

ASSESSMENT OF BRYOPHYTES DIVERSITY IN HMUIFANG RESERVED FOREST, AIZAWL DISTRICT MIZORAM

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Abstract: The present studies deals with the diversity assessment of diversity of Bryophytes in Hmuifang Reserved forest Aizawl District Mizoram. The study area is situated in the southern part of Mizoram with an average elevation of 1619amsl, about 50 km away from the State capital Aizawl. The collected specimens were dried at room temperature and stored in paper packets, date of collection, locality, type of bryophyte and habitat were recorded in the field notebook. Accordingly, this attempt was made to document detailed account of bryophytes of the study area. The present studies deals with the occurrence of 32 taxa of bryophytes distributed under 23 genera and 19 families have been recorded in Hmuifang Reserved Forest, Aizawl District Mizoram. *Frullania*, *Pogonatum* and *Bryum* are the most dominant Genus and *Polytrichaceae* *Bryaceae* and *Jubulaceae* are dominant families. This finding will lead to a better knowledge of Bryophytes and their distribution in Hmuifang Reserved Forest as well as in Mizoram.

Keywords: Bryophytes, Distribution, Hmuifang, Mizoram.

INTRODUCTION:

Bryophytes are one of the richest group of plants in India and occupy a wide range of substrata. A total of 2489 taxa of bryophytes reported from India, comprising 1786 species under 355 genera of mosses, 675 species under 121 genera of liverworts and 25 species under 6 genera of hornworts (Dandotyia, 2011). A total of 31 species of bryophytes including 20 liverworts, 2 hornworts and 9 mosses under 17 family and 22 genera are reported for the first time from the Bothamalai hills in the Eastern Ghats of India. All the species reported here are new distributional records of occurrence for the State. The distribution of species at different altitudes and different microclimates were encountered in the hills. Currently the critical habitat of the bryophytes is under threat against the ongoing anthropogenic activities like open cast mining in this region. The changes in the microhabitat of bryophytes may seriously affect the species composition very rapidly and thus upset the ecological balance (Dash *et al.*, 2009). Jayanta Barukial (2011) has done the enumeration of 127 species of Mosses under 71 genera belonging to 27 families from the Assam Valley Wet Evergreen forests, Assam, India. Manju *et al.*, (2008) have published the checklist of the bryophytes of Kerala, India. In this checklist atotal of 465 bryophyte taxa are accepted, comprising 148 taxa of liverworts, 10 taxa of hornworts and 307 taxa of mosses. Western Ghats (includes Nilgiris, Anamalais, Palnis and Agasthyamalai) and the Eastern Ghats (includes Shervaroys) bryogeographical regions studied by Daniels in 2010.

North Eastern Regions including Mizoram as a biodiversity hotspot harbour the richest Bryophytic wealth among bryogeographical regions of the country. The combination of different factors like climatic, edaphic, temperature, precipitation, humidity, altitude, forest types favors the growth of rich and luxuriant vegetation of bryophytes. It is also considered as centre of speciation. In spite of above facts, there is no floristic account of Bryophytes as well as utilization of plant resources of this region is available. The state of Mizoram is located in the extreme corner of Northeast India in between 21°58' N and 24°36' N latitudes and 92°29' E longitudes and bounded by Assam in the North, Manipur in the Northeast, Myanmar in the East and Bangladesh and Tripura in the West.

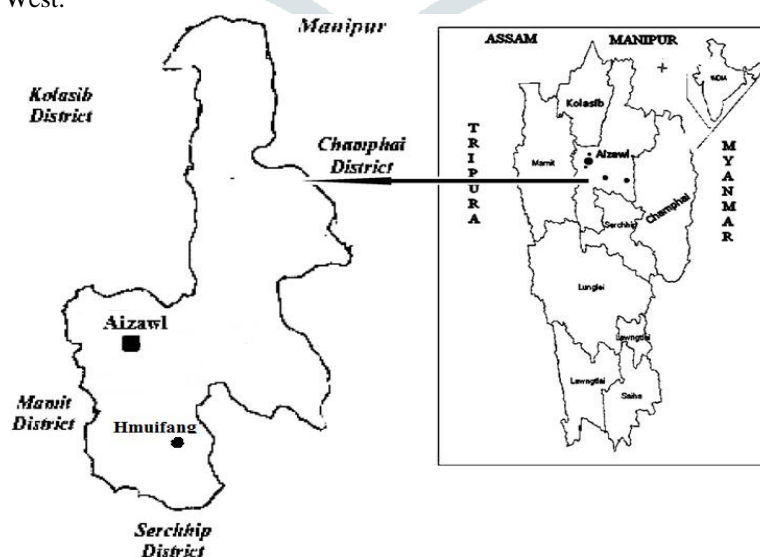


Fig.2. Map of Aizawl district: Showing study site

MATERIALS AND METHOD:

The studies were carryout in Hmuifang Reserved Forest, the plant specimens were collected from different habitats during March, 2016 to November, 2016. Simple methodology was follow to collect the plant specimens. The plant parts were scratched out from their substratum with the help of knife or other sharp material sometimes simply plucked with bare hand. Photograph of each collected sample were taken in the field as authentic evidence. The collected specimens were air dried as soon as possible to avoid damage. The ecological parameters such as, altitude, temperature, humidity, rainfall, was recorded in the field note book. The collected specimens were identified in the Research Laboratory Department of Environmental Science, Mizoram University and were kept in the herbarium packets which are deposited in the cabinet at the Herbarium. The identification of taxa has been done in the laboratory by studying the plant specimens, various relevant literature and publications were also consulted (Bansal and Nath, 2012a, 2012b; Schuster, 1979; Schuster, 1984a; Schuster1984b; Singh and Singh 2003).

