

ETHNO-MEDICO-BOTANICAL STUDIES ON AQUATIC PLANTS IN RURAL AREAS OF CUDDALORE DISTRICT, TAMILNADU, INDIA

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ABSTRACT

The present work was undertaken to explore the ethno-medico-botanical values of aquatic plants from rural areas of Cuddalore District in Tamilnadu, India. Traditional knowledge of 22 aquatic plants was identified as medicinally important species from local residents, vaidya, other medicine men and from other sources. Collected information's are arranged in an alphabetical order followed by the sequence of scientific name, family, vernacular name, prescription and usage. Documentation of traditional knowledge of ethno-medico-botanical values of aquatic plant species will provide baseline information for investigating new bio-dynamic compounds of potential therapeutic uses in future.

Keywords: Documentation, Medicinal properties, aquatic plants, Cuddalore district.

1. INTRODUCTION

The knowledge of medicinal property of plants has been accumulated in the course of many centuries (Kirthikar and Basu, 1980). The local inhabitants have inherited rich traditional knowledge on the use of many plants or plant parts for treatment of common diseases (Vedavathy, 2003; Jain, 2004; Maity, *et al.*, 2004). The remedies based on these plants often have minimal side effects (Lambert *et al.*, 1997). Recently there is a paradigm shift from over use synthetic drugs to herbal medicines. The medicinal value of a particular species of plant differs from one locality to another or from one community to another. Hence, it is highly imperative to document local knowledge on the medicinal properties of plants to gain wider and in-depth knowledge on their curative abilities. It play a significant role in the primary production, nutrient cycling, and serve as bioindicators for eutrophication processes (Thangam *et al.*, 2010; Regini Balasingh, 2011)

Hydrophytes grow profusely in lakes and waterways all over the world and have in recent decades their negative effects magnifies by man's intensive use of natural water bodies. Eradication of this water plants are has proved almost impossible and even reasonable control is difficult. The potential of aquatic plants as food and feed has been emphasized by several authors (Indirani, 2010; Lawrence, 2010). Large growths of hydrophytes in lakes and waterways of tropical countries, although a menace, represent a natural resource of green leaves (Lawrence, 2010). With increasing interest in

finding new drugs, the wild or unutilized plants receive more attention which offers a good scope to meet the increasing demand for novel drug discovery.

Local people use a wide variety of wetland / wetland -associated plants as ingredients of traditional herbal medicinal preparations. Often the information on the composition of a specific medicinal preparation or the knowledge on the use and medical value of particular plant is restricted to a few members of a community or even to one or two individuals of a household. Since most of this vital system of knowledge is transmitted orally, the local extinction of a plant results in the gradual loss of knowledge related with the medicinal value of such species.

Documentation of ethno-botanical importance of terrestrial plant species was more than aquatic plant species. Maya *et al.* (2003) analyzed the economic importance of river vegetation of Kerala and gave the uses of 35 species including the bank specie apart from the aquatic/wetland species. Panda and Misra (2011) provided information about ethno medicinal uses of 48 wetland plant species of South Orissa and discussed their conservation. Swapna *et al.* (2011) made a review on the medicinal and edible aspects of 70 aquatic and wetland plants of India. Though the aquatic situations of India are rich repositories of various plant species, not much work has been under taken to explore the medicinal uses of them.

Hence, the present study was carried out to document the ethno-medico-botanical values of aquatic plants in Cuddalore District of Tamilnadu, India.

2. MATERIALS AND METHODS

The present study, the data collection and survey have been made by field visits during June 2012- April 2013 and focused mainly on the aquatic plant species used by different local vaidhyas and medicinemen in Cuddalore District (11.75°N 79.75°E) of Tamilnadu, India for primary healthcare needs as reported by the informants/traditional healers. The

large number of local people, medicine men, herbal informants and women chieftains were personally interviewed and requested to answer a few questions about the (i) local aquatic plants and their availability in the area; (ii) application of these plants in healthcare and the data were recorded time to time. The collected information of ethno-medico-botanical values of aquatic plants was arranged according to their alphabetical sequence such as scientific name, families, voucher specimen number, family, vernacular names, parts used, the therapeutic uses and method of usage of herbal preparations.

Table 1. Particulars regarding the name of the species, morphology of useful part, diseases, method of preparation and their mode of administration

Sl.No	Botanical Name and Family	Morphology of useful part	Disease cured	Method of preparation and mode of administration
1.	<i>Alternanthera philoxeroides</i> (Mart.) Griseb. (Amaranthaceae)	Shoot	Dysentery	The decoction of the young shoot is taken in empty stomach twice a day.
2.	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC. (Amaranthaceae)	Leaves, twigs Root	Fever Cataract	Decoction is taken with (30-50ml) two principal meals. Root of the fresh plant touched in the eyes five times a day.
3.	<i>Ammania baccifera</i> L. (Lythraceae)	Leaves Whole plant	Oedema Skin abscess Gonorrhoea	Leaves are ground in water and the paste applied on the area and repeated for 3 days. Two teaspoonful decoction of the entire plant is taken orally twice a day for three week. The paste of the leaves are taken with rice.
4.	<i>Bacopa monnerii</i> (L.) Pennell (Scrophulariaceae)	Leaves Whole plant	Dysentery Gastritis Malarial fever	Leaf juice is taken orally to treat gastritis and as liver stimulant. Plant juice together with black pepper give twice a day for three days.
5.	<i>Centella asiatica</i> L. (Apiaceae)	Leaves	Scabies Spermatorrhoea Mouth sores	Leaf paste is applied on the affected portion. Extract of fresh leaves (one teaspoon) is given. Five to six leaves are chewed four times a day.
6.	<i>Commelina bengalensis</i> L. (Commelinaceae)	Leaves Whole plant	Fever Herpes	5-10 leaves were fed into patient early morning for 2-3 days. Whole plant paste is applied externally.

