

Research Article – Ethnobotany

An ethno-botanical study on traditional uses of medicinal plants in Musiri Taluk, Tiruchirappalli District, Tamil Nadu

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Abstract

Ethno botanical studies in various parts of Tamil Nadu and other regions were carried out earlier by several research scholars in different times. The traditional healers still strongly believe that medicinal plants and their usage have certain therapeutic values. Documentation on the Utilization of plants for medicinal purposes played a significant role. The present study aims in documenting the ethno botanical usage of medicinal plants for curing various human ailments. A total of 24 selected inhabitants were interviewed and 100 medicinal plants species that belonged to 91 genera and 54 families are reported that are used by the traditional healers in Musiri Taluk, Tiruchirappalli District, Tamil Nadu.

Key words: Ethnobotany, Medicinal Plants, Human Disease, Musiri Taluk

Introduction

From time immemorial variety of medicinal plants are used by the traditional healers in the health care fields for curing various human ailments. Hence, traditional healers who are dwelling in remote places depend upon the forest not only using the medicinal plants in their healthcare needs but also commercial use as livelihood option. However, World Health Organisation (WHO) also estimated that more than 80% of the world population still practising the ethno botanical relevance of medicinal plants. The plant gathering, consumption, management of medicinal plants are central aspects within the community that have contributed to the subsistence of drug preparation. A vast knowledge of how to use the plants against different illness is still of great importance.

In India, Ancient traditional medicinal system including Ayurveda, Siddha, Unanai and

Homeopathy also reveals that usage of medicinal plants is essential to human survival. (Mohamed Tariq and Md Rayees Ifham, 2013; Anand *et al.*, 2005, Sastri *et al.*, 1996). The traditional healers also believe that plant resources help both in primary health care and nutritional supplement especially in the periods of food crisis. (Ogle Grivetti, 1985). Some of the traditional medicinal practices with medicinal plants commonly related to the people's perspective on the world and life (Toledo *et al.*, 2009).

Last few decades, many studies have also proved that there has been an increasing use of medicinal plants from various parts of India. A perusal of the available literature reveals that information on traditional uses of medicinal plants in treating various diseases by the indigenous people in the Musiri Taluk, Tiruchirappalli District region as a whole is not adequately recorded. However, in Musiri taluk, most of the tribal settlements are dominant with variety of human diseases due to the poor hygienic condition in these settlements. Some of these infections are common and difficult to control because the causal agents of these infections have acquired antibiotic

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resistance and hence it is the need of the hour to develop new remedies with higher efficacy.

Materials and Methods

Study Area

Musiri Taluk is located in Tiruchirappalli District, Tamil Nadu, India 10.9833°N 78.3333°E. Taluk is 60 Km North-West of Tiruchirappalli on Tiruchy-Namakkal State Highway. According to the 2011 census, the taluk population is 226,372 with 113,033 males and 113,339 females. There were 1003 women for every 1000 men. The literacy rate of Musiri taluk is 69.68. There are 62 villages. The average annual rainfall is 841.9 mm (33.15 in). There are only a few hills of considerable elevation in the study area.

Data Collection

For the present study, Ethno botanical observation on medicinal plants in Musiri Taluk was carried between November 2015 - March 2016. The information about the all plants was collected from the respondents in different villages of tribe and folklore people by unstructured interview. During our data collection some of the patients who diagnosed with the traditional medicine are also interviewed. Proper care was taken in selecting the respondents. A total of 24 selected inhabitants were interviewed. Out of 24, 11 were men and only 13 women. The age of the healers was between 35 years and 62 years. During the interview it was found that the healers of this community collect medicinal plants from variety of habitats.

