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# Ethnobotanical Survey of Medicinal Plants Used by the Traditional Healers in Mudivaithananthal Village of Thoothukudi District, Tamil Nadu, India

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***Abstract:*** *An ethnobotanical survey was undertaken to collect information from traditional healers on the use of medicinal plants in Mudivaithananthal village, Thoothukudi district of Tamil Nadu. The indigenous knowledge of local traditional healers and the plants used for medicinal purposes were collected through questionnaire and personal interviews during field trips.*
*The investigation revealed that, the traditional healers used 39 species of plants distributed in 35 genera belonging to 25 families to treat various diseases. In this study the most dominant family was Euphorbiaceae and leaves were most frequently used for the treatment of diseases.*
*This study showed that many people in the studied area still continue to depend on medicinal plants at least for the treatment of primary healthcare. The traditional healers are dwindling in number and there is a grave danger of* traditional knowledge disappearing soon since the younger generation is not interested to carry on this tradition.

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## I. Introduction

Plants have been used in traditional medicine for several thousand years. During the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of the world. Documenting the indigenous knowledge through botanical studies is important for the conservation and utilization of biological resources. Today, according to the World Health Organization (WHO), as many as 80% of the world's people depend on traditional medicine and in India, 65% of the population in the rural areas use Ayurveda and medicinal plants to meet their primary healthcare needs[1]. There are considerable economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of various diseases. In a report recently published by the World Bank, Lambert *et al*[2] pointed out that preserving and enhancing the plant knowledge and use was equivalent to 'rescuing a global heritage'.Due to less communication, poverty, ignorance and unavailability of modern health facilities, most of the people especially rural people are still forced to practice traditional medicines for their common day ailments. A vast knowledge of how to use the plants against different illnesses may be expected to have accumulated in areas where the use of plants is still of great importance.

India is a veritable emporium of medicinal and aromatic plants. Different religions and communities of India having their own traditions, beliefs, and rituals. Thousands of plants are used by the rural communities to make crude drugs to cure various ailments. Majority of the rural people in India use the plants as it is or their parts which are found in and around their locality as primary health care. The present-day traditional healers are very old. Due to lack of interest among the younger generation as well as their tendency to migrate to cities for lucrative jobs, wealth of knowledge in this area is declining. So far no systematic botanical survey has been made in this area and this is the first report on the medicinal plants used by the local traditional healers of Mudivaithananthal village.

The objective of this study was to interact with local traditional healers of Mudivaithananthal and document their knowledge on medicinal plants, their usage and the types of diseases treated etc. Mudivaithanendal is a village panchayat located in the Thoothukudi district of Tamil Nadu state, India. The latitude 8.7207761 and longitude 77.9930377 are the geo-coordinate of the Mudivaithanendal. Mudivaithanendal is a large village with total 1762 families residing. The Mudivaithanendal village has population of 5927 of which 2968 are males while 2959 are females as per Population Census 2011. Traditional healing systems are still popular in this village.

## II. Methodology

The study was conducted from June 2017 to May 2018. From this village we have collected information regarding the usage of medicinal plants available in that area for treating various ailments and diseases. Information was collected directly by contacting traditional healers(Vaidya's) through a Questionnaire. Plants / parts of plants were collected from this village traditional healers / Vaidya's and were identified by using the standard literature such as Floras of Madras Presidency [3]; Further Illustrations on the Flora of the Tamil Nadu and Carnatic[4,5,6]; Flora of Tamil Nadu, India[7]; Flora of Tamil Nadu, India[8,9] and Legumes of India[10] have been referred for the correct botanical names for the specimens identified. A herbarium was also prepared for all the plants / plant parts and has been deposited in the PG & Research Department of Botany, V.O. Chidambaram College, Thoothukudi.

## III. Result and Discussion

The details of the plants including their vernacular name, useful parts of the plants and medicinal uses were tabulated (Table 1). The present study enumerated the usage of 39 medicinal plants in Mudivaithananthal village, Thoothukudi District.

