



ISSN (E): 2320-3862

ISSN (P): 2394-0530

<https://www.plantsjournal.com>

JMPS 2023; 11(1): xx-xx

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Received: 29-10-2022

Accepted: 31-12-2022

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Pteridophytes diversity of Chhindwara district, Madhya Pradesh India

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Abstract

The present study mainly focuses on the Pteridophytes Diversity of Chhindwara District, Madhya Pradesh state, India. The Sixty Pteridophytes species diversity is reported in different areas of the Chhindwara district. Their botanical names, habit, and reported areas are provided.

Keywords: Pteridophytes, diversity, Chhindwara, Madhya Pradesh

1. Introduction

The district Chhindwara is the eastern part of the state with district headquarters at Chhindwara falling under Jabalpur Division. It is bounded in the north by Seoni District in the southeast by Nagpur and in the south by Betul and Hoshangabad district and in the west by Narsinghpur District M.P. State. The total geographical area of the district is 1184900 ha. And is located between 21030' to 22050' Deg. North (longitude) and 78015' to 79025'Deg. East (latitude). Considerable work has been done which are used for various ailments by the Chhindwara District, M.P. (Rai 1987b, 1989) ^[32, 33], Saxena and Shukla (1971) ^[37], Prasad *et al.* (1990), Rai and Nonhare (1992) ^[35], Rai *et al.* (2004) ^[34] and ethnomedicinal aspects of this area, as well as the adjoining region of Chhindwara, have been reported by Rai (1987a, 1988) ^[32, 36] and Maheshwari and Dwivedi (1998) ^[38].

Pteridophytes, the seedless vascular Cryptogams represent the relics of the ancient past that once constituted the dominant vegetations of the surface of the earth some 280-230 million years ago. Even today, as far as their distribution and life forms are concerned, they come next to the flowering plants although the extent member of the groups does not constitute anywhere the dominant part of the vegetation.

Biodiversity is not evenly distributed on Earth; It is generally higher in tropical regions as a result of the warmer climate and higher primary productivity in the region near the equator. Tropical forest ecosystems cover less than 10% of the Earth's surface and contain approximately 90% of the world's species. Marine biodiversity is generally higher along coasts in the western Pacific, where sea surface temperatures are highest, and in mid-latitude bands across all oceans. There are latitudinal gradients in species diversity. Biodiversity is generally clustered in hotspots, and has been increasing over time, but will likely slow in the future as a primary consequence of deforestation. It includes the evolutionary, ecological, and cultural processes that sustain life.

2. Materials and Methods

All localities which are ideally favorable for the growth of Pteridophytes flora were observed. Every possible area which could support the growth of pteridophytes species in the Chhindwara district was visited between July 2020 to October 2022 in different seasons. Descriptions of species and identification were done with the help of literature given by Beddome, R.H. (1873 and 1883) ^[1, 2] Khullar, S.P. (1994) ^[40], Khullar *et al.* 1991 ^[39] and Pande and Pande, 2002 ^[21].

3. Observation

The Pteridophytic vegetation of the Chhindwara District can be broadly classified into terrestrial, cultivated, marshy, and swampy areas. This vegetation is endowed with abundance and luxuriant occurrence of all ecological forms of Pteridophytes *viz.*, Epiphytes, lithophytes, Terrestrial, Hydrophilous, and Epiphytic Pteridophytes are also abundantly distributed in the subtropical and tropical areas of Chhindwara district, the forests of Chhindwara district contain a great diversity of forest types and another natural ecosystem.

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Chhindwara forest is no exception. Although the district of Chhindwara is comparatively free from external disturbances, adequate management and strict vigilance in the coverage

area of the district forest are necessary to conserve the diverse the flora and fauna of the district in its natural form Observation Table-1.

