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PTERIDOPHYTES DIVERSITY IN AMBIKAPUR SURGUJA CHHATTISGARH

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ABSTRACT

The present study deals with the diversity of pteridophytes in the wet deciduous green forests of Surguja district in east central region of Chhattisgarh india. A significant portion of the study area comprises of the Sanjay park, Chendra region on Ambikapur which is considered to be diversity as it shelters numerous species of flora and fauna. Survey of various macro and micro habitat was carried out in this region, also a heaven for pteridophytes. A total of 13 species of pteridophytes from 9 families were recorded in the study. The presence like *Azolla oinnata, Adiantum flabellulatum, Ophioglossum nudicaule, Selaginella miniatospora* signifies the importance of this region as a crucial centre of pteridophytes. The Ambikapur area is situated in Surguja district of Chattishgarh. The average temperatures in winter and summer are 11-15^{0}C and 28-35^{0}C respectively. The district is one of the oldest districts of the Indian state of Chhattisgarh in east-central India. An overall ecological evaluation was carried out in the entire river basin. Special attention was paid to discover the pteridophytes, seldom ever attempted in such cases. The overall efforts succeeded in thwarting off the imminent project, thereby underscoring the necessity of making such studies as a prerequisite for any development programmes in the pteridophytic diversity.

KEYWORDS: Pteridophytes, Diversity, Surguja, Chhattisgarh.

INTRODUCTION

Pteridophytes, the seedless vascular plants, had a very flourishing past in dominating the vegetation on the earth about 280-230 million years ago. Although they are now largely replaced by the seed bearing vascular plants in the extant flora today, yet they constitute a

fairly prominent part of the present day vegetation of the world. India with a highly variable climate has a rich diversity of its flora and Pteridophytic flora greatly contributes to its diversity. Pteridophytes also form an interesting and conscious part of our national flora with their distinctive ecological distributional pattern. On a very conservative estimate 500 species of ferns and100 species of fern-allies are on record from India. According to a census, the Pteridophytic flora of India comprises of 67 families, 191genera and more than 1,000 species (Dixit 1984) including 47endemic Indian ferns, less than 10% of those reported previously and 414 species of Pteridophytes (219 At risk, of which 160 critically endangered, 82 Near-threatened and 113 Rare), constituting 41-43% of the total number of 950-1000 Pteridophytes of India. Shubhash (2000) recorded 34 families, 144 genera and more than 1100 species of ferns with about 235 endemic species from Indian region. The vascular flora of our country in general has about 15,000 species and as a constituent of Indian flora of vascular plants, the ferns and fern-allies form only five percent part as far as the number of species is concerned. But, due to their abundance in individuals as well as their conspicuousness in epiphytic vegetation and in the terrestrial vegetation along forest margins, roadsides and forest floors, the contribution of fern and fern-allies to the vegetational pattern in India rank only next to the flowering plants.

Majority of ferns and fern allies are terrestrial growing and differing in growth and habitat they occupy. Some major terrestrial growing pteridophyte genera are *Pteris, Dryopteris, Adiatum, ophioglossum, selaginella,* etc. Some of the hydrophytic pteridophyte species are *marselia* spp., *Azolla* sps., etc. At high altitudes, the stems and branches of trees are usually covered with moist mossy surface and leafy liverworts which provide an ideal condition for the growth of pteridophytes. The fern genera *Lygodium*, are climbing ferns with underground serpentine rhizomes. For securing favourbale light conditions, the plants grow up the adjacent shrubs and branches of nearby trees with the help of rachis. Some ferns are lithophytes and are found in rock crevices and among rock boulders along water channels. Species such as *Adiantum venustum, A. capillus* veneris grow in wall crevices under shade or around falls among rock boulders.

Diversity

In view of variable climatic and altitudinal variations the Indian sub-continent represents Ambikapur, Sanjay park and Chendra, as biodiversity centres. Maximum number of diversity of Pteridophytes observed in Chendra and sanjay park in Ambikapur in east-central India.

The lesser rainfall from Ambikapur sarguja hills is responsible for a decrease in Pteridophytic vegetation. There are about 12 species of pteridophytes occur in Ambikapur flora of which 12 species of 12 families and 9 genera occur in the different parts of the Ambikapur. The maximum diversity has been observed in Chendra adjoining forest areas. The diversity of pteridophytes on Ambikapur basis, revealed the maximum number of 2 species and 1 genera in the family Polypodiaceae. Afterwards Dryopteridaceae (1 species, 1 genera), Adiantaceae (2 species, genus *Adiantum*), On the basis of genus, genera *Selaginella* (2 species), *Pteris* (2 spp.), *Dryopteris* (1 spp.), *Adiantum*, *Isoeties*, *ophioglossum* etc.

MATERIAL AND METHODS

Study Area

The present work was carried out in Ambikapur C.G. is having a typical monsoon climate, with three distinct seasons: summer from March- June, rainy monsoon period from July - October and winter from November-February. The soils are generally lateritic, nutrient-poor and characterized by excessive amounts of iron oxide. The soils are alluvial found along the streams and rivers. The rock types are schist's and gneisses with granite intrusion, sandstones, shales, limestone, basaltic lava and laterite with bauxite. The forests constitute ca. 66%of the area against 34% areas with other land uses, including agriculture. Champion and Seth (1968) found the forest is seasonally dry tropical and includes extensive tracts of old growth *Shorea robusta* forest.

