

## Ethnomedicinal uses of Pteridophytes of Kumaun Himalaya, Uttarakhand, India

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**Abstract:** The present study deals with the ethnomedicinal uses of Pteridophytes in the treatments of various diseases. The Pteridophytes are widely used by the local people of the Kumaun Himalaya. The present study documents ethnomedicinal uses of 30 Pteridophytes plants, which are prevalent in study area along with botanical name, family, plant parts and mode of ethnomedicinal use. [Journal of American Science 2009;5(4):167-170]. (ISSN: 1545-1003).

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### 1. Introduction

Kumaun Himalaya occupies the central sector of Indian Himalaya and lies between 28°44'- 30° 49' N Lat. and 78° 45'- 81° and 1' E long. It has occupy an area 21,033 sq km and made up of six districts. Due to varied topography, climate, soil and vegetation this region is very rich in Pteridophytes. Kali valley, Gori valley, Ramganga valley, Pindari valley are the important area where these Pteridophytes are very abundant.

Pteridophytes are one of the oldest land plant groups on earth and constitute a vast group of vascular cryptograms. The position of the Pteridophytes as intermediate between the lower cryptograms and higher vascular plants has made the group fascinating. Pteridophytes have a long geological history on our planet. They were known as far back as 380 million years ago. In India, 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 through out 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 have not been paid towards their medicinal useful aspects (Dixit, 1975). In the present attempt have been made to explore ethnomedicinally important Pteridophytes and properly documented their useful aspect.

The pteridophytes (Ferns and fern allies) represented by over 1200 taxa belonging to 204 genera (ca10,000) species of the world, grow in varied climatic zones of different phytogeographical regions of India. Subhash Chandra in his ferns of India has enumerated 1100 species belonging to 144 genera under 34 families from the Indian regions. Chowdhary (1973) published an account of pteridophytes from Upper Gangetic plains, which include parts of Uttarakhand, plains of Uttar Pradesh, Bihar and part of West Bengal. Khullar (1994, 2000) in his illustrated fern flora of Western Himalaya included 360 species of ferns. Pande and Pande (2002) reported ca 350 species of ferns and fern allies from Kumaun Himalaya. Dixit and Kumar (2002) listed 487 species and 32 infra specific taxa belonging to 108 genera under 50 families. Eighteen species are endemic to Uttarakhand, of these, 10 species and 2 varieties confined these distributions only to Uttarakhand state and remaining six taxa also show their occurrence in other parts of India beside Uttarakhand. About 57 species are relatively of rare occurrence being endemic, rare and endangered due to other anthropogenic factors.

As far as trade of medicinal plants is concerned only species of *Adiantum* is exploited as the trade

name Hansraj, Hanspadi, Myurshikha. The entire plant of this species is used as medicine in Ayurveda, Sidha and Unani. The species of *Lycopodium* is also used in Homeopathic industry.

## 2. Materials and Methods

The present study is the outcome of the four years of critical field survey in the different parts of Kumaun Himalaya in every season. Ethnomedicinal information was gathered by the local and tribal people and interviewed the local people. All the specimens were collected in duplicate forms and they were deposited in the Herbarium of Botany department of D. S. B. Campus, Kumaun University, Nainital. Descriptions of species and identification were done with the help of literature Khullar, S.P. (1994 and 2000), Khullar et al 1991 and Pande and Pande, 2002.

## 3. Results

All known 30 species of Pteridophytes are encountered for the Kumaun Himalaya. Botanical names, family name, mode of use and plant parts used are given below:

### 1. *Actiniopteris radiata* (Sw.) Link, (Actiniopteridaceae) Myursikha, Morphanki

Plant used as a styptic and anthelmintic also used in bronchitis and gynecological disorders. The dry leaves are used in tuberculosis.

### 2. *Adiantum capillus-veneris* L., (Adiantaceae ) Hansraj, Hanspadi

The decoction of leaves is taken for acute bronchitis and fever. The fronds are used against cough and cold and also chewed for the treatment of mouth blisters. Frond extract mixed with honey is used as an eye ointment. The plant is also used as a demulcent, expectorant, diuretic, emenagogue, tonic and febrifuge.

### 3. *Adiantum incisum* Forsk., (Adiantaceae) Hanspadi

The leaf powder is mixed with butter and used for controlling the internal burning of the body. Also used in cough, diabetes, fever and skin diseases.

### 4. *Adiantum philippense* L., (Adiantaceae) Hansraj

Plant is demulcent, astringent and emenagogue. It is used in cough, asthma, fever, leprosy and hair falling.

### 5. *Adiantum venustum* D. Don, (Adiantaceae ) Hansraj, Hanspadi

Fronds are used as tonic, expectorant, astringent, emetic, diuretic etc. and decoction of fronds is given in fever also used in scorpion bite.

### 6. *Angiopteris evecta* Hoffm. (Angiopteridaceae)

Fresh rhizome and rachis powdered mixed with water is used in diarrhea.

### 7. *Asplenium nidus* L. (Aspleniaceae)

Used in enlargement of spleen in continuance of urine, calculus, jaundice and malaria.

