

RESEARCH ARTICLE

Some studies of medicinal pteridophytes in Kanpur urban, U.P.

■ NIKHIL AGNIHOTRI

SUMMARY

Pteridophyta is a small but important group of plant world that is also known as non-flowering vascular plants. About 305 genera and 10000 species of pteridophyta are known till today. 191 genera and 1000 species of pteridophytes are known in India up to now. The medicinal utility of pteridophytes group of plants is known since very ancient times. Two of the ancient Indian medicine men namely Charak and Sushrut identified the medicinal utility of Marsilia and Adiantum. Similarly, Equisetum has also being used by the traditional healers since ages. The present study is based on the medicinal utility of pteridophyta plants found in Kanpur and nearby areas. In the study, the medicinal utility, their botanical names, their family names, habit and habitat, useful parts and usage of 8 plants belonging to 6 pteridophyte families found in Kanpur and adjacent areas have been listed. This study is an effort of listing the medicinal utility and preserving of pteridophytes for future use.

Key Words : Pteridophytes, Medicinal Plants, Traditional medicines

How to cite this article : Agnihotri, Nikhil (2016). Some studies of medicinal pteridophytes in Kanpur urban, U.P. *Internat. J. Plant Sci.*, 11 (2): 315-317, DOI: 10.15740/HAS/IJPS/11.2/315-317.

Article chronicle : Received : 29.12.2015; Revised : 19.05.2016; Accepted : 21.06.2016

Pteridophyta, also called vascular cryptogams, is one of the most vital plant group of embryophyta.. Plants of this group first appeared about 38 billion years ago in Palaeozoic era (Smith, 1994 and Naiyyar, 1958). Some scientists believe that they appeared about 40 billion years. This is the first plant group which is considered to be totally conditioned for terrestrial life on earth. About 305 genera and 10000 species of pteridophytes are known till today. Out of these, about 1000 species of 191 genera are identified in India (Parihar and Parihar, 2006). Several fossil species are also found

in different parts of the globe including India. Members of pteridophytes are conditioned for different environmental conditions (Singh, 1999). For example, *Azolla* and *Salvania* are found in fresh and still water, while *Equisetum* grows by itself on aged walls, humid and damp places and also grown in gardens as ornamental plants (Agnihotri, 2011). Some species of *Selaginella* are found in dry, desert areas and others are found in wet and hilly areas. *Licopodium* and *Flagmerilla* grow at humid and damp places in hilly areas or exist as sub-plants on other plants. Some species of *Offioglossom* also grow on the banks of rivers and ponds.

Like angiosperm plants members of this group have a vital importance in traditional medical practices. A number of pteridophyte plants are used in cure of diseases

AUTHOR FOR CORRESPONDENCE

NIKHIL AGNIHOTRI, Department of Botany, Sri Deen Dayal Kushwaha Mahavidyalaya, SAMBHALPUR (KANPUR) INDIA
Email: nikhil.azolla@gmail.com

and production of medicines in Ayurvedic, Unani and Siddha systems. Ancient Indian healers were very much familiar with different medicinal uses of *Adiantum* (*Hanspadi*) and *Marsilia* (*Chatushpatri*) (Sharma, 2006).

Study area :

Kanpur is the 9th biggest metropolitan city of India. It is situated at the banks of the holy Ganga in the central region of Uttar Pradesh between 25°26' N and 28°58' N longitudes and 79°31' E and 80°34' E latitudes. The district is bounded by Unnao and Fatehpur districts in the east, Hardoi district in the North, Hamirpur district in the south and Kannauj and Kanpur Dehat districts in the west. Ganga, Isan, Pandu, Sengur, Noon, Atak etc. are the major rivers that flow in either Kanpur or nearby areas. About 40 per cent population of the area is in farming profession. Wheat, rice, potatoes, maize, grams, mustard and several other vegetables are grown in plenty in this area. Other than metropolitan area, Kanpur district also includes many a suburban, rural and remote areas that are adjacent to the district. The present study is an effort to recognize and classify the ancient medicinal importance of plants of pteridophytes family that grow in Kanpur district and adjacent areas.

MATERIAL AND METHODS

A number of tours for the purpose of survey were organized between 2014-15 to study the traditional

medicinal significance of pteridophytes plants. These plants mostly grow on old walls, sandy banks, dark and wet places, clean and still water and damp areas, we preferred such areas for our study. Places like Civil lines, *Purana* (Old) Kanpur, Golaghat, Tikra, Maksudabad, Loharkhera and nearby areas of Isan and Pandu rivers were included in the study.

All plants included in the study have been identified according to botanical classification. The medicinal utility of the plants has been ascertained on the basis of knowledge gained from *Vaidyas*, *Hakeems*, Snake charmers, Old age persons, *Guni* persons, medicine sellers and local inhabitants who have good knowledge about plants and their medicinal usage (Srivastava, 2007). Medicinal utility / information confirmed by a minimum of five persons have been preferred to be recorded in the study. The specimens and photographs of Pteridophytes plants identified in the study have been preserved in the Department of Botany of Sri Deen Dayal Kushwaha Degree College, Sambhalpur, Kanpur.

