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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 an antnag 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 Kashmir[2]. Townsend collected mosses from Kashmir[3].Banday*et al.* explored the liverworts of Kashmir valley[4]. Tanwir and Langer investigated Marchantialean flora of Jammu region[5]. 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, India[7].Dar and Khuroo, reported a totalof210 species of bryophytes falling in 95 genera belonging to 41 families from Kashmir[8].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 area[9]. Banday*et 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 colonization[10].Kour*et al.* recorded eight species of mosses, namely *Brachytheciumkamounense* (Harv.) A. Jaeg, *Brachytheciumplumosum* (Hedw.) Schimp.,*Brachytheciumrutabulum* (Hedw.) Schimp.,*Cratoneuroncommutatum* (Hedw.) G. Roth., *Drepanocladusaduncus* (Hedw.) Warnst.,*Haplocladiummicrophyllum* (Hedw.) Broth.,*Hypnumcupressiforme*Hedw. and*Philonotisfalcata* (Hook.) Mitt. for the first time from Doodhpathri (Budgam) J&K[11]. In another study Kour*et al.* recorded five species of genus *Mnium* for the first time from district Budgam[12].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 speciose[13].

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 treesand inside the garden are gigantic Chinar trees. Atthisaltitude, prominent vegetation consists of alpine forests, thatconsisits 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 fromVerinagspring [14]. Walls of the garden, banks of river and trees (*Plantanusorientalis*) 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 gumarabic, 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: Mniacea

Habitat: Soil

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

Family: Mniaceae

Habitat: Soil

Porellaobtusata (Taylor) Trevis*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

Thuidiumglaucinum (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 Marchantiapolymorpha*and *Porellaobtusata a*nd 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.

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