Results and Discussion

The information on the aboriginal medicinal plants that can be used to cure various human diseases is documented from the traditional healers. A brief group discussion was made with the informants in local language prior to ethno botanical data collection to get their consent and to explain to them that their cooperation is a valuable contribution to the documentation of the traditional plant used by them. In addition direct plant field observations were employed to collect the data on the knowledge and management of medicinal plants. During interview it was found that the traditional healers used to collect the medicinal plants from their agricultural fields and

nearby hills. The medicinal plants were botanically identified using the "Flora of Presidency of Madras" (Gamble, 1935) and the "Flora of Tamil Nadu Carnatic" (Mathew, 1983). The authenticity of the plant specimens was done through the comparison of our specimens with those housed in the Herbarium of the Botanical survey of India (BSI), Southern Circle, Coimbatore, India. All the species of plants were identified with help of available Indian literature and the identified were verified with the help of existing literature on medicinal plants.

From the collected data a list of plants of different families with their traditional uses, plant part used, their recipes and mode of administration is prepared in alphabetical order of disease treated and along with the name of the plants is listed in Table 1. The study revealed that the traditional healers used 100 medicinal plants species that belonged to 91 genera and 54 families. The study has brought to light that the major emphasis of this community was employed in the treatment of various human diseases, like asthma, cancer, diarrhoea, fever, cold, cough, snakebites, diabetes, jaundice, skin disease, dysentery, eyes, headache, urinary troubles, nervous disorder and liver diseases.

In the present study the most represented family with highest number of utilized medicinal plants in the area was Fabaceae (7 plants) followed by Solaceae (6 Plants), Rootaceae (5 plants), Euphorbiaceae and Asclepiadaceae (4 plants) each, Acanthaceae, Cucurbitaceae, Moraceae, Myrtaceae (3 plants) each and Malvaceae, Annonaceae, Arecaceae, Apocynaceae, Boraginaceae, Sapotaceae, Gingerbeaceae, represents (2 plants each). There are 37 families represent 1 plant each.

In most of the preparations leaves (48%) were used for the preparation of medicines predominantly followed by whole plant (14%), roots (8%), fruits (7%), flower (5%), Bark, Rhizome and stem barks (4%) respectively; Seed (3%). Latex and Flower Buds (1%), respectively. The common use of leaf in the preparation of remedies could partly be due to the relative ease of finding this plant part. Leaves remain green and available in plenty for the most months of the years.

Table 1. List of plants of different families with their traditional uses, plant part used, their recipes and mode of administration

S. No	Botanical Name	Family	Vernacular Name	Part (s) used	Mode of Preparation and ethno-medicinal uses
1	<i>Abrus precatorius</i> L.	Fabaceae	Kundumani	Leaf	Leaf juice is used to cure kidney stones and wounds
2	<i>Abutilon indicum</i>	Malvaceae	Thuthi	Whole Plant	The bark and leaves can be used to treat ulcers, headaches, gonorrhea and bladder infection
3	<i>Achyranthes aspera</i> L.	Amaranthaceae	Naiyuruvi	Leaf	The plant is used for digestion and intestinal problems
4	<i>Acorus calamus</i>	Araceae	Vasambu	Rhizome	The Rhizome is used for acrid, insecticidal, cough and skin diseases
5	<i>Adathoda vasika</i>	Acanthaceae	Adathodai	Leaf	Adathodai Leaves are ground with the flowers of <i>Hibiscus rosa-sinensis</i> and taken orally to treat asthma.
6	<i>Aegle marmelos</i>	Rutaceae	Vilvam	Root	Roots are taken orally to treat dental problems.
7	<i>Aervalanta</i> L.	Amaranthaceae	Kulapoo	Whole plant	Plant extract treatment for kidney stone
8	<i>Alangium salvifolium</i> (L. f.) Wang.	Alangiaceae	Alangi	Bark	Bark powder with coconut oil applied to cure wound
9	<i>Allium cepa</i> L.	Liliaceae	Vengayam	Bulb	Bulbs are eaten Orally to cure cold and cough
10	<i>Aloe vera</i> (Linn) Burm	Agavaceae	Sotrukatrazhai	Leaf	The plant is used to treat asthma, dehydration, ulcer and skin diseases
11	<i>Alpinia calcarata</i>	Zingiberaceae	Sitharathai	Root	Powder is used to cure skin disease and Rheumatism
12	<i>Alternanthera sesilis</i> , (L.) R. Br. Ex. DC	Amaranthaceae	Ponnankannikeerai	Whole Plant	Plant extract is used to Eyesight improvement
13	<i>Amaranthus graecizans</i> L.	Amaranthaceae	Sirukeerai	Leaf	Leaf extract is used to skin diseases and ring infection
14	<i>Amaranthus spinosus</i> Linn	Amaranthaceae	Mullukeerai	Leaf	Leaf paste along with lemon juice is taken with food to cure stomach ulcer
15	<i>Andrographis paniculata</i> (Burm.f) Wallich. Ex. Nees.	Acanthaceae	Nilavembu	Whole Plant	Leaf paste is applied topically at the bitten site of snake, beetle and scorpion. Powdered leaf is mixed with cow or goat's milk and taken orally to treat diabetes.
16	<i>Annona squamosa</i> L.	Annonaceae	Seethapazham	Leaf	Leaf juice is used to cure tooth ache, ringworm & hair lice
17	<i>Arachis hypogaea</i>	Fabaceae	Nilakadalai	Seed	The Seeds are used for constipating tonic and diarrhoea.
18	<i>Artocarpus</i>	Moraceae	Jak fruit , pillapalam	Leaf ripe	Fever wounds skindisease

