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BRYOFLORA OF MUKTESHWAR

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ABSTRACT

Present study is an attempt to explore the bryoflora of almost undisturbed and natural habitat of Mukteshwar (Kumaon hills). For this study several regular and periodic surveys were made to Mukteshwar in a span of more than one decade. Bryophytes species were collected identified in lab or inter laboratory and described. It was observed that some species were growing luxuriantly in one ecological niche and were totally absent at neighboring niche. It may be due to influence of edapho-climatic factors, micronutrients and man-made activities.

Keywords: Bryoflora, Natural habitat, Mukteshwar

INTRODUCTION

Bryophytes form an important and striking part of cool and humid Himalayan scenario. They impart lush greenery and a verdant cover in every possible shade of green tinged with hues of brown, red and yellow to almost all kinds of habitat like rocks, boulders, stones, hill slides, tree trunk, forest cover and various artificial substrates in and around Kumaon hills (Pant and Tiwari, 1989). Bryophytes are ecologically important, diversified plant communities; differ morphologically and physiologically from vascular plants (Saxena and Saxena, 2005). Although bryophytes form a minor component of the total biomass of biota, even though they play a major role in nutrient cycling (Raeymaekers, 1987). The percentage of occurrence of mosses in India is quite high as compared to any other plant group. About 27.5% of world mosses and 11.26% of liverworts are present in India (Banerjee, 1998).

Due to rapid urbanization and with the pressure inflicted by the inexorable growth of the human population, the natural vegetation of the Himalaya is disappearing at an alarming rate. Rapid deforestation has resulted into a loss of an appreciable resource, the gene pool inherent in these Himalayan plants. On the

other hand we have to realize the harsh reality that the study of our Himalayan cryptogamic flora still is in a neglected state of infancy. Therefore, there is an urgent need to explore, collect, study and protect this unique cryptogamic mosaic of our fragile Himalayan ecosystem. In the present day, in the state of utter disturbance, these plants are fast vanishing from their habitats without being scientifically catalogued or studied. No attempt has been made in last few years to study the bryoflora and species richness on Kumaon hills. Therefore, present study was undertaken to explore the bryophyte wealth on Kumaon Himalaya.

MATERIALS AND METHODS

Bryophytes were collected from different pockets of Mukteshwar in different seasons (Figure 1). The collected bryophytes were tentatively identified and send for different laboratories for inter-laboratory identification. The voucher specimens were prepared and placed in the bryology laboratory of Bareilly College, Bareilly.

RESULTS AND DISCUSSION

Poor and localized bryo-vegetation was observed at lower elevation, while increasing altitude with mesic condition promotes species richness and luxuriance. In present study a total of 44 bryophytes

species are recorded from the study area (Table 1). The study further demonstrates that mosses are the predominate component of bryo-vegetation of study area. These findings are in broad agreement with earlier studies conducted by Pandey, 1984 and Tiwari, 1984.

Study revealed the presence of *Frullania sp.*, *Conocephalum sp.*, *Lajunia sp.* in pure and undisturbed habitats while *Plagiochasma sp.*, *Polytrichum sp.*, *Hydrogonium sp.* and *Hypnum sp.* were growing well along the roadside environment. Thus such biomapping studies can be used for pollution monitoring studies and for constructing the pollution map of study area.

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Figure 1: Map of the Kumaon Hills showing study area

