

## Ethnobotanical studies on Thenmudiyanur Village, Thiruvannamalai district, Tamil Nadu, India

M. PAVUN KUMAR AND J. SURESH KUMAR

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### SUMMARY

This study shows that knowledge and usage of herbal medicine for the treatment of various ailments among Thenmudiyanur villagers of Thiruvannamalai district, Tamil nadu, India. They use forest plants, weeds, fruit plants, vegetables, ornamental plants and much other as traditional medicine. The results of the present study provides evidence that medicinal plants continue to play an important role in the healthcare system of village community. Although many of these species are known as medicinal plants, others are mainly used for non-medicinal purposes such as preparing agricultural implements. The collection, identification and documentation of ethnomedicinal data on biological resources are inevitable steps for bioprospecting. These plants may serve as source of some important medicine against some major diseases. Therefore, these villager's claims should be further validated scientifically.

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**Key words :** Ethnobotanical study, Forest plant, Weeds, Fruit plants, Ornamental plants, Vegetable, Medicinal plants

**E**thnobotanical study is of immense importance with medical science. Now it was well established branch of science with much attention. Globally, about 85% of the traditional medicines used for primary health care are derived from plants. Traditional medicine and ethnobotanical information play an important role in scientific research, particularly when the literature and field work data have been properly evaluated (Awadh *et al.*, 2004). India is one of the twelve mega-biodiversity countries of the World having rich vegetation with a wide variety of plants with medicinal value. In many countries, scientific investigations of medicinal plants have been initiated because of their contribution to healthcare. Herbal medicines have good values in treating many diseases including infectious diseases, hypertension, etc. That they can save lives of many, particularly in the developing countries, is undisputable (Patrick, 2002). Rural people not only depend on wild plants as sources of food, medicine, fodder and fuel, but have also developed methods of resource management, which may be fundamental to the

conservation of some of the world's important habitats (Gemedo-Dalle *et al.*, 2005).

Earlier studies showed that nearly one third of about 15000 higher plants species are used by tribals (Alagesabooopathi, 1999). India possesses a total of 427 tribal communities. Recently various ethnobotanical studies have been reported to expose the knowledge from the various tribals of Tamilnadu (Eluvakkal, 1991), (Venkatesan, 2004), (Sandhya *et al.*, 2006) and (Shanmugam, 2008). Each and every tribal uses certain plants as medicine. Documenting the indigenous knowledge through ethnobotanical studies is important for the conservation of biological resources as well as their sustainable utilization. It is also necessary to collect the information about the knowledge of traditional medicines, preserved in tribal and rural communities of various parts of India in general and Tamilnadu in particular before it is permanently lost.

Throughout the world, plants have been in continuous use in one way or the other for the treatment of various ailments. In India, the sacred Vedas, which date back between 3500 B.C. and 800 B.C., give many references of medicinal plants. The indigenous traditional knowledge of medicinal plants of various ethnic communities, where it has been transmitted orally for centuries is fast disappearing from the face of the earth due to the advent of modern technology and transformation of traditional

### Correspondence to:

M. PAVUN KUMAR, Department of Botany, Government Arts College, THIRUVANNAMALAI (T.N.) INDIA  
Email : sureshkumarj9@yahoo.com

### Authors' affiliations:

J. SURESH KUMAR, Department of Botany, Government Arts College, THIRUVANNAMALAI (T.N.) INDIA

culture. The collection of information about natural flora, classification, management and use of plants by the people holds importance among the ethnobotanists.

Generally, the people of the study area still have a strong belief in the efficacy and success of herbal medicine. Thus as Palekar (1993) mentioned that the tribal has convinced us that traditional medicine is of contemporary relevance and it can help rural and tribal communities in India to achieve self reliance in their primary health care needs. This study shows that knowledge and usage of herbal medicine for the treatment of various ailments among tribes is still a major part of their life and culture. In this study it is observed that they use some herbaceous plants as traditional medicine although many of these species are known as medicinal plants. The data collected show that majority of medicines are taken orally. Most of the reported preparations are drawn from a mixture of plants; single plant is used rarely. In other parts of the country, the use of mixtures of plant species in treating a particular ailment is fairly common.

Pharmaceutical researchers acknowledge that screening plants on the basis of information derived from traditional knowledge saves billion dollars in time and resources which were believed to be the reason for the loss of traditional ethnobotanical knowledge in Iban community in Sarawak, Malaysia (Jarvie and Perumal, 1994) and Raji tribal community of Central Himalaya, India (Negi *et al.*, 2002).

