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Ethnomedicinal study of some wetland plants of Udhwa lake bird sanctuary of Rajmahal, Jharkhand

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ABSTRACT

This paper present the results of an ethnomedicinal study of wetlands of Udhwa lake bird sanctuary of Rajmahal, Jharkhand are presented. Ethnomedicinal data and specimens were collected during 2018-2020 of field study. Field study consisted of plant collection and interview with the local traditional healers. The result revealed that 27 wetland plant species under 23 genera and 17 families were under use by the local communities against 32 different ailments. The communication reports for the first time 13 species with new medicinal uses. The survival of these native wetland species is threatened and hence attention on the wetland resources especially those having economic value is warranted.

Key Words - Ethnomedicine, Wetland plants, Udhwa, Rajmahal, Jharkhand

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INTRODUCTION

The Jharkhand State is one of the newly established States of Indian Union carved out of the state of Bihar in November 2000 separating 18 districts. The state has at present 24 districts. It is a hilly undulating plateau characterized by predominantly tropical forests and tribal settlements. The state is one of the largest producers of the mineral resources of the country spreading over majority of the districts with a paradox to be among the bottom lying states in terms of development. This State is endowed with natural resources that need to be conserved and utilized in a sustainable manner for all-round development of the state in general and the marginalized tribal population in particular.

The important wetlands of Jharkhand are Udhwa lake bird sanctuary, Getalsud dam, Kansjor dam, Konar dam, Tilaiya dam, Massanjore dam, Maithon dam and Tenughat dam. Udhuwa lake Bird Sanctuary which is the single Bird Sanctuary of Jharkhand State is situated at about 42 km from Sahibgunj with an area of 1605 ha. It is situated on the bank of the Ganges about 10 kms southeast of Rajmahal. Two water bodies, namely Pataura and Barhale constitute the 5.65 km^2 Udhuwa lake bird sanctuary. Pataura Lake is perennial and the average depth is about 2 meter. Udhwa wetland type is lake, the location is longitude: 87° 48' 55.500" E latitude: 24° 58' 6.400" N, turbidity is Moderate. The lake is infested with aquatic macrophytes comprising emergent, free floating and submerged forms. Water hyacinth was found to be the dominant form. Over all 50% of the lake surface was covered with aquatic weeds. Important aquatic weeds are *Eichhornia crassipes, Salvinia cuculata, Marsilea minuta* etc.

Wetlands are one of the crucial natural resources. Wetlands are areas of land that are either temporarily or permanently covered by water. This means that a wetland is neither truly aquatic nor terrestrial; it is possible that wetlands can be both at the same time depending on seasonal variability. Thus, wetlands exhibit enormous diversity according to their genesis, geographical location, water regime and chemistry, dominant plants and soil or sediment characteristics.

The wetland is rich in plant resources. Traditionally, the local inhabitants have been using wetland plants against the diseases they suffer from. The importance of traditional medicine that provides health service to about 80% of world population has been realized recently. Due to industrialization, urbanization, unmanaged exploitation, and also removal of plant materials for fish culture, many of the wetland medicinal plants of the area are vanishing rapidly. Due to non-availability of medicinal plants, the use of ethnomedicine is also reducing to some extent. However, the ethnomedicinal knowledge is still available with the traditional healers that are to be codified before the knowledge is lost forever. Although several attempts have been made, in the past, to collect information on ethnomedicinal uses of plants of the state an attempt has been made to collect the ethnomedicinal information on wetland plants available in the study area.

MATERIALS AND METHOD

Our field study was carried during 2018-2020 through the conduction of ethnomedicinal interviews with the local population of the wetland areas. The survey covered different rural communities mainly with Santals, Paharia, Mahli and other aboriginals to collect information on the ethnomedicinal uses of wetland plants and their distribution. The traditional healers were identified and interviewed extensively during the study. In the study, questionnaire was used to collect information on the local name of the plants, parts used, methods of preparation of the medicine, and approximate doses. As most of the traditional healers are illiterate, structural interviews were conducted using a series of predetermined questions. The data collected is based on first hand information. Plant specimens were collected in the company of at least one traditional healer to make sure that the proper plant has been obtained. The collected plant specimens were processed, dried and herbarium specimens were prepared. Voucher specimens of the collected plant species were deposited in the Herbarium of the University Department of Botany, Sido Kanhu Murmu University, Dumka. The specimens were identified with the help of the local floras. The plants are enumerated as per their botanical name along with family, local name(s), and medicinal uses.

