

Ethnobotanical Studies of Pteridophytes of Nallamalla Forest

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Abstract

The Pteridophytes are premier primitive vascular Cryptogams plants with feather like fronds, concealed flowers successfully invaded the land. Pteridophytes also known as botanical snakes of plant kingdom. The Pteridophytes grow under various habitats mostly prefer cool shady and moist places. Nallamalla forest is replete with Pteridophytes indicative of their pre-existence from prehistoric times. The study has been carried out in Nallamalla which reveal the Ethno-botanical studies of Pteridophytes which are represented by 28 species, 20 genera belonging to 18 families. The Native system of medicine helps to incorporate the gained knowledge in formulations of their products in the field of Native medicine to offer the best and sure treatment of diseases.

Keywords: Pteridophytes, Nallamalla, Ethno botanical, Native medicine, Diseases

Introduction

Pteridophytes are primitive plants with feather like fronds Pteridophytes also been referred to as Vascular Cryptogams with concealed flowers with hidden reproductive organs. Hence Pteridophytes are flowerless, seedless, spore bearing vascular plants that have successfully invaded the land. Pteridophytes are also known as botanical snakes of plant kingdom. In Prehistoric times, Pteridophytes formed the dominant flora in the forests, as they have been pioneer plants which invaded the land successfully to adopting dry and moist habitats. Nallamalla forest replete of Pteridophytes is indicative of their pre-existence from prehistoric times. They have adopted varied habitats and are found in dry, moist, cool and shady places. They are also found in open grasslands exposed to sunlight and even flourish under xeric climatic conditions. Some are aquatic and some are epiphytic.

Col. Richard Henry Beddome the renowned Pteridologist entered the Forest Service of Madras in 1856. He extensively collected plants from Balapalle, Godavari, Hyderabad, Krishna forest, Nallamalais, Palakonda hills, Seshachalam and Vishakapatnam. He studied flowering plants as well as Ferns. His important contributions in the field of Fern study are: “*The Ferns of Southern India*” (Beddome 1863-64) [2], “*The Ferns of British India*” (Beddome, 1865-70) [3], “*A Hand Book to the Ferns of British India Ceylon and Malay Penininsula*” (Beddome, 1883). [4]. Beddome listed and provided brief taxonomic descriptions of 683 species under 103 genera of homosporous ferns of the Indian sub-continent. Most of the collections of Beddome are housed in Kew Herbarium, London. Clarke (1879, 1880) [5],[6], gave an account of Ferns of Northern India. Hope (1899-1904) described Ferns of North-Western India. [9]. Recent studies on the Ferns in India include “*Fern and Fern allies of Meghalaya State*” by Baishya and Rao (1982), [1] “*Fern and Fern allies of Malabar*” by Nayar and Geevergeese (1993). [11]. Dixit brought out several books on Indian Pteridophytes which include “*A census of Indian Pteridophytes*” (Dixit 1984), [7]

Lycopodiaceae (Dixit, 1987). [8]. *Pteridophytes of Western Ghats-South India* was described by Manickam and Irudayaraj (1992) [10]. Vasudeva and Bir (1994) [16], brought out Pteridophytic Flora of Pachmarhi, Tamia and Patal Kot in central India Ellis (1996) surveyed Balapalle range of Seshachalam reserve forest in Kadapa district and reported 6 species of Pteridophytes belonging to 6 genera and 6 families. Swamy and Thammanna (1985) [15] gave a detailed account of ferns and fern allies of Tirumala. They reported 34 species belonging to 24 genera and 19 families. Pullaiah and Ravi Prasad Rao (1995) [13] recorded 6 species of Pteridophytes belonging to 5 genera and 5 families in Nizamabad district. Pullaiah et. al., (2003) [14] a total of 89 species of Pteridophytes belonging to 51 genera and 32 families have been recorded in Andhra Pradesh. No comprehensive work is available with regard to Ethnobotanical studies of Pteridophytes in the study area. Therefore, the main objective of the present paper is to document the importance of Pteridophytes in Nallamalla, Andhra Pradesh and their use by the local people of the area.