	<i>heterophyllus</i> Lam			fruit	
19	<i>Asparagus racemosus</i> Willd	Asparagaceae	ThannirvitanKilangu	Whole Plant	Leaf juice is used to cure Breast ulcer
20	<i>Basella rubra</i> Linn	Basellaceae	Pasalaikeerai	Leaf	Leaf extract is used to skin diseases and ulcer
21	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Mookirattai	Leaf	Powder is used to get relief from asthma
22	<i>Borassus flabellifer</i>	Arecaceae	PanamKizhangu	Root	Tubers are used for obesity
23	<i>Calophyllum inophyllum</i> Linn.	Clusiaceae	Punnagam	Bark	Infusion of the bark is useful in skin diseases
24	<i>Calotropis gigantea</i> (L.) R.Br.	Apocynaceae	Erukku	Flower	Flowers warmed and tied on feet overnight to cure swelling intermittent fever and arthritis
25	<i>Canna indica</i> L.	Cannaceae	Kalvazhai	Rhizome	Rhizome is used for ringworm
26	<i>Cardiospermum halicacabum</i>	Sapindaceae	Mudakathan	Leaf	Paste of leaves with onion and coconut oil is taken orally for joint pain
27	<i>Carica papaya</i> L.	Caricaceae	Pappali	Leaf	Stem latex for scorpion sting bites
28	<i>Cassia alata</i>	Fabaceae	Cheemaigathi	Leaf	Leaf extracts are used for skin rashes
29	<i>Cassia auriculata</i>	Caesalpiniaceae	Aavarai	Leaf and Flower	Flowers are crushed and mixed with goat's milk and taken orally to prevent white discharge in women.
30	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Vallarai	Leaf	Juice of leaves mixed with equal amount of goat's milk to cure jaundice
31	<i>Cissus quadrangularis</i> ,	Vitaceae	Pirantai	Stem	powdered stem mixed with sugar or ghee taken are useful in skin diseases and ear pain
32	<i>Citrus aurantifolia</i>	Rutaceae	Elumicchai	Fruit	Pulmonary troubles and intestinal disorders
33	<i>Citrus aurantium</i> L.	Rutaceae	Narthai	Fruits	Fruits makes lather and can be used as soap
34	<i>Clitoria ternatea</i> L.	Fabaceae	Sangupuspam	Root	Root juice put in the nose control head ache.
35	<i>Coccinia grandis</i> L. J. Vogit	Cucurbitaceae	Kovai	Root	Root tubers well ground and juice to cure rheumatic
36	<i>Cocos nucifera</i> L	Arecaceae	Thennai	Whole plant	Plant juice is used to cure to brushes and skin diseases
37	<i>Crossandra nilotica</i> Oliv.	Acanthaceae	Kanakambaram	Leaf	Leaf juice is used to cure sting bite
38	<i>Curcuma domestica</i>	Zingiberaceae	Manjal	Rhizome	Rhizome is used to cure Breast ulcer
39	<i>Cuscuta reflexa</i>	Convolvulaceae	AmmaiyarKoontgal	Whole plant	Decoction is used to cure epilepsy and jaundice
40	<i>Cynodon dactylon</i>	Graminaceae	Arugambul	Whole Plant	Juice of entire plant used cure cancer
41	<i>Cyperus rotundus</i> L.	Cyperaceae	Koraikilangu, muttankaikilangu	Rhizome	Dried tubers are made into paste, mixed with honey and taken orally to cure leucorrhoea

