



Pteridophytes: Primitive Vascular Plants Playing Major Role in Herbal Medicine in Bhor and Velhe Talukas of Pune District Maharashtra State

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Abstract:

Pteridophytes are used by the local people from Bhor and Velhe talukas in the treatment of various diseases. During survey, more than 17 species of pteridophytes were collected for their use as food and traditional herbal medicines. The local people from these areas were interviewed during study. In this respect, medicinal value of pteridophytes has been investigated for the first time in these areas.

Keywords: Herbal medicine, Pteridophytes, vascular plants, Bhor, Velha.

Introduction:

Pteridophytes are vascular cryptogams. But it is a neglected group of plants in biodiversity as far as their economic value is concerned. It can safely be assumed that they were the first land plants with a vascular system. Their food and medicinal values are reported in earlier literature. The Ayurvedic systems of medicine referred by Sutara (ca 100 AD) and Charka (ca 100 AD) recommended the medicinal uses of some ferns in their *Samhitas*. Ferns are also used by the physicians in Unani system of medicine (Uddin *et al.*, 1998).

In Chinese system of medicine, many ferns are also prescribed by local doctors (Kimura and Noro, 1965). Later on, modern biological and pharmaceutical studies were carried out on pteridophytes by different workers. Banerjee and Sen (1980) conducted the only extensive survey of antibiotic activity among the ferns and reported about a hundred species having such property. Dixit and Vohra (1984) reported edible and medicinally important pteridophytic species from India. Kaushik (1998) emphasized on the ethno-botanical importance of ferns of Rajasthan, India. The ethno-botanical uses of this unique group are of immense importance (Singh *et al.*, 1989; Dhiman, 1998). The most important studies on food and medicinal values of pteridophytes were conducted by Nayar (1957), Hodge (1973), and Dixit (1974, 1975). Recently, Ghosh *et al.* (2004) reported some edible pteridophytes as vegetables and medicines.



Geographical Features of Bhor and Velhe Talukas

Materials and Methods:

The present study of pteridophytes was undertaken during the years 2019-21 from Bhor and Velhe region which includes its identification and medicinal uses. The plants were identified using literature. The specimens were prepared and mounted with standard technique (Azuelo,2010)

The specimens were deposited in Agharkar Herbarium at Maharashtra Association for Cultivation of Sciences, Pune (AHMA). During field survey, following specimens were recorded.

Result and Discussion:

No	Botanical Name	Family	Part Used	Medicinal Use
1	<i>Adiantum lunulatum</i> L.	Adiantaceae	Leaves	<ol style="list-style-type: none"> 1. Leaves are used to treat cough, bronchitis. 2. Throat and chronic nasal catarrh. 3. To treat skin disease and low fever fronds are used.
2	<i>Angiopteris helferiana</i> C.Presl	Marattiaceae	Whole Plant	<ol style="list-style-type: none"> 1. Paste of whole plant is used against Scabies.

