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## Documentation of Medicinal Flora in Pazhavar River Bed, Korkai, Mayiladuthurai Taluk, Tamil Nadu, India

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### ABSTRACT

The indigenous systems of medicines, developed in India for centuries, make use of many medicinal herbs. These systems include Ayurveda, Siddha, Unani and many other indigenous practices. The Nagapattinam district is considered as notable land for rich biological resources and broad spectra of plant existence. The flora of the district is wealthy and rich and vibrant because of the moist deciduous and dry deciduous mode of vegetation. The documentation of the present study provides evidence that medicinal flora play an important role in the human health care system of Mayiladuthurai Taluk, Nagapattinam district of Tami Nadu, India.

**Keywords:** Medicinal flora, Nagapattinam, Medicinal uses

### 1. INTRODUCTION

Plants have been used in traditional medicine for a long time. Plant diversity has a very rich of the Indian sub continent in a wide range of ecosystem. Several thousand plant species have been reported to posse`s medicinal properties and around 2,000 species are referred in literature. It is estimated that around 8,000 plant species are used in Indian system of medicine and around 25,000 effective plant species based on formulation used in folk medicine.

Eighty percent of world population relies on the plant based drugs for their primary health care needs as estimated by world health organization.

The word “herb” has been derived from the Latin word, “*herba*” and an old French word “*herbe*”. Now a day, herb refers to any part of the plant like fruit, seed, stem, bark, flower, leaf, stigma or a root, as well as a non-woody plant. Earlier, the term “herb” was only applied to non-woody plants, including those that come from trees and shrubs. These medicinal plants are also used as food, flavonoid, medicine or perfume and also in certain spiritual activities. Medicinal plants are essential natural resource which constitutes one of the potential sources of new products and bioactive compounds for drug development, (Jayakumar and Muthuraman, 2018).

Today, millions of people around the world consume plant based medicines as part of traditional medicine for a range of medical disorders. The use of traditional medicine in developing countries contributes directly to the socio-economic status and well being of the rural communities (Tabuti *et al.*, 2003a; Chiranjibi *et al.*, 2006). The use of plants as medicines predates written human history. Ethnobotany is recognized as an effective way to discover future medicines. In 2001, researchers identified 122 compounds used in modern medicine which were derived from "ethnomedical" plant sources; 80% of these have had an ethnomedical use identical or related to the current use of the active ingredients of the plant. Many of the medicines currently available to physicians have a long history of use as herbal remedies, including aspirin, digitalis, quinine, and opium, (Jayakumar, 2013).

Historically all medicinal preparations were derived from plants, whether in the simple form of plant parts or in the more complex form of crude extracts, mixtures, etc. Today a substantial number of drugs are developed from plants (Fabricant and Farnsworth, 2001) which are active against a number of diseases. The majority of these involve the isolation of the active ingredient (chemical compound) found in a particular medicinal plant and its subsequent modification. In the developed countries 25 percent of the medical drugs are based on plants and their derivatives (Principle, 2005) and the use of medicinal plants is well known among the indigenous people in rural areas of many developing countries. In the past our ancestors made new discoveries of the healing power of plants through trial and error. Although some of the therapeutic properties attributed to plants have proven to be erroneous, medicinal plant therapy is based on the empirical findings of hundreds and thousands of years (Gurib-Fakim, 2006). Since time immemorial man has used various parts of plants in the treatment and prevention of many ailments (Chah *et al.*, 2006).

Traditional medicine knowledge and its use for finding active chemical structures for efforts between modern and traditional health workers and researchers (Hamill *et al.*, 2003) in Uganda, India, as in other developing countries, traditional medicine occupies a central place among rural communities but enough information is not available about the chemical composition and real biological possibilities of most of the plants traditionally in use. (Tabuti, 2003; Jayakumar, 2015), phytochemical are bioactive chemicals of plant origin. They are regarded as secondary metabolites because the plants that manufacture them may have little need for them. They or naturally synthesized in all parts of the plant body May contain active components bark, leaves, stem, root, flower, fruits, seed, etc. i.e., any part of the plant body may contain active components (Jayakumar, 2013) the quantity and quality of phyto chemical present in plant parts may differ from one part to another. In fact, there is lack of information on the distribution of the biological activity in different plant parts essentially related to the difference in distribution of active compounds (Jayakumar *et al.*, 2013a&b).

The search for plants with medicinal use has led to some ethnobotanical studies that have documented traditional medicinal plant species, the mode of preparation and uses by local communities in some parts of the country (Kakudidi *et al.*, 2000; Tabuti *et al.*, 2010; Lamorde *et al.*, 2010).

