

## Moss diversity of Saxicolous mosses of Lonavala and their role in conservation of Ecosystems

Gauri Soman

Department of Botany Maharshi Dayanand College,  
Parel, Mumbai - 400012 (India)  
email- [drgssoman@rediffmail.com](mailto:drgssoman@rediffmail.com)

### Abstract

Mosses are highly developed groups of bryophytes having a unique position between lower cryptogams and vascular plants preferring marshy swamps or wetland habitats for their abundant growth. They play an important role in conservation of buffer zones or edges between wetland and forest ecosystems habitats.

Lonavala is a beautiful hill station in the Western Sahayadri ranges about 102 km from Mumbai. It is surrounded by hills, valleys, wetlands and dense green forest. Mosses grow their abundantly. The present paper highlights diversity of saxicolous mosses growing in around Lonavala, with their ecological habitats and growth forms.

**Key words :** Mosses, diversity, saxicolous, ecosystems, Lonavala.

**M**osses are highly developed groups of bryophytes having a unique position between lower cryptogams and vascular plants preferring marshy swamps or wetland habitats for their abundant growth. Mosses grow their abundantly.

The present paper highlights diversity of saxicolous mosses growing in areas around dense forest of Lonavala, their ecological habitats and growth forms. The abundance of mosses in any region reveals highly unpolluted environment and is indicator of forest conditions and they play a key role in ecosystem functioning and conservation. For the preparation of the

manuscript relevant literature<sup>1-6</sup> has been consulted.

**Area under study :** Lonavala is a beautiful hill station in the Western Sahayadri ranges about 102 km from Mumbai. It is surrounded by hills, valleys, wetlands and dense green forest. Mosses grow their abundantly.

The mosses collected are from marshy places amidst the Valvan dam and Bhushi dam, extending upto Rye wood Park on one side and Lonavala Lake on otherside. The mosses collected were identified, dried

and preserved in packets of 13.5cm x 13.5cm. The data regarding botanical name, locality of collection was noted on the packets.

The list of saxicolous mosses that is growing on rocks with their botanical name, morphological features, locality of collection is given below.

1. *Anomobryum auratum* (Mitt.) Jaeg. :  
Plants in small shining light green tufts, 1.9 to 2.5 cm high, slender, leaves concave, ovate, rounded apex, crenate margin sporophyte not seen.  
This tufted saxicolous moss was found on rocks near Valvan dam.
2. *Bryum alpinum* Huds :  
Plants tufted, rigid, robust, deep red or purple brown in colour stem erect, thick. Leaves stiff erect.  
Seta apical erect, capsule pendulous, deep red. Spores circular, yellowish brown in colour.  
This saxicolous moss was collected from moist rocks near Lonavala dam.
3. *Bryum roseum* (Hedw) Crom :  
The plants are prostrate or erect growing on humus soil or decaying wood. The primary stem is erect about 3 cms tall, enlarging to form a rosette of deep green leaves. Leaves are long with acute apex, margin entire at top. Seta apical with pendulous oblong cylindrical capsule.  
This saxicolous moss was found growing on moist wall near Lonavala Lake.
4. *Bryum argentum* Hedw. (Silver thread moss) :  
Small, silvery white glossy plants with short reddish brown erect stem, Leaves crowded, broad ovate, 2.2. mm long, 0.5 mm broad seta apical red erect, Capsule red, oval – cylindrical.  
Spores spherical or oval, smooth.  
Dense cushions of this silvery white saxicolous moss were found on bricks and stones near stream at Rye wood Park.
5. *Bryum wightii* Mitt :  
Plants forming a lax carpet on rocks and ground stem 4-5 cm high, leaves ovate 4.5 mm long, 2 mm broad. Sporophyte not seen  
This saxicolous moss was collected from the rocks near Bhushi dam.
6. *Bryum capillare* Hedw :  
The plants are densely tufted growing on rocks or damp soil, deep green in colour. Leaves are erect, spirally twisted around stem, ovate, acuminate, concave, entire margin seta apical erect with horizontal capsule.  
This saxicolous moss was found growing on rocks near Valvan dam.
7. *Bartramidula bartramiodes* (Griff) Wijk:  
Slender plants in loose tufts reaching a height of 1.5 cm – 1.8 cm, 1/3rd region of entire plant having young leaves on upperside, remaining 2/3rd towards base with mature brown leaves, margin serrate.  
Sporophyte not seen  
These loosely tufted dark green saxicolous moss was collected from rocks near Valvan dam.
8. *Bartramidula roylei* (Hook. F.) B.S.A., Bryol :  
Plants in loose low cushions of pleasant light green colour, 0.5 – 10.8 cm tall, with

smooth rhizoids below, leaves lanceolate 1-1.5 mm long.

Sprophyte not seen.

These loosely tufted saxicolous moss was growing on rocks along Lonavala lake.

9. *Anacolia sinensis* Broth :

The plants are sturdy, rigid, yellow green.

Leaves dense, stiff, lanceolate, long, narrow tip margin detate upto 2/3 rd from the tip.

These thick tufted saxicolous genera was growing on moist wall near Bhushi dam.

A total number of 9 species of saxicolous mosses were found growing around Lonavala.

Saxicolous Mosses decrease the impact of pouring rain and prevent rock soil erosion by forming dense mats on the rocks. They develop a mat or carpet-like structure when they grow in dense strands. As a result, they retain a large portion of the falling water, reducing run-off. Their unique structure enables them to absorb and retain water effectively, and when heavy rains or water flow threaten to wash away soil from barren landscapes, mosses act as protective blankets, stabilising the ground and preventing erosion, as mosses are also exceptionally good at anchoring themselves to various substrata, especially rocks.

Thus we can conclude that saxicolous mosses play a key role in conservation of forest ecosystems and their abundance reveals healthy ecosystems.

Therefore efforts should be made to conserve these mosses or else, they may become extinct due to tourism and heavy urbanization in and around Lonavala in the near future causing a serious threat to wetland ecosystem around Lonavala.

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