The Ambikapur area is situated in Surguja district of Chhattisgarh. The average temperatures in winter and summer are 11-15^{0}C and 28-35^{0}C respectively. Ambikapur is a city in Surguja district of Chhattisgarh. The district is one of the oldest districts of the Indian state of Chhattisgarh, in east-central India. Ambikapur is also the divisional headquarters of Surguja Division which consists of the five districts of Surguja, Korea, Balrampur, Surajpur and Jashpur. Ambikapur was the capital of the Princely state of Surguja before Indian Independence. Ambikapur is located at 23°12′N 83°2′E. It has an average elevation of 623 metres (2078 feet). The district is spread over a forest-rich area of 22,237 km². Most of the district's terrain is forested and hilly. Natural resources include bauxite, forest products and paddy crops (Tripathi et al. 2003). The name of the city is derived from the Hindu goddess Ambika (Mahamaya) Devi, who is the central figure of worship in the area. Ambikapur is one of the largest cities in Chhattisgarh.

Mode of Collection and Preservation

The pteridophytes sample were collected in those sampling site of Ambikapur throughout the investigation period. Pteridophytes sample were collected in sterilized polythene bags from the surface and bottom by using samplers. All the collected Pteridophytes samples were preserved in 4% formalin solution.

Identification

Pteridophytes sample were observed under binocular microscope for further identification. Identification was done with standard literature and other related books.

RESULTS AND DISCUSSION

The pteridophytic diversity of Ambikapur included mostly of Azollaceae, Adiantaceae, Dryopteridaceae, Equisetaceae, Ophioglossaceae, Pteridaceae, Isoetaceae lygodiaceae, consisted of 10 Genera and 13 sp. are identified and many members are unidentified in Pteridophytes flora of Ambikapur. The family Azollaceae are recorded, only for one species was found is *Azolla* (Table.No 1) and species. of *Marselia* was found. Two species of Adiantaceae were found. *Adiantum philippense* and *Adiantum flabellulatum* (Table.1), 2 species of Ophioglossaceae were found in 2 identified sp. which are *Ophioglossum nudicaule*, *Ophioglossum costatum.* The class Selaginellaceae are found in 2 Genera of terrestrial Pteridophytes which is represented by *Selaginella miniatospora* and *Selaginella repanda* (Table 1). It is reported in 13 species in the fig. 3 to 7 there have the higher population of *Adiatum* were recorded in the mosty rainy session in Ambikapur. The family of Equesetaceae are found belong to only 1 Genera.

The Tropical wet semi-evergreen forests encompass a wide array of floristic diversity which includes angiosperms, pteridophytes, bryophytes, fungi, etc. The presence of many perennial streams, waterfalls and other moist habitats support rich growth of pteridophytes. Apart from the mention of 13 fern species of there has been other significant study enumerating or highlighting the pteridophytic wealth of this region. A comprehensive collection of ferns and fern allies which have been collected from this region too. Apart from our first hand field collection of pteridophyte specimens, we also referred the herbarium collections and other available literatures to enumerate the pteridophytic wealth of this region. In the current study, a total of 13 species of ferns and fern-allies belonging to 10 different genera and 9 different families (Table 1) were recorded.

Table 1: List of Pteridophytes found in different spots of Ambikapur.

S.No.	BOTANICAL NAME	FAMILY	DISTRIBUTION AND ECOLOGY
1	*Azolla pinnata*	Azollaceae	Commonly seen along partially or fully exposed rice field and pond.
2	*Adiantum philippense*	Adiantaceae	Commonly seen along partially or fully exposed roadsides
3	*Adiantum flabellulatum*	Adiantaceae	Commonly seen along partially or fully exposed roadsides
4	*Dryopteris cochleata*	Dryopteridaceae	Terrestrial plants frequently growing along fully exposed roadsides, dry places or clearings
5	*Equisetum palustre*	Equisetaceae	Usually found growing along stream banks in forest interior,
6	*Ophioglossum nudicaule*	Ophioglossaceae	Gregarious on a swampy, grassy spot in a shruby Place found.
7	*Ophioglossum costatum*	Ophioglossaceae	Terrestrials in mixed deciduous forests
8	*Pteris confuse*	Pteridaceae	Usually found growing along streambanks in forest interior, rarely seen onpartially or fully exposed roadsides
9	*Pteris vitta*	Pteridaceae	Usually found growing along streambanks in forest interior, rarely seen onpartially or fully exposed roadsides
10	*Lygodiu,*	lygodiaceae	Forest region areas.
11	*Isoetes, bilaspurensis*	Isoetaceae	Found throughout the along river sides, clearings and along stream banks in partially or fullyexposed places.
12	*Marsilea. minutta*	Marsileaceae	Commonly found on swampy area
13	*Selaginella miniatospora*	Selaginellaceae	Common on stone walls or rock crevices along road sides
14	*Selaginella repanda*	Selaginellaceae	Growing as terrestrials on shady, moist condition

CONCLUSION

Present study in Pteridophytes diversity of different area were observed in different families of pteridophytes viz. Azollaceae, Adiantaceae, Dryopteridaceae Equisetaceae, Ophioglossaceae, Pteridaceae, Isoetaceae, lygodiaceae and Pteridaceae member on the rainy season which are most dominant genera are the Sanjay park and Chendra area in Ambikapur, the Pteridophytes found eg. *Azolla, adiatum, lygodium, selaginella, dryopteris, Pteris, Isoetes, Ophioglossum, Equisetum, Marselia* etc. area such as sanjay park and Chendra area as Ambikapur. Thus in the future study needed in all these identified genera of pteridophytes for their medicinal uses.

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