Indigenous medicinal usages of some macrophytes of the Muriyad wetland in Vembanad-Kol, Ramsar site, Kerala

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Indigenous medicinal practices are an important component of the traditional knowledge. Wetlands provide a unique habitat for several medicinal plants. Apart from their commercial value, the local community utilizes a good number of these plants for various curative purposes, which are unknown to the people at large. Several of these plants are very sensitive to the fluctuations in the normal physico-chemical parameters of the wetland. A slight alteration or degradation of the wetland may result in the disappearance or the extinction of these plants. This will ultimately result in large-scale economic loss in terms of the medicinal products synthesized from these plants. Apart from the loss of plants, which are exclusively used by a community for their health-related uses, this will also result in the loss of local knowledge on the medicinal properties of these plants, which very often cannot be retrieved. Attempt has been made to document some of the little known medicinal properties of wetland/wetland-associated plants used by the local community living around Muriyad wetland system.

Keywords: Ethnomedicine, Medicinal plants, Muriyad wetland, Kerala

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Introduction

Wetlands are vital ecosystems, which provide staple food such as rice and fish for more than half of the human population1. For people living on the fringes of the wetland it serves as a perennial source of water, an avenue for recreation, navigation, cattle grazing and for collecting other resources like fuel and fodder. Wetlands also provide an excellent habitat for several species of plants. 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 medical preparation or the knowledge on the use and medicinal value of a 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.

The local inhabitants have inherited rich traditional knowledge on the use of many plants or plant parts for treatment of common diseases2-5. Medicinal plants provide accessible and culturally relevant sources of primary health care. The remedies based on these plants often have minimal side effects6. Recently, there is a paradigm shift from overuse synthetic drugs to herbal medicines7. 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.

Methodology

Muriyad wetland situated in Thrissur district of Kerala forms a part of Vembanad-Kol, Ramsar site. The total field area is 1215 ha, and lies between 10° 18’ 47” and 10° 25’32” N latitudes and 76° 12’ 18”and 76° 17’ 19” E longitudes. It is a seasonal freshwater floodplain wetland and most of the area is 0.5-2 m below mean sea level. Medicinal properties of the plants were recorded by surveys conducted with the help of the local people. The systematic

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position of plants is identified using standard books on angiosperm taxonomy. More than 263 terrestrial and wetland/wetland-associated plants were recorded from the area. Indigenous people commonly use about 36 species as herbal medicines, of which 20 species are described here. Use of two rare medicinal plants, *Rauvolfia serpentina* and *Santalum album* are documented from the wetland fringes during the present study. Both these plants are having excellent medicinal values. The description of the medicinal properties given below is based only on the traditional knowledge of the local people. Plant name, synonyms (if available), family, vernacular name(s), and medicinal uses of the plants are enumerated.

**Enumeration**

*Aerva lanata* Juss.; Vernacular name: Cherula  
Syn: *Achyranthes lanata* Linn.; (Amaranthaceae)  
Uses: Chopped leaves boiled with water are used for controlling diabetes and urinary disorders. Leaf juice reduces acidity.

*Bacopa monnieri* (L) Pennel.; Vernacular name: Brahmi  
Syn: *Lysimachia monnieri* Linn.; *Herpestris monnieria* (Linn.) Kunth; (Scrophulariaceae)  
Uses: Plant juice is considered effective in enhancing intelligence in children.

*Biophytum candolleianum* Wt.; Vernacular name: Mukkutti  
Syn: *Biophytum sensitivum* var.candolleianum (Wt.) Hook & Edgew.; (Oxalidaceae)  
Uses: Plant paste is used for skin diseases.

*Cardiospermum helicacabum* Linn.; Vernacular name: Uzhinja; (Sapindaceae)  
Uses: The entire plant is used for making a special preparation, locally called as *Marunnu Kanji* (medicinal soup), which is used for improving physical conditions and immunity.

*Centella asiatica* Urban.; Vernacular name: Kudavan / Kudangal  
Syn: *Hydrocotyle asiatica* Linn.; (Apiaceae)  
Uses: Plant paste is effective in treating paediatric diseases, throat disorders and piles.

*Cyclea peltata* (Lam.) Hook & Thompson; Vernacular name: Padakkizhangu  
Syn: *Menispermum peltatum* Lam. (Menispermaceae)  
Uses: Plant juice is diluted with water and used as shampoo. This solution is more effective in controlling dandruff.

