

National Repository for Microalgae and Cyanobacteria



Dr. Deviram Garlapati

Curator

NATIONAL FACILITY FOR MARINE CYANOBACTERIA

(Sponsored by DBT, Govt. of India)

Department of Marine Biotechnology

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WDCM Training Course for Microbiome data sharing

Personal Information

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Research Interests

- ☞ Microalgal and Cyanobacterial diversity and Taxonomy
- ☞ Microalgal and Cyanobacterial community dynamics
- ☞ Microalgal and Cyanobacterial culturing & preservation
- ☞ Biofuel and Genetic engineering
- ☞ Computational Biology

Currently working as a Curator at National Repository for Microalgae and Cyanobacteria (NRMC) previously known as National Facility for Marine Cyanobacteria (NFMC), Department of Marine Biotechnology, Bharathidasan University, Tiruchirappalli, India. He has eight years of experience in Microalgal and Cyanobacterial Research. During his doctoral studies, he isolated and maintained nearly 150 strains of edaphic cyanobacteria. After Joining at NRMC, he is responsible for increasing the number of strain availability of the repository by isolating strains from Arctic and Antarctic

samples. He is also responsible for managing the germplasm facilities. The main objectives of his work include

- ✚ Collection of microalgae/cyanobacteria (tropical and polar) and up gradation of microalgal repository
- ✚ Identification of microalgae by both morphology molecular means
- ✚ Molecular tagging and cataloging
- ✚ Validating the cultures deposited to the repository and maintenance
- ✚ Bioprospecting and Bioenergy research, Mass cultivation of microalgae

ABSTRACT

National Facility for Marine Cyanobacteria

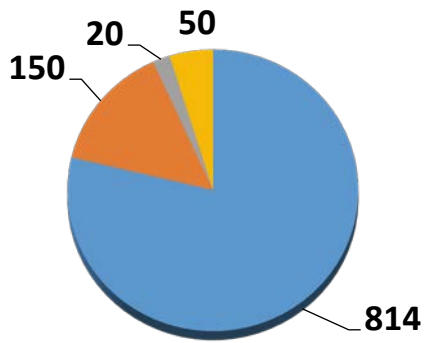
National Facility for Marine Cyanobacteria (NFMC) funded by the Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India which was established exclusively for the research on marine cyanobacteria. Now the Facility has been upgraded to the level of **a National Repository for Microalgae and Cyanobacteria (NRMC)**. Now the Repository holds more than 1034 Microalgal and Cyanobacterial strains representing 814 mesophilic, 150 psychrophilic (Arctic & Antarctic), 20 thermophilic and 50 halophilic forms. More than 1000 institutes are its beneficiaries which includes Universities and Govt. Research Organizations. NFMC is also a Sub Distributed Bio informatics center (BIC) exclusive for cyanobacteria, where it has developed open source database CKB

(Cyanobacterial Knowledge Base) of 74 completely sequenced genomes, an exclusive visualization tool for *Synechocystis* PCC 6303 - Syn Rio, Cyanopatt which can search pattern against any cyanobacterial genomic region of the query. Complete Catalog datasheet (with GPS values), the open source tools and Database are available in website (www.nfmc.res.in).