Study Area

Nallamalla, one of the Centres of Plant Diversity (CPD) (WWF & IUCN, 1995), represent a group of moderately steep hills located in the Central Eastern Ghats between latitudes 15°20' – 16 – 30' N and longitudes 78° 30' – 80°10' E in Andhra Pradesh State. They are extended to an area of 7640 Sq. Km. running North-South over a length about 130km with some precipitous cliffs. The highest point is Virannakonda peak (939m above MSL). The hills cluster near Gundlabrahmeswaram is the nucleus of the Nallamalla appearing as plateau. Major rivers in Nallamalla are the Krishna and Gundlakamma. There are many waterfalls, seasonal streams and natural perennial springs in Nallamalla, the most significant being the Mahanandi perennial spring. Other springs of due importance are Ahoilam, Rudrakodu, Rollapenta, Onkaram, Pecchuruva and Sunnipenta. The forest can be categorized into three

types: moist deciduous, dry deciduous and scrub type. Moist deciduous type of vegetation confined to Gundlabrameswaram, Ahobilam, Rudrakodu, Rollapenta and some portions of Peccheruvu forest range. The flora of these regions is remarkable for rich floristic diversity and luxuriant forest growth. Most primitive tribes, Chenchus and the non-aboriginal and migrated Lambadis, migrated Yerukula and Yanadi live in Nallamalla. These tribes in the study area have rich traditional botanical knowledge and still dependent on wild medicinal plant resources for curing their ailments.

Methodology

The present paper deals with the ethno-botanical studies of Pteridophytes which is the outcome of the periodical field trips that were undertaken in the different parts of the study area.

The authors met the tribal people and collected information regarding the Pteridophytes and their uses that are available in the area. The specimen species are collected and identified with the help of floras of Nayar and Geevarghese (1993), ^[11], Manickam and Irudeyaraj (1992) ^[10], Pullaiah et.al (2003) ^[14].

Results and Discussion

The present study reveals that Pteridophytes are represented by 28 species, 20 genera belonging to 18 families. Pteridophytes found in the study area are listed in Table 1 along with their botanical name, local name, family and their ethno-botanical significance. Local tribal people have unique traditional botanical knowledge to cure different human diseases and disorders by using these Pteridophytes.