**Table 1.** Medicinal Plants Used by Villagers of Mudivaithananthal

| Plant Name | Family | Vernacular Name | Uses |
|---|---|---|---|
| *Abrus precatorius* L. | Leguminaceae | Kudimani | Decoction prepared from fresh roots are used in abortion |
| *Acalaypha indica* L. | Euphorbiaceae | Kuppaimeni | Fresh leaves are ground with salt and made into paste. This paste is applies externally to cure scabies. A mixture of fresh leaf juice and coconut oil are used to cure rheumatic arthritis. The juice of the leaves is mixed with little garlic and given orally for killing intestinal worms. |
| *Acorus calamus* L. | Araceae | Vasambu | The whole plant paste is used to cure skin eruptions and rheumatic pains. The roots of these plants are chewed to reduce toothache. |
| *Adhatodtoda vasica* Nees | Acanthaceae | Aadathodai | Mature leaves are sundried and smoked in a pipe to relieve asthma. Leaves are heated on fire and applied to relieve headache, rheumatism and body pain. Paste made with leaves is applied to treat fractures and sprains. |
| *Allium cepa* L. | Liliaceae | Palarivengayam | The bulb is cut into pieces and mixed with lime. After 2 to 3 days it is given to patients suffering from blood dysentery Onion juice is mixed with honey and consumed regularly to cure cold and coughs. Heated onion juice helps to relieve from ear pain |
| *Allium sativum* L. | Liliaceae | Vellaipoondu | Bulbs are mixed with cow's milk and this paste is taken orally to treat gastric problems, cough and ulcer. Bulbs are mixed with salt and this paste is applied externally to relieve from sprain. |
| *Altera*nanthera *sessilis* (L.) R. Br. ex. DC | Amaranthaceae | Ponnagannikeerai | The leaves are cooked and eaten to reduce the body heat and to increase the volume of the blood in the body. The paste of the root is applied externally to cure inflamed wounds. |
| *Aloe vera* (L.) Burm. F | Liliaceae | Katraalai | Leaf juice is taken orally to reduce body heat and kidney stones. Juice of the leaf is taken with honey for treatment of cold and cough. |
| *Azadirachta indica* A. Juss | Meliaceae | Vembu | The flowers are dried and powdered and mixed with hot water and is taken orally to relieve form gastric disorders. The seeds are powdered and are given with honey twice a day to cure piles. |
| *Basella alba* L. | Chenopodiaceae | Kodipasalai | The paste of the tuber is applied externally on the stomach for a period of 3 to 4 days to relieve form colic disorders.25 to 35g of fresh leaf is made into juice and is taken orally for 5 to 7 days as a coolant to reduce body heat. |
| *Calotropis gigantean* (L.) R.Br | Asclepiadaceae | Eruku | Stem latex is mixed withslaked lime (calcium hydroxide) and applied externally on the throat twice a day for 4 days to treat cold and cough |
| *Carica papaya* L. | Caricaceae | Pappali | The unripe fruits are eaten to induce abortion. The latex is applied externally for skin diseases |
| *Centella asiatica* L. | Umbelliferae | Vallarai | One teaspoon of this plant is taken as a tonic regularly in the |