RESULTS AND DISCUSSION

The data recorded during the survey has been presented in Table 1. The botanical name, family, local name, useful part and method of usage of plants of Pteridophytes group found in Kanpur and nearby areas have been included in the study. During the study, the ancient medicinal utilities of 8 species of plants belonging to a total of six families have been revealed. These

Table 1 : Medicinal pteridophytes of Kanpur

Sr.No.	Botanical name / family of plant	Popular/ hindi name	Useful part	Methods of usage
1.	<i>Adiantum capillus Venris</i> Linn. Adiantaceae.	Hanspatta	Aerial part	Leaf extract is used in treatment of asthma and cold related fever. Decoction of whole plant is given in amounts of 10-15 ml two to three times in stomach ache, cough, flu and other cough related diseases. Whole grinded plant is rubbed on body of kids suffering from cold.
2.	<i>Azolla pinnata</i> Linn. Azollaceae	Lalami	Whole plant	Whole plant is added to fodder and given to cattle for increasing milk production and treating cough related ailments.
3.	<i>Equisitum arvens</i> Linn. Equisitaceae	Tora-Jora	Leaves and stem	Juice of grinded stem and leaves is given as health gainer and energy booster.
4.	<i>Equisitum divel</i> Linn. Equisitaceae	Tora-Jora	Leaves and stem	Decoction of roots is given in amounts of 10-15 ml two to three times daily for treating Gonorrhoea. Grinded stem is also used for curing broken bones. Stem and leaves are grinded with <i>Cucurma Longa</i> Linn. (Turmeric) to cure swollen and painful joints.
5.	<i>Isoitis coromandilana</i> Isostaceae	Bhadbhada	Whole plant	Decoction of whole plant is given for curing liver ailments and stomach problems.
6.	<i>Marsilia minuta</i> Linn. Marsilaceae	Chaupatia, Sunsunia	Whole plant	Leaf powder is consumed at night with milk for treating sleeplessness. Powdered leaves and petioles is given for treating dysentery and diarrhoea.
7.	<i>Marsilia quardifolia</i> Linn. Marsilaceae	Jalpatta	Whole plant	Grinded whole plant is tied for treating ulcers, acne and wounds.
8.	<i>Selagenella</i> sp. Selagenaceae	Sanjeevani	Whole plant	Juice of whole plant is given with milk mixed with honey as health gainer and energy booster.

include 2 species each from *Equitaceae* and *Marsillaceae* families and 1 species from *Ediantaceae*, *Azollaceae*, *Isotaceae* and *Sellaginaceae* families each. Out of these, *Sellaginaceae* does not grow by itself in Kanpur and adjacent areas but local medicine sellers and local traditional healers often use it in the form of medicine. Remaining seven plant species grow frequently in Kanpur and adjacent areas.

The results of the present study reveal that though extinct and scarcely found, the plants of pteridophyta group are playing a major role in maintaining primary healthcare in the form of indigenous medicines in Kanpur and adjacent areas. *Equisetum arvens* Linn. and *Selaginella* are used as medicines for gaining health and vigour. *Adiantum capillus veneris* Linn. is used to cure of health problems such as cold, flu and asthma. *Marsilia minuta* Linn. is used for curing sleeplessness, diarrhoea and dysentery. *Marsilia quardifolia* Linn. is used for the treatment of acne, wounds and some skin problems. *Equisetum dibel* Linn. is used for treating Gonorrhoea and a number of orthopaedic problems. *Azolla pinnata* Linn. is used for increasing milk production in animals and curing cough problems in animals.

This ancient medicinal knowledge needs to be conserved and researched over more and more in order to preserve the future of humans.

Courtesy :

The researchers are very much obliged to Dr.

Narendra Mohan, H.O.D., Department of Botany, D.A-V. College, Kanpur who has greatly helped in making this research a success.

REFERENCES

- Agnihotri, Nikhil (2011). Soil plant relationship as influenced by *Azolla* as organic compost, Ph.D. Thesis, Chhatrapati Shahu Ji Maharaj University, Kanpur, U.P. (INDIA).
- Agnihotri, Nikhil and Bhatnagar, Santosh (2010). Contribution of folk medicine in rural healthcare in Kanpur and adjacent areas, IV World Ayurveda Congress, Bengaluru, Dec 9-13, pp. 291.
- Naiyyar, B.K. (1958). *Medicinal ferns of India*, Bulletin of National Botanical Gardens, 29, pp. 1-36.
- Parihar, Pradeep and Parihar, Leena (2006). Some pteridophytes of medicinal importance of Rajasthan, *Natur. Prod. Rednance*, 5(4) : 297-301.
- Sharma, P.V. (2006). *Dravyaguna Vigyan*, Chaukhambha Prakashan, Varanasi (U.P.) INDIA.
- Smith, G.M.(1994), *Cryptogamic botany*, Vol-II, Tata McGraw Hill Publishing Co., NEW DELHI, INDIA.
- Singh, H.B. (1999). Potential medicinal pteridophytes of India and their chemical constituents, *J. Econ. Taxon. Bot.*, 23 (1) : 63-78.
- Srivastava, K. (2007). Importance of ferns in human medicine, *Ethnobotanical Leaflets*, 11 : 231-234.

★ ★ ★ ★ ★ of Excellence ★ ★ ★ ★ ★
 1st Year