*Cyperus rotundus* Linn.; Vernacular name: Muthanga; (Cyperaceae)  
Uses: Tuber is used for digestive disorders especially for children.

*Eclipta prostrata* Linn.; Vernacular name: Kayyunni / Kayyonni  
Syn: *Eclipta alba* (Linn.) Hassk.; (Asteraceae)  
Uses: Plant is squeezed and boiled with coconut oil and is applied on the scalp is a good medicine for preventing hair loss and dandruff.

*Emelia sonchifolia* DC.; Vernacular name: Muyalchevi; (Asteraceae)  
Uses: Plant juice is filtered and applied into eyes for curing injuries. Semi-boiled juice is given to treat asthma. Plant paste is applied for reducing inflammation.

*Hygrophylla schulli* (Ham.) M.R. & S.M. Almeida; Vernacular name: Vayalchulli  
Syn: *Bahel schulli* Ham.; *Hygrophila auriculata* (Schum.) Heine; *Asteracantha longifolia* (Linn.) Nees; *Hygrophila spinosa* T.Anderson; (Acanthaceae)  
Uses: Application of the leaf paste reduces inflammation and muscular pain.

*Nelumbo nucifera* Willd.; Vernacular name: Thaamara; (Nymphaeaceae)  
Uses: Leaf ash together with coconut oil is used for curing foot cracks.

*Oxalis corniculata* Linn.; Vernacular name: Puliyarila; (Oxalidaceae)  
Uses: Fresh plant juice is used for piles and for several paediatric diseases. Fresh plant paste is used for curing indigestion. Plant with other ingredients is used for preventing jaundice.

*Pandanus tectorius* Soland.; Vernacular name: Pookaitha; (Pandanaceae)  
Uses: Burnt flower ash is used for healing wounds. Roots together with other medicines are used to control jaundice.

*Phyllanthus amarus* Schum. & Thonn.; Vernacular name: Kizharnelli; (Euphorbiaceae)  
Uses: Plant paste or chopped leaves boiled with water is given to control and prevent jaundice.
Scoparia dulcis Linn.; Vernacular name: Kallurukki; (Scrophulariaceae)
Uses: Plant paste together with fresh cow milk is given for relieving urinary disorders. It is believed that this medicine can eliminate kidney stones when the preparation is used regularly, once in a day, for 21 days.

Vernonia cinerea Less.; Vernacular name: Poovamkurunnal
Syn: Conyza cinerea Linn.; (Asteraceae)
Uses: Plant juice is used for curing urinary disorders and for cleaning eyes.

Discussion
The revival of public interest in plant-based medicine together with the rapid expansion of pharmaceutical industries has necessitated an increased demand for medicinal plants leading to the over exploitation of many species. The steady increase in population, and the awareness of the side effects of several synthetic drugs have encouraged the usages of traditional medicines in developing countries. Hence, there is need to promote the usage of traditional medicine. A good number of medicinal plants found in Muriyad wetland area are commonly associated with rivers, ponds and other water bodies throughout Kerala. However, some of the medicinal uses of several such species are very unique to the knowledge system of this locality. For example a paste of Scoparia dulcis (10-20 gm) in 20 ml fresh cow milk taken for 21 days is effective in curing several urinary disorders including kidney stones. Flower buds of Nelumbo nucifera are used for rituals in temples and have high medicinal and commercial value. Pandanus tectirius, or the screw pine is a typical wetland species, extensively used for making mats and flower ash is used for healing wounds. Oxalis corniculata, Hygrophila schulli, Bacopa monnieri and Eclipta prostrata are true wetland plants with medicinal properties. The majority of the other medicinal plant species are seen in the wetland fringes. Cyclea peltata, Oxalis corniculata, Cardiospermum helicacabum, Vernonia cinerea, Hygrophila schulli, Aerva lanata and Pandanus tectorius, are being used extensively in the Ayurvedic drugs, but the people residing in the fringes of this wetland are unaware of these information and they rely only on their traditional knowledge for treating their ailments.

In many traditional societies, women are the primary herb gatherers and herbalists; the situation at Muriyad is also not different. Societal changes in work pattern and family structure have several impacts on the traditional health sector. The services rendered by traditional medicine in providing everyday health care to the majority of the population in several countries have been ignored by the modern society. Local extinction of medicinal plants very often leads to the loss of traditional knowledge of the medicinal properties, since such traditions are transmitted orally. Once such knowledge systems are gone to the oblivion it would be an irrecoverable loss to the society. Hence, the conservation of these plants at the local level seems to be the need of the hour.

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