Traditional use of Pteridophytes as medicine among Tharu of Dudhwa National Park in Lakhimpur-Kheri district, U. P., India

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Received 03 June; accepted 20 July; published online 01 August; printed 16 August 2013

ABSTRACT

The present study is an attempt to enumerate the phyto-remedial pteridophytes of the terai region of India, exclusively in use by the natives in and around the Dudhwa National Park specially the Tharu. It has been observed that nearly 14 species of pteridophytes belonging to 10 genera and 9 families are used as medicine in treatment of different diseases like bleeding, leprosy and as blood purifier etc. The plants were collected and brought to the laboratory and prepared for correct identification and its preservation as permanent voucher specimens. The enumeration comprises alphabetical list of correct botanical name of species followed by family under parenthesis, basionyms, synonyms, vernacular names, and methodology of preparation of medicine along with mode of administration.

Keywords: Dudhwa National Park, Medicine, Pteridophytes, Tharu

1. INTRODUCTION

Owing to the wide range of climate, topology and environments India is one of the richest countries in the world in terms of biological diversity and holds a respectable position among the world’s 12 mega biodiversity centers. It harbors about 1800 flowering plant species and nearly 1000 species of pteridophytes along with millions of other organisms, which account for 6 percent of the total plant species in the world (Dixit, 1984; Bir, 1992; Anonymous, 2009). The forest cover in India as per 2005 report is 20.6% and the tree cover is 2.8% of the total geographical area of India. This forests area is home to tribal populations ever since the decent of man on earth. Living in close association with nature and natural resources these primitive people by virtue of their own distinct culture, believes, taboos, totems, religious rites, traditional food habit and medicines are a storehouse of enormous knowledge about sustainable use of plant species available to them in their native home land.

Experience gained over the generations by trial and error method has been passed on as traditional knowledge through verbally from generation to generation since dawn of civilization. Over 9500 wild plant species in use by Indian tribes for various needs have been recorded so far. Out of 7500 wild plant species used by the tribes for medicinal purposes, about 950 species have been found to be new claims and worthy of scientific investigations. Several of the medicinal plants find wide acceptance and honorable place in traditional as well as in modern medicine. Although traditional medicine flourished in India for quite a long time yet for a while it was subdue under the impact of miraculous and quick effect of modern medicine. Nevertheless, due to the fear of side effects of modern synthetic drugs, traditional herbal medicine has once again started gaining popularity throughout the world (Sullivan and Shealy, 1997; Singh 2002). Scrutiny of ethnobotanical literatures, published by earlier workers from Uttar Pradesh (Maheshwari et al. 1980 & 1981; Saxena and Vyas 1981; Singh and Maheshwari, 1983a; Dixit, 1984; Maheshwari et al 1986; Singh et al 1987; Singh, 1988; Singh, 2002) reveals that in spite of being the second largest group of vascular plants after Angiosperms (Benjamin and Manicam, 2007), pteridophytes have got very little attention as far as its medicinal use is concerned (Singh et al. 1989) from the state. Considering the above facts, the Dudhwa National Park is selected for ethnophertiderological study.

2. STUDY AREA

Dudhwa National Park comprises of the Dudhwa Tiger Reserve The Park is located on the Indo-Nepal border in Nighasan Tehsil of Lakhimpur-kheri district near the foot hills of the Himalayas’ Between the Bhabar and the Gangetic plain in marshy undulating alluvial lands and, with fine selection of terai ecosystem. The area lies between 28°, 18’ N and 28°, 42’ N latitudes.
populated villages and generally scattered and are often located at a miner distance. The culture of Tharu tribe is really Eco-friendly and represents a good social life system (Shivastav, 1958). This tribe has mongoloid affinity. They practice monogamy and role of women is dominant. They usually work as farmers or peddlers. The economy of Tharu community is based on Agriculture and forestry (Pradhan, 1937). They has deep affinity with forests and rivers. Contrast in colour predominate their attire as well as decorative wall paintings on houses. They grow barley, wheat, maize, and rice, as well as raise animals such as chickens, ducks, pigs, and goats. Although physically the Tharu are similar to other peoples in the area, they speak their own language that has its origins in Sanskrit and is now officially recognized.

4. METHODOLOGY
Several field trips were conducted between the year 2009 and 2011, with a view of collecting information on medicinal uses of ferns by Tharu tribe and other rural people in the studied area for treatment of various diseases. All information presented in this communication is based on first hand on the field observations and interviews with knowledgeable men and women of the tribal community. To confirm the validity of recorded medicinal uses of ferns, they were verified by repeated quarrying on the various informants in the same and other localities of far and distant. As far as possible the medicinal sample and their voucher plant specimens were collected in the guidance of Traditional medical practitioners. The collected plant specimens have been processed and pressed in the field and identified in the Herbarium, Birbal Sahni Institute of Palaeobotany, Lucknow, with the help of available literature on pteridophytes (Tiwari, 1964; Panigrahi & Dixit, 1966; Bir & Vasudeva, 1973; Beddome, 1893; Dixit, 1984).

