

NOTEWORTHY PTERIDOPHYTES FROM APALCHAND RESERVE, JALPAIGURI DISTRICT, WEST BENGAL

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ABSTRACT

Apalchand Reserve provides agreeable conditions for the pteridophytic population and diversity. There are 31 noteworthy species of ferns and fern allies belonging to 28 genera, and 25 families. They are terrestrial, aquatic and epiphytic in habitat. Dominant terrestrial species are *Pteris quadriaurita* Retz., *Lygodium flexuosum* (L.) Sw., *Diplazium esculentum* (Retz.) Sw., *Athyrium hohenackerianum* (Kuntze) Moore, etc. while *Ceratopteris thalictroides* (L.) Ad. is the most common aquatic pteridophyte. Among the epiphytes, *Drynaria quercifolia* (L.) J.Sm., *Microsorium membranaceum* Retz. are very frequent. Extremely rare *Christensenia aesculifolia* (Bl.) Maxon is also found. *Phlegmariurus phyllanthum* (Hk. & Arn.) and *Palhinhaea cernua* (L.) Franco & Vasc. should be taken care of from over exploitation.

INTRODUCTION

Apalchand Reserve is situated in Western Duars of Jalpaiguri District (West Bengal) below the Himalayas. It lies between 26°30' and 27°0' N latitude and 88°20' and 88°40' E longitude. It covers an area of ca 6653.41 ha. Northern part of this division has an altitude of 165 m and descends down to 100 m in the southern part. The soil has mainly the debris brought from the eastern Himalayas. It is sandy loam and dark in colour. The average rainfall is about 375 cm per annum. The south-west monsoon starts from middle of May and lasts till end of September. The heaviest rainfall is during July and August. The average day temperature ranges from 15.5°C to 32°C. during various seasons. The humidity is maximum in rainy season. Dry conditions prevail only during months of December to February. The natural forest of this tract is categorized under Moist tropical forest (Champion, 1936).

Since the publication of 'Bengal Plants' by David Prain in 1903, lot of work has been done on Pteridophytes. But, majority of the work was centered around the study of different groups of Pteridophytes (Mehra and Bir 1964) have given an account of forest type, varied habitats and ecological adaptations of the Pteridophytes from Darjeeling and Sikkim Himalayas. Dixit and Kar (1972) studied the ethnobotany of some edible and medicinal

ferns of Darjeeling district. Although dense forests of Jalpaiguri district harbour a good number of species of pteridophytes, no attention was paid towards them. The topography and climatic condition of the area provides a congenial habitat for luxuriant growth of the pteridophyte flora. They practically cover the tree trunks in Apalchand reserve forest. Over 20% of the ground flora of this Reserve is formed by the ferns and their allies. Hence, the present study was taken up.

MATERIALS AND METHOD

The forest area of Apalchand Reserve has been thoroughly surveyed for collection of pteridophytes during November 1997 to December 1999. Collection and preservation was done as per Rev. Fr. H. Santapau's Field Collector's Manual (1955). Correct identity of the specimens was established by referring to the herbarium material in Central National Herbarium, Howrah. After the critical study, specimens have been deposited in Botany Department, K.V.Pendharkar College, Dombivli (MS).

OBSERVATION

The collected species with their correct nomenclature, families, notes and exsiccata are below alphabetically enumerated below :

1. ***Adiantum incisum*** Forsk. (Adiantaceae)
Occurs all over the range on open land and on edges of stones and rocks. Specimen number : SNS/SD 3.
2. ***Athyrium hohenackerianum*** (Kuntze) Moore (Athyriaceae)
Common fern, forming small patches in shady places. Specimen number : SNS/SD 3.
3. ***Azolla pinnata*** R.Br. (Azollaceae)
Common in ponds, appears red when mature. Specimen number : SNS/SD 10.
4. ***Blechnum orientale*** L. (Blechnaceae)
Grows all over the area either isolated or in groups. Specimen number : SNS/SD 9.
5. ***Ceratopteris thalictroides*** (L.) Ad. Brongn. (Parkeriaceae)
Common. Growing in the marshy area, in open locations. Specimen number : SNS/SD 26.
6. ***Cheilanthes albomarginatus*** Clarke. (Cheilanthaceae)
Mostly xerophyte, grows in crevices of rocks; commonly collected by the natives to be sold in the local market. Specimen number : SNS/SD 15.
7. ***Christensenia aesculifolia*** (Bl.) Maxon (Christenseniaceae)
Extremely rare; usually isolated or in groups of 2/3 plants; beautiful. Specimen number : SNS/SD 33.
8. ***Cyathea spinulosa*** Wall. ex Hook. (Cyatheaceae)
Tree fern; rare, found only at one or two places. Specimen number : SNS/SD 31.