Traditional uses of medicinal plants in Musiri Taluk

42	<i>Datura metel</i>	Solanaceae	Oomathai	Leaf	Few drops of leaf juice is poured into ear to treat earache.
43	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Nelli	Fruit	Fruit crushed and mixed taken as anti allergic.
44	<i>Erythrina variegata</i> L.	Papilionaceae	Kalyanamurungai	Leaf	Leaf juice given to cure whooping cough of children.
45	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Amman pacharisi	Leaf	Crushed leaf is used to cure wounds and mouth ulcers
46	<i>Feronia elephantum</i>	Rutaceae	Vizalampalam	Fruit	Fruits juice is used for depression
47	<i>Ficus benghalensis</i> Linn.	Moraceae	Alamaram	Bark, latex	Stem latex is applied topically on heel cracks, astringent and haemostatic.
48	<i>Ficus racemosa</i> L.	Moraceae	Athi	Leaf	Leaves are fumigated and s inhaled to get relief from fever.
49	<i>Ficus retusa</i>	Malvaceae	Semparuthi	Stem	Tooth brush, sigakkai power.
50	<i>Glorios superba</i> L.	Colchiaceae	Kalapaikilangu	Whole plant	Leaf paste is applied to cure wounds
51	<i>Gymnema sylvestre</i>	Asclepiadaceae	Sirugurunjan	Whole plant	The plant is bitter,acrid and useful in diabetes,asthma,jaundice.
52	<i>Heliotropium indicum</i> L	Boraginaceae	Thelkodukku	Leaf	Skin ulcers and furuncles
53	<i>Hemidesmus indicus</i> (L.) R.Br	Asclepiadaceae	Nannari	Root	Decoction of root is useful for skin diseases
54	<i>Ixora coccinea</i> Linn	Rubiaceae	Idli poo	Flower	The decoction yielded from the flowers taken early in the morning to cure diahhorea
55	<i>Jasminum angustifolium</i> Vahl.	Oleaceae	Kattumalli	Leaf	The leaf is boiled in water and taken with food to cure diahhroea
56	<i>Lantana whitiana</i>	Verbenaceae	Vellaiunichedi	Leaf	The leaf is used to cure skin disease
57	<i>Lawson iainermis</i> L.	Lythraceae	Maruthani	Leaf	Leaf juice is used to cure tuberculosis, cold and fever
58	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Thumbaichedi	Leaf	Leaves are crushed well water is given orally to cure jaundice
59	<i>Madhuca longifolia</i>	Sapotaceae	Ellupai	Leaf	Leaves paste for skin diseases
60	<i>Melia azedarach</i>	Meliaceae	Mali vempu	Leaf and Root	eaf juice and root are taken orally to treat dental problems.
61	<i>Mimosa pudica</i> L.	Mimosaceae	Thottasurungi	Whole plant	The leaves extract is used to cure headache and migraine
62	<i>Mimusps elengi</i> L.	Sapotaceae	Mazhilamaramam	Flower	Flower extract is used for urinary tract infections
63	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Anthimantharai	Leaf	Leaf juice is used to cure dysentery, diarrhea and jaundice
64	<i>Momordica charantia</i> L.	Cucurbitaceae	Paharkai	Leaf	Leaf extract is used for piles.