Table 1

S.No	Botanical Name	Local Name	Family	Distribution & Ecology	Ethno botanical value
1.	<i>Selaginella bryopteris</i> (L.)Bak.	Sanjeevani	Selaginellaceae	Occasional in dry forest	Unconsciousness, jaundice
2.	<i>S. repanda</i> (Desv.) Spring	----	Selaginellaceae	Terrestrial in shady places not common species	-----
3.	<i>Isoetes coromandelina</i> L.f.	----	Isoetaceae	It is rare in the stagnant water, in lake	----
4.	<i>Equisetum ramosissimum</i> Desf.	Putpudi	Equisetaceae	Very rare, margin of the water streams	Bone fracture, relieve acidity
5.	<i>Ophioglossum reticulatum</i> L.	-----	Ophioglossaceae	Very rare shady hilly slope	Contusions, haemorrhages, wounds
6.	<i>Osmunda regalis</i> L.	----	Osmundaceae	Rare in rocky banks of streams	Rheumatism, intestinal disorders
7.	<i>Lygodium flexuosum</i> (L.) Sw.	Adavi satavari	Schizaeaceae	Terrestrial along road side	Skin diseases, scabies, eczema, rheumatism
8.	<i>L. microphyllum</i> (Cav.) R. Br.,	Adavi satavari	Schizaeaceae	Rare, climber on trees in marshy places	Antisepctic, antibacterial stem used for catching fish
9.	<i>Pteris vittata</i> L.	----	Pteridaceae	Rare fern in rock crevices	Chronic disorders, anthelmintic
10.	<i>Actiniopteris radiata</i> (Sw.) Link,	Maayurisikha	Actiniopteridaceae	Occasional in rocky dry places	Antidiabetic, blood pressure, tuberculosis
11.	<i>Cheilanthes farinosa</i> (Forsk.) Kaulf.	----	Sinopteridaceae	Lithophyte roadsides in hilly regions	----
12.	<i>C. tenuifolia</i> (Burm.f.) Sw.	Dotari	Sinopteridaceae	Gregarious in canals at foot hills	Sickness attributed to witchcraft, root use in tonic
13.	<i>Ceratopteris thalictroides</i> (L.) Brongn.	----	Parkeriaceae	Stagnant water, marshy places	Fresh leaves as vegetable curry
14.	<i>Hemionitis arifolia</i> (Burm.) Moore,	-----	Hemionitidaceae	Dry localities	Fronds for treatment of aches and vermifuge
15.	<i>Adiantum capillus-veneris</i> L.	Hamsapadi	Adiantaceae	Near streams	Cough, cold, emmenagogue
16.	<i>A. caudatum</i> L.	Rajahamsa	Adiantaceae	Moist shady places	Cough, skin diseases
17.	<i>A. incisum</i> Forssk.	Hamsapadi	Adiantaceae	Common fern in roadsides	Cough, skin diseases, antidiabetic
18.	<i>A. lunulatum</i> Burm.	Hamsapadi	Adiantaceae	Terrestrial fern on moist shady places	Scorpion sting, fits, leprosy
19.	<i>Nephrolepis multiflora</i> Roxb	Ramasula	Oleandraceae	Terrestrial, gregarious stream banks	Brain fever, plants are potted in houses for decoration
20.	<i>Ampelopteris prolifera</i> (Retz.) Copel.	----	Thelypteridaceae	Moist shady places	Young leaves laxative,
21.	<i>Christella dentata</i> (Forssk.)	-----	Thelypteridaceae	Common fern in shaded streams banks	Fronds used as fodder
22.	<i>C. parasitica</i> (L.) Lev.	----	Thelypteridaceae	Shady places	Folk remedy for skin diseases, antimicrobial
23.	<i>Athyrium hohenackerianum</i> (Kunze) T. Moore.	----	Athyriaceae	Rare, lithophyte on rocks, shady places	Eaten as green vegetable, good fodder for cattle
24.	<i>Dryopteris cochleata</i> (Don) C.chr.	----	Dryopteridaceae	Terrestrial on roadsides	Cure vomiting, diarrhoea
25.	<i>Tectaria coadunata</i> (J.sm.) S.chr.	----	Dryopteridaceae	Frequently inside the forest	Young fronds as vegetable curry Rhizome diarrhoea
26.	<i>Marsilea minuta</i> L.	----	Marsileaceae	Stagnant water	Leaves used as vegetable, sporocarps rich source of starch
27.	<i>M. hirsuta</i> L.	----	Marsileaceae	Water bodies, streams	Leafy vegetable
28.	<i>Azolla pinnata</i> R.Br.	----	Azollaceae	Free floating in water bodies	Bio fertilizer in paddy field

Conclusion

Thus the study of Pteridophytes could help to identify new or less known medicinal species and by interacting with tribals provide a clue for systematic Pharmacognosy, therapeutic and clinical research. It is not only essential to conserve such a wealth of information found among the tribals but also to enumerate and record such details and diverse information, which constitute a modern biomedical system to meet the ever increasing requirement of mankind. India is one of the major Asian countries in terms of the diversity of systems for the traditional knowledge associated with the use of Pteridophytes species. Traditional medicine occupies a central place among rural communities of India for the provision of health care. The tribals depend on the plants around them which made them acquire knowledge of medicinal properties of many plants. Consequently they became the store house of knowledge of many useful plants accumulated and enriched through generations and passed on to one another without any written documents. It must be properly documented and preserved urgently because most of the tribals are being assimilated into modern societies. Consequently, the treasure of the knowledge of tribals is being depleted and is almost disappearing. Efforts should also be made by researchers and scientists to conserve and propagate the rare and fast disappearing flora to retain the ethnic treasure of flora in the country. More over the tribals is consulted frequently for tapping inherent ethnic potential of Pteridophytes and document the knowledge immediately so as to conserve the same for future generations. Much efforts are being exerted by Native system of medicine to incorporate the gained knowledge in formulations of their products. People have gained much awareness and have become more health conscious and adopting the Native system of medicines such as Unani/Ayurveda/Siddah for their health problems. A number of companies have emerged in the field of Native medicines to offer the best and sure treatment of rare, incurable diseases. It's a panacea to the poor and to offset the dreaded side effects of Allopathic medicine.

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