

## BRYOLOGY

Bryology laboratory at NBRI is the only centre of Bryological researches in India among the CSIR Laboratories. It looks forward to train the postgraduate students, researchers & young scientists from India and abroad in the field of Bryology.

### Group works on

- Exploration of bryophytic wealth of India.
- Floristic, monographic and revisionary studies on Hepaticae, Anthocerotae & Mosses.
- Ultrastructural studies of spores.
- Environmental studies of Bryophytes.
- Molecular biology of Bryophytes.
- Antimicrobial activities of Bryophytes.

### Objectives

- To assess the diversity of Indian Bryophytes and preparation of an account of Bryophyte resources of India.
- To explore the economic & medicinal importance of Indian Bryophytes.
- To apply the methods of conservation of rare and threatened Bryophytes.
- Enrichment of Bryophyte Herbarium represented by plants from various Biogeographical regions of India .

### Achievements

- New species/reports: *Frullania hattoriantha*, *Cephalozia magna*, *Phaeoceros udarii*, *Frullania udarii* and *Orontobryum darjeelingensis* have been discovered as new to the science; *Riccardia platyclada*, *Cephalozia siamensis*, *Frullania iniflexa*, *Lopholejeunea recurvata* and *Frullania rotundistipula* have been reported for the first time from India. Besides, *Brachythecium garovaglioides*, *Anacolia menziesii*, *Anastrophyllum jorgensenii* have been newly reported from western Himalayas, *Phaeoceros kashyapii* from eastern Himalayas while *Heteroscyphus perfoleatus* and *Porella hattorii* have been newly added to the bryoflora of Meghalaya ( North-East hills).
- Diversity and distributional studies have been carried out on the genus *Frullania*, *Phaeoceros* and *Folioceros* of India. A rare Indian liverwort *Anthoceros alpinus* has been rediscovered after more than a century from the same bryogeographical region.
- Chemical screening of Indian liverworts e.g. *Dumortiera hirsuta* and *Pallavicinia lyellii* have been carried out for the first time.
- Ultrastructural studies have been carried out on several rare and interesting Indian liverworts like *Petalophyllum indicum*, *Schiffneria hyalina*, *Sauteria spongiosa* and *Cryptomitrium himalayense* etc. for the first time. SEM studies have also been carried out for the first time on the sporoderm pattern of ten Indian mosses viz. *Atrichum pallidum*, *A. flavisetum*, *Pogonatum himalayanum*, *Bartramia pomiformis*, *Brachymerium indicum*, *Entodon rubicundus*, *Thuidium minusculum*, *Brachythecium buechananii* var. *cuspediferum*, *Anoetangium strachyanum*, *Funaria hygrometrica*.
- Detailed morphotaxonomical account of scantily known rare Indian liverwort *Schiffneria hyalina*, has been provided for the first time.
- The illustrated floristic account of liverworts (Hepaticae) of Khasi & Jaintia hills: Meghalaya(North Eastern hills) has been prepared.
- The effect of environmental pollution on some selected Bryophytes of Mussoorie has been studied.
- Genomic variations in the populations of *Plagiochasma appendiculatum* growing at different bryogeographical regions and habitats has been studied.
- Scientific validation of wound healing property of *P. appendiculatum* has been done with the help of Laboratory experiments.

### **Project Completed**

- Department of Science & Technology sponsored Project "Diversity and Distribution of Hepaticae and Anthocerotae (Bryophyta)" in N.E. hills in Meghalaya.
- Council of Science & Technology, U.P. sponsored Project "Ecological and Floristic studies on liverworts (Bryophyta)" of Garhwal hills, U.P.
- Council of Science & Technology, U.P, sponsored project "Floristic survey and assessment of Biodiversity (Flora) of the Corbett Tiger Reserve".

### **Ongoing Sponsored Project**

- Department of Biotechnology sponsored Project "Biosystematic and conservation studies on a potential liverwort: *Plagiochasma appendiculatum* L. *et* L."
- Ministry of Environment & Forest sponsored Project "Studies on the biological resource & documentation of traditional knowledge on Amarkantak biosphere reserve, Madhya Pradesh and Chhattisgarh".

### **New Sponsored Project**

- Department of Science & Technology sponsored Project entitled "Scientific validation of some bryophytes used in different folklore as antimicrobial agent".
- Ministry of Environment & Forest sponsored project entitled "Studies on the bryophyte diversity in Pachmarhi Biosphere Reserve and their conservation strategies.

### **On going In House Project**

- Studies on bryoflora of Darjeeling and its neighbouring areas.
- CSIR Network Programme on Pollution monitoring mitigation systems and devices: Pollutant(metal)specific bioindicators (plants)
- Assessment monitoring and conservation of Cryptogams (Algae, Lichen, Bryophytes and Pteridophytes) in Dudhwa National Park (U.P)

**Publications** :125

**Book (ed.)** :1