There is very little or no documentation of this ethnomedicinal knowledge was carried out pertaining to villagers of the Thenmudiyannur, Thiruvannamalai district. All the more, several wild medicinal plants are fast disappearing due to the destruction of forest by inhabitants, invasion of exotic flora and introduction of new crops. Hence, there is an urgent need for exploration and documentation of this traditional knowledge in order to ascertain the conservation value of the local ethnomedicinal plants of the forests. Therefore, the present study is an attempt to present some interesting ethnomedicinal observations recorded from above said area.

Globally, about 85% of the traditional medicines used for primary healthcare are derived from plants. Herbal drugs obtained from plants are believed to be much safer; this has been proved in the treatment of various ailments (Mitalaya *et al.*, 2003). Traditional medicine and ethnobotanical information play an important role in scientific research, particularly when the literature and field work data have been properly evaluated (Awadh *et al.*, 2004). This work concentrates on potential ethnomedicinal value of plants and herbs commonly used

by the tribals residing in and around Similipal Tiger Reserve of the area surveyed. Ethnobotany of Similipal is known through the earlier works of Bal (1942), Mudgal and Pal (1980), Pandey and Rout (2002), Pandey and Rout (2006), Saxena and Dutta (1975), Saxena *et al.* (1988) and Yogunarasimhan and Dutta (1972). Some tribes are adhering to traditional way of life, native culture and customs, the tribal have vast store of information and knowledge on potentially useful medicinal plants. The traditional knowledge system in India is fast eroding due to steady decline in human expertise capable of recognizing various medicinal plants. Much of this wealth of knowledge is totally becoming lost as traditional culture is gradually disappearing because it is mostly oral (Hamilton, 1995). Therefore, effort should be initiated for the documentation and computerization of useful medicinal plants and their traditional knowledge (Mehrotra and Mehrotra, 2005).

The value of medicinal plants to the mankind is very well proven. It is estimated that 70 to 80% of the world population rely chiefly on traditional health care system and largely on herbal medicines (Shanley and Luz, 2003). Only 15% of pharmaceutical drugs are consumed in developing countries (Toledo, 1995). The affluent people have little alternative to herbal medicine, and they depend on traditional health care system (Marshall, 1998).

From the ethnomedicinal point of view Visakhapatnam district in Andhra Pradesh remained unexplored and no comprehensive account particularly on folklore of this region is available (Banerjee, 1977) published a note on ethnobotanical observations of Araku valley. Rao *et al.* (2001) reported 160 medicinal plants that occur in Paderu region. There is urgent, immense need to inventories and record all ethnomedicinal information among the diverse ethnic communities before the traditional cultures are completely lost (Rama Rao and Henry, 1996). Ethnomedicinal activities on different aspects in Indian sub-continent has been put forth by (Jain, 1981). Therefore, continuous efforts should be made to collect this information which will provide avenues for future generation. It is thus of paramount importance that the native plant genetic wealth needs to be maintained for posterity.

## **MATERIALS AND METHODS**

### **Study site:**

Thiruvannamalai district is situated in the eastern portion of north west of Tamil nadu between 12°20"N latitude and 78°57"N longitude. It is also called as Forest district, occupying an area of about 13,858 km<sup>2</sup>.

### Methodology:

The present study is based on intensive field excursions during January–March 2011. The plant species collected during these field trips were identified with the help of Taxonomical Floras available at our department. Ethnobotanical information presented here was gathered with the help of local informants and other elders of the Thenmudiyanur communities. The traditional medical practitioners were also consulted and were persuaded to accompany us on the field trips. Sometimes we used forest guards (employees of the State Forest Department) as interpreters and guides for the locality. The medicinal value of each plant was enumerated in the following pattern: (a) Botanical names, (b) Family, (c) Vernacular name in Tamil (d) Parts used, mode of preparation and Ethnomedicinal uses.

### Surveys:

Regular field trips of one week duration were made to the selected villagers from January to March 2011. Each locality was visited at least 4-5 times, in different seasons. The survey was spread across the seasons so as to get maximum information. The information on medicinal uses of the indigenous plants have been described after gathering information from general local people, experienced aged rural folk, traditional herbal medicine practitioners and local herbal drug sellers and concluded them by consulting literature. A total of 300 inhabitants were interviewed. The randomly selected 186 men and 114 women of different ages from about 25 years

and above ( $x = 57.92$ ) were interviewed in local language. In addition direct plant observation and identification was done with the help of local healers known as 'Tradition Herbal Healers'. Through interviews and discussions, information about plants used for treating various diseases commonly afflicting them was gathered. Simultaneously, herbarium specimens of the plants were collected to authenticate their identity. The same informants were repeatedly queried during different field trips to confirm the information provided by them previously. Voucher herbarium specimens were deposited in Cannon digital cameras. The information recorded in the field was reexamined by consulting important works pertaining to Indian medicinal plants and ethnobotany, such as the *Wealth of India* (Anonymous, 1948-1976), *Indian Materia Medica* (Nadkarni, 1976), *Dictionary of Indian Folk Medicine and Ethnobotany* (Jain, 1991) and *Dictionary of Indian Medicinal Plants* (Husain *et al.*, 1992).