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| | | | morning to increase the memory power. |
| *Citrus aurantifolia* (Chrism.) Swingle | Rutaceae | Yelumichai | The fruit juice is applied on the scalp to reduce body heat. |
| *Cynodon dactylon* (L.) Pers. | Poaceae | Arukampul | Fresh leaves are crushed and mixed with cow's milk, boiled and consumed once in a day to cure bleeding piles. The juice extracted from this plant is taken regularly to control sugar. |
| *Eclipta prostrate* L. | Compositae | Karisilanganni | The whole plant juice is mixed with turmeric and used as a hair oil or taken orally to cure jaundice. |
| *Elettaria cardamom* Maton. | Zingiberraceae | Yelakkai | Cardamoms are taken regularly to cure flatulence. |
| *Emblica officinalis* Gaertn. | Euphorbiaceae | Nellikai | Fruits are mashed and juice is extracted and is used as an eye drops for eye troubles. The whole fruit is also eaten to promote urination. |
| *Ferula asafoetida* L. | Umbelliferae | Perungayam | The powder is used for relieving spasms, indigestion, flatulent colic, cholera and whooping cough. |
| *Ficus benghalensis* L. | Moraceae | Aalamaram | Tender roots are mixed with ginger and made into paste and are used as a poultice to heal bone fracture. Decoction of roots is used to treat leucorrhoea. |
| *Melia azadirachta* L. | Meliaceae | Malaivembuu | The juice of the leaves is used as an anthelminthic. The seeds are used to cure Rheumatism. |
| *Moringa oleifera* Lamk. | Moringaceae | Murungai | The leaf decoction is used to cure cold and cough. The fruit is eaten as vegetable. 25g of fresh leaves, 3g of pepper and 5g of garlic are made into paste and consumed in empty stomach for 3 to 4 days to cure jaundice. |
| *Murraya koenjii* (L.) *Spreng* | Rutaceae | Karuveppillai | The leaves are used to make chutneys and are taken regularly to improve eyesight. |
| *Nigella sativa* L. | Ranunculaceae | Karuncheeragam | Seeds are ground are eaten to cure fever. Seeds are ground with sesame oil and applied externally to cure skin eruptions. |
| *Ocimum sanctum* L. | Lamiaceae | Tualsi | The juice taken from the leaves are used to cure heart disease. The leaves are made into paste and applied externally on the eyes to treat boils. 5 to 10g of leaves are made into paste along with ginger and applied on the forehead to cure headache. |
| *Papaver somniferum* L. | Papaveraceae | Kasakasa | The opium from this plant is used to induce sleep, relieve pain and relax spasms. |
| *Phyllanthus amarus* Schum&Thonn | Euphorbiaceae | Keelanelli | 2g of the fresh and cleaned aerial part is made into juice with 25ml of water. The filter-juice is taken orally as such or along with 100ml of cow's milk twice a day for about 7 to 10 days to treat jaundice. The paste prepared from 10g of fresh entire plant is taken orally once in a day to treat diabetes. |
| *Piper betle* L. | Piperaceae | Vetrilai | Leaf juice is used as an eye drop for optic troubles. The petiole is crushed and is given to the children to cure indigestion. |
| *Piper longum* L. | Piperaceae | Thipili | 5g of seeds, 10g of dry ginger, 2g of black pepper, 2g of asafetida, 3 chopped garlics, one betel leaves are ground in water, boiled, cooled and this extract is given to cure cough, bronchitis and Rheumatism. |
| *Piper nigrum* L. | Piperaceae | Milagu | The seeds are used to cure digestive problems and stomach ache. |
| *Punica granatum* L. | Puniaceae | Mathulai | The dried peel is made into powder and mixed with boiled milk and consumed regularly in the morning and evening to cure diarrhea and dysentery. |
| *Riccinus communis* L. | Euphorbiaceae | Amanaku | The oil from the seed is taken as purgative and vermifuge. Leaf paste is applied externally to cure Rheumatism and body swellings. |
| *Solanum surrattense* Burn. F | Solanaceae | Kandankathiri | The powder made from the fruit is mixed with honey and taken orally twice a day to cure cough. |
| *Solanum trilobatum* | Solanaceae | Thudhuvalai | Fresh juice from the leaves is applied in drops in the ear to cure ear |

