

International Journal of Scientific Research and Reviews

Bryoflora of Verinag (J&K) India

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ABSTRACT

Verinag is situated in district Anantnag of state J&K (India). For the first time 26 species of bryophytes have been recorded from the area. Among them five species are liverworts and 21 are mosses.

KEYWORDS: Bryophytes, Verinag

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INTRODUCTION

Verinag spring is about 26 km away from district Anantnag and is origin of famous river of Kashmir valleys, Jhelum. Kashyap has documented twenty-two hepatic taxa from Kashmir valley and nine from Ladakh region. Kaul and Dhar recorded thirty-five species of bryophytes from the Kashmir valley.¹ Kaul and Singh reported 37 mosses from Kashmir². Townsend collected mosses from Kashmir³. Bandayet *al.* explored the liverworts of Kashmir valley⁴. Tanwir and Langer investigated Marchantialean flora of Jammu region⁵. In 2006 same researchers explored liverworts of Ladak, (J&K)⁶. Tanwir *et al.* explored liverworts and Hornwort of Patnitop and its adjoining areas (J&K), Western Himalaya, India⁷. Dar and Khuroo, reported a total of 210 species of bryophytes falling in 95 genera belonging to 41 families from Kashmir⁸. Rashid *et al.* recorded bryophytes of district Rajouri. A total of 44 bryophyte species belonging to 4 orders, 16 families and 21 genera were reported from the area⁹. Bandayet *al.* studied restricted habitat preference in Kashmir Himalayan mosses. In their study, 16 species of mosses show restricted habitat preference, while others show a wide range in their habitat colonization¹⁰. Kour *et al.* recorded eight species of mosses, namely *Brachythecium kamounense* (Harv.) A. Jaeg., *Brachythecium plumosum* (Hedw.) Schimp., *Brachythecium rutabulum* (Hedw.) Schimp., *Cratoneuron commutatum* (Hedw.) G. Roth., *Drepanocladus aduncus* (Hedw.) Warnst., *Haplocladium microphyllum* (Hedw.) Broth., *Hypnum cupressiforme* Hedw. and *Philonotis falcata* (Hook.) Mitt. for the first time from Doodhpathri (Budgam) J&K¹¹. In another study Kour *et al.* recorded five species of genus *Mnium* for the first time from district Budgam¹². Sharma *et al.* documented a total of 21 mosses belonging to 7 orders, 11 families and 16 genera are reported with the family Pottiaceae being the most speciose¹³.

MATERIALS AND METHODS

About Area

Verinag spring is situated, at the foothills of Pir Panchal mountain range. The mountain range is occupied by tall evergreen pine trees and inside the garden are gigantic Chinar trees. At this altitude, prominent vegetation consists of alpine forests, that consists of conifers and scrubs. The common plants of alpine forests are *Abies*, *Pinus*, *Juniperus*, *Betula*, shrubby *Rhododendrons*, *Quercus*, *Pyrus*, *Salix*, etc. It is about 26 km away from district Anantnag and is bounded by octagonal wall (Figures A-C). Famous river Jhelum originates from Verinag spring¹⁴. Walls of the garden, banks of river and trees (*Plantanus orientalis*) are laden with bryophytes (Figures D-F). Bryophytes were collected from different regions of district Budgam (J&K). The field data were recorded on the spot. The collected mosses in polythene bags were air-dried and then kept in paper

bags. Liverworts were fixed in FAA. To study the collected taxa of mosses, materials were soaked in boiling water for about 5-10 minutes to regain turgidity. The leaves were dissected under binocular microscope and mounted in Gum Chloral. Gum Chloral constitutes gum arabic, chloral hydrate, glycerine and distilled water with proportion of 40gms, 50gms, 20ml and 100 ml respectively. Later these slides were observed under microscope and studied. Liverworts fixed in FAA were studied in laboratory.

RESULTS

*Barbulaasperifolia*Mitt.,Musc. Ind. Or. 34(1859).

Family: Pottiaceae

Habitat: Tree

Barbulaconstricta Mitt. Musci Ind. Or.: 33(1859).

Family: Pottiaceae

Habitat: Tree

Barbulacylindrica (Tayl.) Schimp.var.*vinealis*(Brid) Lindb. Musci. Scand.: 32(1879).

Family: Pottiaceae

Habitat: Tree

*Barbulavinealis*BridBryol. 1: 830(1827).

Family: Pottiaceae

Habitat: Tree

Brachytheciumbuchananii(Hook.)Jaeg. Ber. S. Gall. Naturw. Gess.

Family: Brachytheciaceae

Habitat: Soil

Brachytheciumplumosum (Hedw.) B.S.G., Bryol. Eur., 6: 8(1853).

Family: Brachytheciaceae

Habitat: Soil

Brachytheciumrutabulum (Hedw.) B.S.G., Bryol. Eur., 6: 15(1853).

