PTERIDOPHYTES DIVERSITY OF CHHINDWARA DISTRICT OF M. P.

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Abstract: The present study mainly focuses on the Pteridophytes (ferns and ferns alliance) diversity of Chhindwara District. A total of 48 members of pteridophytes have been collected from the area. These include some rare species such as *Psilotum nudam, Selaginella exigua, Cyathea spinulosa, Ophioglossum nudicaule* and *Polybotrya appendiculata*. In addition to these the tree ferns such as and *Cyathea spinulosa* are not only conspicuous but are also abundant. Ecological and distribution notes are given for all the species. Majority of the pteridophytic members are terrestrial, growing inside deep gorges. The first vascular plants rapidly diversified to cover the earth. The sporophyte was the dominant phase of the life cycle of these early Pteridophytes. Some species namely *Angiopteris helferiana, Cheilanthes tenuifolia, Nephrolepis exaltata, Cyathea gigantea, C. spinulosa, Polystichum amabile, Cyclosorus cylindrothrix, Asplenium cheilosorum, A. normale, Paraleptochilus decurrens* and *Athyrium macrocarpa* recorded at Pachmarhi are also common with Eastern Himalayas, but not recorded from the Western part. These constitute about 19.4% of the pteridophytic flora of the area *Selaginella radicata*, *Ophioglossum nudicaule*, *Athyrium falcatum* and *Asplenium inaequilaterale*, growing at Pachmarhi, are also found in South India but not known from the Himalayas. It is also interesting to note that *Equisetum ramosissimum*, *Athyrium schimperi* and *Cyclosorus cylindrothrix* met with both at Pachmarhi and in the Himalayas, are not recorded from South India. There are only two species namely *Selaginella exigua* and *Isoetes panchananni* that are found at Pachmarhi but are not recorded either from the Himalayas or South India.

Key words: Pteridophytes, Chhindwara, diversity, Ecology

Introduction: Chhindwara District of Central India (Madhya Pradesh) lies among 21”23' and 22”49' north and longitude 78”10' and 79”24' east and spread over an area of 11,815 sq. km. Prominent tourist spots in the district include Patalkot, Tamia, Tribal museum, Chota Mahadev caves, Devgarh fort, Nadadvari, Hot water spring at Anhoni, Radhadevi caves and Jam Sanvali Temple (near Sousar). Tribal are main inhabitants of this district in rural areas. Deep in the heart of Central India there is a wild, forest surrounded by sheer, 1,200 foot cliffs. The Patalkot forest is so well hidden that people on the outside didn't even know it existed. It is a very special place, rich with plants and animals. The natives who live there know how to collect and grow the plants they need for food, clothing and building their homes. They also have a special skill that has been passed down every generation. They know the secrets of the medicine plants. Gonds and Bharias are mains among the tribal population.

The name ‘pteridophytes’ were derived from the Greek words, *‘pteron’* denoting feather and *‘phyta’* plant, due to feather like leaves. The ferns and fern allies together from the pteridophytes; the fern are considered as primitive in the characterized by the circinate vernation the spore bearing structure, usually many, aggregated to from distinct, superficial or marginal sorus on the lower surface of sporophylls and usually with well-developed and copiously veinated leaves. The internal structure of rhizome, the vescular cylinder is characterized by presence of leaf gaps. Their leaves are usually microphyllous and not well-veinated.

Experiment procedure: The present study is the outcome of the one years of critical field survey in the different parts of Chhindwara district in various seasons. Ethnobotanical and ecological information was gathered from the local and tribal people. All the specimens were collected in duplicate forms and they were deposited in the Herbarium of Botany department of Botany, Government post graduate college, Chhindwara, (M.P.) Descriptions of species and identification were done with the help of literature given by Beddome, R.H. (1973 and 1983) Khullar, S.P. (1994 and 2000), Khullar *et al*. 1991 and Pande and Pande, 2002.

Observations: A total of 48 species of pteridophytes belonging to 32 families have been found from Chhindwara district of Madhya pradesh. During the present study the most dominant families are Thelypteridaceae, Polypodiaceae, Pteridaceae, Athyriaceae, Adiantaceae, Aspleniaceae, Aspidiaceae and Nephrolepidaceae

During the present study the most dominant genus were present *Asplenium, Nephrolepis, Pteris, Adiantum, Athyrium* and *Cheilanthes*. The maximum percentage variations are 12.5 genuses *Asplenium, Nephrolepis, Pteris* and minimum percentage variations are 2.08 *Actiniopteris, Ampelopteris, Angiopteris, Arachinodes, Araiostegia, Azolla, Bolbitis, Ceratopteris, Davallia, Dicranopteris, Diplazium, Gymnopteris, Hypodematium, Lepisorus, Leucostegia, Lindsaea, Lygodium, Marsilea, Microsorium, Osmunda, Paraleptochilus, Pronephrium, Pseudocyclosorus, Psilotum, Salvinia, Sphaerostephanos, Sphenomeris* and *Trigonospora*.