9. **Dicranopteris liniaris** var. **inaequiloba** (Burm.f.) Undrew. (Dicranopteridaceae)
Frequent, forms thickets in open sunny situation. Often associated with *Palhinhaea cernua* (L.) Franco & Vasc. Specimen number : SNS/D 18.
10. **Diplazium esculentum** (Retz.) Sw. (Athyriaceae)
Very common fern, growing in open locations. Specimen number : SNS/SD 6.
11. **Drynaria quercifolia** (L.) J.Sm. (Dryneriaceae)
Very frequent. Specimen number : SNS/SD 29.
12. **Equisetum debile** Roxb. (Equisetaceae)
Frequent, luxuriantly growing. Specimen number : SNS/SD 21.
13. **Hemionitis arifolia** (Burm.) Moore (Hemionitidaceae)
Grows in semi exposed area. Specimen number : SNS/SD 22.
14. **Lygodium flexuosum** (L.) Sw. (Lygodiaceae)
Very common, a climber of open dry area. Specimen number : SNS/SD 24.
15. **Lygodium microphyllum** (Cav.) R.Br. (Lygodiaceae)
Grows in open localities and edges of the forest; usually in marshy and semi-marshy area; fronds climb on trees. Specimen number : SNS/SD 25.
16. **Marsilea quadrifolia** L. (Marsileaceae)
A common aquatic fern. Specimen number : SNS/SD 27.
17. **Microlepia speluncea** (L.) Moore (Dennstaedtiaceae)
Frequent; fronds small to large. Specimen number : SNS/SD 8
18. **Microsorium membranaceum** (D.Don) Ching. (Polypodiaceae)
Very frequent, on tree trunks in deep forest.. Specimen number : SNS/SD 1
19. **M. punctatum** (L.) Copel (Polypodiaceae)
Occasionally seen on tree trunks in deep forest.
Specimen number : SNS/SD 34.
20. **Onychium siliculosum** (Desv.) C.Chr. (Cryptogrammaceae)
Not very common. Specimen number : SNS/SD 13.
21. **Palhinhaea cernua** (L.) Franco. & Vasc. (Lycopodiaceae)
Occasional. Specimen number : SNS/SD 14.
22. **Phlegmariurus phyllanthum** (Hook. & Arn.) Dixit (Huperziaceae)
Rare, epiphytic fern. Specimen number : SNS/SD 7.
23. **Pityrogramma calomelanos** (L.) Lindl. (Hemionitidaceae)
Grows mostly in open localities, on compound walls. Specimen number : SNS/SD 19.
24. **Polypodium nummulariaefolia** (Sw.) Ching (Polypodiaceae)
Occasional. Specimen number : SNS/SD 2.

25. ***Pteris quadriaurita*** Retz. (Pteridaceae)
Common in semi- shaded area. Specimen number : SNS/SD 16.
26. ***P. vittata*** L. (Pteridaceae)
Very frequently seen, almost everywhere. Specimen number : SNS/SD 12.
27. ***Salvinia cuillata*** Roxb. ex Bory (Salviniaceae)
Rarely seen in water bodies. Specimen number : SNS/SD 23.
28. ***Spenomeris chinensis*** (L.) Maxon (Lindsaeaceae)
Grows near the fringes of forest, in semi-shaded localities, on loose soil.
Specimen number : SNS/SD 28.
29. ***Stenochlaena palustris*** (Burm.) Bedd.; (Stenochlaenaceae)
Occasionally found climbing fern in the vicinity of permanent water body.
Specimen number : SNS/SD 17.
30. ***Tectaria cicutaria*** (L.) Copel. (Aspidiaceae)
Grows commonly in open places. Specimen number : SNS/SD 20.
31. ***Vittaria elongata*** Sw. (Vittariaceae)
Epiphytic, on tree trunks in shady areas. Specimen number : SNS/SD 4.

DISCUSSION AND CONCLUSION

Apalchand Reserve Forest, Jalpaiguri district (W.B.), happens to be very rich in pteridophytic flora. The thick pockets are dominated by patches of ferns both terrestrial and epiphytic. This is due to heavy canopy of tall trees creating shady places besides, temporary and permanent water bodies in the forest. The climatic conditions in the area favour growth of ferns and fern allies.

Thirty one noteworthy species of ferns and fern allies belonging to 28 genera under 25 families were collected. They vary in habitat from aquatic, terrestrial and epiphytic forms. Dominant among the terrestrial ones are *Pteris*, *Lygodium*, *Adiantum*, *Diplazium* and *Athyrium*. They are abundant and are luxuriantly growing. *Lygodium* and *Stenochlaena* are large climbers. Among the aquatics, *Ceratopteris* and *Marsilea* are more frequent as compared to *Azolla* and *Salvinia*. Epiphytic ferns deserve special mention as they compete with the orchids like *Bulbophyllum*, *Dendrobium*, *Acampe*, etc. on tall trees. *Drynaria*, *Polypodium* and *Microsorium* are most frequent among them.

Christensenia, an extremely rare fern, (Dixit & Mondal, 1994), has also been recorded from the area. Similarly *Phlegmariurus* and *Palhinhaea* are occasionally found and show the rare occurrence. The reasons for their rarity, is due to over-exploitation. Due to their handsome foliage, the local people collect these species and sell them in the market for their ornamental value. Overexploitation of some species like *Adiantum*, *Blechnum*, *Marsilea*, *Onychium*, *Pityrogramma*, etc. for their medicinal value has also been observed. Some effective conservational measures are to be taken before the species may become extinct from the area.

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