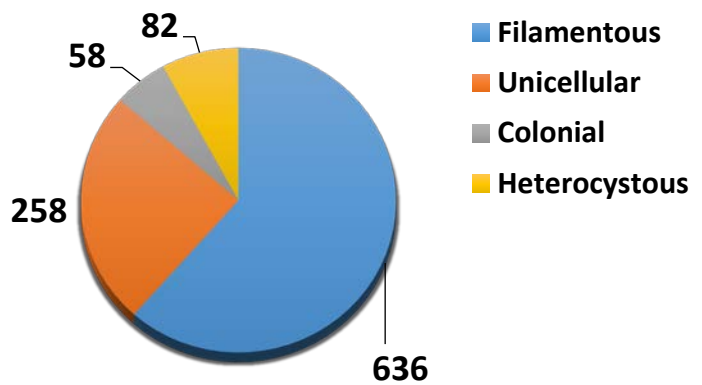
- *To survey the entire coast of line of India and establish germplasm collection of marine cyanobacteria as well as cryophilic cyanobacteria.*
- *To carry out, basic and applied research resulting in both the understanding of basic biology as well as exploitation of these organisms by way of technologies towards human welfare;*
- *To carryout genome wide hunt of cyanobacterial genomes;*
- *To sequence the whole genome of selected marine cyanobacterium of Indian isolate.*
- *To develop a strong knowledge economy and human resource through regular workshops and conferences*
- *To provide marine cyanobacterial culture, instrumental and other facilities to needy researchers.*

Keywords: NFMC, NRMC, Microalgae, Cyanobacteria, Bharathidasan University

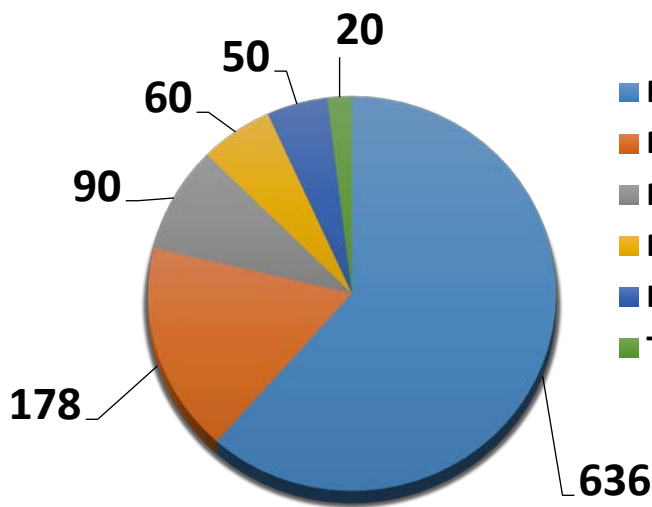
Distribution pattern of different Microalgal and Cyanobacterial cultures at National Repository for Microalgae and Cyanobacteria (NRMC)



- Marine mesophilic
- Psychrophilic
- Thermophilic
- Hypersaline



- Filamentous
- Unicellular
- Colonial
- Heterocystous



- Marine mesophilic Cyanobacteria
- Marine mesophilic Green algae
- Psychrophilic Cyanobacteria
- Psychrophilic Green algae
- Hypersaline cyanobacteria
- Thermophilic cyanobacteria

Dedicated website

www.nfmc.res.in

Website with organism metadata, Culture Image



National Facility for Marine Cyanobacteria
(Sponsored by DBT, Govt. of India)
Bharathidasan University, Tiruchirappalli - 620 024

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NFMC Block

***Chroococcus minor* BDU 91342**

History of the Strain * Available

Organism	: <i>Chroococcus minor</i>
Collected by	: NFMC
Isolated by	: Dr. N. Thajuddin & Dr. G. Subramanian
Axenic / Unialgal	: Unialgal
Identified by	: Dr. N. Thajuddin
Identification Method	: Conventional - Morphological

Taxonomic Information

Strain Accession number	: BDU 91342
Division	: Cyanophyta
Class	: Cyanophyceae
Order	: Chroococcales
Family	: Chroococcaceae
Scientific name	: <i>Chroococcus minor</i>

Maintenance Condition

pH	: 7.3
Temperature	: 27± 2°C
Light Intensity	: 1500 lux
Salinity Preference	: 25 ppt
Light Duration	: 16 hrs light/ 8hrs dark

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10 µm
NFMC

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.,Bioinformatics Centre.,

Cyanobacterial Knowledge Base (CKB)

Home Tools Database Contact

Welcome to CKB
Species Covered
Cyano BLAST Tool
Comparative analysis
Querying CKB

