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Floristic study of Pushprajgarh forest, Anuppur District (M.P.)

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Abstract

This study focuses on examining the floristic diversity of Pushprajgarh forest in the Anuppur district of Madhya Pradesh, India. The research documented a total of 484 species distributed across 276 genera and 62 families. Among these, the most dominant families identified were Papilionaceae, Poaceae, Asteraceae, Acanthaceae, and Euphorbiaceae. The genera *Ficus* and *Ipomoea* were the most prominent, each represented by 9 species, followed by Euphorbia and Indigofera, each with 7 species. Furthermore, 298 plant species were categorized based on their uses, and 40 medicinal plants were identified and documented as being utilized by the local traditional community for treating various diseases.

Keywords: Floristic diversity, conservation, Pushprajgarh, Madhya Pradesh.

Introduction

Biological diversity, commonly known as biodiversity, encompasses all forms of life, including various species, genetic differences within those species, and the ecosystems that support and sustain them. Over the years, numerous definitions of biodiversity have been suggested, primarily from a conservation perspective (Anonymous, 1992, 2005 & 2014) ^[1-3]. As defined by the Convention on Biological Diversity (CBD), biodiversity refers to the variability among living organisms originating from all sources, such as terrestrial, marine, and other aquatic ecosystems, as well as the ecological systems they inhabit (Anonymous, 1992) ^[4]. This variability includes diversity within species, between species, and across ecosystems (Bentham and Hooker, 1862-1883) ^[5]. Concerns were raised about the alarming trend of forests being converted into agro-industrial lands, with natural forests depleting at a rapid pace. In response, the Ministry of Environment and Forests designated specific protected areas to halt and reverse this degradation. Protecting biodiversity-across genetic, species, and ecosystem levels-is most effective when done in situ by designating sufficient wilderness areas as protected zones (Rana, 2007) ^[6]. These areas should form an interconnected network of National Parks and Wildlife Sanctuaries, representing all major ecosystems (Bora and Kumar, 2003; Champion and Seth, 1968) ^[7-8]. Such a network could safeguard the overall diversity of life in a region.

One of the richest biogeographic units is found in Madhya Pradesh. Systematic botany plays a crucial role in this conservation effort by offering scientific names to organisms, describing their key features, identifying taxa, assigning them to classification systems, preserving specimens, documenting their distribution, tracing evolutionary histories, and studying how they adapt to their environments. However, the floristic diversity of Pushprajgarh forest has remained unexplored until now. Comprehensive plant surveys in under-researched regions like the Anuppur district-where information on floristic wealth is limited-would provide valuable insights into the taxonomic status, updated nomenclature, and classifications of the Angiospermic flora present. Additionally, it would contribute to the broader conservation of phytodiversity in such ecologically significant areas.

Material and Methods

Study area

Pushprajgarh forest in Anuppur district, Madhya Pradesh, is located approximately between 22.99° N and 81.65° E. The forest geography includes the highlands of the Maikal mountain range and is traversed by several rivers, such as the Narmada and Johilla, which originate from the nearby Amarkantak region.

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Floristic studies

- Extensive and intensive field surveys were carried out two years from Jan 2023 to March 2025 in all the Forest of the Pusprajgarh forest, to identify the Angiospermic plant species.
- Photographs help to a greater extent for identifying plant species, so the snaps of plant representatives found in the forest, were taken at flowering and fruiting stages.
- Illustrations were drawn from fresh plant specimens.
- The plants were identified either by their diagnostic characters in published Floras or by the help of subject experts. These identifications were then confirmed by consulting types and protologues from Herbarium specimens available at Botanical Survey of India, Central Region, Allahabad, National Botanical Research Institute, Lucknow and Grass and Fodder Research Institute, Jhansi.
- Nomenclature was followed as per the recent International Code of Botanical Nomenclature (2000) ^[9] and the recent monographic and revisionary works are also consulted for the nomenclature.
- Classification system was followed as proposed by Bentham and Hooker, with some modification suggested by recent workers and accepted by Botanical Survey of India.
- Herbarium specimens were prepared by following the method of Jain & Rao (1977) ^[10].

Results and discussion

During the surveys, various sites of the forest were observed with reference to the life cycle pattern of plant species. The leaf falls and development of new vegetative plant parts, especially the leaves, flowers and fruits were recorded. The woody plants exhibited variation in flowering and fruiting pattern, while the herbaceous flora exhibited short life cycle usually completing in one season (Table-1).

The reported Angiospermic flora in the Pushprajgarh forest revealed that 484 plant species belonging to 276 genera and 62 families were found. The ratio of number of plant species in Dicotyledonae to that in Monocotyledonae was recorded as 5.20: 1 for plant species and the same ratio was found 2.29: 1 for genera and for 2.84: 1 for families (Table-2).

Ten dominant families with largest number of representatives were reported. The Papilionaceae was found as the largest family with representatives, followed by Poaceae, Asteraceae, Acanthaceae and Euphorbiaceae and so on (Table-3).

The result indicated that the Pushprajgarh forest is rich in its Angiospermic flora accounting for 484 plant species distributed in 276 genera and 62 families. The habit wise analysis revealed that there are trees, shrubs, climbers and herbs. The herbaceous flora dominates over trees shrubs and climbers. It is interesting to note that about 30 families are represented only by single genus, of which 15 are of woody plant species and rest herbaceous. In addition, 40 plant species are documented as ethnobotanically purpose. These plant species are used by tribes.

