

Use of Ethno-medicinal Aquatic Plants in Traditional Health Care – Sitamarhi District, Bihar (India)

Gopal Jha

Research Scholar, University Department of Botany

Babasaheb Bhimrao Ambedkar Bihar University Muzaffarpur, Bihar, India

E-mail ID – gopaljha731@gmail.com

Mobile - 7870029291

Abstract: - The comprehensive study was conducted to document the available medicinal plants and their traditional applications among the local people from 2018 to June 2019 in Sitamarhi District of Bihar. Purposive sampling method was used to select traditional medicinal practitioners of the study area. A semi-structured questionnaire was prepared and personal interviews were conducted to gather firsthand information about ethno-medicinal plants. Analysis of data revealed the use of some medicinal plant species belonging to some genera and some families for the treatment of about 60 ailments. The highest numbers of plants were used for gastrointestinal problems, skin problems followed by respiratory diseases, skeletomuscular diseases and dental problems. Traditional healers are still playing a great role in the primary health care system of Sitamarhi District. Some practitioners were ensuring the 100% results of their formulations against many serious diseases. The plant specimens were deposited in the herbarium of Central Library, Babasaheb Bhimrao Ambedkar Bihar University Muzaffarpur, Bihar, India.

Keywords: - Traditional use, Aquatic plants, Ethno-medicine, Sitamarhi, Bihar, India.

I. INTRODUCTION

The district of Sitamarhi was carved out of Muzaffarpur district on 11th December 1972. It is situated in the northern part of Bihar. Its headquarter is located at Dumra, five kilometers south of Sitamarhi. The district headquarter was shifted here after the town of Sitamarhi was devastated in one of the worst ever earthquake in January 1934. Sitamarhi is a sacred place in Hindu mythology. It's history goes back to Treta Yug. Sita, the wife of Lord Rama sprang to life out of an earthen pot, when Raja Janak was ploughing the field somewhere near Sitamarhi to impress upon Lord Indra for rain. It is said that Raja Janak was excavated a tank at the place where Sita emerged and after her marriage set up the stone figures of Ram, Sita and Lakshman to mark the site. This tank is known as Janki-kund and is south of the JankiMandir. In course of time, the land lapsed into a jungle until about 500 years ago, when a Hindu ascetic, named Birbal Das came to know the site by divine inspiration where Sita was born. He came down from Ayodhya and cleared the jungle. He found the images set up by Raja Janak, built temple over there and commenced the worship of Janki or Sita. The JankiMandir is apparently modern and about 100 years old only. The town however contains no relics of archaeological interest. The earlier record use of medicinal plants for prevention of disease and use of ointment can be traced Rig-Veda perhaps the oldest repository of human knowledge have been written between 4500 & 1600 BC. Each ethnic community has their own health care system, their ancient knowledge, sometimes referred to as ethno therapeutics. They are utilized their plant part like rhizome, stem, roots, fruits, leaves, in various ways for the treatment of various ailments since ancient time. In spite of the impressive work done on the aquatic plants India viz. Biswas and Calder (1955), Santapu (1955), Subramanym (1962), Vyas (1965), Jha (1965), are the prominent workers and a several publication were made on the aquatic flora of different districts of India. Aquatic plants are generally considered as menace as they are often result of eutrophication. But this is also a myth as a large number of aquatic plants are useful for human being and their medicinal uses are worth mentioning. Keeping these facts in mind present investigation was formulated to study aquatic plants of Sitamarhi district and to document their medicinal properties prevalent among local people.

II. OBJECTIVES

1. Trying to prove useful for human life by getting information about aquatic medicinal plants available in sitamarhidistrict.

Materials and Methods

An ethno-botanical survey was undertaken to collect information from traditional local people on the use of aquatic medicinal plants in Sitamarhi district of Bihar. The indigenous knowledge of local traditional local people and the native aquatic plants used for medicinal purposes were collected through questionnaire and personal interviews during field trips. This study showed that many people in the studied area of Sitamarhi district still continue to depend on medicinal plants at least for the treatment of primary healthcare. Plants were identified with the help of some local people and Deptt. Of Botany, S.R.K.G. College, Sitamarhi.