OBSERVATIONS

Most of the traditional medicines were prepared by the healers from fresh materials collected from the wild. However, in some cases, sun dried stored plant materials, which were collected during their availability, were used. Dried plant materials were mostly powdered and used in preparation of the medicine. The study provides information on 27 wetland plant species under 23 genera and 17 families. Asteraceae contributed maximum number of species. Of these, one species belongs to pteridophyta. Of the total species, 13 species are wetland hydrophytes or associate hydrophytes, 4 species are emergent hydrophytes, 4 species are attached hydrophytes with floating shoots, one species belongs to free floating hydrophytes and 5 species are attached hydrophytes with floating leaves. Totally, 32 disease/ disease groups were treated by these wetland plants in the study area. The important disease/disease group is asthma, bronchitis, eczema, madness, gonorrhoea, spermatorrhoea, leprosy, malaria, cardiac problem, and rheumatism. The plant species were used either individually or in combination with other plant parts or animal products. 13 plant species were used in association with the main plants, while cow urine, milk, ghee, honey, sugar candy, mustard oil, coconut oil, camphor and common salt, etc. also were mixed or prescribed with the main medicine. Medicinal use of wetland plants are:

ENUMERATION

Acorus calamus L. (Araceae) Ghora batch

Ethnomedicinal Uses: Dried rhizome is chewed twice daily in empty stomach to cure dysentery. Rhizome powder is taken in empty stomach for the treatment of epilepsy; also given to cure asthma. To increase appetite, powder is taken once a day in the morning. Rhizome paste is taken to improve memory power. Juice in small doses is given to children to speak easily. Dried rhizome is chewed

to improve voice quality or clear tone. Rhizome juice is dropped into the eye for treating eye diseases. Paste of soft tender root, arising from the nodes is applied on affected area to relief tooth pain due to carries.

***Alternanthera philoxeroides* (Mart.) Grises (Amaranthaceae) Hende Chaulai**

Ethnomedicinal Uses: Young shoot paste with black pepper is prescribed to cure acute cough. Leaves with a pinch of salt are orally administered to cure intestinal worms.

***Alternanthera sessilis* (L.) DC. (Amaranthaceae) Pongra Ara**

Ethnomedicinal Uses: Cooked leaf is given to increase the flow of bile in the intestine and to nourishing mothers to stimulate lactation. Fresh leaf juice with honey is prescribed to reduce body temperature and to treat leucorrhoea.

Ammannia baccifera* L. (Lythraceae) *Ramdhuni

Ethnomedicinal Uses: Leaf juice with honey is given in empty stomach to cure typhoid. Leaf paste with common salt is applied on the affected areas to cure skin diseases such as scabies, ringworm, skin itching, etc.

Bacopa monnieri* (L.) Pennell (Scrophulariaceae) *Bramhi

Ethnomedicinal Uses: Root juice is dropped into the eyes to cure cataract. Leaf juice along with honey is taken for the treatment of epilepsy. Leaf decoction is administered to the babies suffering from asthma and constipation. Paste of whole plant with sugar candy is given as astringent. Plant juice is applied on scalp before bath to cure head reeling; also applied on minor injuries as an antiseptic. Leaves kept on a cotton cloth are warmed gently on the flame are applied on the chest of the patient suffering from cough, cold and different types of nasal congestion. *Bramhi* oil prepared from plant juice is applied on scalp to treat head reeling, for cooling brain and enhancing memory power.

Centella asiatica* (L.) Urb. (Apiaceae) *Reto Ara

Ethnomedicinal Uses: Leaf juice mixed with honey is taken in empty stomach to enhance memory power. Leaf juice with cow milk is administered in empty stomach for treating cough and cold. Leaf paste is applied on wounds and minor injuries for healing. Leaf juice with sugar candy is prescribed for treating headache. Plant is cooked as vegetable and taken for treating madness.

Centipeda minima* (L.) A. Br. & Asch. (Asteraceae) *Nakchinta

Ethnomedicinal Uses: Dried leaf powder with mustard oil is inhaled to remove nasal congestion. Fresh plant paste is applied externally to subside body swelling and inflammation.

Coix aquatica* Roxb. (Poaceae) *Lepa Baber

Ethnomedicinal Uses: Root paste with cow urine and black pepper made into small tables are given to cure painful urination and menstrual complaints.

Commelina benghalensis* L. (Commelinaceae) *Kansira Ara

Ethnomedicinal Uses: Warm leaf juice is dropped in ear to get relief from earache. Leaf juice with coconut oil is applied externally to cure leprosy and skin inflammations. Fried leaves are given as leafy vegetable to cure constipation. Warm dried leaf decoction is given to cure rheumatic pain.

Commelina diffusa* Burm. f. (Commelinaceae) *Kana

Ethnomedicinal Uses: Water extract of fresh aerial part is applied externally to heal burn injuries, itches and boils.

