

Executive Summary

(Ref- File No. 47-1428/2010(WRO), PUNE)

**“BRYOFLORESTIC STUDIES ON THE MOSSES FROM
FEW FORTS OF KOLHAPUR DISTRICT,
MAHARASHTRA”**

**MINOR RESEARCH PROJECT REPORT
SUBMITTED**

**TO
UNIVERSITY GRANTS COMMISSION,
WESTERN REGIONAL OFFICE, PUNE.**

BY

PROF. SANJAYKUMAR MARUTI MAGDUM

M.Sc., M. Phil.

DEPARTMENT OF BOTANY,

SMT.KUSUMTAI RAJARAMBAPU PATIL

KANYA MAHAVIDYALAYA, ISLAMPUR

TAL. WALWA,

DIST. SANGLI (M. S.) INDIA.

SUMMARY AND CONCLUSION

The group of bryophyte is one of the important plants being a pioneer on the earth that called as amphibians of plant kingdom which serves and set as first greenery on the planet. Although, Indian sub-continent becoming rich in Moss flora, The information and work on this group is very scanty. Further, it is fact that, there are no any detailed and elaborated manuals on the Mosses of India. The reason behind is due to limited number of researchers and research centers of bryophytes as compared to enormous diversity of this group. The study of smaller areas with differ intensity is the best way for developing the first step and the necessity in bryofloristic work that improve the national interest in the group of mosses, ultimately increase the vast data base. The present work is significant in this aspect. The main aim of present study is to document the moss diversity which is rich in western ghat especially at different forts Kolhapur district of Maharashtra that had been undertaken.

In present study area the evergreen forest shows richest species diversity followed by semi-evergreen forest and moist deciduous forest. This is due to the availability of more suitable microhabitats of variety of bryophytes. The diversity in semi-evergreen forest is high due to mixing of species from evergreen and moist deciduous forest on the walls of old temples, grasslands and hill stations. In present days, the diversity is very less due to unavailability of suitable micro-climate, by increasing the local pressure through various ways and disturbance of tourist. The dryness, highly exposure to wind, and sunlight, lack of shades and fire are the major threats in the minimizing the moss diversity of grassland region from the present study area. The soil moisture plays an important role in the sustenance of the mosses is lesser in grassland as compared to other vegetation type. The areas are more prone stress due to lack of shades and exposure that favorable for vigorous growth of rhizoids and high regeneration of *Pogonatum microstomum* and *Campylopus latinervis*.

Floristic Data:

India with its varied geographical, altitudinal and climatic condition have rich moss flora having 2471 species spread over 326 genera and 46 families, However not more work and information available to their ecology, morphology even their taxonomy. The work on the mosses on eastern India by Gangulee (1969-1972) and mosses of north- west Himalaya by Chopra (1975) mentioning substratum of each species on which it grows. There is no comprehensive work on the moss flora of central India i.e. Gujarat, Karnataka, Maharashtra and Andra Pradesh. Bryofloristic study on mosses from some forts of Kolhapur district, with habitat is only help for further work on moss flora on western ghat (Daniel, 1982). Here few mosses have been so far described and considered in present work from distinct work of different forts of Kolhapur district. The present study revealed that, the total 30 taxa under 18 genera investigated and distributed in 12 families.

Distribution of mosses on the basis of habitat:

Mosses on calcareous soil:

The following mosses are observed on present habitat, mostly in alkaline soil with pH above 8 *Gymnostomiella vernicosa*, *Splachnobrym indicum*, *Bryum alpinum* etc.

Mosses growing on humus rich soil:

The mosses observed in humus rich soil are mostly acidic in habitat with pH 2-4 the species observed are, *Pogonatum microstomium*, *Fissidens bryoides*, *Fissidens teniolatus*, *Hymenostylium recurvirostre*, *Hymenostomum edentulum*, *Bryum wightii*, *Ditrichum laxissimum*.

Mosses on lateritic soil:

Substratum of some mosses is indicative of metals i.e. underground copper deposits. The mosses observed are, *Pogonatum microstomium*, *Funaria hygrometrica*, *Funaria nutans*.

Mosses on forest floor:

The mosses forms cushions on land surface including, *Entodon plicatus*, *Entodon curvatus*, *Entodon laetus*.

Epiphytic mosses:

The mosses were generally grow on the bark of tree or tree trunk and have been developed their habitat, they are including, *Levierella fabroniacea*, *Plagiothecium denticulatum*, *Plagiothecium neckeroideum*, *Steriophyllum fulvum*, and *Campylopus latinervis*.

Effect of rapid urbanization and deforestation at forts of Kolhapur district:

Before road construction and urbanization mosses were abundant and growing luxuriantly at forts of Kolhapur districts, on the branches of trees are uploaded with mosses and they formed thick cushions are like that of natural lawns on the soil, but present status observed that, the forest have heavy urbanization pressures and hazards pollution, survival of many plant species including mosses has been threatened most mosses are very sensitive to pollution and are an indicator of forest conditions, Now about 32-42 % of mosses have become extent at forts of Kolhapur district. The environment vegetations and balance of nature has thus disturbed. This has resulted in disappearance of many species. Keeping in view the changed scenario, it has become urgent need to take certain measures to control, maintain as well as preserved the environmental niche for survival of the nature including forests as well as threatened plant species of mosses. The Government Authority is requested to take drastic step to avoid further urbanization and deforestation of Western Ghats including the forts of Kolhapur district.

The ecological point of view:

The mosses are more important elements of diverse vegetation, they plays an important role in the terrestrial ecosystems, such as modification of habitats, maintainnce of nutrient status of soil, nutrient cycle and primary producers (Brown,1982, Pocs, 1982). They provide suitable environment for seed and spore germination and its growth. Many species of mosses are used in land conservation such as *Bryum alpinum*, *Bryum argenteu*, *Brachymenium* etc. Mosses also play an important role in slope formation and control of erosion (Mersh and Koerner, 1972). They are pioneer plants occupying primary habitats after disturbances. The major part of present area is occupied by semi-evergreen moist deciduous forest in which rich moss flora is distributed with varied diversity.

Conclusion

Present study revealed that, the total 30 taxa under 18 genera are investigated and distributed in 12 families. Out of which 8 species are growing on humus rich soil, 2 species growing on calcareous soil , 5 species growing on lateritic soil, 9 species growing on forest floor , 2 species on rocks , and 11 species are epiphytic. 7 species of mosses are dominant on forts of Kolhapur. Total about 28 species are having acidic habitat, while 2 species are having alkaline habitat. The yearly average rainfall on all forts is about 3900 mm. Yearly average maximum temperature on forts is 33 °c. Yearly average minimum temperature on forts is 17 °c. Average humidity of study area is 87% on all forts. pH varies from fort to forts it ranges from 4.2 to 8.2 on the basis of soil type.

From above results, it is concluded that moss flora is one of the representative of flora of western ghat, where rainfall is heavy. The forts of Kolhapur district are high altitude hilly localities in western with rich moss flora and varied habitat with biodiversity. The forest sustained heavy urbanization pressures and hazards pollution thus survival of many plant species including mosses has been under threat. Most mosses are very sensitive to pollution and are an indicator of forest conditions .Therefore, there is urgent need to conserve and protect the all forts of Kolhapur district including western ghat under government authority. Author has been taking some efforts to alert the local people and tourists for conservation of flora and fauna nearby them.