Cyanobacterial Knowledge Base

To cite
Arul Prakashan Peter, Karthick Lakshmanan, Shylajani Jayaraj, Mohandass, Sangsetha Varadharaj, Sivasudha Thilagar, Kaleel Ahmed Abdul Kareem, Prabakaran Dharwar, Subramanian Gopalakrishnan, Uma Lakshmanan (2015)
PLoS ONE 10(8): e0136262. doi:10.1371/journal.pone.0136262
PMID: 26048466
CKB version 1.0 | last updated on May 2015.
CKB is Developed and Maintained by NFMCC
Comments, questions? Contact ckb@nfmcc.org or ckb@nfmcc.org

SynRio

SynRio - View Synechocystis 6803 chromosome using R and Shiny

Syn-R-io is an interactive R application based on the shiny package for visual exploration of Synechocystis 6803 chromosome with simple data extraction options

Launch SynRio web portal

Note: First time loading of the application will take some time

Powered by R and Shiny server

[Download source code](#)

[synrio-master.zip](#) | [synrio-master.tar.gz](#)

[Github project page](#)

Bioinformatics center NFMCC

NFMCC

Bharathidasan University

National Facility for Marine Cyanobacteria

CyanoPatt

CyanoPatt

Search a Pattern against Cyanobacterial genomic regions

Search Portal Pattern Dataset

Enter Pattern...

Model: *Acaryochloris marina* MBIC11017

Type: Nucleotide

Database: Upstream sequence from -500 to +50

Mismatches

Insertions

Deletions

Substitutions

Search Result Stats Raw Output

Add your pattern and click search pattern button!

Bioinformatics Lab | National Facility for Marine Cyanobacteria

2. Benefit from the training courses

- ☞ The Workshop helped us to interact with several regions of global culture collection's, scientists and also with the WDCM personals. This will help in our future collaboration works as well as to understand our role in the world culture collection.
- ☞ The presentations by scientist of WDCM and Institute of Microbiology gave a clear-cut idea of databases and their management.
- ☞ The informative explanation leads us to have an better understanding to BOLD, iBOL, ISO, BSL-3 Lab facility.
- ☞ The workshop made us to operate, manage and maintain WDCM web sites with ease and helped in getting the first-hand information regarding WDCM.
- ☞ The metagenomics and other software packages introduced in the course are quite handy.

3. Suggestion on WDCM work.

- ☞ The strain data incorporation into the WDCM website should be more user friendly, where the curator can edit the data with ease. Option should also be provided to edit the CCinfo data as the working personnel may change sometimes.
- ☞ The WDCM website should provide the web link to the organism list of their respective mother culture collection.
- ☞ All the WDCM websites should have a English version for global users.

4. Comments or suggestion on the training courses.

- ☞ I am very much happy with the training course and the knowledge sessions that were organized in the workshop by WDCM.
- ☞ The workshop was focusing more in introducing the fundamentals, I personally feel this should be altered by in depth teaching and practical sessions.
- ☞ Practical sessions organized in the workshop should be more focused in Bioinformatics tools which are key in metagenomic analysis and interpretation of results.
- ☞ The workshop should be regularly conducted to train researchers globally with more focused practical sessions.

5. Suggestion on further cooperation between WDCM and your collections.

- ☞ NRMC as one of the major microalgal and cyanobacterial culture collection from India, we are looking forward to participate actively in sharing the data related to the microorganism.
- ☞ We would be looking forward for the support of WDCM in helping us to make the repository on par with international standards and help us to become a global Repository.

6. Acknowledgements

I would like to express my sincere gratitude to the Chinese Academic of Sciences especially the Institute of Microbiology (IM) and Dr. Juncai Ma for his invitation to the symposium and the workshop as well. I would like to extend my sincere thanks to Jane who helped us throughout the workshop.

I would also like to thank all the Professors, Scientists and other staff for their valuable knowledge sharing and patience answering during the open discussions.