Commelina erecta* L. (Commelinaceae) *Kanseera

Ethnomedicinal Uses: Leaf pasted along with seeds of *Brassica campestris* (*sarson)* is applied on the affected area to subside rheumatic swelling.

Coldenia procumbens* L. (Boraginaceae) *Gondhri Ara

Ethnomedicinal Uses: Paste of the whole plant is applied around the boils as suppurate and to get relief from pain and swelling.

***Eclipta prostrata* (L.) L. (Asteraceae) Birsenga**

Ethnomedicinal Uses: Leaf juice extracted with the help of traditional mortar and pestle, called *silo* is used for the preparation of *Bhringaraj* oil and also applied directly on scalp for better hair growth

and darkening of hair. Leaf juice is prescribed to cure mental disorders; poured into the nostril to get relief from headache. A mixture of leaf juice and a pinch of table salt are applied on eczema for healing. Leaf decoction is applied on the affected area to relief pain of scorpion sting.

Enydra fluctuans* Lour. (Asteraceae) *Hidmichi Ara

Ethnomedicinal Uses: Leaf paste with cow milk is given in empty stomach to stop excess bile secretion. Paste of leaves coated with warm mustard oil is applied on chest to cure bronchitis.

Heliotropium indicum* L. (Boraginaceae) *Hatisund

Ethnomedicinal Uses: Leaf juice is dropped into eyes to cure cataract, redness and conjunctivitis. Whole plant paste is tied up the minor cuts and wounds as antiseptic for healing.

***Hygrophila auriculata* (Schumach) Heine (Acanthaceae) Kantari**

Ethnomedicinal Uses: Seed powder mixed with raw cow milk is taken in morning for treating impotency. Leaf juice is given to patients of anemia. Dry seed powder mixed with milk and sugar candy is taken to cure spermatorrhoea.

***Ipomoea aquatica* Forssk. (Convolvulaceae) Karmi Ara**

Ethnomedicinal Uses: Fried leaves are taken to cure head reeling. Leaf juice along with cow *ghee* is given to cure gonorrhoea; is a purgative and acts as blood purifier.

***Limnophila indica* (L.) Druce (Scrophulariaceae) Kerolata**

Ethnomedicinal Uses: Juice of aerial parts of plant with ginger and cumin is prescribed to cure dysentery. The same is applied externally on cuts and wounds as antiseptic.

Marsilea quadrifolia* L. (Marsileaceae) *Sunusuni Ara

Ethnomedicinal Uses: Raw leaf paste is applied on forehead to cure headache and for head cooling. Leaves fried in cow ghee are taken regularly as curry to cure biliousness. Leaf juice along with root extract of *Asparagus racemosus* and sugar candy powder is taken orally or leaf juice with ginger juice and honey is also taken to increase sperm formation. Warm root paste with black pepper is applied around boils as suppurate. Whole plant used in insomnia.

Nelumbo nucifera* Gaertn. (Nymphaeaceae) *Paddo

Ethnomedicinal Uses: Paste of young leaf, along with fruits of (*Phyllanthus emblica)* is applied on forehead to get relief from headache. Flower petal decoction is given against diarrhoea. Young flower paste is prescribed as cardiac tonic and also in fever and liver ailments. Dried seed powder is taken along with fresh cow milk against headache. Young seed paste is used externally as a cooling medicine for skin diseases. Powdered root is taken for expelling ringworms. Root paste kept in a fine cloth and rolled to a thread, and dipped in cow ghee is inserted inside the nostril of the unconscious patient suffering from fits and kept till the patient become conscious. Root paste in lemon juice is taken for the treatment of piles.

***Nymphoides hydrophylla* (Lour.) Kuntze (Menyanthaceae) Saluk**

Ethnomedicinal Uses: Leaf juice drops are applied against eye disease. Leaf paste is used as an antidote for scorpion sting and snakebite. Seed powder with honey is taken orally as an anthelmintic.

***Oldenlandia diffusa* (Willd.) Roxb. (Rubiaceae) Baid Janum**

Ethnomedicinal Uses: Plant extract is with honey is prescribed orally to cure bilious fever. To heal cuts, wounds and boils, the area is washed with the plant extract. Plant paste is applied externally to cure acne and boils.

***Polygonum barbatum* L. (Polygonaceae) Hachet**

Ethnomedicinal Uses: The inter-nodal part is used as beads for the preparation of a chain which is tied around the neck of young children suffering from conjunctivitis.

***Polygonum glabrum* Willd. (Polygonaceae) Da Ara**

Ethnomedicinal Uses: Paste of leaves with black pepper is taken with honey to cure fever and colic pain.