RESULT AND DISCUSSION:

During the study period a total of 32 taxa of bryophytes distributed under 23 genera and 19 families have been recorded in Hmuifang Reserved Forest, Aizawl District Mizoram. The study revealed that *Frullania*, *Pogonatum* and *Bryum* are the most dominant Genus and *Polytrichaceae*, *Bryaceae* and *Jubulaceae* are dominant families. Although bryophytes are oldest among land plants their value is quite unknown to people due to lack of study especially in Mizoram. It has been observed that the selected study site harbors quite diverse and rich bryophytes. This finding will lead to a better knowledge of Bryophytes and their distribution in Hmuifang Reserved Forest as well as in Mizoram.

Table: Lists of Bryophytes species with family, habitat and altitude:

Sl. No.	Name of Species	Family	Habitat	Altitude
1	<i>Asterella khasiana</i> (Griff.) Grolle	Aytoniaceae	Tree bark	1619m
2	<i>Asterella musuriensis</i> (Kashyap.)	Aytoniaceae	Tree bark	1610m
3	<i>Bazzania hainanensis</i> L.-P. Zhou et L. Zhang	Lepidoziaceae	Tree bark	1542m
4	<i>Dumortiera hirsuta</i> (Sw.) Nees	Marchantiaceae	Rock	1600m
5	<i>Fossombronina cristula</i> Aust.	Fossombroniaceae	Soil	1700m
6	<i>Frullania ericoides</i> (Nees) Mont	Jubulaceae	Soil	1174m
7	<i>Frullania retusa</i> Mitt.	Jubulaceae	Rock	1023m
8	<i>Frullania tamarisci</i> (L.) Dumort.	Jubulaceae	Soil	1090m
9	<i>Frullania wallichiana</i> Mitt.	Jubulaceae	Soil	1150m
10	<i>Lejunea obfusca</i> Mitt.	Lejeuneaceae	Soil	1619m
11	<i>Leucobryum candidum</i> (Brid. ex P. Breuv.)	Leucobryaceae	Rock	1615m
12	<i>Marchantia paleacea</i> Bertol.	Marchantiaceae	Soil	1611m
13	<i>Marchantia polymorpha</i> Subsp.	Marchantiaceae	Soil	1620m
14	<i>Mastigolejeunea humilis</i> (Gottsche) Schiffn.	Lejeuneaceae	Tree bark	1599m
15	<i>Meteoriopsis squarrosa</i> (Hook. Ex Harv.)	Leucobryaceae	Tree bark	1678m
16	<i>Metzgeria furcata</i> (L.) Dumort.	Metzgeriaceae	Rock	1590m
17	<i>Papillaria fuscescens</i> (Hook.) A. Jaeger	Meteroriaceae	Rock	1595m
18	<i>Riccia fruitans</i> L.	Ricciaceae	Tree bark	1614m
19	<i>Riccia glauca</i> L.	Ricciaceae	Tree bark	1609m
20	<i>Solenostoma gracilimum</i> (Sm.) R.M. Schust.	Solenostomaceae	Tree bark	1200m
21	<i>Trocholejeunea infustaca</i> (Mitt.) Verd	Lejeuneaceae	Soil	1600m
22	<i>Trocholejeunea sandvicensis</i> Mizut.	Lejeuneaceae	Soil	1619m
23	<i>Atrichum undulatum</i> (Hedw.) P. Beauv	Polytrichaceae	Soil	1615m
24	<i>Bryum alpinum</i> Huds. ex With	Bryaceae	Rock	1605m
25	<i>Bryum auratum</i> Mitt	Bryaceae	Rock, soil	1611m
26	<i>Bryum coronatum</i> Schwagr.	Bryaceae	Tree bark	1594m
27	<i>Campylopus pilifer</i> Brid	Dicranaceae	Tree bark	1501m
28	<i>Funaria hydrometrica</i> Hedw.	Funariaceae	Soil	1585m
29	<i>Pogonatum aloides</i> (Hedw.) P. Beauv.	Polytrichaceae	Rock, Tree bark	1174m
30	<i>Pogonatum neesii</i> (Mull. Hall) Dozy	Polytrichaceae	Soil	1390m
31	<i>Pogonatum urnigerum</i> (Hedw.) P. Beauv.	Polytrichaceae	Soil	1592m
32	<i>Thuidium cymbifolium</i> (Dozy & Molk.) Dozy & Molk	Thuidiaceae	Soil	1612m

CONCLUSION:

During the study period it has been observed that a large number of bryophytes are threatened with ever increasing encroachment upon natural vegetation, huge area are being denuded annually with no control. The continue decrease in forest cover is not contributing to achieving healthy environment for the development and resulting climate change accompanying destruction of vegetation and loss of valuable bryophytic flora. So this study is expected to have an outcome on the distribution, and status of Bryophyte flora of Mizoram. These will ensure the protection and conservation of rare and potentially economic important Bryophyte.

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