



MARSELIA MINUTA L. : AN ELIXIR OF LIFE

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The present research work has been conducted to investigate one of the moist loving semi-aquatic imperative marginal herb, *Marselia minuta* L. commonly known as “Sushni Saag” in Santhal Paragana division of Jharkhand. The purpose of research is to explore the ethnobotanical studies, medicinal utilization and nutritional value of this valuable and culinary plant among the tribals and common people. Investigation was also done by collecting information from the local drug and vegetable sellers in the village markets of Santhal dominated Jamtara district of Jharkhand state. It is an important flora, and is most commonly used by the local people due to its curative properties for various ailments and high nutritional value. The present work compiles an account of documentation and brief floristic description of *M. minuta* L. and its traditional medicinal values and monetary benefit to the native people.

Keywords : *Marselia minuta*, Sushni saag, Medicinal, Jamtara.

Marselia minuta L., commonly known as four leaved clover or small water clover, named after an Italian naturalist, F. L. Marsigli, is a moist loving and aggressive aquatic or semi-aquatic fern, most commonly found in shallow waters. It shows massive growth in the bottom of clayey soil in submerged water (Marwat *et al.* 2007). Despite being weedy and troublesome in nature, this plant has been proved to be elixir of life. People of Santhal Paragana generally use the leaves and shoot of this plant as vegetable. It is commonly known as “Sushni saag” and it has extensive application in treatment of cough and other respiratory tract infection (Chakraborty *et al.* 2013). This flora is widely used in different traditional and folk medicinal systems and recommended for the treatment of Psychopathy, diarrhoea, respiratory troubles and skin diseases (Sen *et al.* 2011). This cryptogamic flora has ethnomedicinal importance due to its antibacterial, cytotoxic and antioxidant properties (Ripa *et al.* 2009). This plant can be regarded as pot herb also, as it can also be cultivated in small areas or pots in a house providing suitable natural conditions.

Marselia minuta L. is a vascular cryptogam belonging to Phylum Tracheophyta, Class Polypodiopsida, Order Salviniiales and family Marsileaceae. It is a leptosporangiate, water

fern, with roots embedded in the soil. It is distributed throughout Indian sub-continent. This species is quite close to *M. quadrifolia* in sporocarp size and peduncle attachment (Johnson, 1986).

The Plant body is sporophytic, clearly differentiated into root, stem and leaves. The rhizome grows either on the surface of the mud or slightly below. It is capable of indefinite growth and may grow in all directions. The fronds (leaves) arise from the upper side of the rhizome in two alternate opposite rows; internodes may be short or long. On the underside of the rhizome one or more adventitious roots are present at the nodes. The length of the stipe (petiole) varies with the water-level where the plant grows. and has air-chambers, but when the same species grows on damp soil or mud the petioles are shorter and more rigid. Lamina circinate when young; pinnate, but as a result of two dichotomies arising in close succession to each other, it is divided into four pinnae that float on the surface of water and are borne very close together. The four leaflets do not actually arise at one locus but two of these are slightly higher than the others and are inserted in alternate fashion. Pinnae are sometimes very small, with a variable shape that varies from obovate to obcuneate to cuneate; margin variable, rarely toothed at

their distal margins, plants growing out of water have smaller pinnae.

This culinary and valuable herb is abundantly available in the low land moist habitat, sold in the local village markets in the form of leafy vegetable and have been used most frequently due to curative properties. The present work is a part of regular survey of the tribal dominated villages and local markets in and around Jamtara district to explore various nutritional and ethnomedicinal information. An appropriate dosage of ethnopharmacognostic preparation from different parts of plant body have been prescribed as a remedy for different disorders (Haines 1978).

MATERIALS AND METHODS

The present work is based on regular and extensive survey of some of the tribal dominated areas in and around Jamtara district of Jharkhand state, lying between 23°10' and 24°05' north latitudes and 86°30' and 87°15' east longitudes is located at a lower altitude of Chhotanagpur Plateau. The present study is a part of regular survey of village markets of Pabia, Duladih, Gorainala, Nala, Kundahit and Dhobna. It also includes contact with herbal medicine sellers and some of the tribals to know its food value and medicinal uses. Mostly female members and girl children are involved in collection of Sushni saag from the low lying moist areas and from the outskirts of water bodies. The information collected for this herb have been documented with botanical name, family, vernacular name, taxonomic description along with their nutritional and ethnobotanical uses and price in the village markets.

