

Ethnomedicinal uses of Pteridophytes of Amarkantak, Madhya Pradesh

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The present communication deals with the ethnomedicinal usage of pteridophytes in the treatment of various diseases. These pteridophytes are widely used by the local tribes and the plant material is sold in the local market of Amarkantak. They grow naturally in rock crevices and boulders near water stream in shady and moist places. The present study documents ethnomedicinal usage of eight pteridophytic plants, which are prevalent in study area along with botanical name, family, vernacular name, distribution in central India, plant parts used and mode of use.

Keywords: Traditional Medicine, Ethnomedicine, Pteridophytes, Amarkantak, Tribes

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Pteridophytes are primitive vascular plants. These fascinating groups of plant are always attracting the botanist and naturalist all over the globe not only because of its beautiful and unique foliage but also because of their useful aspects. They grow luxuriantly in moist tropical and temperate forests and their occurrence in different eco-geographically threatened regions from sea level to the higher mountains are of much interest. In comparison to higher plants they have found very little applications in medicine. The tribal communities, ethnic groups and folklore throughout the world are utilizing their plant parts like rhizome, stem, fronds, pinnae and spores in various ways for the treatment of various ailments since ancient time. According to a recent survey in member states of the European Union, the herbal medicinal preparations from the plants including pteridophytes are widely used by local population in Europe. Herbal preparations have been found to be highly popular in primary healthcare in China, Malaya, Nepal, Myanmar, Belgium, France, Germany and Netherlands. Of late, developed countries too are turning towards traditional medicinal systems that involve the use of herbal drugs. The numbers of contributions about the taxonomy, ecology and distribution of pteridophytes have been published from time to time but enough attention has not been

paid towards their useful aspects. An attempt has been made to explore indigenous and ethnomedicinally important pteridophytes and properly document their useful aspects.

The study area, Amarkantak, is situated in the eastern most extremity of Maikal range and a well-known hot spot pocket of medicinal plant biodiversity in Anuppur district of Madhya Pradesh. Its total geographical area is about 100 sq km with an average altitude ranging from 800-1100 m from sea level. It lies between latitude 22° 44' N and longitude 80° 54' E and surrounded by Bilaspur in East and South, Anuppur in North and West. It has been identified as one of the richest biodiversity centers of the central India. It is interesting to note that in the area, proportion of genera is relatively richer than the species. In comparison to Angiospermous plant diversity, the pteridophytes are not rich in the area. Most of the land is undulating and covered with thick subtropical hill forest. Maximum rainfall is during July to September, with annual rainfall of over 1900 mm. The region is tribal dominant and main tribes are Gond, Bharia, Bhil and Baigas. They are partially or completely dependent on forest products for their survival. These people have assimilated unique knowledge about the surrounding plant wealth. They use their traditional knowledge and indigenous systems of medicine for the treatment of various diseases. This indigenous knowledge is a potential

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tool in searching for new economic plants for food and medicine. During the survey, conducted in the months of October and November 2003, it was observed that eight species of pteridophytes *i.e.* *Selaginella bryopteris* (L.) Baker, *Equisetum ramossissimum* Desf. subsp. *debile* (Roxb. ex Vauch.) Hauke, *Lygodium flexuosum* (L.) Sw., *Cheilsathes farinosa* (Forsk.) Kaulf., *C. tenuifolia* (Burm.) Sw., *Adiantum philippense* L., *Dryopteris cochleata* (Ham. ex D. Don) C. Chr. and *Tectaria coadunata* (Wall. ex Hook. et Grev.) C. Chr. are widely used and sold by local tribal communities for the various treatments like fever, epilepsy, leprosy, stomach pain, gastrointestinal disorders, eradication of worm in children and venereal diseases in the local market. These pteridophytes grow naturally in rock crevices and boulders near water stream in shady and moist places.

Methodology

Extensive survey cum collection practices was made in the rural and tribal pockets of Amarkantak. The data presented are based on the first hand information collected during the period in months of October and November 2003. This information collected was verified by cross-checking with tribal living herbal medicine practitioners of various ethnic groups through interviews, discussions, personal contacts and keen observations. The herbarium specimens have been deposited in the Botanical Survey of India, Central circle Allahabad (BSA).

Results

All known 8 species of pteridophytes from the area are enumerated with botanical name, family, vernacular name, mode of use, plant parts used.

1. *Selaginella bryopteris* (L.) Baker (Selaginellaceae)

Vernacular names: *Amarbooti*, *Sanjivani*

Xerophytic plants, occur on heavy rock boulders and forming thick, green carpet during rainy season. Leaves curled up in dry weather but retain original colour and shape if dipped upside down in water for sometime.

Distribution: Throughout the Madhya Pradesh and Chhattishgarh in hilly regions.

Collection site: Anuppur, Amarkantak-forest near Samundhara.

Ethnomedicinal use: Single teaspoon of paste of leaves with water is given twice a day in gonorrhoea and other venereal diseases (spermatorrhoea and

leucorrhoea) and also used as diuretic. Dried plant with tobacco is smoked for hallucination. Paste of young leaves with sugar is taken in stomachache, urinary tract inflammation in children. It is a popular strength tonic amongst local people.

2. *Equisetum ramossissimum* Desf. subsp. *debile* (Roxb. ex Vauch.) Hauke (Equisetaceae)

Vernacular names: *Murgisigri*, *Jordod*.

Large plants grow in sandy or gravelly soil along stream and riverbanks in moist or exposed situations.

Distribution: Anuppur, Bastar, Chhindwara, Hoshangabad, Panna, Raigarh, Sidhi, Shivpuri.

Collection site: Anuppur: Amarkantak-Dudhdhara.