Table 1: Shows Pteridophytes Species and Reported Area

No	Pteridophytes Species	Reported Area
1	<i>Actinopteris radiata</i> (Sw.)	Junnardeo, Chhindawara
2	<i>Adiantum capillus-veneris</i> L.	Pataalkot Tamia
3	<i>Adiantum incisum</i> Forssk.	Dulhadev Harrai Chhindawara
4	<i>Adiantum philippense</i> L.	Chhota Mahadev, Way to Tamia, Sillevani Ghati
5	<i>Ampelopteris prolifera</i> (Retz.) Copel.	Satdhara Jhirpa
6	<i>Arachinodes amabilis</i> (Bl.)	Chhota Mahadev Pataalkot
7	<i>Athyrium falcatum</i> Bedd.	Pataalkot
8	<i>Athyrium felix-femina</i> (L.) Roth	Chhota Mahadev Pataalkot
9	<i>Athyrium hohenackerianum</i> Bedd	Chhota Mahadev Pataalkot
10	<i>Athyrium macrocarpum</i> Bedd.	Pataalkot
11	<i>Athyrium pectinatum</i> (Wall.) Presl	Chhota mahadeo
12	<i>Azolla pinnata</i> R. Br.	Chhindwara Pond
13	<i>Blechnum occidentale</i> var.	Chhota Mahadev
14	<i>Blechnum orientale</i> L.	Chhota Mahadev
15	<i>Botrychium daucifolium</i> Wall. ex Hook	Nallahs of Chhota mahadev Tamia
16	<i>Botrychium lanuginosum</i> Wall. ex Hook.	Nallahs of Chhota mahadev Tamia
17	<i>Cheilanthes albomarginata</i> Clarke in Trans.	Parasiya, Sillevani Ghati, Tamta, Dulhadev, Pataalkot and Junnardeo
18	<i>Cheilanthes anceps</i> Blanf.	Parasiya, Sillevani Ghati, Tamta, Dulhadev, Pataalkot and Junnardeo
19	<i>Cheilanthes farinosa</i> (Forssk.)	Parasiya, Sillevani Ghati, Tamta, Dulhadev, Pataalkot and Junnardeo
20	<i>Cheilanthes grisea</i> (Blanf.) Blanf.	Parasiya, Sillevani Ghati, Tamta, Dulhadev, Pataalkot and Junnardeo
21	<i>Cheilanthes tenuifolia</i> (Roxb. in Griff.) Griff.	Parasiya, Sillevani Ghati, Tamta, Dulhadev, Pataalkot and Junnardeo
22	<i>Cyathea gigantea</i> (Wall. ex Hook.)	Shrijhot Pataalkot Tamia
23	<i>Cyathea spinulosa</i> (Wall. ex Hook.) Tryon	Shrijhot Pataalkot Tamia
24	<i>Dicranopteris linearis</i> (Burm. F.) Underw	Chota Mahadeo Tamia
25	<i>Dicranopteris linearis</i> (Burm. F.) Underw	Chota Mahadeo Tamia
26	<i>Dryopteris cochleata</i> D.Don.	Chota Mahadeo Tamia
27	<i>Dryopteris sparsa</i> D.Don.	Chota Mahadeo Tamia
28	<i>Equisetum diffusum</i> D. Don	Chota Mahadeo Tamia
29	<i>Equisetum ramosissimum</i> Desf.	Chota Mahadeo Tamia, Chhindwara
30	<i>Gymnopteris contaminant</i> Bedd.	Chhota Mahadeo Nala
31	<i>Hypodematium crenatum</i> Forsk.	Shrijhot Pataalkot, Chhindwara
32	<i>Isoetes coromandelina</i> L.f.	Harrai Way to Pataalkot, Chhindwara
33	<i>Leptochilus axillaris</i> Cav.	Pataalkot Tamia, Chhindwara
34	<i>Leptochilus lanceolatus</i> (Fee.) Upadhyay and Singh	Pataalkot, Chhindwara
35	<i>Lastrea falciloba</i> (Hooker;) Benth	Chota Mahadeo Pataalkot, Chhindwara
36	<i>Leucostegia immersa</i> (Wall. ex Hook.) Presl	Chota Mahadeo Pataalkot, Chhindwara
37	<i>Lycopodium clavatum</i> (L.)	Chota Mahadeo Pataalkot, Chhindwara
38	<i>Lygodium flexuosum</i> (L.) Sw	Chota Mahadeo Pataalkot, Chhindwara
39	<i>Marsilea minuta</i> L.	Chhindwara Pond
40	<i>Microlepia speluncae</i> (L.) Moore	Chhota Mahadeo Tamia
41	<i>Ophioglossum gramineum</i> Willd.	Jhirpa to Delakhari forest
42	<i>Ophioglossum polyphyllum</i> A. Braun ex Seubert	Jhirpa to Delakhari forest
43	<i>Ophioglossum reticulatum</i> L.	Jhirpa to Delakhari forest
44	<i>Osmunda regalis</i> L.	Nallahs of Pataalkot
45	<i>Pronephrium nudatum</i> (Roxb. ex Griff.)	Nallahs of Pataalkot and Tamia Ghati
46	<i>Psilotum nudum</i> (L.)	Shrijhot Pataalkot
47	<i>Pteris biaurita</i> L.	Nallahs of Pataalkot
48	<i>Pteris cretica</i> L.	Nallahs of Pataalkot
49	<i>Pteris geminate</i> Wall.	Nallahs of Pataalkot and Tamia Ghati
50	<i>Pteris longifolia</i> L.	Nallahs of Pataalkot
51	<i>Pteris pellucida</i> Presl	Nallahs of Pataalkot
52	<i>Pteris quadraiurita</i> Retz.	Nallahs of Pataalkot
53	<i>Salvinia auriculata</i> Aubl.	Ghoghra waterfalls
54	<i>Selaginella bryopteris</i> (L.) Baker	Tamia Ghati
55	<i>Selaginella ciliaris</i> (Retz.) Spring in Bull.	Chhota Mahadeo fall Tamia
56	<i>Selaginella repanda</i> (Desv. ex Poir.) Spring	Chhota Mahadeo fall Tamia
57	<i>Sphaerostephanos arbuscula</i> (Willd) Holtt.	Tamia Ghati
58	<i>Tectaria coadunata</i> (Wall. ex Hook. Et Grev.)	Chhota Mahadeo, and Pataalkot
59	<i>Tectaria polymorpha</i> (Wall. ex Hook.)	Chhota Mahadeo, and Pataalkot
60	<i>Trigonospora calcrata</i> (Bl.) Holtt.	Chhota Mahadeo, and Pataalkot