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| L. | | | pain. The whole plant is powdered, mixed with honey and pepper and taken for 2 days to cure cough. |
| *Syzygium aromaticum* (L.) Merr. & Perry | Myrtaceae | Kerambu | One piece of clove is put in the damaged teeth during toothache to control the pain. |
| *Trachyspermum ammi* (L.) Sprague | Umbelliferae | Omum | 5g of seeds, 10g of dry ginger, 2g of black pepper, 2g of asafetida, 3 chopped garlics, one betel leaves are ground in water, boiled, cooled and this extract is given to cure cough, bronchitis and Rheumatism. |
| *Trigonella foenum* L. | Leguminaceae | Vendhayam | 5g of seeds, 50g of raw rice and 25g of boiled rice are soaked for 3h, ground with 100ml of water, boiled, 25g of palm sugar is added, cooled and this is consumed during summer months to reduce body temperature and to cure vitamin deficiency. |
| *Vinca rosea* L. | Apocynaceae | Nithyakalyani | Milky leaf juice is applied externally to reduce body pains, skin diseases and swellings of wasp bite. The juice is extracted from the roots, boiled and taken to cure stomach aches. |
| *Zingiber officinale* Roscoe. | Zingiberaceae | Ingi | The juice prepared from the rhizome is mixed with lime juice and consumed to treat headache and to arrest vomiting. The juice prepared from rhizome is used to reduce blood pressure. |

An outcome of the present investigation, 39 plant species belongs to 35 genera and 25 families were recorded (Table 2).

**Table 2.** Floristic group of medicinal plants recorded from the study area

| Floristic Group | Class | Family | Genus | Species |
|---|---|---|---|---|
| Angiosperms | | | | |
| Dicotyledons | | 20 | 28 | 31 |
| | Polypetalae | 10 | 15 | 15 |
| | Gamopetalae | 6 | 6 | 7 |
| | Monochlamydeae | 4 | 7 | 9 |
| Monocotyledons | | 5 | 7 | 8 |

Among thirty-nine species presently recorded, thirty-one species belongs to Dicotyledons. Fifteenspecies belongs to Polypetalae, nine species belongs to Monochlamydeae and seven species belongs to Gamopetalae. The highest number of species belongs to Euphorbiaceae (Monochlamydeae) (4 species) followed by Umbelliferae (Polypetalae) (3 species). In Monocotyledon, the highest number of specieswas recorded under the family Liliaceae (3 species) (Table 3).

**Table 3.** Family wise distribution of enumerated medicinal plants

| Family | Total No. of Genera | Number of Species |
|---|---|---|
| **I Dicotyledons** | | |
| **Polypetalae** | | |
| Meliaceae | 2 | 2 |
| Umbelliferae | 3 | 3 |
| Rutaceae | 2 | 2 |
| Moringaceae | 1 | 1 |
| Ranunculaceae | 1 | 1 |
| Papaveraceae | 1 | 1 |
| Leguminaceae | 2 | 2 |
| Myrtaceae | 1 | 1 |
| Punicaceae | 1 | 1 |
| Caricaceae | 1 | 1 |
| **Gamopetalae** | | |
| Asclepidaceae | 1 | 1 |
| Apocynaceae | 1 | 1 |
| Acanthaceae | 1 | 1 |
| Asteraceae | 1 | 1 |
| Lamiaceae | 1 | 1 |
| Solanaceae | 1 | 2 |
| **Monochlamydeae** | | |
| Euphorbiaceae | 4 | 4 |
| Chenopodiaceae | 1 | 1 |
| Moraceae | 1 | 1 |
| Piperaceae | 1 | 3 |
| **II. Monocotyledons** | | |

| | | |
|---|---|---|
| Araceae | 1 | 1 |
| Liliaceae | 2 | 3 |
| Amaranthaceae | 1 | 1 |
| Gramineae | 1 | 1 |
| Zingiberaceae | 2 | 2 |

People use leaves (11 species), fruits (8 species), whole plant (5 species), bulb, rhizome, root, seeds and latex (2 species each), flower, flower bud, fruit peel, seed oil and gum resin (1 species each) for their medicinal purposes (Figure 1).