Study area

The district is bounded by the latitudes 26.5952° N and longitudes 85.4808° E. The total geographical area of the district in 2294 sq. km (source by <https://sitamarhi.nic.in>). It has 3 Sub-divisions consisting of 17 Block, 275 Panchayat and 845 Villages and 21 Police Stations. Dumra is the headquarters of the district. The district is located in the mature tract of Gangetic delta in Lower Ganga basin. Bagmati, Lakhandei and Adhwara rivers with their distributaries form the main drainage in this district.

Climate

The district is characterized by hot and humid climate. It receives adequate rainfall from North East and South-West monsoons which set in the later half of June and withdraw by the middle of October. Pre-monsoon rains are received during March-April.

Temperature

The climate of Sitamarhi district is monsoonal type. The annual range of temperature varies from 13°C to 45°C. June is the hottest month with temperature as high as 45°C and December is the coldest month with temperature as low as 10°C.

Rainfall

The normal annual rainfall in this district is of the tune of 1267 mm. Lower littoral part receives high rainfall which gradually decreases towards the northwest.

Table 1: Geographical location of the district of Sitamarhi.

Name of the District	Lat.	Long.
Sitamarhi	26.5952 ⁰ N	85.4808 ⁰ E

Source: Director, National Atlas, Govt. of India

Table 2: List of Aquatic Plants with Ethno-medicinal Uses.

	Name	Family	Plant parts	Ethno-medicinal use
01	<i>Polygonum glabrum</i>	Polygonaceae	Leaf	Wounds, Colic pain
02	<i>Polygonum. Barbatum</i>	Polygonaceae	Seed	Colic pain
03	<i>Polygonaceae</i>		Leaf	Wounds, good tonic
04	<i>Convolvulaceae</i>		Leaf, Stem, Tender shoot, Whole plant	On snake bite, Poisonous snake bite (pain), Purgative, Spasmolytic
05	<i>Limnophilaindica</i>	Scrophulariaceae	Whole plant	Antiseptic, Elephantiasis, Fever, Dysentery
06	<i>Nelumbonucifera</i>	Nymphaeaceae	Flower, Seed, Rhizome	Cardiac tonic for fever and disease of liver, Cooling medium for skin diseases, Piles.
07	<i>Nymphaeastellate</i>	Nymphaeaceae	Root, Flower	Dyspepsia, Diarrhea, Piles, Heart palpitation
08	<i>Neptuniaoleracea</i>	Mimosaceae	Whole plants	Astringent and cooling agent
09	<i>Hygroryzaaristata</i>	Poaceae	Seeds	Cooling agent and astringent to urinary tract, uses in biliousness
10	<i>Ceratophyllum demersum</i>	Ceratophyllaceae	Whole plant	Cooling agent, uses in biliousness, Scorpion sting.
11	<i>Vallisneriaspiralis</i>	Hydrocharitaceae	Leaf	Stomach pain, Leucorrhoea
12	<i>Monochoria hastata</i>	Pontederiaceae	Leaf	Used as tonic, cooling agent for Curing boils.
13	<i>Monochoria vaginalis</i>	Pontederiaceae	Root	Toothache, Asthma
14	<i>Typha angustata</i>	Typhaceae	Root	Astringent and Diuretic
15	<i>Cyperus articulatus</i>	Cyperaceae	Tuber	Tonic and Stimulant
16	<i>Scirpus grossus</i>	Cyperaceae	Tuber	Diarrhea and Vomiting
17	<i>Jussiaea repens</i>	Onagraceae	Whole plant	Skin disease, Ulcer
18	<i>Nymphoides indica</i>	Gentianaceae	Whole plant	The plant is used as a substitute for chiratta in fevers and jaundice