The identification of these plants and in a later stage the investigation of the quality and toxicity is of the utmost importance. Besides, a lot of valuable indigenous information about the use of medicinal plants is being lost from one generation to another and with the increasing rate of habitat destruction, plant resources including medicinal plants are getting depleted or are threatened. For instance, the cultivation of tea and the high population growth around Kibale National Park has led to habitat destruction and over exploitation (Dhillion and Amundsen, 2000; Tabuti *et al.*, 2003b).

Plants have the ability to synthesize a wide variety of chemical compounds that are used to perform important biological functions, and to defend against attack from predators such as insects, fungi and herbivorous mammals. The use of plants as medicines predates written human history. Ethnobotany is recognized as an effective way to discover future medicines. (Fabricant and Farnsworth March 2001). All plants produce chemical compounds as part of their normal metabolic activities. These phytochemicals are divided into primary metabolites such as sugars and fats, which are found in all plants; and secondary metabolites compounds which are found in a smaller range of plants, serving a more specific function, (Jayakumar, 2015a).

## **1. 1. Objectives of the study**

The aim of the present studies is to list the traditional medicinal uses of plants in the Mayiladuthurai, the Nagai district. In this district human life and culture have directly or indirectly been associated with and influenced by the surrounding environment. People live partly on leaves, tubers and fruits of terrestrial forest plants and use plant drugs as medicines, thereby offering much scope for Ethno botanical studies. The objective is to establish a documentation of the plants used by Mayiladuthurai people of Nagai district Tamil Nadu with create awareness to the local communities about the conservation strategies of these valuable genetic resources.

## **2. MATERIALS AND METHODS**

### **2. 1. Description of the study Area**

Tamil Nadu is ethnobotanically very rich, having a wide variety of medicinal plants. With its (Cauvery) diverse topographical condition, the region is well situated for a range of medicinal plant species.

The Cauvery regulator was constructed by Col.Johested R.E. It has 40 vents of size 3.05 X 2.10 metres. The maximum discharge that can be made into Cauvery river from the head is 15,587 cusecs and normal discharge is 10,691 cusecs. Cauvery irrigates about 4,93,837 acres in the districts of Thanjavur, Tiruvarur and Nagapattinam and Karikal region of Puducherry union territory. Cauvery branches into 21 rivers like Kodamuruti, Thirumalairajan, Arasalar and Pazhavar. In 2005, modernisation of Cauvery regulator works was carried out in Grand Anicut under National Bank for Agriculture and Rural Development (NABARD) scheme. Regulating arrangements of 40 vents were modified as electrically operated system.

## **2. 2. Climate**

The climate of Mayiladuthurai (Korkai) is similar to the climate prevailing in the rest of the Cauvery Delta. The average maximum temperature is 39.4 degrees Celsius while the average minimum temperature is 32.8 degrees Celsius. The average annual rainfall is 1,125mm. The plants were collected with the help of traditional healers and the information regarding the use of plants was recorded in the field note book.

## **2. 3. Interviews with Local People**

A questionnaire was administered to the local people, through face to face interviews. The questionnaire was administered only to people who had knowledge of medical plants. During the interviews, demographic characteristics of the participants, and local names, used parts and preparation methods of the plants were recorded. In addition, the participants were asked to show the researchers these wild plants in the field. Then specimens of these plants were collected. Questionnaire method is commonly used in these kinds of researches (Focho *et al.*, 2009). Local plants names are closely related to the local language used by the people of that area. Local Tamil names for plants vary from one region to another (Baytop, 1994). This variation is closely related to culture and, due to the cultural richness of the Anatolia region, local names may vary even from one town or one village to another (Akgul, 2008).

## **2. 4. Plant Materials collection and Documentation**

Field study was carried out over a period of approximately three month (2017). During this period, a totally calculated vascular plant specimens were collected. The plants were pressed in the field and prepared for identification. Plants were identified using the standard text, cambel of flora the names of plant families were listed in alphabetic order. After the taxon names were identified, instances of endemism and hazard categories (Ekim *et al.*, 2000) were specified.

## **3. RESULTS AND DISCUSSION**

The present study, we have reported 20 species belonging to 15 families distributed in 20 genera (List 1). The information detailed about the botanical name of the plants and plant parts medicinal used. The records were documented from the local people of Korkai, Mayiladuthurai, Tamil Nadu. The collected various species of plants were used to treat various types of diseases such as, cough, cold, fever, intestinal worms, diarrhoea, aphrodisiac, knee problem, antipyretic, appetizer, antiscorbutic, anthelmintic, diabetes, astringent, antibacterial, anti-venom, antifertility, anticonvulsant, antidepressant, aphrodisiac, anaemia, body sickness, skin problems, body pain, asthma, kidney problem, tonic, chronic disorders, several aches, hair growth, stomach problems, ulcer, sore throat, leprosy, ophthalmia, typhoid, urinary bladder and rheumatism.