The pteridophytes are widely use by local people of the Chhindwara district such as Styptic, Anthelmintic, Bronchitis, Gynecological, Tuberculosis, Cough, Diabetes, good health, Chicken pox, Internal burning, Fever, skin diseases, Asthma, Dysentery, Sterility, Leprosy, Tattoo, Hair Falling, Tonic, Expectorant, Astringent, Emetic, Diuretic, Scorpion Bite, Vegetable curry, Indigestion, treatment hair loss of the cattle caused either due to infection or injury Enlargement of spleen in continuance of urine, Calculus, Jaundice, Malaria, colds, Gonorrhoea, Leucorrhoea, Anthelminic, Poultry feed, rhizome Typhoid, Vulnerary, Antiseptic, Urine problems, Epilepsy, General tonic, Gout rheumatism, Spermatorrhea, Hair tonic, sudorific, aphrodisiac white discharges, sudorific and aphrodisiac, Antibacterial constipation, Roofs and house walls, Aqueous, cushion for cattle shed, green vegetables, Snakebite, cuts, Wounds, Ulcers, Swelling and pains, Bone fracture, Kidney trouble, Enema, Stomach disorders in children, Rheumatism, Jadu-tona, Locket for avoiding evil spirit, Beri-beri as lotion, skin eruption, Flatulence, Lung ailments, Sprains, Cut wounds, Casbundes, Spastic conditions of leg muscles, in Sedation and Insomnia Purgative, healing wound, Wound to check bleeding, intestinal Disorders, Stomach ulcer and Acidity, Hair fall, Menstrual disorders, burns as Cooling agent, Burns as cooling agent, Vulnerary, Remedy for wounds, Old skin disease, Intestinal problems, Rickets, Pyorrhoea, Diarrhea, Cuts and Bruises, Hypotonic, Antiviral, Antibacterial, Swelling of Joints till it is cured, Early Maturation of boils, Irregular Menstrual cycle, Gonorrhoea, Antibacterial agent, Toothache, Swelling and sprains, Eczema and Scabies. 82 pteridophytes are ethnobotanic useble but 14 are not out of 96.

Result and discussion: In the present study it was seen that Chhindwara district observed ninety six species belonging to thirty two families of pteridophytes in various Ethno-Botanical uses. Out of these 48 species in Chhindwara district *Isoetes panchananai* Pant & Srivastava, *Psilotum nudum* (L.), *Ophioglosum nudicaule* L., *Leptochilus lanceolatus* Fee., *Selaginella jainii* Dixit., *Cyathea balakrishnanii* (Dixit et Tripathi), *Cyathea gigantea* (Wall. ex Hook.), and *Cyathea spinulosa* (Wall. ex Hook.) are endemic. During study I have reported one new species *Leptochilus lanceolatus* Fee Upadhyay and Singh (2010) in central India. The use of some species were found to be similar with some other tribes else were from different places of India, Clarke (1880), Beddome (1883) who largely emphasized the species composition of the pteridophytes in northern, southern and western India respectively. These studies were continued by Hope (1899-1904), Chatterjee (1940), Chandra (1982), Chandra and Kaur (1987, 1994), Dixit (1984), Nayar and Kaur (1974), Singh and Panigrahi (2005) to provide pteridophytic wealth in different regions of Indian sub-continent. Except few scattered contributions *viz*. Graham (1915), Tiwari (1964), Panigrahi and Dixit (1966), and Dixit (1988, 1989), the Central Indian region particularly Satpura mountains range of Pachmarhi Biosphere Reserve could not receive proper attention of pteridologists for documentation of pteridophytic wealth. The first effort to enlist the pteridophytic diversity in Pachmarhi Biosphere Reserve was made by Bir and Vasudeva (1972, 1973) thirty nine years back who chronicled 73 species altogether with fern and fern-allies. One species Upadhyay and Singh (2010), Upadhyay *et al.* (2011), Singh and Upadhyay (2010a, 2010b), Singh *et al*. (2009, 2013) Subsequently, Vasudeva and Bir (1992, 1993a), Vasudeva (1995) listed 68 species of ferns and 10 species of fern-allies from the Pachmarhi Biosphere Reserve on the basis of 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) recorded 356 species of Pteridophytes from Western Himalaya. Pteridophytes prefer shady, moist habitats with moderate temperature but also occur throughout a very diverse range of habitats from high altitude. Like other groups of plants, Pteridophytes are also show medicinal utility and many of them are being used medicinally from ancient time (Kumar and Kaushik, 1999). The tribal communities, ethnic groups and folklore throughout the world are utilizing plant parts like rhizome, stem, fronds, pinnae and spores in various ways for the treatment of various ailments since ancient time. The numbers of contribution about the taxonomy, ecology and distribution of Pteridophytes have been published from time to time but enough attention has not been paid towards their medicinal useful aspects (Dixit, 1975). In the present attempt have been made to explore ethno-medicinally important Pteridophytes and properly documented their useful aspect.

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