

Study of Medicinal Pteridophytes of Dehradun



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Abstract

Pteridophytes such as ferns are largely used by different tribal communities and folklore as a source of food, fiber, craft, abrasives, decoration material and medicines. The tribal groups use stem, rhizomes, spores, fronds and pinnae for treating various ailments. The underground rhizome of fern is a strong organ which serves as food and secondary metabolites reserve. As pteridophytes are a group of lower plants and have restricted distribution they remain unattended and their useful aspects are largely ignored. In the present study the medicinally important species of pteridophytes have been reviewed. 34 species of pteridophytes have been found useful as medicine in different parts of our country.

Keywords: Metabolites, Abrasives, Decoration etc.

Introduction

In India, Pteridophytes are represented by about 1200 taxa under 204 genera. (Dixit 1984, Chandra 2000, Sharma & Singh 2000). Some pteridophytes prefer shady and moist places but few like *Adiantum lunulatum*, *Psilotum nudum* can grow on rocks covered with mosses and in rocks crevices and a few other like *Woodsia elongata*, *Actinopteris radiata* are endemic to India. Certain species such as *Diplazium*, *Dryopteris* and *Marsilea* are edible where as *Adiantum capillus veneris*, *Sellaginella*, *Byopteris* and species of *Lycopodium*, *Polystrichum* and *Marsilea* are well known in India for their high medicinal properties.

Dehradun is one of the most beautiful valleys enclosed by Siwalik hills and outer Himalayan scarp. The Himalayas on the north and the west Dehradun including Chkrate hills serve as natural border/boundaries.

General Vegetation

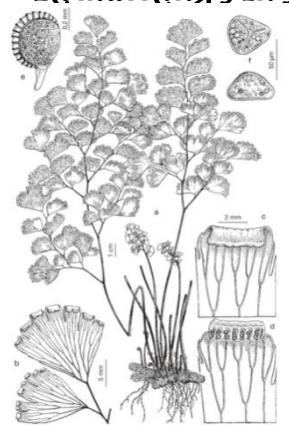
A major part of the district is covered by forest. Pteridophytes vegetation in the district is also rich and diverged specially above 1500 mtrs elevation like Chakrata and Mussoorie hills. From other interesting place of the collection of ferns and fern allies are Mathronwala, Goletappar, Ray river, Song river, Karuapani, Sahastradhara, & Robbers cave in Doon valley. The shady humus covered hills slopes are quite favorable for ferns and fern allies. For distinct ecological groups of pteridophytes are observed in the area under i.e Terrestrial, Lithophytes, Epiphytes and the aquatic.

The herbal medicine is effected share a basic affinity with the vegetable kingdom. All vegetable matter so long as it is not toxic or otherwise unfit for consumption can be digested and exerted without difficulty. So living organism has an affinity with and can profitably assimilate other life forms living or dead. There is a pattern that makes this possible and the pattern is life herbal medicine in deed a medicine of life.

The Pteridophytes are long known for their medicinal and therapeutically utility. In ancient period these plants are described as herbal extract for the cure of several diseases. The Pteridophytes having tremendous importance and vast medicinal scope would prove itself as the biological resource for the upliftment of human society.

Enumeration

- 1- *Adiantum capillus veneris* Linn Family- Adiantaceae
English Name- Median hair fern
Local Name- Hansraj



L. 22. *Asplenium trichomanes*, Tabernaemontana, Valencia (BC 7762) a) habitus; b) pinna por el envés; c) borde de la pinna con el indusio; d) el, con el indusio desplegado mostrando los esporangios; e) esporangio; f) espores en vista proximal y lateral.

Rhizome short creeping, 3-4cm long, dense, scales covered, hair pointed, smooth margined, stipe upto 20cm long, scaly at base, glabrous above. Bi-tri pinnate, consist of 5-6 pairs of alternately arranged primary pinnae, basal pinnae the largest, pinnae dissected into lobes, lobes petiolate, conical glabrous both to the surfaces, green in colour, texture herbaceous, sori along the upper margin, induciate, indusium covered, sporangia stalked, 20-21 celled annulus, spores tetrahedral, perisporiate, exine smooth.

Part used

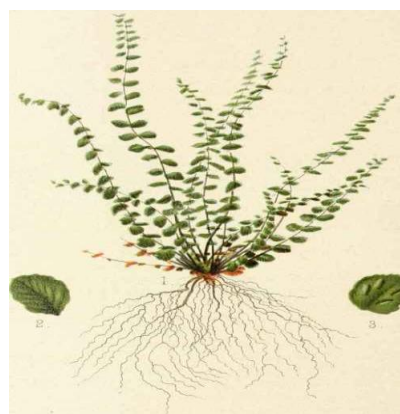
Rhizome, stipe and lamina.