3	<i>Marsilea minuta</i> , L.	Marsileaceae	Leaves	<ol style="list-style-type: none"> 1. Leaves powder is used to treat Cough and bronchitis.
4	<i>Ophioglossum reticulatum</i> , L.	Ophioglossaceae	Whole Plant	<ol style="list-style-type: none"> 1. Leaves are cooked as vegetables. 2. Paste of root is applied on wounds. 3. Rhizome decoction is used as cream for burns.
5	<i>Lygodium flexuosum</i> , (L.) Sw.	Lygodiaceae	Whole Plant	<ol style="list-style-type: none"> 1. Juice of plant is used for expulsion of intestinal worms. 2. Decoction of fronds is used to treat jaundice and applied to treat chronic cuts and wounds. Juice is used as antirheumatic. 3. The rhizome paste is used to treat piles.
6	<i>Adiantum capillus-veneris</i> , L.	Adiantaceae	Whole plant	<ol style="list-style-type: none"> 1. Leaves are used as diuretic leaves paste is applied on cut and wounds.
7	<i>Pteris vittata</i> L. subsp. <i>Vittata</i>	Pteridaceae	Whole plant	<ol style="list-style-type: none"> 1. The extract of fronds and rhizome is applied on wound. 2. It is boiled with water used as tonic. 3. The whole young or mature plants are used as fodder.
8	<i>Selaginella tenera</i> (Hook. et Grev.) Spring	Seleginellaceae	Whole Plant	<ol style="list-style-type: none"> 1. Paste of whole plant is applied on affected areas to treat pain and swelling.
9	<i>Actiniopteris radiata</i> (Sw.) Link.	Pteridaceae	Stem	<ol style="list-style-type: none"> 1. Juice of stem is used to treat diarrhea and fever.
10	<i>Equisetum ramosissimum</i> Desf. ssp. <i>Debile</i>	Equisetaceae	Whole plant	<ol style="list-style-type: none"> 1. Used to treat gonorrhoea.
11	<i>Nephrolepis cordifolia</i> (L.)	Pteridaceae	Fronds	<ol style="list-style-type: none"> 1. Help to reduce cough and cold.
12	<i>Azolla pinnata</i> R. Br.	Azollaceae	Leaves	<ol style="list-style-type: none"> 1. Antifungal agent
13	<i>Dryopteris cochleata</i>	Dryopteridaceae	Rhizomes	<ol style="list-style-type: none"> 1. Used to treat Leprosy, Swellings, ulcer, pain.
14	<i>Aleuritopteris bicolor</i> (syn: <i>A. farinosa</i>)	Pteridaceae	Stem and leaves	<ol style="list-style-type: none"> 1. Decoction of leaves and stem is used to cure cough and cold.
15	<i>Diplopterygium pinnatum</i>	Gleicheniaceae	Leaves	<ol style="list-style-type: none"> 1. Used to treat stomach pain
16	<i>Pentagramma trisngularis</i>	Pteridaceae	Leaves	<ol style="list-style-type: none"> 1. Leaves juice is used to treat wounds.

17	<i>Cilanthes anceps</i>	Pteridaceae	Leaves	1. Leaves extract is boiled & used to treat fever.
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The following are some of the images of Pteridophytes which are commonly found in Bhor and Velhe talukas. These Pteridophytes have medicinal values and it is used by the local people to cure different type of diseases as well as they can be used for edible purpose.



Actinopteris dichotoma Kuhn.



Selaginella miniatospora (Dalz.) Bak.



Adiantum lunulatum Burm. f.



Marselia quadrifolia Linn.

Research Through Innovation



Diplopterygium pinnatum



Pteris vittata



Pentagramma Triangularis



Cilanthes anceps



Local Informant



Local Informant

Conclusion:

During this survey, we have identified and documented more than 17 pteridophytes which are used by local people as herbal medicine to cure different types of diseases like cough, cold, headache, stomach disorder, asthma, nervous disorder, skin diseases, cardiac problems, fever, burn, wound healing, gout, rheumatism, loose motion etc. There is need to spread medicinal uses of pteridophytes which are used by these local people. This medicinal knowledge of pteridophytes may help to research and discover new drugs which will have great medicinal value.

Deforestation and setting fire to the forest are the serious problem of these areas. So, there is need to create awareness to conserve natural resources because people still depend on these herbal medicines. Therefore, it is necessary to conserve such valuable natural resources before they become threatened.

