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Moss Flora of Dachigam National Park (J&K) India

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ABSTRACT

Dachigam National Park is l22kms away from the city Srinagar. It is located at an altitude of 5500ft to14000ft above the sea level andcovers an area of 141sqkms. Present study was conducted to record moss flora of the area as there is no previous work done. In present investigation, a total number of 41 species have been recorded from study area. These species fall into 14 families and 21 genera.

KEYWORDS – Dachigam, Cervuselaphus, mosses

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INTRODUCTION

Dachigam National Park is famous for the Kashmir Stag or "Hangul" (*Cervuselaphus*hanglu).Dachigam is abode to many animals like Himalayan Brown Bear, Himalayan Black Bear, Musk Deer, Leopard and Hyena.Park constitutes 150 speciesof birdsand 661 species of vascular plants[1].Qureshi *et al.*havereported 35 species of butterflies from the park. It is strictly reserved for the protection of the wildlife and biodiversity. The boundaries are well marked and constrained[2].

Mosses constitute an important component of the park. The area was previously unexplored for moss flora and it was extensively researched for mosses. Kashyap has documented twenty two hepatic taxa from Kashmir valley and nine from Ladakh region[34].Kaul and Dharrecorded thirty five species of bryophytes from the Kashmir valley[5]. Kaul and Singh reported 37 mosses from the region[6]. Townsendalso made collection of mosses from the valley[7]. Banday*et al.* explored the bryoflora of Kashmir valley[8]. Tanwir and Langer investigated Marchantialean flora of Jammu region. In 2006 same researchers explored liverworts of Ladak, (J&K)[910]. Tanwir*et al.*explored liverworts and Hornwort of Patnitop and its adjoining areas (J&K)[11].Dar and Khuroo, reported a 210 species of bryophytes (95 genera and41 families) from Kashmir[12].Rashid *et al.* studied bryophytes of district Rajouri (Jammu) and reported of 44 bryophyte species included referable representing 16 families and four orders[13].Banday*et al.*(2004) 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[14].Koure*t 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[15]. In another study Koure*t al.*recorded five species of genus *Mnium* namely; *Mniumconfertidens*, *Mniumcuspidatum*, *Mniumintegrum*, *Mniumrostratum* and *Mniumsucculentum* for the first time from district Budgam[16].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[17].

STUDY AREA

Dachigam National Park is located between 34° 04′ -34° 14′ N latitudes and 74°48′ to 75° 85′ E longitudes. It is l22kms away from the city Srinagar andcovers an area of 141sqkms **[18].** Park is divided into two parts upper and lower Dachigam. In the north-east, it is bounded by Sindh valley, Tarsar, Lidderwath, Kolhai of Lidder Valley and in the East, Overa-Aru Wildlife Sanctuary. In south- East, it is surrounded by Tral range and in west and south-west, Harwan, Brain and Nishat (Figure A, B & C)[19].

Figure 1: Map of Dachigam.

RESULTS AND DISCUSSION

In present investigation, a total number of 42 bryophyta species have been recorded from the area.

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

Family:Pottiaceae

Habitat: Moist Soil

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

Family:Pottiaceae

Habitat: Moist Soil

Barbulanigrescens Mitt. Musci Ind. Or. 36(1859)

Family:Pottiaceae

Habitat: Moist Soil

Brachytheciumbuchananii(Hook.) Jaeg. Ber. S. Gall. Naturw. Gess., 1876-77: 341(1878)

Family:Brachytheciaceae

Habitat: Moist Soil

Brachytheciumkamounense (Harv.) Jaeg. Ber. S. Naturw. Ges., 1876-77: 342(1878)

Family:Brachytheciaceae

Habitat: Moist Soil

Brachytheciumrivulare B.S. G. Bryol. Eur., 6: 17(1853)

Family:Brachytheciaceae

Habitat: Moist Soil

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

Family:Brachytheciaceae

Habitat: Moist Soil

*Bryumalpinum*Huds. *ex*With. Syst. Arr. Birt. Pl. ed. 4, 3: 824(1801)