1. BOTANICAL NAME: *Ricinus communis* L.

TAMIL NAME: Amanakku

FAMILY: Euphorbiaceae

USES: antimicrobial, Nervous system affects, Antihistamine, And Anti-inflammatory.



2. BOTANICAL NAME: *Euphorbia hirta*

TAMIL NAME: Amman Pacharasi

FAMILY: Euphorbiaceae

USES - External uses: Chapped lips, Wart, Wounds, Swelling, Ulcer, Bleeding Wounds

Internal uses: Dysentery, Loose motions, Jaundies, Anti-diarrheal affect, Dengue fever.



3. BOTANICAL NAME: *Cardiospermum helicacabum*

TAMIL NAME: Mudakkatran

FAMILY: Sapindaceae

USES: Antibacterial, Hypotensive, Antirheumatism, Kidney problem.



4. BOTANICAL NAME: *Pongamia pinnata*

TAMIL NAME: Pungai

FAMILY: Fabaceae

USES: Rich nutrients, Antiseptic, Pongam oil, Lamp oil, Soap





5. BOTANICAL NAME: *Achyranthes aspera*

TAMIL NAME: Nayiruvi

FAMILY: Amaranthaceae

USES: Anti-inflammatory, Hemorrhoids, Indigestion, Cough, Asthma, Jaundice  
And Snake bite, Skin diseases.



6. BOTANICAL NAME: *Ocimum santum*

TAMIL NAME: Thulasi

FAMILY: Lamiaceae

USES: Antibiotic, an immune system boster, an anti-inflammatory, stress reduce.





7. BOTANICAL NAME: *Leucas aspera*

TAMIL NAME: Thumbai

FAMILY: Lamiaceae

USES: Antifungal, Antioxidant, Antimicrobial, Antinociceptive.



8. BOTANICAL NAME: *Vitex negundo*

TAMIL NAME: Nochi

FAMILY: Verbinaceae

USES: Sinusitis, Head ache, Muscle aches and Joint pain.





9. BOTANICAL NAME: *Solanum trilobatum*

TAMIL NAME: Thuthuvalai

FAMILY: Solanaceae

USES: Lung cancer, Respiratory disease, Asthma, Gastric complaints, Rheumatism.



10. BOTANICAL NAME: *Limonia acidissima*

TAMIL NAME: Vilankai

FAMILY: Rutaceae

USES: Liver and Cardiac tonic, Astringent, Diarrhea and Dysentery, Effective treatment for Hiccough, sore throat.





11. BOTANICAL NAME: *Ficus racemosa*

TAMIL NAME: Athi

FAMILY: Moraceae

USES: Antimicrobial, Anthelmintic, Anti-inflammatory, Antidiarrhoeal, Wound healing, Antidiuretic, Hypoglycemic.

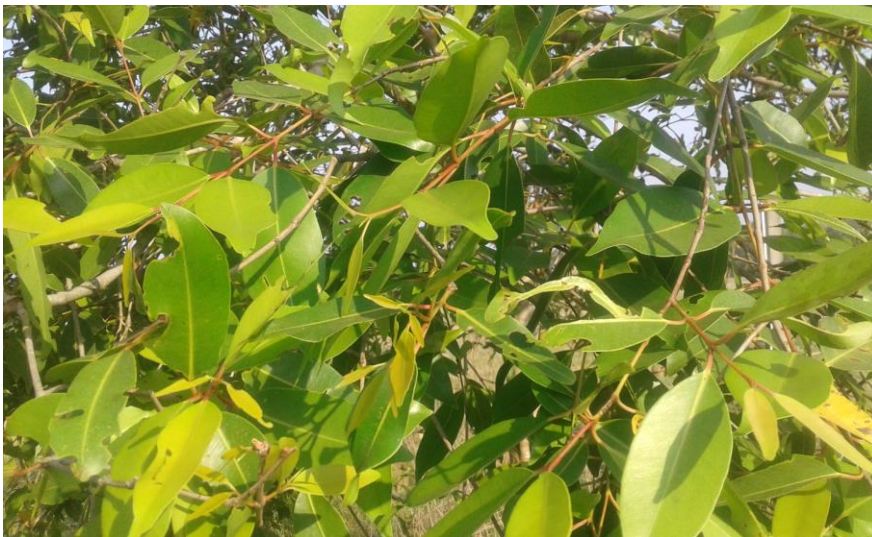


12. BOTANICAL NAME: *Syzygium cumini*

TAMIL NAME: Naaval

FAMILY: Myrtaceae

USES: Antidiabetic properties, Stimulates the liver, Relieves bladder problems, Remove body weakness, Treat anaemia, Increase memory and Remove sexual weakness.