Family: Brachytheciaceae

Habitat: Soil

*Bryumargenteum*Hedw. Musc. : 181 (1801).

Family: Bryaceae

Habitat: Bricks

*Bryumcapillare*Hedw.,Musc.: 182 (1801).

Family: Bryaceae

Habitat: Bricks

Dumortierahirsuta(Sw.) NeesinReinw. *et al.*, in Nova Acta Phys.-Med. Acad. Caes. Leop. Carol. Nat. cur. 12: 410 1824.

Family: Marchantiaceae

Habitat: Attached to octagonal wall of spring

Eurhynchiummulleri (Jaeg.) Bartr. Bishop Mus. Bull., 101: 214 (1933).

Family: Brachytheciaceae

Habitat: Bank of river

Eurhynchiumriparioides (Hedw.) Richs. Ann. Bryol., 9:135(1937) .

Family: Brachytheciaceae

Habitat: Bank of river

Eurhynchiumswartzii(Turn.) Curnow Rabenh.:Bryoth. Eur., 12: 593(1862).

Family: Brachytheciaceae

Habitat: Bank of river

Lindbergiaduthiei (Broth.) Broth., Nat. Pflanzenfam. I(3): 993. 1907.

Family: Leskeaceae

Habitat: Wooden log

Marchantianepalensis L. et L. Lehm. Pugiv.: 10 (1832).

Family: Marchantiaceae

Habitat: Attached to octagonal wall of spring

*Marchantiapalmata*Nees, Nova Acta XII: 193 (1824).

Family: Marchantiaceae

Habitat: Attached to base of wall near exit of water

Marchantiapolymorpha L., Sp. pl.:1137. 1753;

Family: Marchantiaceae

Habitat: Attached to base of wall near exit of river.

Mniumconfertidens (Lindb. Arn.) Kindb. Bryin. Exot. :107 (1891).

Family:Mniaceae

Habitat: Soil

*Mniumcuspidatum*Hedw. Musc. :192(1801).

Family: Mniaceae

Habitat: Soil

Mniumintegrum Bosch &Sande Lac. Bryol. Jav. 1:153(1861) .

Family: Mniaceae

Habitat: Soil

Mniumrostratum Schrad. Regensburg, 1:79 (1802).

Family: Mniaceae

Habitat: Soil

Mniumsucculentum Mitt. Musci Ind. Or. :143 (1859).

Family: Mniaceae

Habitat: Soil

Porellaobtusata (Taylor) Trevisv *var* *macroloba* (Steph.) S. Hatt & Zhang in J. Jap. Bot. 60: 325. 1985;

Family: Porellaceae

Habitat: Tree

Rhynchostegiumherbaceum (Mitt.) A. Jaeger. Ber. S. Gall. Naturw. Ges., 1876-77: 368 (1878).

Family: Brachytheciaceae

Habitat: Soil

Thuidiumglauclinum (Mitt.) Bosch & Sande Lac. Bryol. Jav., 2: 117 (1876). Family: Thuidiaceae

Habitat: Bank of river

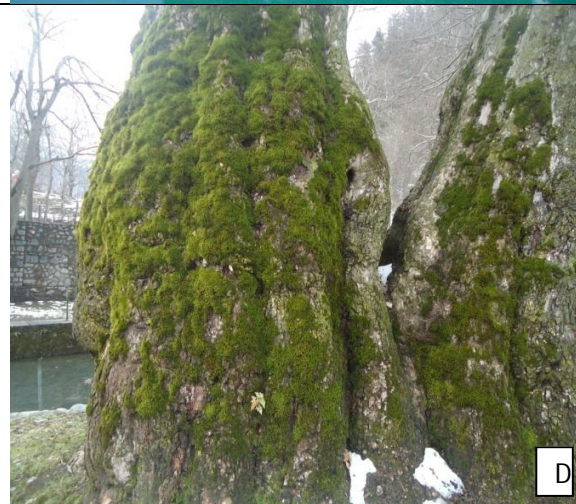
Thuidiumorientale Mitten *ex* Dixon J. Bot., 51: 329 (1913).

Family: Thuidiaceae

Habitat: Bank of river

DISCUSSION

In present investigation 26 species of bryophytes have been reported for the first time from the study area. Among them five species are liverworts namely, *Dumortierahirsuta*, *Marchantianepalensis*, *Marchantia palmate*, *Marchantiapolyomorpha* and *Porellaobtusata* and rest of 21 species are mosses. Family Brachytheciaceae represents highest number of species that is seven. Mniaceae is followed by Brachytheciaceae, by having five numbers of species. Families Pottiaceae and Marchantiaceae constitutes four number of species each. Thuidiaceae (2) and Leskeaceae (1) are the families that have least number of species.



ACKNOWLEDGEMENT

I would like to thank, Mr. Ramzan , the gardener, who helped me during my collection. Last but not least I would like to thank my loving dad, Late. S. Tejasingh for his infinite love and inspiration.

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