Family:Bryaceae

Habitat: Moist Soil

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

Family:Bryaceae

Habitat: Moist Soil

Distichiuminclinatum (Hedw.) B.S.G., Bryol. Eur., 2: 193(1864)

Family:Ditrichaceae

Habitat: Moist Soil

Ditrichumflexicaule (Schwaegr.,) Hamp, Flora, 50: 182(1867)

Family:Ditrichaceae

Habitat: Moist Soil

Drepanocladusaduncus (Hedw.*)* Warnst. Beih.Bot.Centralbl. 13:400 (1903)

Family:Amblystegiaceae

Habitat: Moist Soil

Drepanocladusexannulatus (B. S. G.) Warnst. Beih. Bot. Centralbl., 13:405(1903)

Family:Amblystegiaceae

Habitat: Moist Soil

Entadoncurvatus (Griff) Jaeg. Ber. S. Gall. Naturw. Ges. 1876-77: 293 (1878)

Family:Entodontaceae

Habitat: Wooden Logs

*Entadonnepalensis*Mizushima Hara: Fl. E. Him.: 584, 42 (1966)

Family:Entodontaceae

Habitat: Wooden Logs

Entadonovicarpus Dix J. Bomb. Nat. Hist. Soc., 39: 789 (1937)

Family:Entodontaceae

Habitat: Wooden Logs

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

Family:Brachytheciaceae

Habitat: Moist Soil

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

Family:Brachytheciaceae

Habitat: Moist Soil

Funariahygrometrica(Hedw.) Sp. Musc. : 172(1801)

Family:Funariaceae

Habitat: Moist Soil

Grimmaovalis (Hedw.) Lindb. Act. Soc. Sci. Fenn., 10: 75(1871)

Family:Grimmiaceae

Habitat: Rocks

Grimmiaelongata Kaulfuss in J. Sturm *et al.*,Deutschl. Fl. 15: (1816)

Family:Grimmiaceae

Habitat: Rocks

Grimmiafunalis (Schwaegr.) B.S.G Bryol. Eur., 3: 119 (1845)

Family:Grimmiaceae

Habitat: Rocks

Grimmialaevigata (Bridel) Bridel, Bryol. Univ. 1: 183 (1826)

Family:Grimmiaceae

Habitat: Rocks

Hyophilainvoluta (Hook.) Jaeg. Natur. 1871-72: 356 (1873)

Family:Pottiaceae

Habitat: Rocks

Hyophilaspathulata (harv) Jaeg.,Ber. S. Gall. Naturw. Ges., 1817-72: 353(1873)

Family:Pottiaceae

Habitat: Rocks

Hyophilawalkeri Broth. Rec. Bot. Surv. Ind., 1:317 (1899)

Family:Pottiaceae

Habitat: Rocks

*Hypnumcupressiforme*Hedw. Sp. Musc. : 291(1801)

Family:Hypanaceae

Habitat: Sandy soil

Leucodonsciuroide (Hedw.) Schwaegr., Suppl. 1: (1816)

Family:Leucodontaceae

Habitat: Tree

Lindbergiakoelzii Williams, Bryologist, 35 : 3(1932)

Family:Leskeaceae

Habitat: Moist Soil

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

Family:Mniaceae

Habitat: Moist Soil

*Mniumrostratum*schrad. Regensburg, 1:79(1802)

Family:Mniaceae

Habitat: Moist Soil

Orthotheciumintriatum(Hartm.) B. S. G., Bryol. Eur.,

Family:Hypnaceae

Habitat: Moist Soil

*Polytrichumalpinum*Hedw. Sp. Musc. : 92 (1801)

Family:Polytrichaceae

Habitat: Moist Soil

*Racomitriumcrispulum*Hook.f. & Wilson,J.D.Hooker, Fl. Nov.-Zel. 2: 76 (1854)

Family:Grimmiaceae

Habitat: Rocks

Racomitriumlanuginosum (Hedwig) Bridel, Muscol. Recent., suppl. 4: (1818)

Family:Grimmiaceae

Habitat: Rocks

RhynchostegiellaScabriseta(Schwaegr.) Broth. Nat. Pfl.1(3): 1161 (1909).