RESULTS AND DISCUSSION

It was found during present study that leaves and petioles of this marginal weed had been used in treatment of a number of ailments since Rigvedic period. It has been used in diarrhoea, dysentery, mental disorders, abscesses, sleeplessness, respiratory tract

infections, hypertension and headache. It has antidote, antiphlogistic, depurative and diuretic properties (Shankar and Mishra 2012). The leaves and petioles of this plant has been sold in the local markets as Sushni saag. This leafy vegetable is being sold mostly during the month of August to December. The samples were collected from near the ponds and ditches of various sampling sites for floristic study.

As per market survey during present study, this herb is sold in the village market in small bundles of 100 – 250 grams at the rate of Rs. 10/- to 15/- per bundle. This pot herb is being purchased by upper class people also due to its pharmacognostic properties. In the village markets of Pabia, Duladih and Nala, this leafy vegetable was found in abundance, whereas in other sites, it was in lesser quantity. The sellers like, Mahadeo Murmu, Keshav Hansda and Arjun Hembrum reported that they did not get requisite monetary return in comparison to their labour in collecting and selling this herb. Some of the herbal medicine sellers viz. Mahendra Soren, Lobeshwar Hansda, Shirshashish Das and Sunil Hansda enumerated its importance in treating various kinds of ailments. There is need of much more research in this field to explore the knowledge of traditional medicinal system and it is today's demand to cultivate such kind of important plant commercially on large scale and proper marketing system should be developed so that sellers and purchasers both can be benefitted. This weedy flora will be tremendously useful for uplifting the socio-economic status of local poor tribal mass of people and it should be encouraged both for welfare of mankind and ecological habitat.

CONCLUSION

Marselia minuta L. is an important marketable species and it should be recommended for much more phytochemical or pharmacological investigation and nutritional analysis, as it plays very significant role in the lives of tribal

communities and local poor mass of people. The promotion of ex-situ conservation of this species will create opportunity of regular employment for the villagers of this area.

REFERENCES

Chandra Subhash, C.R.Fraser-Jenkins, Kumari Alka and Shrivastava Archana 2008 A Summary of the status of threatened Pteridophytes in India. *Taiwana* **53(2)** 170-209.

Chakraborty R, De B, Devanna N and Sen S 2013 Antitussive, expectorant activity of *Marsilea minuta* L. an Indian vegetable. *J Adv Pharm Techno Res* **4(1)** 61-64.

Haines H H 1978 *The Botany of Bihar and Orissa*. Vol. VI. M/S Bishen Singh Mahendra Pal Singh, Dehradun.

Johnson 1986 Systematics of New world species of *Marsilea*. *Syst Bot Monog* **11** 1-87.

Marwat SK, Khan MA, Mustaq A, Zafar M and Sultana S 2007 Aquatic plants of District Dera Ismail Khan, Pakistan. *Ethnobotanical leaflets* **11** 247-257.

Rout SD, Panda T and Mishra N 2009

Ethnomedicinal studies on some pteridophytes of Similipal Biosphere Reserve, Orissa, India. *Int J Med Med Sci* **1** 192-197.

Ripa FA, Nahar L, Haque M and Islam MM 2009 Antibacterial, cytotoxic and antioxidant activity of crude extract of *Marselia quadrifolia*. *European Journal of Scientific Research* **33 (1)** 123-129.

Soni P and Singh Lal 2012 *Marselia quadrifolia* Linn. - A valuable, culinary and remedial fern in Jadugoda, Jharkhand, India. *International Journal of Life Science and Pharma research* **2(3)** 99-104.

Shankar Lal Hari and Mishra PK 2012 Study of Aquatic medicinal plants of Hazaribagh district of Jharkhand, India. *International Journal of Pharmacy* **2(3)** 405-409.

Sen S, Chakraborty R, De B and Devanna N 2011 An ethnobotanical survey of medicinal plants used by ethnic people in West and South district of Tripura, India. *J Forestry Res* **22** 417-426.

Tuba Z 1995 Overview of the flora and vegetation of the Hungarian Bodrogköz. *Tiscia* **29** 11-17.