADHAAR Card Number आधार कार्ड नंबर	:		

Candidate's Signature  
उम्मीदवार के हस्ताक्षर

Details of enclosures	
-----------------------	--

# Microalgal diversity and their biotechnological potentials

## Training Program Fee

₹ 1000/- + ₹ 180/- GST = ₹ 1180/-	Category I : Self- sponsored [Students, Individual (other than student) and Entrepreneur (as an individual)]
₹ 5000/- + ₹ 900/-GST = ₹ 5900/-	Category II : Any sponsored candidate (Government, Industry and sponsored by Entrepreneur)

**DIGITAL PAYMENT ONLY WILL BE ACCEPTED and NO CASH TRANSACTION.**

### Details of Fee Deposit

(Payment through RTGS/ NEFT only)

Amount (₹)	:	
Bank Name	:	
Branch Name	:	
Account No.	:	
Transaction ID and Date	:	
<div>Signature of Depositor/ Candidate</div> <div>Name: _____</div>		

Kindly submit the completed form on/ before 15 January 2026,  
To Dr. Subir Kumar Mandal at email : [skmandal.csmcri@csir.res.in](mailto:skmandal.csmcri@csir.res.in) ,  
[skmandal@csmcri.res.in](mailto:skmandal@csmcri.res.in), and whatsapp No. +91-9426284820

**NOTE: Candidate has to submit self attested Xerox copies of all required documents, as per given list**

- 1) Money receipt with transaction ID, Date and Time of transaction.
- 2) Aadhar Card,
- 3) Caste certificate and
- 4) Filled Application/Registration form should be submitted through email on or before the 15 January 2026 and the print out of the same will be submitted during joining to the training program.

**Accommodation for staying at Bhavnagar has to be arranged by Candidates only. No accommodation will be provided by the Institute.**



## Bank details of CSIR-CSMCRI for Trainee Program Fee



केन्द्रीय नमक व समुद्री रसायन अनुसंधान संस्थान

गिजुभाई बधेका मार्ग, भावनगर- ३६४ ००२

CSIR-CSMCRI CSIR-CENTRAL SALT & MARINE CHEMICALS RESEARCH INSTITUTE

Gijubhai Badheka Marg, Bhavnagar 364 002, Gujarat, India

Phone No. (O) 0278, 2471792 E-mail: [fao@csmcri.org](mailto:fao@csmcri.org)

### Electronic Fund Transfer Account Details

1	Name of account holder	DIRECTOR, C.S.M.C.R.I.
2	Address	GIJUBHAI BADHEKA MARG, BHAVNAGAR 364002
3	e-mail address	<a href="mailto:fao@csmcri.org">fao@csmcri.org</a>
4	Phone No./Mobile No.	0278-2471792
5	Fax No.	0278-2567562
6	Permanent Account Number (PAN)	AACCC1313P
7	Particulars of Bank Account	
	A. Name of the Bank	STATE BANK OF INDIA
	B. Name of the Branch	WAGHAWADI ROAD BRANCH
	C. Branch Code	10863
	D. Address	Shubham Shop No.G2/3, Plot No.2569 E1/2, Waghawadi Road Opp. Gulista Ground, Bhavnagar-364002 e-mail: <a href="mailto:sbi.10863@sbi.co.in">sbi.10863@sbi.co.in</a>
	E. Telephone No	0278- 2569884
	F. Account No.	30267310153
	G. Type of Account	SAVINGS BANK ACCOUNT
	H. IFSC Code ( RTGS/NEFT)	SBIN0010863
	I. MICR code	364002023



## Experts:

Dr. Subir Kumar Mandal is a Senior Scientist in CSIR-CSMCRI, Bhavnagar, working on microalgal diversity, harmful algal blooms (HABs) formation and mitigation, and high-value products from marine microalgae, primarily diatoms, through the bio-refinery approach.

Dr. Avinash Mishra works as Principal Scientist in CSIR-CSMCRI, Bhavnagar, Gujarat, India. He has expertise in plant molecular biology and also seaweed metabolomics. He is also working on Molecular Systematics and Molecular Phylogeny.

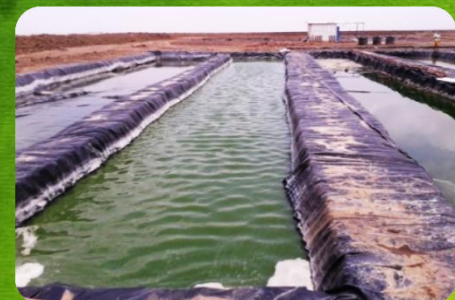
Dr. Sourish Bhattacharya is working as a Senior Scientist at CSIR-CSMCRI, Bhavnagar, Gujarat, India. He has strong background in microalgal biotechnology, microalgal biofuel, biopolymers, and nutraceuticals for therapeutic applications.

Dr. Dineshkumar R. is working as a Senior Scientist in CSIR-CSMCRI, Bhavnagar, India. His work focuses on designing and optimizing upstream and downstream processes for improved bio-product manufacturing that benefits society in the healthcare, energy, and environment sectors.

Dr. Arup Ghosh is working as a Senior Principal Scientist and Co-Chair of DAPB in CSIR-CSMCRI, Bhavnagar, India. He has vast experience in microalgal aspects, including cultivation and stress tolerance. He also has expertise in the value addition of microalgae for biofuel, fertilizer, and environmental remediation applications.

### Contact :

Dr. Subir Kumar Mandal,  
[skmandal@csmcri.res.in](mailto:skmandal@csmcri.res.in)  
+91-9426284820



CSIR-CSMCRI

**CSIR- Central Salt & Marine  
Chemicals Research Institute**  
Gijubhai Badheka Marg, Bhavnagar,  
Gujarat 364002



CSIR- Integrated Skill Initiative