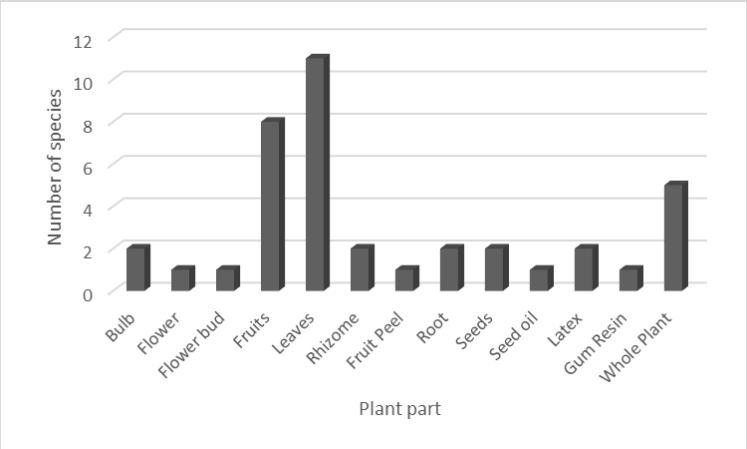


**Figure 1.** Plant parts used for the preparation of medicine

Leaves were predominantly used than other parts of the plants for the medicinal purpose and it was also agreed by most of the other botanical researchers [11,12]. The collection of leaves is higher, it does not pose a great danger to the existence of an individual plant and easily accessible as compared to the other parts especially underground plant parts like tuber, roots and rhizome. The collection of underground plant parts and whole plant is a critical result both ecological as well as survival point of view of the species [13] and they are active in photosynthesis and production of metabolites[14]. Leaves remain green and available in plenty for the most months of the years. Fresh plant parts were commonly used for the medicine preparation. When fresh plant parts are not available, dried parts are also used.

**Habit-wise distribution**

Herbs were the primary source of medicine recorded in the study area with herbal species (44%) followed by trees with tree species (23%), climbers with20% of species and shrubs with13% of species (13%) (Figure 2).

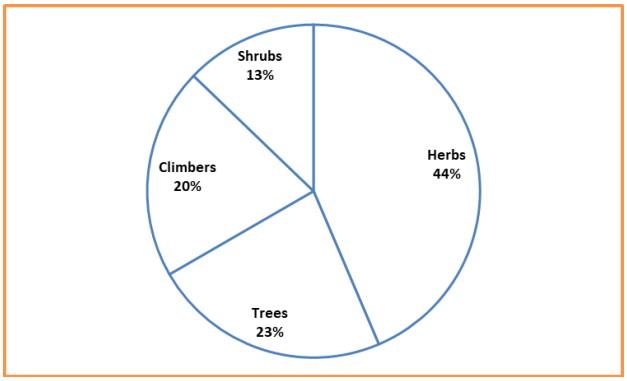


**Figure 2.** Habit-wise distribution of medicinal plants recorded in the study area

People use herbs and trees more commonly as medicine due to their availability in nature [15,16].

**Ingredients added**

The traditional healers used more than one plant parts for the preparation of medicine in the treatment of single or multiple ailments. The frequent use of multiple plant remedies among the traditional healers could be attributed to the belief of synergic reactions where one plant could have a potentiating effect than other [17]. It is believed that the multiple prescriptions contain a range of pharmacologically active compounds and poly-

herbal treatment has more healing power than single medicinal plant, since each medicinal plant used in the mixture is a remedy[18].

The traditional healers too frequently use some adjuvants such as honey, cow milk, hot water and jiggery (sugar) to improve the acceptability and medicinal property of certain remedies. The oils of castor, coconut, and sesame were commonly used for the preparation of paste or medicated oil (Table -1). The local healers were using specific plant parts and specific dosages for the treatment of diseases and the dose given to the patient depends on age, physical status and health conditions.

## IV. Conclusion

Presently, developing nations, such as India, have an imperative need to systematically document the traditional knowledge on the use of medicinal plants in all communities, many of which are still largely unexplored. Such documentation is necessary becauseolder people are the only custodians of such information and the fast disappearance of traditional cultures and natural resources arising from urbanization and industrialization of such areas suggest that unrecorded information may be lost forever. Documentation of plant materials used in traditionalmedicine could well benefit general health care. Such medicinal plants could be incorporated into primary health care, as people generally feel safer with indigenous cures and also the costs of medicine would be much lesser than the modern drugs.

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