



Short Communication

Status of some important pteridophytes from the parts of Northern Western Ghats of Maharashtra, India

Shakil D. Shaikh

Department of Botany, Abasaheb Marathe Arts and New Commerce, Science College, Rajapur, India
lakish786@gmail.com

Available online at: www.isca.in, www.isca.me

Received 30th November 2016, revised 29th December 2016, accepted 8th January 2017

Abstract

The present paper deals with the enumeration important ferns from Western Ghats, one of the World's 12 mega-biodiversity hotspots. More than 30 species of pteridophytes were collected out of which some species have high medicinal importances which are being used in Ayurvedic, Unani, Siddha, Homeopathic and other preparations. Some of them are playing an important role as horticultural plant. Moreover, the population studies in the present investigation indicate that there is reduction of the pteridophytic flora. The anthropogenic factors have posed a serious threat, due to which there is complete disappearance of some species. The rapidly shrinking fern cover of Northern Western Ghats prompted to ponder over the issue.

Keywords: Western Ghats, medicinal ferns, population of pteridophytes.

Introduction

Pteridophytes are significant components of the flora of species-diversity, next to angiosperms in number. In India, more than 1200 species of pteridophytes have been reported^{1,2}. Ferns not only fill an important niche in plant communities but also tell the observer a lot about conditions that exist in a particular area. Because many of them require very specific substrate and climate conditions, ferns are excellent indicator species. Pteridophytes form a noticeable part of vegetation all over the world. They are a group of plants having importance in phylogeny and evolutionary biology, because these plants explain the evolution of vascular system and clearly replicate the processes of that have gone into the emergence of seed habit in plants.

The book entitled as 'The ferns of Southern India' has listed the various ferns from Southern India³. The pteridophytic flora of South Indian Peninsula containing notes on ecology, distribution, synonymy and correct nomenclature of the Indian pteridophytes⁴. The present investigation denotes the diversity of pteridophytes from the study region of Sawantwadi and its adjoining area forests of Maharashtra.

Material and methods

An extensive floristic survey was carried out between July, 2006- September, 2016 to different parts of the Northern Western Ghats of Maharashtra, in the rainy seasons. Specimens of pteridophytes were collected and identified with the help of different floras. Soil samples were also collected from 10-20 cm depth and analysed for different characteristics with standard

methods in the laboratory. Temperature and humidity of the study region was measured with the help of a thermo-hygrometer (M288CTH) and light intensity was measured with a digital light meter (TES-1332A) in the field.

Results and discussion

According to The International Union Code of Nomenclature (IUCN), in India 7.7% of the plants are under threat. A number of epiphytic and lithophytic ferns are removed from their natural habitats due to various deforestation activities from the Western Ghats. Studies revealed that 44 threatened ferns are on the way of extinction and the conservation of these species is a main concern of biologists though recent studies from Western Ghats have revealed that about 18% of the 270 fern species recorded in Southern India are endemic to the region. In the present investigation major fern species occurred are *Osmunda huegeliana* Presl., *Bolbitis appendiculata* (Willd.) Iwats., *Bolbitis subcrenatooides* Fres.-Jenk., *Bolbitis preslina* (Fee) Ching., *Lygodium flexuosum* (L.) J.Sm., *Lygodium microphyllum* (Cav.) R. Brown, *Pityrogramma calomelanos*(L.) Link, *Pteris biaurita* Linn., *Pteris pellucida* Pr. *Cheilanthes tenuifolia* (Brum.) Sw., *Cheilanthes farinosa* (Forssk.) Kaulf., *Adiantum capillus-veneris* Linn., *Adiantum philippense* L., *Pteridium aquilinum* (L.) Kuhn., *Lindsaea heterophylla* (Bedd.) Bak., *Athyrium hohenackerianum* (Kze.) Moore *Athyrium falcatum* Bedd., *Tectaria coadunata* (Wall.ex.Hook.et Grev) C. Chr., *Nephrolepis auriculata* (L.) Trimen., *Asplenium laciniatum* D. Don, *Thelypteris interrupta*(Willd.) K. Iwatsuki, *Blechnum orientale* Linn., *Pyrrosia adnescens* (Sw.) Ching., *Microsorium membranaceum* (D.Don.) Ching., *Pteris ensiformis* Burm. f. There is much diversity of ferns in this area

may be due to its weather conditions and moist atmosphere. It is observed during exploration that- diversity of fern species goes on decreasing as we go from lower side of hills to the top or at high altitudes. Specific ferns were collected at high altitude these include- *Tectaria coadunata* (Wall.ex.Hook.et Grev) C. Chr., *Cheilanthes anceps* Blanford., *Pteris biaurita* Linn., *Microsorium membranaceum* (D.Don.) Ching. These species were rarely observed or not at all in low areas.