### RESULTS AND DISCUSSION

The present investigation has revealed that 50 angiospermic plant species belonging to 45 genera of 26 families were used by Thenmudiyanur villagers in their traditional modes of treatment of diseases and various ailments like wounds, cuts, stomach pain, diabetes, fever etc. The village practitioners used specific plant parts and specific dosages for the treatment of ailments. The plant products are consumed raw or in the form of a decoction, juice extract, as infusion for oral treatment and as burnt

**Table 1: Reported information on ethnomedicinal plants used by villagers from Thenmudiyanur, Thiruvannamalai, Tamil Nadu, India**

Sr. No.	Botanical name	Family	Local name	Parts used, mode of preparation and ethno medicinal uses
1.	<i>Abutilon indicum</i> L.	Malvaceae	<i>Thuthi</i>	Leaf juice along with 10ml gingerly oil, taken regularly morning and evening, it cures diarrhoea and dysentery
2.	<i>Hibiscus cannabinus</i> L..	Malvaceae	<i>Pulachaikirai</i>	Green leaves are used as food. It is used for blood purification
3.	<i>Hibiscus rosinensis</i> L..	Malvaceae	Sembaruthi	Leaf juice taken internally used for 7 days. Cures all types of centripeds bite.
4.	<i>Citrus medica</i> L.	Rutaceae	Elumichai	Fruit juice is refrigerant. Fruit are used as pickles
5.	<i>Azadirchta indica</i> ADR. Juss	Meliaceae	Vembu	The leaf paste mixed with tumeric is used externally, it cures mums
6.	<i>Melia azadirachta</i> L.	Meliaceae	Malaivembu	The stick of the tree is used to clean the teeth.
7.	<i>Cissus quadrangularis</i> L. Mont.	Vitaceae	Perandai	Stem: Paste of tender stem taken orally with food for easy digestion its increase appetizer.
8.	<i>Ziziphus jujuba</i> , L.	Rhamnaceae	Elanthai	Paste of leaves is used to cures cutting wounds

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9.	<i>Mangifera indica</i> , L.	Anacardiaceae	Maa	Fruits are daily used to cure constipation.
10.	<i>Trigonella foenumgraecum</i> L.	Leguminosae	Venthaiyam	Seeds: Seeds are taken internally, it cures stomach pain
11.	<i>Lablab purpureus</i> L.	Leguminosae	Avarai	Leaf extract consumed with honey to cure to diarrhea
12.	<i>Mimosa pudica</i> ,L.	Leguminosae	Thottasinungi	Leaves are made into a paste and used an external uses. The inflammation of the joints pains
13.	<i>Tephrosia purpurea</i> L.	Leguminosae	Kollukaivelai	Paste of the root added with tumeric applied on the swelling, it reduces the swelling.
14.	<i>Sesbania grandiflora</i> L.	Leguminosae	Agathi	Leaves are used as food. It is taken internally used to cure ulcer problem.
15.	<i>Cassia auriculata</i> L.	Leguminosae	Aavarai	Leaf and flower mixed with hot milk, it cures diabetics
16.	<i>Psidium guajava</i> , L.	Myrtaceae	Goiya	Fruits are taken internally, it cures anemia.
17.	<i>Coccinia indica</i> , L.	Cucurbitaceae	Kovai	Leaf extract used as an external use, it cures all skin diseases
18.	<i>Momordica charantia</i> , L.	Cucurbitaceae	Pavai	The fresh fruits are cut and boiled to eat. It cures diabetics.
19.	<i>Hemidesmus indicus</i> , R. Br.	Umbelliferae	Kothamalli	The leaf is used in cooking and the seeds grind with ocimum leaf juice is taken internally, it reduce the body temperature
20.	<i>Mimusops elengi</i> L.	Sapotaceae	Magiyamaram	Fruits chewed regularly, it cures headache.
21.	<i>Colotropis gigantea</i> L. (R.Br)	Gentianaceae	Nannari	Root decoction along with milk is given in treating indigestion and also its cures fever, skin disease and ulcer.
22.	<i>Enicostemma littorale</i> Bl.	Asclepiadaceae	Vellaerukku	20g of root grind with curd, then mixed with butter milk it is taken three days to cure skinks poison.
23.	<i>Coldenia procumbens</i> L.	<i>Boraginacea</i>	Seruppada	The leaves paste applied as an external use, it cures skin disease
24.	<i>Datura metal</i> L.	Solanaceae	Umathai	Paste of the root and seed with milk is used to cure dog bite
25.	<i>Solanum nigrum</i> L.	Solanaceae	Manathakkali	Fruit and leaves used as food and it cures to ear disorders
26.	<i>Solanum trilobatum</i> L.	Solanaceae	Thuthuvalai	It fruit used as pickles. It used to improve eye power
27.	<i>Solanum torvum</i> , Sw.	Solanaceae	Sundai	10g of leaf with salt and naraikaranthai are ground with tobacco and applying dog bite
28.	<i>Adhatoda vasica</i> , Nees.	Acanthaceae	Adathoda	A fresh juice for internal use it cure to irritable cough
29.	<i>Andrographis paniculata</i> Nees	Acanthaceae	Periyangai	A leaf paste taken in internally by to cures snake bite
30.	<i>Justicia tranquebariensis</i> L.	Acanthaceae	Thavasamurungai	Crushed leaf added with salt cures diarrhoea
31.	<i>Ocimum tenuiflorum</i> , L.	Lamiaceae	Thulasi	Leaf juice cures common cold. Inhale the small of the leaves it cures cold
32.	<i>Lucas aspera</i> (Wide) Link	Lamiaceae	Thumbai	Leaves are made into a paste taken along with gingerly oil, internally, it cure snake bite
33.	<i>Vitex negundo</i> L.	Verbinaceae	Nochi	Steam bath is taken by boiling the leaves in hot water, it is used to reduce body temperature.
34.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Naiyuruvi	Seeds ground into a paste, used as an external application for poisonous insect bites, it cure to treating scorpion sting.