4. Result and Discussion

In the present study, it was seen that Pteridophytes Diversity of Chhindwara District, Madhya Pradesh India observed sixty species of pteridophytes reported in various areas (Table-1) *Isoetes coromandelina* L.f., *Psilotum nudum* (L.), *Cyathea gigantea* (Wall. ex Hook.), and *Cyathea spinulosa* (Wall. ex Hook.) are endemic. The use of some species was found to be similar with some other tribes else were from different places of India, Clarke (1880) [8], and Beddome (1883) [2] largely emphasized the species composition of the pteridophytes in northern, southern and western India respectively. These studies were continued by Hope (1899-1904), Chandra and Kaur (1987, 1994) [7, 6], Dixit (1984) [10], Nayarand Kaur (1974) [20], Singh and Panigrahi (2005) [23] to provide pteridophytic wealth in different regions of Indian sub-continent. Except for a few scattered contributions viz. Graham (1915) [18-19], Tiwari (1964) [25], and Dixit (1988) [11], the Central Indian region particularly the Satpura mountains range of Pachmarhi Biosphere Reserve could not receive the proper attention of the pteridologists for documentation of pteridophytic wealth. The first effort to enlist the pteridophytic diversity in Pachmarhi Biosphere Reserve was made by Birand Vasudeva (1972, 1973) [4, 3] thirty-nine years back who chronicled 73 species altogether with fern and fern allies. One's species Upadhyay and Singh (2010) [26], Upadhyay *et al.* (2011) [27], Singh and Upadhyay (2010a, 2010b) [26], Subsequently, Vasudeva and Bir (1992, 1993a) [28, 31], Vasudeva (1995) [29] listed 68 species of ferns and 10 species of fern-allies from the Pachmarhi Biosphere Reserve based on the collections made during 1969-1978, where they mentioned three species viz. *O. Gramineum* Willd., *O. nudicaule* L. and *O. reticulatum* L. under the genus *Ophioglossum*. Pteridophytes are particularly distributed in the Himalayan and coastal regions. Khullar (1991, 1994) [39, 40] recorded 356 species of Pteridophytes from Western Himalaya. Pteridophytes prefer shady, moist habitats with moderate temperatures but also occur throughout a very diverse range of habitats from high altitudes. Like other groups of plants, Pteridophytes are also shown medicinal utility and many of them are being used medicinally since ancient times. Tribal communities, ethnic groups and folklore throughout the world are utilizing plant parts like rhizomes, stems, fronds, pinnae and spores in various ways for the treatment of various ailments since ancient times. Several contributions to the taxonomy, ecology and distribution of Pteridophytes have been published from time to time but enough attention has not been paid to their medicinal useful aspects. In the present attempt have been made to explore ethnomedicinally important Pteridophytes and properly documented their useful aspect.

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