Family:Brachytheciaceae

Habitat: Moist soil

Rhynchostegiumplaniusculum (Mitt.) A. Jaeg. Ber. S. Gall. Naturw. Ges., 1876-77: 364(1878).

Family:Brachytheciaceae

Habitat: Moist soil

Syntrichiaprinceps (De Not.) Mitt. Musc. Ind.Or. :39(1859).

Family:Pottiaceae

Habitat: Rocks

Thuidiumglaucinum (Mitt.) Bosch &Sande Lac.Bryol.Jav., 2: 117 (1876).

Family:Thuidiaceae

Habitat: Moist soil

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

Family:Thuidiaceae

Tortellatortusoa (Hedw.) Limpr. Laubm. Deutschl., 1 : 604 (1888).

Family:Pottiaceae

Habitat: Moist soil

A total number of 41 species of bryophyte have been recorded from Dachigam National Park. These species fall into 21 genera and 14 families.Brachytheciaceae and Pottiaceae families are most speciose, representing highest number of species (8), followed by Grimmiaceae (6) and Entodontaceae (3). Amblystegiaceae, BryaceaeDitrichaceae, Hypanaceae, Mniaceae and Thuidiaceae possess two species. Families like Funariaceae, Leskeaceae, Leucodontaceae andPolytrichaceae possess one species.The field notes are also added to depict the habitat preferences of each taxon. These bryophytic species were mostly present on moist soil, trees, rocks and sandy soil.

CONCLUSIONS

Globally 2 to 4% of bryoflora has been threatened in the short term which is a matter of great concern[20]. In view of the threatening situation the study of the bryophytic flora of this unexplored area assumes greater importance.Global warming is going to be a big threat for bryophytes. According to IPCC, there is 0.6 degree increase to average temperature on earth in last century and will raise to 1.4 to 5.8℃ by 2100 [21]. Habitat destruction, deforestation, scarcity of water and increase in growing population are other factors that are threat to bryophytes. These plants need attention for their conservation and protection. Some strict policies are required for their protection. In view of the threatening situation the study of the bryophytic flora of this unexplored area assumes greater importance.

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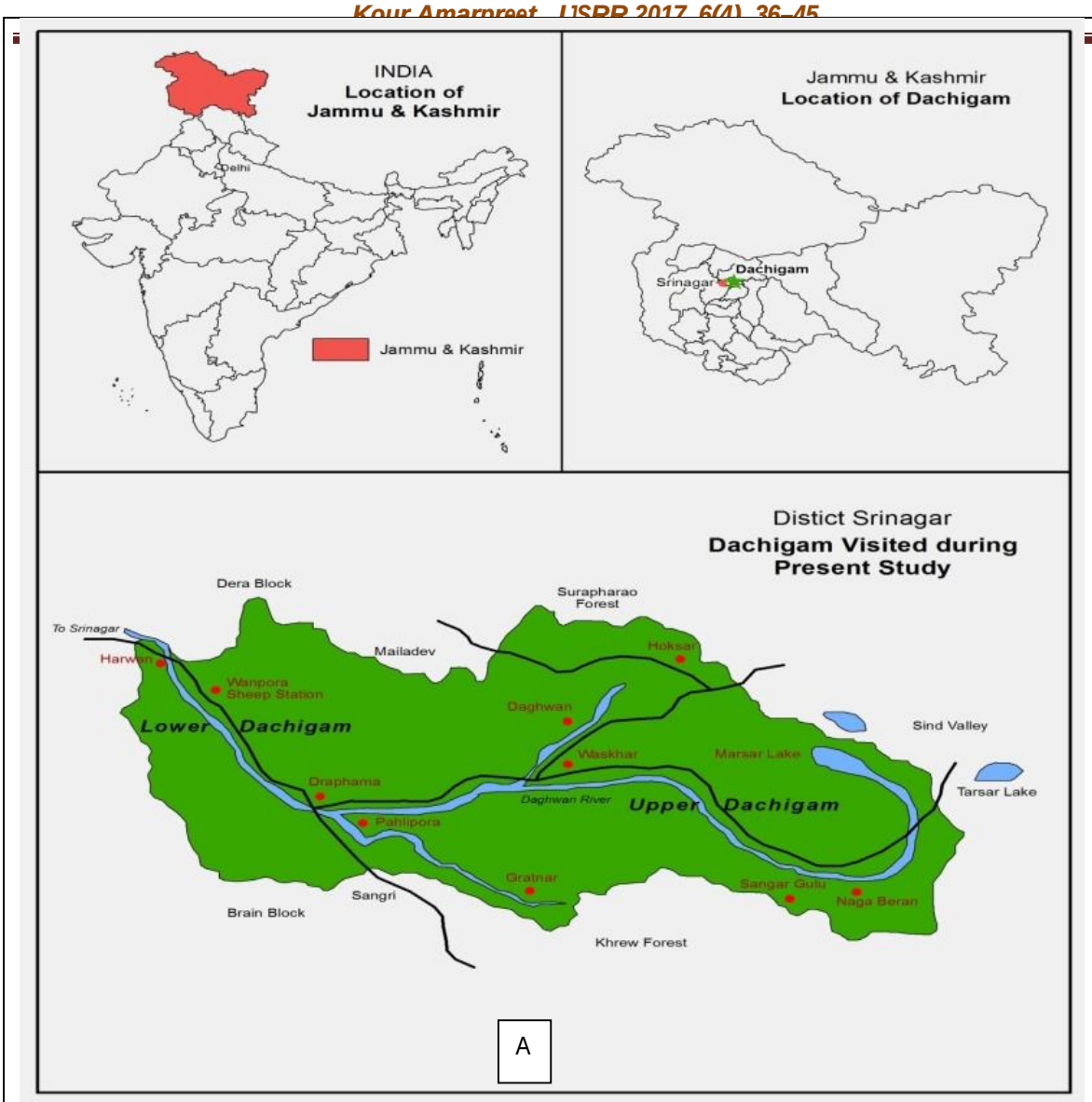