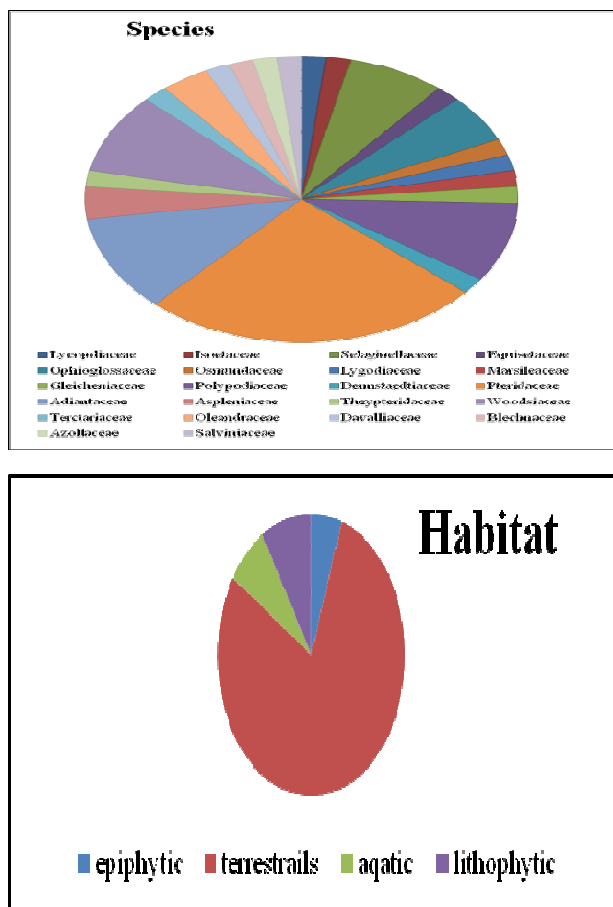


Figure-1: Diversity and habitat of some pteridophytes from parts of Northern Western Ghats of Maharashtra⁵

Fern species growing in low areas are *Ceratopteris thalictroides* (L.) Brong., *Lygodium flexuosum* (L.) J. Sm., *Pityrogramma calomelanos* (Hook) Weath.ex.Bailey., *Pteris pellucida* Pr., *vittata* Linn., *Adiantum philippense* L., *Pteridium aquilinum* (L.) Kuhn., *Athyrium hohenackerianum* (Kze.) Moore, *Tectaria coadunata* (Wall.ex.Hook.et Grev) C. Chr., *Nephrolepis auriculata* (L.) Trimen., *Drynaria quercifolia* (L.) J.Sm., *Microsorium punctatum* (L.) Copel.

In the present investigation more than 30 species were collected and identified from the study region. Pteridaceae was the dominant family with 5 species and it was followed by polypodiaceae with 3 species. It was observed that most of the ferns are growing well in nature at 25-30°C temperature, more than 85% relative humidity and moderate light intensity. The data is therefore important in the conservation of species which

are rare and endangered. In the present investigation it was observed that three species are rare and two were endangered from the study area. Most of the species showed luxuriant growth during rainy season while the retarded growth was observed in winter season. The most of the species enlisted in this survey and also given their ecological data in relation to their habit and habitats^{6,7}. In the few recent years, it was observed that due to loss of habitat of the pteridophytic species are in threat. It was also observed that due to exhaustive collection during botanical excursion and removing species by considering as a weed from the local people, the number of individuals is decreasing rapidly. This demonstrates that in the future species may become threatened and could be extinct if proper conservation measures are not adopted. Each species of fern has its own preferences of micro habitat depending on the temperature, humidity, soil type, moisture, pH, light intensity, etc., and in many cases are very specific indicators of the conditions they need⁸.

Conclusion

The Northern Western Ghats of Maharashtra is having very good flora of pteridophytic species which is now disturbed due to agriculture, mining activities, projects of water reservoirs and various developmental activities. These activities are responsible to change in microclimatic conditions of the present localities. As ferns are sensitive to minor changes in climatic change they are becoming rare and endangered. The efforts are required to aware the importance of these species among the local people. Further, these plant species are in great need to have *in situ* or *ex situ* conservation.

Acknowledgment

The author is highly indebted to Science & Engineering Research Board, (SERB) New Delhi for funding a major research project under Start Up Research Grant (Young Scientist) and Mr. C.R. Fraser-Jenkins, Kathmandu, for his helpful comments, suggestions, correction, inputs and encouragement. Thanks are also due to Principal, Abasaheb Marathe College, for his encouragement and support.

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