Ethnomedicinal use: Whole plant powder mixed with mustard oil is used in the treatment of bone fracture, backache and in muscular pain. This powder is also used as one of the ingredient for the preparation of indigenous medicine to increase sexual strength in men.

3. *Lygodium flexuosum* (L.) Sw. (Lygodiaceae)

Vernacular names: *Kalijar*

Terrestrial and climbing ferns grow on bushes and trees or trailing on the ground along the edges of forest in gravelly and sandy soil.

Distribution: Anuppur, Bastar, Betul, Bilaspur, Chhindwara, Damoh, Gwalior, Hoshangabad, Indore, Khandwa, Mandla, Raigarh, Raipur, Sidhi, Shivpuri, Panna.

Collection site: Anuppur: Amarkantak-forest of Mai ki bagia.

Ethnomedicinal use: Fronds boiled with mustard oil is used as local application for carbuncles, rheumatism, sprains, scabies, ulcers and cut wounds. Extract of stems and rhizome is taken orally twice a day for a week for curing sexual diseases like gonorrhoea and spermatorrhoea. The paste of fresh leaves is applied on the piles. An infusion of plant is used in menorrhagia. Plant is considered to have antibacterial properties. Spores cure high fever.

4. *Cheilsathes farinosa* (Forsk.) Kaulf.

(Cheilanthaceae)

Vernacular names: *Nanha*

Small plants grow in rock crevices in dry and exposed places.

Distribution: Anuppur, Bastar, Bilaspur, Chhindwara, Hoshangabad, Khandwa, Raigarh, Raipur, Sidhi, Shivpuri.

Collection site: Anuppur: Amarkantak-Lakshmandhara, Sonemura.

Ethnomedicinal use: Extract of rhizomes and leaves is given twice a day for five days to cure urine problems and epilepsy.

5. *Cheilsathes tenuifolia* (Burm.) Sw.
(Cheilanthaceae)

Vernacular names: *Dodhari*

Abundantly grow in dry situations and exposed places.

Collection site: Anuppur: Amarkantak-Lakshmandhara.

Distribution: Anuppur, Bastar, Betul, Bilaspur, Chhindwara, Damoh, Gwalior, Hoshangabad, Indore, Khandwa, Raigarh, Raipur, Sidhi, Shivpuri, Panna.

Ethnomedicinal use: Preparation made from roots is given for sickness attributed to evil eye or witchcraft. It is used as tonic and the paste of roots with 'karanj oil' is applied on wounds for a week.

6. *Adiantum philippense* L. (Adiantaceae)

Vernacular names: *Kali-Jhant*

Common tufted fern, along the roadside in the forest under moist situation in the low mountainous region.

Distribution: Throughout Madhya Pradesh and Chhattishgarh.

Collection site: Anuppur: Amarkantak-Shambhudhara.

Ethnomedicinal use: Full teaspoon of fronds extract is used in fever, asthma, bronchitis, dysentery, epileptic fits, leprosy, ulcers and erysipelas. Powder of rhizomes is given as an antidote against dog bite and snakebite. The extract of leaves is taken orally and paste of leaves is applied on the lower portion of stomach for clear and early release of urine. Dried rhizome mixed with water is given to women orally once during menstrual period for sterility.

7. *Dryopteris cochleata* (Ham. ex D. Don) C. Chr.
(Dryopteridaceae)

Vernacular names: *Jatashankari*

Lithophytic fern, commonly grows along the sides of streams and talas in the forest floor in laterite soil.

Distribution: Anuppur, Bastar, Hoshangabad.

Collection site: Anuppur: Amarkantak-Kapildhara, Lakshmandhara, Panchdhara, Shambhudhara.

Ethnomedicinal use: Rhizome has antifungal property and is used as antidote. Juice/ extract of the

dried rhizome is given in epilepsy and leprosy. The paste of fresh rhizome, stem and stipe is externally applied on cuts, wounds, ulcers, swelling and pains. Fresh paste of rhizome and fronds is externally applied in snake and dog bites. The decoction of dried rhizome, stem and stipe is used for blood purification and as tonic for strength.

8. *Tectaria coadunata* (Wall. ex Hook. et Grev.)
C. Chr. (Tectariaceae)

Vernacular names: *Jatamasi*

Lithophytic fern, commonly grows in the rock crevices, boulders in moist place and along the stream.

Distribution: Throughout the Chhattishgarh and Madhya Pradesh.

Collection site: Anuppur: Amarkantak-Kapildhara, Mai ki bagia, Shambhudhara, Sonmura.

Ethnomedicinal use: Rhizomes are anthelmintic. The decoction of fresh rhizome and stipe is given in stomach pain, gastro-intestinal disorders and eradication of worm in children. Extraction of dried rhizome, stem and stipe is used in respiratory disorders like cold, cough, asthma and bronchitis. Fresh rhizome and fronds paste is used in insect bites or getting relief in centipede bite. The plant is popular amongst tribals as strength tonic. The young leaves are used as vegetable curry.

Discussion and Conclusion

The present work is the result of intensive systematic ethnomedicinal survey conducted in Amarkantak, Anuppur district of Madhya Pradesh. All the eight species of pteridophytes of traditional and ethnomedicinal interest are recorded after critical screening with the available literature. These are recommended for further phytochemical/ pharmacological investigation and nutritional analysis, which might result in the discovery of new drug molecules for human welfare.

Since these plant species are being exploited from the forest area of the Amarkantak, there is an urgent need for their conservation before they get extinct. Traditional and folklore medicine handed over from generation to generation is rich in domestic recipes and communal practice. In India, of about 1200 species of pteridophytes distributed throughout, numerous species are ethnomedicinally used by the local tribals. They may be lost if their ethnomedicinal knowledge is not properly documented.

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