Medicinal Use

It is diuretic and leaves extract used for throat pain and bronchitis. It has anti cancerous hypoglycemia, aphrodisiac, antifungal, antibacterial and antiviral properties. It is also used as purgative and hair tonic. Also used in hard swelling and tumorous of spleen, liver and other viscera. It is chewed in treatment of mouth blister.

***Asplenium trichomanes* Linn**

Family- Aspleniaceae



Brief Description

Rhizome short, erect, scaly, dark brown, linear, lanceolate, concolorous, acuminate, margin entire, stripes tufted, dark reddish brown, glossy, 3-6cm long, lamina, pinnate, linear, lanceolate, margin entire, sporangia 14-18 annulus cells, spores dark brown, thick, globose, round.

Part Use

Whole plant

Medicinal use

It is used as laxative. Leaf is smoked for cold, in head and chest, also used as expectorant. The whole plant extract is used against enlargement of spleen.

Family- Dryopteriaceae

English Name- Cliff fern



Brief Description

Rhizome thick, erect, sub-erect, densely covered with scales, linear. Lanceolate, margin entire, golden yellow in colour, leaf lamina long, bipinnate, greenish yellow in colour, pinnae 14-25 pairs alternate, rachis grooved, scaly, scale small. Lanceolate, tapering to a point, sori large, kidney shaped in two rows, 2-5 cm either side of pinnules, indusiate, indusium large, house shoe shape, stalk spore, perisporeiate, globose,

Part use

Lamina, Rhizome

Medicinal use

Juice of rhizome is applied to cut in wounds
Lamina after crushing work as antihelmenthic.

Family- Ophioglossaceae**Brief Description**

Rhizome tuberous giving rise many roots, mostly two fronds arise from a single rhizome, fronds a single rhizome, fronds about 13 cm long erect common stalk 2-3 cm long tropophyll leathery, bright pale green when dry, lanceo-ovate, apex acute, size 1.5-10 cm, broadest at middle, tropophyllmude below then the fertile stalk, venation distinct, large hexagonal primary aerola on either side of mid vein, secondary areolae contains tertiary free veinlets. Stipe of fertile stalk about 8 cm long. Sporangia in two rows on either side of mid groove, spore hyaline, light brown in colored with a tri-radiate mark.

Part use

Rhizome, tuber

Medicinal use

Fresh rhizome and tuber paste is effective against hair fall, snake bits, wounds, stasis, abdominal pain, truises.

Family- Osmundaceae**English name- Royal fern****Remarking An Analisation****Brief description**

Rhizome sub erect, covered by persistent leaf-bases, rhizome arise from the basal part of the basal part of the rhizome, scales, absent, fronds dimorphic or uniform, sometime whole fertile frond is separate, while in some plant the fertile portion us terminal, stipe glabrous thin shining lamina upto 60 x 30 cm, spreading, glossy green, primary pinna arranged, sporangia massive, forming clusters, spore fertile, round exine.

Part Used

Whole plant

Medicinal Use

Whole plant is used in treatment of thick rickets, rheumatism, and intestinal disorders, mucilaginous, roots are used as tonic.

Aim of the study

The aim of this paper is to find alternative medicines to human ailments. As the first vascular plants (Pteridophytes), ferns and fern allies are an ancient lineage and human beings have been exploring and using taxa from this lineage for over 2000 years because of their beneficial properties. The documentation of Pteridophytes belong to thirty different families. In earlier studies the multiple pharmacological activity such as antioxidant, anti-inflammatory, anti-cancer, antidiabetic, antiviral, antimicrobial and anti-Alzheimer properties were discovered, that could be used as an alternative medicine for treatment of various human illnesses.

Conclusion

The Vascular plants (Pteridophytes) are divided into two groups – Pteridophyta and Spermatophyte. Pteridophyta include vascular cryptogams e.g. *Pyloium*, *Lycopodium* ferns, *Equisetum* etc. which take seeds and reproduce by spores. Spermatophytes are characterized by presence of seeds and include gymnosperms and angiosperms.

The common name "maiden hair fern" is given to the species *Adiantum* because of their bright black petioles which resemble ladies hair. *Adiantum* different species are used as, treatment against malaria, bronchial diseases, anti-fungal and anti-bacterial uses. The rhizome of *Asplenium* contains and also used treating Jaundice and young root are used in dysentery.

The leaves *Ophioglossum* contain cooling effect of wounds and inflammation.

The *Osmunda* ferns contain to remove the ricotta and rheumatism and intestinal disorders in human etc.

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