### 8. *Asplenium trichomanes* L., (Aspleniaceae)

This is a laxative medicine. The leaf is smoked for colds in head and chest, used as an expectorant.

### 9. *Blechnum orientale* L., (Blechnaceae)

Used as poultice in boils and rhizomes as anthelmintic, rhizome is used in typhoid.

### 10. *Botrychium ternatum* (Thunb.) Sw. (Botrychiaceae)

The plant is used as a vulnerary. The root is prescribed in dysentery.

### 11. *Cheilanthes bicolor* (Roxb.in Griff.) Griff. ex Fras.-Jenk., (Sinopteridaceae)

Plant powder mixed with cow's ghee is used as an incense to keep off fear in children. Brown stipes is used by the children as nose and ear studs. Root used in sickness.

### 12. *Cyathea spinulosa* Wall. ex Hook., (Cyatheaceae)

Soft pith and roots are used in the preparation of local drinks. Fronds are used as fodder as well as thatching the huts.

### 13. *Dicranopteris linearis* (Burm. f.) Und., (Gleicheniaceae)

Young rachises are eaten after boiling. Fronds are used for thatching the roofs and house walls. Decoction of plant is laxative. Fronds are used in asthma and aqueous extract of fronds possesses antibacterial activity. The plants are used as cushion for cattle shed. Used as an anthelmintic. The fronds of young plant are used to remove sterility in women by grinding them with cow milk.

### 14. *Diplazium esculentum* (Retz.) Sw., (Athyriaceae)

The rhizomes are kept in the granaries to check them from insect and pests. Young fronds are used as green vegetables and also used as salad or cooked as vegetables.

**15. *Diplazium maximum*** (D.Don) C.Chr., (Athyriaceae) Lingura, Lyona

Young fronds are eaten as vegetables after cooking and are commonly sold in the local market in high price.

**16. *Equisetum ramosissimum*** Desf. (Equisetaceae)

Plant paste applied in bone fracture.

**17. *Helminthostachys zeylanica*** (L.) Hook., (Helminthostachyaceae) Tharu name (Kamsaj)

The plant is considered as intoxicant, anodyne and used in sciatica. Fronds used as aphrodisiac.

**18. *Lycopodiella cernua*** (L.) (Lycopodiaceae)

The decoction of the plant is used in beri-beri as lotion, used in cough and skin eruption.

**19. *Lycopodium japonicum*** Thunb. (Lycopodiaceae)

Diuretic, antispasmodic, used in rheumatism and diseases of lungs and kidney.

**20. *Lygodium flexuosum*** (L.) Sw. (Lycopodiaceae)

Rhizome powder is used in skin diseases. Plants are used as expectorant, rheumatism, sprains, scabies, eczema and cut wounds. Fresh roots boiled with mustered oil used in casbundes and rheumatism.

**21. *Marsilea minuta*** L., (Marsileaceae)

Plant used in cough, spastic conditions of leg muscles, in sedation and insomnia. A macrocyclic ketone of sedative and convulsant properties has been isolated.

**22. *Nephrolepis cordifolia*** (L.) Presl, (Nephrolepidaceae)

Paste of the leaves is applied as wound to check bleeding. Fresh watery tubers are eaten to especially quench thirst. Decoction of tubers is given to cure cough and intestinal disorders. Fresh watery tubers used in stomach ulcer and acidity.

**23. *Ophioglossum reticulatum*** L., (Ophioglossaceae)

The paste of plant is applied on burns as cooling agent. The extract of leaf is also used in the preparation of tonic used as vulnerary and as remedy for wounds.

**24. *Pteris biaurita*** L., (Pteridaceae)

A decoction of the rhizome and fronds has been given in chronic disorders.

**25. *Pteris vittata*** L., (Pteridaceae)

Leaves used in worship at the time of illness. Fronds are largely used as cushion for cattle sheds.

**26. *Pteris wallichiana*** Agardh, Recens. (Pteridaceae)

Young fronds are steamed and eaten as a flavoring material. Juice is stated to possess astringent properties. Decoction is given in dysentery and applied to glandular swellings. A roasted frond made into a paste with sesame oil is applied to skin affections of infants.

**27. *Selaginella bryopteris*** (L.) Bak., (Selaginellaceae) Sanjeevani

Plant is used as diuretic and in gonorrhoea. The dried plant along with tobacco, are smoked by tribal people for inducing hallucinations used as witch craft and worship.

**28. *Sphenomeris chinensis*** (L.) Maxon, (Lindsaeaceae)

Paste of the plant used in swelling and sprains. Dried fronds are used as a substitute for tea leaves used internally for chronic enteritis and used as diuretic.

**29. *Tectaria coadunata*** (J. Smith) C. Chr., (Tectariaceae)

Plant decoction useful in colitis. Decoction of rhizome is given to children in stomachache.

**30. *Thelypteris arida*** (D.Don) (Thelypteridaceae)

Plant paste applied in wounds and cuts.

#### 4. Conclusions

The Pteridophytes are widely used by the local people of the Kumaun Himalaya for ethnomedicinal purpose. The study documented 30 pteridophyte plants of ethnomedicinal use.

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