13. BOTANICAL NAME: *Argemone mexicana*

TAMIL NAME: Birama-dandu

FAMILY: Papaveraceae

USES: Antimicrobial, Antidiabetic, Antioxidant, Malarial fever, Ulcers, Skin problem, Cataract, Reddening.



14. BOTANICAL NAME: *Boerhavia diffusa*

TAMIL NAME: Mukaratte kirai

FAMILY: Nyctaginaceae

USES: Liver, Kidney, Reduces body heat, Urinary diseases, swelling, Asthma, Bronchitis menstrual problems.





15. BOTANICAL NAME: *Mimosa pudica*  
TAMIL NAME: Thottal surungi  
FAMILY: Fabaceae  
USES: Piles, Diabetes, and Cut wounds.



16. BOTANICAL NAME: *Datura metel*  
TAMIL NAME: Ummathai  
FAMILY: Solanaceae  
USES: Motion sickness, Nauseas, Dizziness, Asthma, Dysuria, Blood Pressure.



17. BOTANICAL NAME: *Solanum xanthocarpum*

TAMIL NAME: Kantakari

FAMILY: Solanaceae

USES: Kills the worms in the intestine reduces asthma, Diabetics, Treatment of piles, skin diseases.



18. BOTANICAL NAME: *Abutilon indicum*

TAMIL NAME: Thuthi

FAMILY: Malvaceae

USES: Ulcers, Headaches, Gonorrhoea, bladder infection, Fever, Cough, Lung disease, Urinary disease, Diabetes, Menorrhoea.





19. BOTANICAL NAME: *Tridax procumbens*  
TAMIL NAME: Vettukaya poondu  
FAMILY: Asteraceae  
USES: Anticoagulant, Antifungal, Insect repellent, Wounds.



20. BOTANICAL NAME: *Calotropis gigantea*  
TAMIL NAME: Erukku  
FAMILY: Apocynaceae  
USES: Diarrhoea, Dysentery, Intestinal worms, Colic, Spleen complaints,  
Stomach-ache, Cardiovascular problems, pneumonia, fever, Jaundice,  
Elephantiasis and Leprosy.





The World Health Organization (WHO) estimates that over 80 percent of people in developing countries depend upon traditional medicine for treatment of disease and other maladies in their primary health care. India is one of the leading countries in Asia in terms of the wealth of traditional knowledge systems related to the use of plant species and also known to harbour a rich diversity of higher plant species of which 7500 are known as medicinal plants (Cornara *et al.*, 2009). Medicinal plants play a major role in meeting the medical and health needs of the people, especially in developing countries. In the developed countries, they are used as templates for manufacturing modern pharmaceutical drugs whereas, in developing countries they are an important resource for the treatment of various maladies and illnesses, and are a major component of treatment within the primary health care systems (Perumal, 2010 ; Jayakumar, 2013a; Jayakumar, 2013b Jayakumar *et al.*, 2015c)

Traditional uses of herbal medicines imply substantial historical use, and this is certainly true for many products that are available as “traditional herbal medicines”. In many developing countries, a large proportion of the population relies on traditional practitioners and their armamentarium of medicinal plants in order to meet health care needs. Although modern medicine may exist side-by-side with such traditional practice, herbal medicines have often maintained their popularity for historical and cultural reasons (Vishwakarma *et al.*, 2013). Natural products have played an important role throughout the world in treating and preventing human diseases, (Jayakumar *et al.*, 2015a; Jayakumar *et al.*, 2015b).

#### **4. CONCLUSIONS**

Medicinal plants are resources of traditional medicines and many of the modern medicines are produced indirectly from plants. Data was collected through field assessments from traditional healers and locals by means of personal interviews and questionnaires. 20 Species, belonging to 15 families were collected and used for traditionally.

Plant parts used for medicinal purposes are leaves, root, stem, fruits, aerial parts, the whole plant, barks and flowers. However, leaves were found most frequently used traditional value. Most of the reported preparations are drawn from a single plant; mixtures are used rarely. The fresh plant parts are used for the preparation of medicine. When fresh plant parts are unavailable, dried parts are also used. Generally, the people of the study area still have a strong belief in the efficacy and success of herbal medicine. Medicinal plants have played an essential role in the development of human culture. The results of the present documentation provide evidence that medicinal plants continue to play an important role in the healthcare system of in and around Pazhavar river, Korkai, Mayiladuthurai, Nagappattinam District, Tamil Nadu, India.

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