Division of Microbiology

Division is devoted for the bio-prospecting and sustainable utilization of microbial wealth of Western Ghats. Characterization and bio-processing of enzymes and other bioactive metabolites from actinomycetes, fungi and halophilic bacterial functional analysis of small heat shock proteins, systematic studies on phytophagous fungi and lichens, antibiotic and targeted antibacterial screening of plants.

Major research areas
1. Biospectives of Western Ghats Microflora for
   a. Hydrolases enzymes
   b. Actinomycetes and mycobacteria
   c. Antibacterial molecules
   d. Bioplastics
   e. Bioconversion
2. Small heat shock proteins – Functional analysis
3. Bacterial and actinomycete compounds from endophytic plants
4. Survey and inventory on
   a. Folicolic fungi
   b. Lichens
   c. Actinomycetes
5. Extension activities

Microbial Secondary metabolites

Aspergillus flavus is a PCA plate. Skinned milk agar plate showing profuse yellow/white colony.

To drug resistance that is studied in our lab for finding suitable therapeutic leads.

Microfungi and Lichens

The lab maintains a wide collection of microfungi and lichens collected mainly from Western Ghats and other selected regions. A well-coded herbarium is maintained for the same.

Research team
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Dr. N.D. Pradeep, Senior Scientist
Dr. Uday, Senior Scientist
Dr. Vinay Mohan Dar, Scientist
Dr. Bijay, Technical Officer Gr II
Dr. Sabaniya, Technical Officer Gr II

Post Doc Fellows 2
Research Scholars 13
Project Fellows 4

Supporting staff
Mr. Kanakasambhan, Lab assistant
Mr. Naresh U [Project Assistant]

Ongoing Research Projects

DST [Programme support]: 1
DST [India Mexico]: 1
KSCSTE-MRC: 1
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Phytochemicals as cell division inhibitors

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Molecular docking of *Streptomyces* isolates from marine samples - ready for in vitro screening.

Antifungal activity of *Streptomyces* marinolactonum chitosan against *Aspergillus* infections

**Major achievements**

- Developed a chaperon assay system, based on the ability of 3-β-D-glucopyranosyl glucose-1,6-bisphosphate (GlcN6P) induction of *Asp. flavus* growth.
- A new bioactive agent is inhibiting Group A *S. marina* biofilm formation and characterization.

**Publications**

- Journal Papers: 3
- Books: 2
- Patents: 1
- Genbank submissions: 32 (mostly non-genomic)

**List of important research papers**


2. Molecular docking of *Streptomyces* marinolactonum chitosan against *Aspergillus* infections.

3. New bioactive agent is inhibiting Group A *S. marina* biofilm formation and characterization.

Fungal cultures isolated from Mexican soil samples.

**Molecular docking of *Streptomyces* marinolactonum chitosan with *N. crassa* core subunit

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