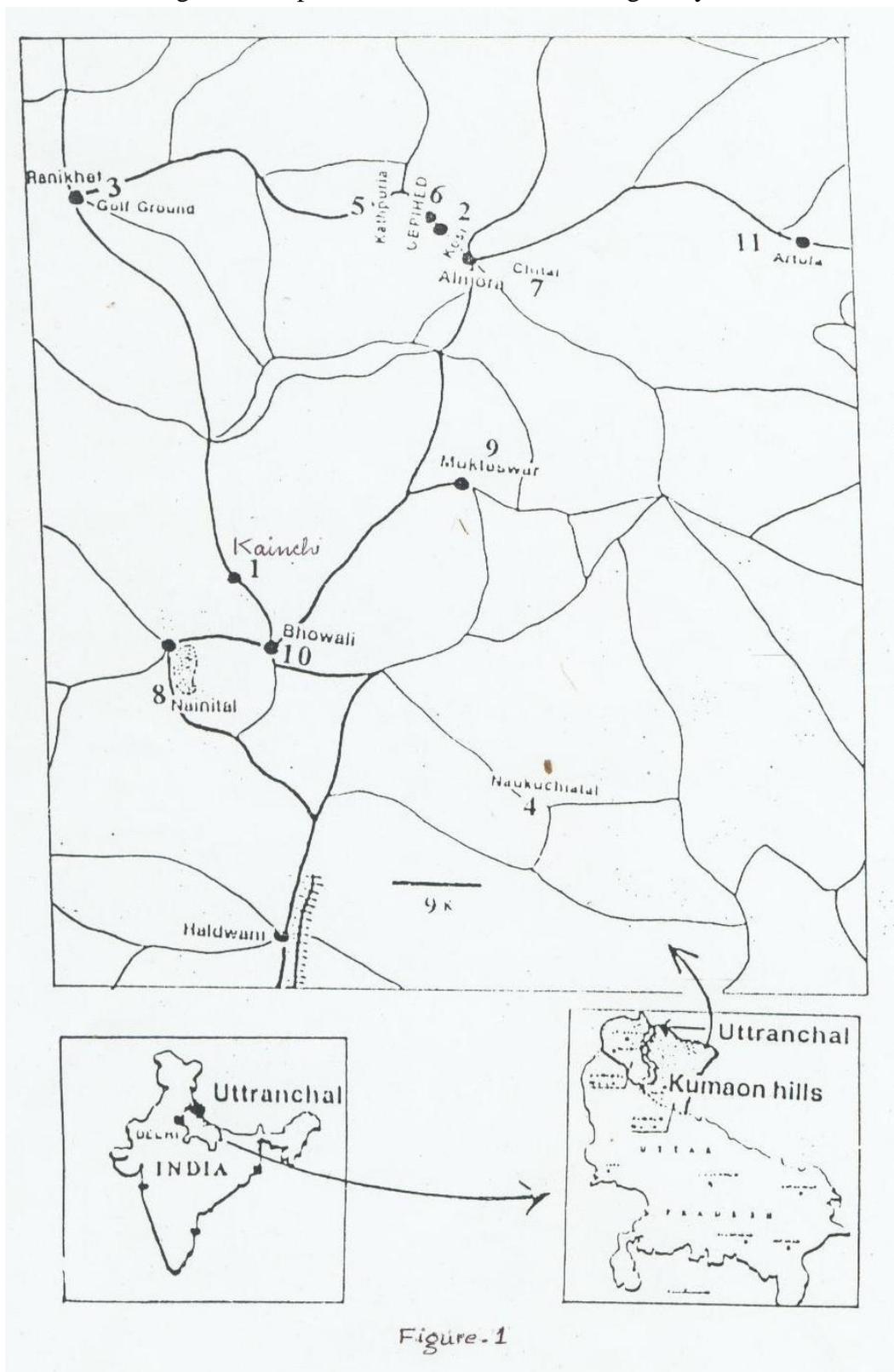


Figure-1

Table 1: Bryoflora of Kumaon hills

S.No.	Bryophyte	Location	Habitat	Altitude
1	<i>Asterella wallichiana</i>	On the way to Mukteshwar	Along the road side on stone wall	1000
2	<i>Atrichum pallidum</i>	Near IVRI, Mukteshwar	On soil in forest	1800
3	<i>Rachithecium perpusillum</i>	Natural forest of Mukteshwar	Epiphytic, on rock, on stone wall	2200-2240
4	<i>Barbula unguiculata</i>	On the way to Mukteshwar	On rocks	
5	<i>Brachythecium buchananii</i>	On the way Bhimtal and Mukteshwar	On soil in forest, rotting tree base	2210-2240
6	<i>Brachythecium sp.</i>	IVRI, Mukteshwar	On humus over soil, rocks	2250
7	<i>Brothera leana</i>	On the way Bhimtal and Mukteshwar	Epiphytic	
8	<i>Bryum sp.</i>	Along road side, on the way to Mukteshwar	On rocks	
9	<i>Campylium sp.</i>	Mukteshwar	On soil over humus	2215
10	<i>Campylopus subulatus</i>	Mukteshwar	between grass on a small hill	2215
11	<i>Campylopus umbellatus</i>	On the way from Bhimtal to Mukteshwar	On rock	
12	<i>Claopodium cf prinophyllum</i>	Mukteshwar, natural forest	on soil	2230
13	<i>Conocephalum conicum</i>	Mukteshwar	On rocks	
14	<i>Cryptoleptodon sp.</i>	Mukteshwar, natural forest	Epiphyte	2230
15	<i>Dicranum sp.</i>	Mukteshwar, natural Forest	On soil	
16	<i>Dumortiera sp.</i>	Mukteshwar, natural forest	On soil	
17	<i>Entodon sp.</i>	Mukteshwar	On rock	2215
18	<i>Fissidens sp.</i>	Mukteshwar, natural research forest	On soil	2240
19	<i>Floribundaria</i>	Mukteshwar, natural research forest	Epiphyte	2230
20	<i>Herprineuron tocoae</i>	Bhimtal and Mukteshwar	Epiphytic	
21	<i>Homalia</i>	Bhimtal and Mukteshwar	Epiphytic	