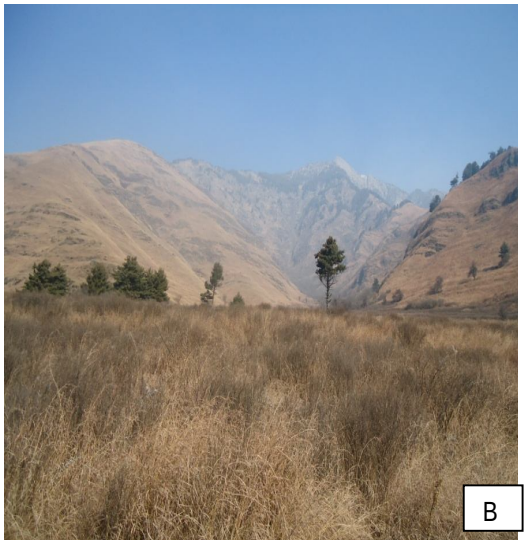

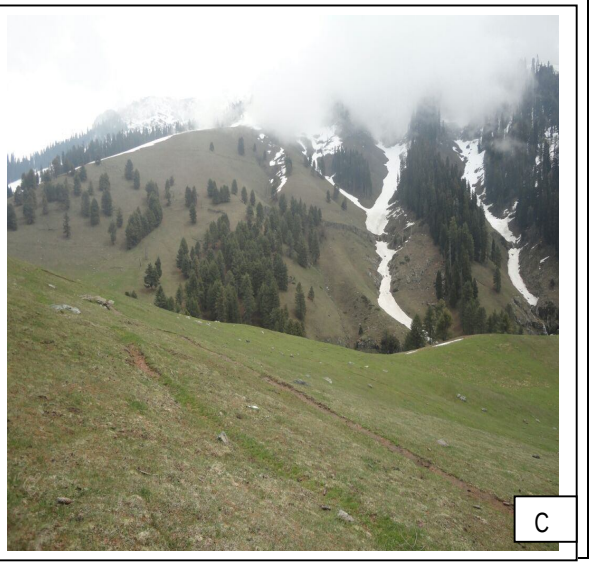

Figure A: Map of Dachigam

Figure B &C: Field photographs of the study area.

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