Table 1: Tree species of the Pushprajgarh forest with their flowering period and time required for fruiting activity.

S. No.	Name of tree species	Flowering period	Fruiting duration
1.	<i>Diospyros melanoxylon</i>	March-September	6-7
2.	<i>Lagerstroemia parviflora</i>	March-September	6-7
3.	<i>Dalbergia latifolia</i>	October-March	5-6
4.	<i>Hardwickia binate</i>	October-March	5-6
5.	<i>Kydia calycina</i>	October-March	5-6
6.	<i>Terminalia chebula</i>	March-August	5-6
7.	<i>Cassia fistula</i>	March-July	4-5
8.	<i>Pterospermum marsupium</i>	June-October	4-5
9.	<i>Wrightia tinctoria</i>	March-July	4-5
10.	<i>Anogeissus latifolia</i>	March-June	3-4
11.	<i>Boswellia serrata</i>	March-June	3-4
12.	<i>Lannea coromandelica</i>	March-June	3-4
13.	<i>Ehretia laevis</i>	September-December	3-4
14.	<i>Semecarpus ancardium</i>	April-July	3-4
15.	<i>Holoptelia integrifolia</i>	March-April	Less than 2

Table 2: Floristic diversity of Angiosperms in the Pushprajgarh forest.

Angiosperm	Families	Genera	Species
Dicotyledons	52	192	358
Monocotyledons	10	84	126
Total	62	276	484
Ratio of Dicot:Monocot	5.20:1	2.29:1	2.84:1

Table 3: Ten Dominant families with maximum number of plant species found in the Pushprajgarh forest.

S. No.	Families	No. of genera	No. of sps.	S. No.	Families	No. of genera	No. of sps.
1.	Papilionaceae	40	46	6.	Poaceae	14	18
2.	Gramineae	32	38	7.	Asteraceae	10	14
3.	Euphorbiaceae	24	30	8.	Acanthaceae	10	12
4.	Rubiaceae	20	25	9.	Malvaceae	8	10
5.	Moraceae	18	20	10.	Caesalpiniaceae	6	8

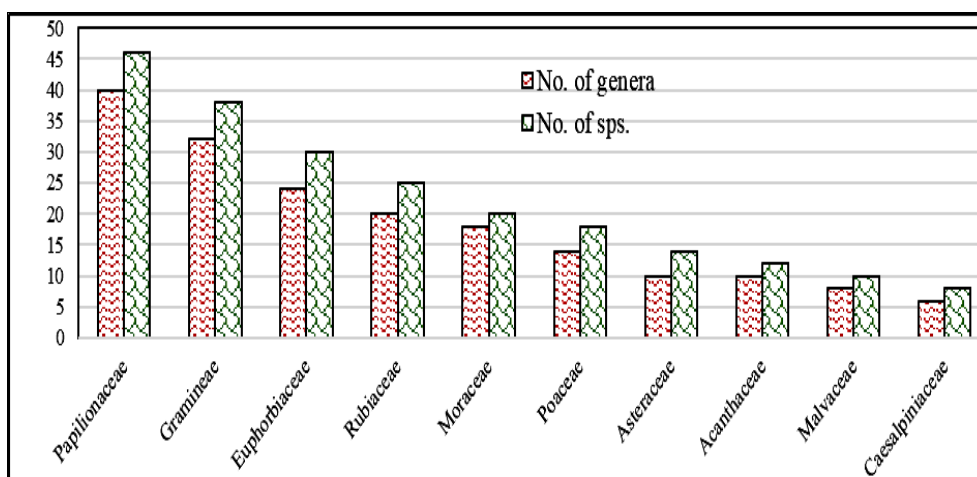


Fig 1: Graph Analysis Tea Dominant families with Maximum Number of Plant Species Found in the Pushprajgarh forest

Conclusion

Conservation of Nature and Natural resources is by far the most challenging task for the policy planners and academicians in general and scientists in particular. Depletion of flora and fauna has acquired a serious magnitude. Every day large number of plant and animal species are facing the risk of extinction. There is a critical situation never faced before. The floristic diversity of Pushprajgarh forest is said to be very rich. However, for many decades, like-wise world's biological threat, this region has also many causes responsible for the loss of phytodiversity. Human population growth is the sole factor for the loss of natural resources. Reckless hacking and cutting of forests, forest fire, expansion of agricultural lands, construction of dams, roads, over exploration of natural habitats and over-grazing of forest areas have been defined as the main causes for the rapid loss of phyto diversity in the area. It has, therefore necessitated the present work to undertake an extensive study and assessment of the current status of floristic diversity in Pushprajgarh forest. The present study is probably first of its kind where the description of plants has been supplemented by photographs, illustrations and herbarium of the species reported from the Pushprajgarh forest. Moreover, this research work will give a complete account of the members of Angiospermic in the flora, morphological accounts, distribution status and conservation priorities for in situ conservation, relationship among taxa and ethno-botanical species found in the forest. Besides, the time-consuming process of correct identification of plant species can be minimized, if such flora is easily available at the nearest reference point. Therefore, such kind of flora is the need of time, today and in future.

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