Sphaeranthus indicus* L.(Asteraceae) *Gokhram

Ethnomedicinal Uses: Paste prepared from inflorescence is given in empty stomach for curing excess bile. Whole plant paste with a pinch of common salt is taken as an anthelmintic. Stem with leaf is chewed to get relief from toothache.

***Scoparia dulcis* L. (Scrophulariaceae) Chini sakam**

Ethnomedicinal Uses: Leaf paste with honey is taken against malaria. Leaves are chewed in empty stomach for treating diabetes and gonorrhoea.

***Typha angustata* Bory & Chaub. (Typhaceae) Sardanga**

Ethnomedicinal Uses: Rhizome decoction is used as an astringent.

DISCUSSION

The aboriginals of the study area collect these wild aquatic plant resources freely from the environment as a means of livelihood, medicinal uses and source of income. A large number of wetland medicinal plants are commonly associated with rivers, ponds and other water bodies throughout the study area. Medicinal uses of some wetland species are unique to the traditional medicinal knowledge system of the locality. These observations show that a major bulk of folk or ethnomedicine remained endemic to certain regions or communities in the country may be due to restricted availability of plant species and lack of communication among the communities. Most of the ethnomedicinal information collected in the study is new, as they are not recorded earlier. The information was compared/ checked with available literature.

Further, out of 27 plants reported, 16 species are earlier reported for similar use. Moreover, these report differ either in parts of the plant used or in preparation and mode of use. In the report, some new additional information on uses of the above 11 plant species is incorporated.

The ethnobotanical information serves as a base for new compounds with active principles for phytochemical, pharmacological and clinical research. Global wetlands are shrinking rapidly depleting wetland resources. The survival of native aquatic species is threatened and hence attention on the aquatic resources especially those having economic value are important. Wetlands not only provide useful resources but ecologically very important. Therefore, conservation of wetlands especially in Udhwa of Sahibganj district of Jharkhand, which are threatened, needs to be addressed urgently.

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REFERENCES

Banerjee DK & Pal DC, 1973. Medicinal plants among certain *Adibasis* of India, *Bull Bot Surv India*, 15- 85.

Chopra RN, Nayar SL & Chopra IC, 1956.Glossary of Indian Medicinal Plants, (Publications and Information Directorate, New Delhi).

Garg JK, Singh TS & Murtty TVR, 1998.Wetlands of India,(Space Applications Centre, ISRO, Ahmedabad).

Girach RD, Aminuddin, Ahmed M, Brahmam M & Misra MK, 1998. Euphorbiaceae in native health practices of district Bhadrak, Orissa, India, *Fitoterapia,* 49 -24.

Haines, H.H. 1921-25. Botany of Bihar & Orissa. Vol. I - III. B.S.I. Calcutta.

Hembrom, P.P.1991. Tribal medicine in Chotanagpur and Santhal Pargana of Bihar state. *Ethno-botany*, 3. 97-99.

Jain P & Sahu TR, 1993. An ethnobotanical study of Noradehi Sanctuary Park of Madhya Pradesh, India: Native plant remedies for scorpion sting and snake bite, *J Econ Tax Bot,* 17 - 315.

Jain S.K. & V.Mudgal, 1999. A handbook of Ethno-botany. Bisen Singh & M.P. Singh Dehradun.

Jain S.K. 1971.Some magico-religious beliefs about plants among *Adibasis* of Orissa, *Adibasi*, 12 -39.

Jain SK, 1981.Glimpses of Indian Ethnobotany, (Oxford and IBH Publication, New Delhi).

Jain S.K. 1991.Dictionary of Indian Folk Medicine and Ethnobotany, (Deep Publication, New Delhi).

Jain S.K. 1999. *Dictionary of Ethno- veterinary plants in India*. Deep publication.

Martin GJ, 1995. Ethnobotany: A Methods Manual, (Chapman and Hall, London).

Oraon, P.C. 2003. Land and people of Jharkhand, Jharkhand Tribal welfare Research Institute, Welfare Department, Govt. of Jharkhand, Morabadi, Ranchi.

Pal, D.C. 1980. Observations of folklore about plants used in veterinary medicines in Bengal, Orissa and Bihar. *Bull. Bot. Sur. India*, 22:96-99.

Pal, D.C.& J.N. Srivastava. 1976. Preliminary notes on ethnobotany of Singhbhum district, Bihar. *Bull, bot. Surv. India* 18 (1-4) 247-250.

Srivastava, J.G. 1955. A botanical tour to Parasnath Hills, Bihar. *Jour.Ind. Bot. Soc.* 34(3):106.

Tarofder, C.R. & Rai H.N. Chaudhuri. 1981. Less known medicinal uses of plants among the tribals of Hazaribag district, Bihar. (Ed.). Glimpses of Indian Ethnobotany.