22	<i>Hydrogonium sp.</i>	On the way to Mukteshwar	On rock	
23	<i>Hylocomium sp.</i>	On the way to Mukteshwar	On soil	
24	<i>Hymenostylium recurvirostrum</i>	Mukteshwar, natural forest,	On soil	2240
25	<i>Hypnum sp.</i>	between Bhimtal and Mukteshwar	On soil in forest	
26	<i>Hypophila javanica</i>	Mukteshwar, natural forest	On soil in forest	

27	<i>Lejunia sp.</i>	Mukteshwar, natural forest	On soil in forest	
28	<i>Lindbergia koelzii</i>	Mukteshwar	Epiphyte	2215
29	<i>Marchantia polymorpha</i>	On the way to Mukteshwar	On rock	
30	<i>Meteorium buchananii</i>	Mukteshwar, natural forest	Epiphyte	2230
31	<i>Mnium thomsonii</i>	Mukteshwar, natural forest	On soil	2230
32	<i>Notothylus sp.</i>	Mukteshwar, natural forest	Epiphyte	
33	<i>Orthotrichum pumilum</i>	Mukteshwar, hill behind hotel	Epiphyte	2215
34	<i>Palamocladium hilgheriense</i>	Mukteshwar, natural forest	Epiphyte	2230
35	<i>Plagiochasma appenticulatum</i>	IVRI, Mukteshwar	On soil	2280
36	<i>Plagiomnium rhynchophorum</i>	On the way from Bhimtal to Mukteshwar	On rock	
37	<i>Polytrichum commune</i>	Mukteshwar, natural forest	On soil	
38	<i>Rhynchostegium celebicum</i>	Mukteshwar, natural forest	on soil on a N-exp. steep slope	2240
39	<i>Rhynchostegium herbaceum</i>	Mukteshwar, natural forest	over a small stone on forest floor	2230
40	<i>Rhytidialphus squarrosus</i>	IVRI, Mukteshwar	On soil	
41	<i>Sciuro-hypnum plumosum</i>	Mukteshwar, natural forest	over flat rock on forest floor	2230
42	<i>Sematophyllum sp.</i>	between Bhimtal and Mukteshwar	epiphytic	
43	<i>Thamnobryum subseriatum</i>	Mukteshwar, natural forest	On rock	2230
44	<i>Trachypodopsis serrulata</i>	Mukteshwar, natural forest	On dead tree	2230