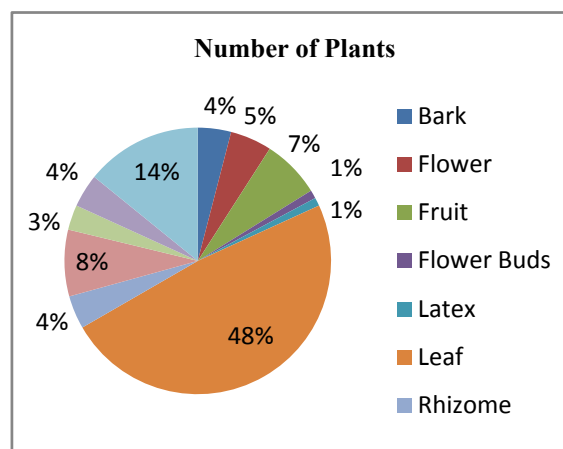
65	<i>Moringa oleifera</i> Lam.	Moringaceae	Murungai	Leaf	The leaf is eaten to promote spermatogenesis
66	<i>Mukia maderaspatana</i> L.	Cucurbitaceae	Musumusukkai	Whole plant	Leaf extract is used for ulcer
67	<i>Murraya koenigii</i> L.	Rutaceae	Karuveppilai	Leaf	Leaf extract is used to stop vomiting and hair treatment
68	<i>Musa paradisiacal</i> L.	Musaceae	Vazhai	Stem	Stem extract is used to cure dysentery, intestinal parasites
69	<i>Nerium oleander</i> L.	Apocynaceae	Arali	Leaf and flower	Skindisease heart problem cancer
70	<i>Ocimum basilicum</i> L.	Lamiaceae	Thiruneetrapachilai	Leaf	Leaf juice is used to cure ear ache
71	<i>Ocimum tenuiflorum</i> i	Lamiaceae	Tulasi	Leaf	Leaf juice is used to cure cough and skin disease
72	<i>Pandanus amaryllifolius</i>	Pandanaceae	Thazham poo	Stem	Tender shoots are directly eaten
73	<i>Pergularia daemia</i> (Fors.) Chiov	Asclepiadaceae	Veliparuthi	Leaf	Fresh leaves are boiled with water and the vapour is inhaled to cure headache.
74	<i>Phyllanthus niruri</i>	Euphorbiaceae	Keezanelli	Whole Plant	Entire plant juice cure the jaundice
75	<i>Piper betle</i> Linn.	Piperaceae	Vettilai	Leaf	Betel leaves are used for chewing digestive related issues
76	<i>Plectranthus coleoides</i>	Lamiaceae	Omavalli	Leaf	The leaf paste is applied cure the cold and skin disease
77	<i>Polyalthia longifolia</i> (Sonn.) Thw	Annonaceae	Asogu, nettilingam	Bark	Juice is used to cure skin diseases
78	<i>Polycarpaea corymbosa</i> L.	Caryophyllaceae	Malligaimuttuchedi	Leaf	Leaf extract is used to cure jaundice
79	<i>Polygala javana</i> L.	Polygalaceae	Periyarnangai	Leaf	Infusion of the leaves is used for skin diseases
80	<i>Pongamia glabra</i>	Fabaceae	Pungam	Leaf,seed	Juice of root is mixed with equal amount of coconut milk and applied topically to cure wound and gastric trouble
81	<i>Psidium guajava</i>	Myrtaceae	. Koyya	Fruit,bark, leaf	Bleeding gum,mouthwash,dentifrice
82	<i>Punica granatum</i> L.	Punicaceae	Madhulai	Bark and Root	Bark and root is used to reduce body heat
83	<i>Ricinus communis</i> L.	Euphorbiaceae	Amanakku, chittamanakku	Root	Juice of root is taken orally to cure Rheumatism
84	<i>Senna auriculata</i> (L.) Roxb.	Fabaceae	Avvarai	Flower	Gum and dried leaves and flowers are given to cure diabetes.
85	<i>Sesbania grandiflora</i> (L) Poir	Fabaceae	Agathi	Leaf and bark	Dysentery,eyes,fever,small box
86	<i>Solanum nigrum</i> L.	Solanaceae	Manatthakkali	Leaf	Leaf paste is used as a pain killer
87	<i>Solanum suratense</i> Burm, f.	Solanaceae	Kandankathiri	Leaf	Leaves made into paste and mixed with turmeric powder and applied to cure itch and ring worm