Data were gathered randomly from literature and personal interviews

Results and Discussion

The investigation revealed that, the traditional local people used 18 species of plants distributed in 16 genera belonging to 14 families to treat various diseases. The documented medicinal plants were mostly used to cure skin diseases, poison bites, stomachache, ulcer, dysentery, diarrhea and piles. In this study the most dominant family was Polygonaceae. The study also shows that the leaves (27%) and whole plant (27%) were most frequently used for the treatment of different types of diseases. The next important part of the plants was used to treat different diseases as follows: Roots (14%), Seeds (14%), Tubers (9%), Tender shoots (5%), and Rhizome (4%). According to the local people, ojhass, and rural health workers as many as 60% of the district's people depend on traditional medicine for their primary healthcare needs. Due to less communication means, poverty, and unavailability of modern health facilities, most people especially rural people are still forced to practice traditional medicines for their common ailments. This study also shows that local populace have been used the aquatic plants of this district in mainly for the treatment of skin diseases, diarrhea and vomiting and also for the wounds along with some other diseases like poison bites, stomachache, ulcer, asthma, toothache and piles.

Conclusion

This study showed that many people in the studied areas of Sitamarhi district still continue to depend on local medicinal plants at least for the treatment of primary healthcare and some of which are of aquatic origin. So the final conclusion is that as I made contributions that were beneficial for the human life.

Acknowledgements

Author is thankful to all the informants for providing valuable information related to traditional use of medicinal plants. We are also grateful to Babasaheb Bhimrao Ambedkar Bihar University, Muzaffarpur (Bihar) for providing necessary facilities to carry out this research.

REFERENCES

- Cook, C.D.K. 1996. Aquatic and Wetland Plants of India. Oxford University Press, New Delhi, India.
- Deb, D.B., 1976 A Study on the Aquatic vascular Plants of India. Bull. Bot. soc. Bengal/26: 155-170.
- Das, S.N., 1997. A Ethnobotany of Rajasthan Jour. Economic and Taxonomic botany, Vol. 21, No.3, P.587-605
- Das, V.B., 1999 The CharakSanhita (Translation and Commentary) Vo. I Pub.Sri Satguru publications, Delhi.
- GovindaRajan, K &GopalaRao, S.V. & H.G., 1978 Studies on soil of India, New Delhi.
- Gupta, S.K. & Grover, S.P. &Saxena, A.P., 1980 Aquatic weed problem in the river paisum (Banda district U.P.) Indian J.For 3:249-254.
- Kirtikar, K.R. &Basu, B.D., 1935 Indian Medicinal Plants vols. 1-4 Allahabad.
- Merlee, T.M.V. &Avita, Sr. 1989.Autecological studies on Indian senega (*Polygala chinensis*) – a medicinal plant.FeddesRepart. 100. 157-165. doi: 10.1002/fedr.4911000312
- Naskar, K.R. 1986. Recent trends of aquatic weeds management through proper utilization. Pl. Sci. Res. (Visvabharati), pp. 188-193.
- Naskar, K.R. 1990. Aquatic and Semi-Aquatic Plants of the Lower Gangetic Delta.Daya Publishing House, New Delhi, India.
- Prain, D. 1905. The vegetation of the districts of HugliHowrah and 24-Parganas. Rec. Bot. Surv. India 3(2): 143-329.
- Samanta, A.K. and D.C. Das, 2003.Ethnobotanical studies on *Typhaelephantina*Roxb. (Typhaceae) in the southern parts of West Bengal, India. J. Econ. Taxon. Bot. 27(3): 576 -579.
- Sculthrope, C.D. 1967. Biology of Aquatic Vascular Plants.London .
- Shankar, L.H. and P.K. Mishra, 2012.Study of aquatic medicinal plants of Hazaribagh district of Jharkhand, India. I.R.J.P. 3(4): 405-409.
- Sheela, D. and G. Asha, 2007. Ecological studies on three medicinally important plants of the family Compositae. Nature, Environment and Pollution Technology 6: 515-520.
- Sheela, D. and S. Hema, 2004.Phytosociological studies on *Eleutherantheraruderalis* (Sw.) Sch.-Bip. – An exotic weed in Kerala. Geobios 30: 271-273.