5. RESULT & DISCUSSION
About 14 species of pteridophytes belonging to 10 genera & 9 families were found to be in use by the Tharu tribe for medicinal purposes. The voucher herbarium specimens are deposited in Herbarium, Birbal Sahni Institute of Palaeobotany, Lucknow, India. Tharu tribes use many of the pteridophytic plants species in and around the vicinity in various therapeutic uses including treatment of common skin ailments like wounds, eczema as well as gastro-intestinal problems such as diarrhea, dysentery, and snake bite, fracture of bone, spermatorrhoea, blood dysentery etc. Most common mode of usage is as a tonic in different forms such as juice, extract, paste, infusion, powder etc. Tharu community is not untouched by the winds of change and as modern ideas and scientific know how makes its presence felt in the area, traditional customs and practices are losing ground especially among the younger generation. However, traditional systems of medicine are still patronized by a few elders of the community and they get their medicinal samples or Jadi-buti (medicinal plant products) on the recommendation of ‘Bharra’, who is traditional doctor of these tharu tribal’s (Figure 1). The ‘ferns and ferns allies’ species have been found to be of great medicinal values. Instead of exploiting the ‘ferns and ferns allies’ for their economic value and ornamental beauty, care should be take for their conservation (Benjamina and Manickum, 2007). The result of this study may help to the scientists of pharmaceutical laboratories in identification of reliable source of medicine and as a connecting link between traditional knowledge and modern biotechnological tools of genetic engineering to get new sources of medicine.

5.1. Adiantaceae
Adiantum capillus-veneris Linn. f. / 'Ratanjot'

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The decoction of about 50 fresh fronds is taken in dose of one teaspoonful twice a day for 7 days in Menorrhagia to promote menstruation or regulate the menstrual periods. It is also used to check cancerous growth. Externally, it is used as a poultice on snake bites and bee stings. A paste made from the fronds is used to relieve headaches.

**Adiantum incisum Forsk. / Syn.: A. caudatum Linn. / Lotan-Hansraj**

Aqueous extract of about five leaves is given thrice a day for fifteen days to treat Jaundice. Decoction of rhizomes is used in dose of one teaspoonful thrice a day for seven days to promote bronchial secretion and its removal during cold and cough. It is also used to promote sexual desire in men when taken with milk once a day for one week.

**Adiantum philippense Linn. / Syn.: A. lanulatum Burm. f./ Hansraj**

An aqueous extract of about fifteen fronds is taken orally in dose of two teaspoonful thrice a day for a week to treat blood dysentery which is an infectious disease having ulceration of the lower part of the bowels, characterized by acute diarrhoea accompanied by gripping pain, and passage of mucus and blood in stool. It is also taken in dose of half cup twice a day for one month or more to treat Leptospir which is a serious and progressively destructive form of disease caused by bacteria that attacks the skin, nerves and mucous membranes, creating lumps in the skin, thickening of skin and nerves, numbness and paralysis. The more serious case shows deformity and considerable disfigurement and sometimes blindness.

5.2. *Ceratopteris* 

*Ceratopteris silicuosa* (Linn) Copel. / Syn.: *C. thalictroides* (Linn.) Brough. ‘Panihas’.

The extract of fresh leaves is taken thrice a day for three days to treat stomach disorder including indigestion and acidity. The paste of plant is applied on cuts and wounds to check bleeding.

5.3. *Equisetaceae*

*Equisetum arvense* Linn. Harjor

The one cup aqueous extract of fresh plant is taken thrice a day for fifteen days to treat liver disease, and to increase appetite. Decoction of fresh plant is taken in dose of two teaspoonfuls thrice a day for ten days to treat burning sensation in urine.

5.4. *Marsileaceae*

*Marsilea minuta* Linn. Susnari

Vegetable of plant is taken for treatment of various eye diseases and to increase Eye sight. The powdered mixture of this plant and turmeric is used as tooth powder to get rid of toothache and to treat caries characterized by gradual decay and disintegration of soft or bony tissue or of a tooth.

5.5. *Ophioglossaceae*

*Ophioglossum reticulatum* Linn. Ekpatia

The paste of about 10 to 50 plant is taken with water thrice a day for three days to treat stomach disorder and used to neutralize acidity, especially in the stomach and duodenum. The fronds are used as tonic. The paste of fresh fronds is used to check bleeding from cuts and early healing.

**Helminthostachys zeylanica** (Linn.) Hook. f. Kamraj

The gargle with decoction of fronds is helpful in treatment of throat infections. The paste of about 10 to 50 fresh plant is applied for a week to treat ringworm and eczema. An extract of fresh plant is also used to treat menstrual disorders.

5.6. *Pteridaceae*

*Pteris vittata* L.

Fresh leaves are crushed and applied to stop bleeding and healing of wounds. Plant extract is used as demulcent, hypertensive tonic.

5.7. *Salviniae*

*Salvina natans* (Linn.) All. Jalmaganiya

The paste made by about fifty fresh plants is applied for a week to treat ringworm and eczema. An extract of fresh plant is taken in dose of one teaspoonful thrice a day for two days to get relief from acidity.

5.8. *Schizaeaceae*

*Lygodium flexuosum* (Linn.) Sw. Kali jar.

Decoction of leaves is used in dose of one teaspoonful thrice a day for five days to treat acute diarrhea and dysentery. Paste of leaves is used to treat skin diseases and applied on the piles. Extract of stem and rhizome is taken orally twice a day for a week for sexual diseases like spermatoeeh.

5.9. *Thelypteridaceae*

*Ampelopteris prolifera* (Retz.) Copel. / Syn.: *Hemionitis sproliera* Retz. / ‘Bhuisag’

About fifty leaves are boiled with coconut oil and applied to cure various skin diseases. Paste of root is used to cure eczema. Aqueous extract of about fifty leaves are used in a dose of one teaspoonful once a day at night for seven days to kill intestinal worm; it is also taken thrice a day for one month as blood purifier.
ACKNOWLEDGEMENT
The author is grateful to The Principal, St. Andrew’s College Gorakhpur, for his constant encouragement. The authors are also thankful to the tribal communities of National Park for the valuable information and cooperation.

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