			Haemorrhoids	Leaves crushed and applied over.
7.	<i>Cyperus rotundus</i> L. (Cyperaceae)	Tuber	Intestinal worms, Colic complaints Snake bite Spermatorrhoea	Crushed tubers are given with milk. Tuber powder mixed with cow butter is given to patients . Two tubers per day are given with water for 5 days.
8.	<i>Eichhornia crassipes</i> (Mart) Solms (Pontederiaceae)	Whole plant	Bone fracture	Plants are pounded and paste then applied .
9.	<i>Hygrophila auriculata</i> (Schumacher) Heine (Acanthaceae)	Leaves Whole plant Leaves	Anaemia Body swellings Leucorrhoea Infantile diarrhea	The decoction of the young leaves are taken orally for two consecutive weeks in empty stomach. Whole plant paste in applied over it. Powdered leaf is given with water. A handful of leaves pounded together with black pepper and eaten twice daily.
10.	<i>Ipomoea aquatica</i> Forster (Convolvulaceae)	Twigs Leaves Whole plant Leaves	Blood dysentery, Indigestion Piles Itching Snake bite	Special type of curry is prepared with young twigs and taken with rice. Leaf paste is given topically. Plant paste is applied over the body. About 25g leaves are ground and taken with 250g curd for a week as an antidote for snake bite.
11.	<i>Ipomoea carnea</i> Jacq. var. <i>fistulosa</i> (Mart.exChoisy) Austin (Convolvulaceae)	Leaves Leaves, Root	Wounds and boils Bone fracture	Leaves are warmed with edible oil and tied on wounds and boils. Root and leaf paste is plastered over the fractured area.
12.	<i>Ludwigia adscendens</i> (L.) Hara (Onagraceae)	Whole plant Seeds	Stomach pain, Intestinal worms Rheumatism	Leaf decoction with black pepper is taken orally Grounded seeds are taken orally with hot water

13.	<i>Marsilea minuta</i> L. (Marsileaceae)	Sporocarp	Throat inflammation	Sporocarps are crushed and applied on throat with the help of finger to cure throat inflammation in children
14.	<i>Nasturtium officinale</i> R.Br. (Brassicaceae)	Whole plant	Improve eyesight	Whole plant is used as vegetable to improve eyesight
15.	<i>Nelumbo nucifera</i> Gaertn. (Nymphaeaceae)	Fruit	Check vomiting	One fruit is crushed and given with 20 ml of water three times a day for check vomiting in children
16.	<i>Neptunia prostrata</i> (Lamarck) Baillon (Mimosaceae)	Leaves	Dysuria	Half glass of leaf decoction is taken orally about a fortnight
		Tender shoots	White discharge	The decoction of the young twigs are taken with common salt
		Whole plant	Jaundice	The whole plant is a very good tonic particularly for those who are suffering from jaundice
17.	<i>Nymphaea nouchalli</i> Burm.f. (Nymphaeaceae)	Root	Dysentery	Root extract is taken with curd
		Roots	Check conception	10g roots and 3g of seed of <i>Crotalaria juncea</i> are ground into paste and taken with water on the date of menstruation
18.	<i>Nymphaea stellata</i> Burm.f. (Nymphaeaceae)	Whole plant	Inducing puberty	Paste of whole plant in water is applied around the navel
19.	<i>Nymphoides indica</i> (L.) Kuntze (Gentianaceae)	Leaves	Toothache	Leaves given fresh
20.	<i>Monochoria vaginalis</i> Presl (Pontederiaceae)	Whole plant	Jaundice	Decoction of the plant is drunken three teaspoonfuls every morning.
			Dysentery	Root power is used in dysentery
21.	<i>Plantago major</i> L. (Plantaginaceae)	Whole	Nausea	Decoction of fresh root given
		Leaves Seeds, roots	Cuts, wounds Stomachic	Powdered leaves are applied to cuts and wounds. Decoction of seeds, roots, and leaves are taken to treat stomach disorder.
22.	<i>Sagittaria guyanensis</i> Kunth (Alismataceae)	Root Whole plant	Piles Fever	Root paste is applied to cure piles. Plant juice is drunk to cure fever

3. RESULTS AND DISCUSSION

During the field survey, ethno medicinal data of 22 aquatic plant species under 19 genera belonging to 17 families have been documented. Among the ethno-medico-botanical values of the species, the family Nymphaeaceae was most frequently represented with a total of 3 species, followed by Pontederiaceae, Amaranthaceae and Convolvulaceae having 2 species. Whole plants part and leaves are predominantly used when compare to other parts of plants. The data on the medicinally important plants indicate that the observed species were used to treat 37 ailments including fever, gynaecological complaints, stomach disorders, jaundice, snake bite, skin diseases, rheumatism, ulcer, wounds, boils, cuts and wounds, diseases of blood, and other diseases. (Table 1).

Local communities and vaidhyas in District living with the day to day practices and there are no written documents. Moreover, the existing knowledge on traditional uses of plants are destroying in fast pace, because the lack of interest of local youth to learn the traditional knowledge from the old herbal healer. It is also felt that the valuable and time-tested knowledge on the medicinal uses of plants are also is appearing due to modernization, acculturation, forests destruction, urbanization, industrialization, etc. Scientific investigations through the evaluation of these aquatic plants for their biological activity and isolation of active constituents responsible for their medicinal properties which will give a lead to develop new natural drug molecules so as to reach the benefit of research for the welfare of human beings.

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