88	<i>Solanum torvum</i>	Solanaceae	Sundaikkai .	Leaf	Leaf juice is taken orally to reduce body heat.
89	<i>Solanum trilobatum</i> L.	Solanaceae	Thoothyvalai	Leave	Juice is taken orally to cure Asthma, treat cough and itching.
90	<i>Syzygium aromaticum</i>	Myrtaceae	Kirambu	Flower Bud	Essential oil flower bud . Caries cavities,dentifrice.
91	<i>Syzygium cumini</i>	Myrtaceae	Naval	Stem,seed	Naval maram Paste of stem bark is applied topically to treat swellings. The ripe fresh fruits are taken orally to reduce body heat
92	<i>Tactona grandis</i> L.	Verbenaceae	Thekku	Tender leaves and bark	Bark and wood power is warmed with water and taken to cure skin and liver diseases
93	<i>Tephrosia purpurea</i> (L.) Pers.	Fabaceae	Kozhinchin	Whole plant	The whole plant is used to cure liver disease, paralysis and tooth ache
94	<i>Terminalla chebula</i>	Combretaceae	Kadakai	Seed	Discharge used fever,coughs,asthma. Externally they are used to treat eye.
95	<i>Thespesia populanea</i> cav.	Malvaceae	Poovarasam	Bark	The decoction of the bark is commonly used for the treatment of skin and liver diseases
96	<i>Tribulus terrestris</i>	Zygophyllaceae	Nerunchimul	Fruit	The fruit and root are mixed with boiled raw rice, taken orally to prevent white discharge in women and to treat urinary troubles.
97	<i>Trichodesma indicum</i>	Boraginaceae	Kavizhthumbai	Leaf	Leaves juices are used to treat snake bites
98	<i>Tridax procumbent</i> L.	Asteraceae	Vettukayapundu	Leaf	Leaf paste is applied topically on cuts and wounds
99	<i>Vitex negundo</i>	Verbinaaceae	Notchi	Leaf	Leaves vapour for headache and fever
100	<i>Withania somnifera</i>	Solanaceae	Amukkara	Root	Root decoction treatment for nervous disorder

Table 2. Used parts and number of species

S. No	Parts Used	Number of Plants	%
1	Bark	4	4
2	Flower	5	5
3	Fruit	7	7
4	Flower buds	1	1
5	Latex	1	1
6	Leaf	48	48
7	Rhizome	4	4
8	Root	8	8
9	Seed	3	3
10	Stem	4	4
11	Whole plant	14	14

Fig. 1. Pie Diagram of Used parts



The use of leaves in the preparation of remedies is also common elsewhere (Ignacimuthu *et al.*, 2006). The common use of leaf is also due to easily availability of this plant parts in the area.

It was also reported that the healers prescribed the medicine either based on single plant parts or a combination of several plant parts and similar results were also reported in various studies conducted in Tamil Nadu and other parts of India (Ayyanar and Ignacimuthu, 2005). Amongst the respondents it was also proved significantly that higher number of medicinal plants was claimed by men as compared to women.

However, many of the remedies consisted of different parts of the same plant species to treat single or more diseases. to reduce body heat, to treat indigestion and eye diseases and flowers are used to cool the eyes and increase sperm production; to treat diabetes, rheumatic pain, cough, fever and severe cold, to increase secretion of milk, to treat stomach ache, to treat wounds, to reduce body heat, constipation and asthma, skin diseases and piles, cough, dysentery and body cooling, and throat infection. Moreover a single plant is used for more than one disease. Most of the medicinal plants and its recipes are prepared using different ingredients of non-plant origin such as water, salt, honey, etc.

Conclusion

The study reveals that the study area has glorious traditional background in the field of ethno botanical medicinal practices. Varieties of medicinal plants were used for the treatment of multiple diseases. An uncontrolled usage of ethnobotanical knowledge on medicinal plants leads to extinction of various rare species very rapidly. This has necessitated that the present generation has a primary duty to protect and conserve there ethno botanical medicinal plants in proper way. Therefore, it is the need of the hour to document the usage various medicinal plants for the wide careful stewardship of life between generations.

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