References:

- Athira Krishnan¹ and Rekha K.2*. Diversity Of Pteridophytes in Western Ghats- A Review. *Plant Archives* Volume 21, No 1, 2021 pp. 1115-1129
- Azuelo,A.G.Sariana L.G.And Pabualan,M.P.(2010) Diversity and ecological status of bryophytes in Mt.Kitanglad,Bukidnon.Asian Journal of biodiversity,1:49-71.
- Balendra Pratap Singh and Ravi Upadhyay. Medicinal Pteridophytes of Madhya Pradesh. *Journal of Pharmacognosy and Phytochemistry* 2014; 3 (3): 173-176
- Banerjee, R.D. and Sen, S.P. 1980. *Antibiotic activities of Pteridophytes*. *Econ. Bot.* 34(2): 284-298.
- Dhiman, A.K. 1998. *Ethnomedicinal uses of some Pteridophytic species in India*. *Indian Fern. J.* 15: 61-65.
- Dixit, R.D. 1974. *Ferns - a much neglected group of medicinal plants*. I. *J. Res. Indian Med.* 9(4): 59-68.
- Dixit, R.D. 1975. *Ferns - a much neglected group of medicinal plants*. III. *J. Res. Indian Med.* 10(2): 74-90.
- Dixit, R.D. and Vohra, J.N. 1984. *A Dictionary of the Pteridophytes of India* (Flora of India Series 4) Botanical Survey of India Publication, Department of Environment, Government of India, Botanical Garden, Howrah, pp. 1-177.
- Ghosh, S.R., Ghosh, B., Biswas, A. and Ghosh, R.K. 2004. *The Pteridophytic Flora of Eastern India* (Vol. 1). Flora of India Series 4. Botanical Survey of India, pp. 1-591.
- Hodge, W.H. 1973. *Fern food of Japan and the problem of toxicity*. *Amer. Fern. J.* 63: 77-80.
- Kaushik, P. 1998. *Ethnobotanical Importance of Ferns of Rajasthan: Indigenous Medicinal Plants*. Today and Tomorrow Printers and Publication, New Delhi, pp. 61-66.
- Kimura, K. and Noro, Y. 1965. *Pharmacognostical studies on Chinese drug "Gu-sui-bu"*. I. consideration on "gu-sui-bu" in old herbals (Pharmacognostical studies on fern drugs XI). *Syo Yakugaku Zasshi* 19: 25-31.
- Kishore S. Rajput¹, Ronak N. Kachhiyapatel¹, Suresh K. Patel² and Vinay M. Raole¹. Assessment of Pteridophyte Diversity and their Status in Gujarat State, Western India. *Plant Science Today* (2016) 3(4): 337-348.
- M. Mannar Mannan, M. Maridass* and B.Victor. A Review on the Potential Uses of Ferns. *Ethnobotanical Leaflets* 12: 281-285. 2008.
- Nayar, B.K. 1957. *Medicinal ferns of India*. *Bull. Nat. Bot. Gdn.* 58: 1-38.
- Sachin patil, Rajendra Lavate, Vineet Rawat, Meena Dongare. Diversity and distribution of pteridophytes from Satara district, Maharashtra. *Plant Science Today* (2016) 3(2)
- Shakil D. Shaikh¹*, VP. Masal² and Anisa S. Shaikh³. Ethnomedicinal uses of some pteridophytes from Konkan region of Maharashtra, India. *International Journal Of Pharmaceutical And Chemical Sciences* Issn: 2277-5005 **Vol. 3**
- Singh, K.K, Saha, S and Maheshwari, J.K. 1989. *Ethnomedicinal uses of some ferns amongst the tribals of Uttar Pradesh*. *Indian Ferns J.* 6: 66-67.
- Uddin, M.J; Mirza M.M and Pasha, M.K. 1998. *The medicinal uses of pteridophytes of Bangladesh*. *Bangladesh J. Plant Taxon.* 5(2):29-41.
- V. Karthik¹, K. Raju², M. Ayyanar¹, K. Gowrishankar³ and T. Sekar¹*. Ethnomedicinal Uses of Pteridophytes in Kolli Hills, Eastern Ghats of Tamil Nadu, India. *Scholars Research Library J. Nat. Prod. Plant Resour.*, 2011, 1 (2): 50-55