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35.	<i>Amaranthus graecizans</i> L.	Amaranthaceae	Sirukirai	Greens leaves are used as food, it cures common cold related problems with nausea
36.	<i>Alternanthera sessilis</i> R.Br.	Amaranthaceae	Ponnanganni	Leaf is consumed regularly to cure eye disorders.
37.	<i>Amaranthus tritris</i> com.	Amaranthaceae	Arakirai	Whole plant cooked with pulses, it cures eye irritation.
38.	<i>Aristolochia bracteata</i> , Lam.	Aristolochiaceae	Aduthinnapalai	10g leaves ground with goat milk, taken internally it is used for skinks poison.
39.	<i>Piper betel</i> L.	Piperaceae	Vettilai	A leaf juice mixed with calcium, applied for itching place on centripedes bite.
40.	<i>Piper nigrum</i> L.	Piperaceae	Milagu	Seeds: 5g of pepper ¼ teaspoon tulusi are chewed, it cures insect bite.
41.	<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppaimeni	Leaf: Extract taken internally, it cure Jaundice
42.	<i>Phyllanthus amarusschum</i> and Thonn	Euphorbiaceae	Kiyaneli	Roots and fruits are crushed and mixed with goat's milk. The mixture is taken to cure jaundice and liver disorders.
43.	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Nelli	Fruits are used for pickles and used for strong teeth.
44.	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Kattamanakku	Decoction prepared from bark and mixed with water. The water is used to take bath. It is used for treatment of stomach problems during pregnancy.
45.	<i>Ricinus communis</i> L.	Euphorbiaceae	Amanakku	Leaves: Warred over a fire along with castor oil, applied on the abdomen, it cures stomach pain.
46.	<i>Ficus religiosa</i> L.	Urticaceae	Athi	Externally used as latex, it cure to joints pain.
47.	<i>Cynodon dactylon</i> L.	Poaceae	Arugampul	Leaf extract taken internally use it cures common cold.
48.	<i>Scilla hyacinthin</i> (roth) J.F. mackar	Liliaceae	Narivenkayam	Paste of the bulb taken an internal use it cures fever
49.	<i>Aloe vera</i> L.	Liliaceae	Sotrukatrashai	Leaves used to cure the rheumatism, it reduces excess body heat
50.	<i>Musa paradisiaca</i> L.	Musaceae	Valai	The juice of the stem is taken regularly everyday morning and evening, it cures kidney stones and the bark extract used as antidote for snake bites

product, ointments or raw paste when applied externally. The parts of the plant mostly used for medicinal purposes are leaves, root, stem, fruits, the complete aerial parts, the whole plant, barks (root and stem) and flowers in decreasing order. People use more than one plant either separately or mixed together. They mix several plants as ingredients to cure diseases immediately. Generally, fresh part of the plant is used for the preparation of medicine.

When fresh plant parts are not available, dried parts are also used. It is interesting to note that such a way of life, particularly with respect to healthcare practices has hardly undergone any change even in the present day. In the present study 50 species of plants included in 45 genera and 26 families have been recorded which are being potentially exploited by the tribal groups in curing different human ailments as shown in Table 1.

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