

Ethnobotanical Study of Medicinal Plants used by the Local People in Vellore District, Tamilnadu, India

T.Thirumalai¹, E. Kelumalai¹, B.Senthilkumar², E. David^{1*}

¹P.G. and Research Department of Zoology, Voothees College, Vellore - 632001 (T.N.) India

²P.G. and Research Department of Zoology, C.Abdul Hakeem College, Melvisharam, Vellore - 632 509 (T.N.) India

*Corresponding author: E mail: ernestdavid2002@yahoo.com

Issued October 01, 2009

Abstract

An ethnobotanical survey was conducted in and around Vellore district to study the various medicinal plants used by the people for the treatment of their ailments such as fever, cold, cough, diabetes, jaundice, diarrhoea, rheumatism, snake bite, and headache. The study also covered the methods used in plant extraction, and the dose, duration and mode of application.

Introduction

Plants have always played a major role in the treatment of human traumas and diseases worldwide (Principe et al., 1991). They have been used as sources of modern drugs, either by providing pure compounds, starting materials for partial synthesis of useful compounds or models for synthesis of new drugs (Hansel and Swian, 1972). According to the World Health Organization (WHO) as much as 80% of world's population depends on traditional medicine for their primary health care needs (Azaizeh et al., 2003). The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal systems such as Ayurveda, Unani and Siddha. In India it is reported that traditional healers use 2500 plant species and 100 species of plants serve as regular sources of medicine (Pei, 2001).

Ethnopharmacological information is an important tool in drug discovery (Balandrin et al., 1993). The ethnobotanical survey can bring out many different clues for the development of drugs to treat human diseases. Safe, effective, and inexpensive indigenous remedies are gaining popularity equally among the people of both the urban and rural areas, especially in India and China (Katewa et al., 2004). Ethnobotany and ethnomedical studies are today recognized as the most viable method of identifying new medicinal plants or refocusing on those earlier reported for bioactive constituents. It is interesting to note that most of the drugs derived or originally isolated from higher plants were discovered in an ethnobotanical or ethnomedical context. Several studies have revealed that tribal population, not only depend on plant based resources for medicines, food, forage and fuel, but also play a vital role in natural resource management that forms the core aspect of conservation biology (Ignacimuthu et al., 2006). Today, many indigenous herbal remedies remain largely undocumented or recognized as potential forms of treatment and consequently continue to be used by only small groups of indigenous populations. The present work was carried out to explore the medical remedies of some medicinal plants used by the rural people of Vellore district in Tamilnadu for the treatment of human ailments.

Materials and Methods

The entire area of Vellore District lies between 12°15' to 13°15' north latitudes and 78° 20' to 79° 50' East latitudes in Tamilnadu state. The district is spread over an area of about 6077 km² and is bounded on the North and Northeast by Tiruvallur District, on the South and Southeast by Kanchipuram District, on the south by Thiruvannamalai district, on the Southwest by Krishnagiri District and on the northwest and north by Andhra Pradesh state. The district receives an annual rainfall is about 448.8 – 1544.6 mm. The minimum and maximum temperature varies between 26.3° and 38.2°.

Ethno botanical data were collected according to the methodology suggested by Jain (2001). The ethno botanical data were collected using questionnaire, interviews and discussions in their local tribal people. A totally more than 200 respondents were interviewed, these included males and females that depended on plant as sources of medicines either for self-medication or for treating others. The Flora of Presidency of Madras (Gamble, 1935 and an excursion flora of central Tamilnadu (Mathew, 1991) were used to ascertain the nomenclature of the plant species used for identification and authentication of the plants. Folklore medicinal plant are arranged in alphabetical order in Table 1 which represents their botanical names followed by the family, vernacular name.

Results and Discussion

In this paper, we focused mainly on plant species reported by the local people in and around the study area for their medicinal uses. Presented data are the general results of the ethnobotanical survey conducted from March 2008 to January 2009. In the present investigation 75 medicinal plants are used for the treatment of various diseases like asthma, piles, diabetes, snake bite, skin disease, ulcer, stomach pain, cough, headache, blood pressure, anaemia, tumor, rheumatism, eczema, wounds, dysentery, jaundice, antifertility, leprosy, laxative, astringent, urinary disorders, paralysis, diarrhoea and diarrhea etc. Some of them are used as anthelmintic, fever and antiseptic also. Seventy-five plant species belonging to 37 families are reported. The utility lies through their roots, bark, latex, leaves, fruits and seeds. These are taken internally or applied externally in the form of infusion, decoction, paste or powder. Most of the plants used in medicines are either mixed with other ingredients or single. Medicinal plants studied are enumerated arranged alphabetically with their botanical name followed by families' name, local name, parts used and ethnomedical uses. Some important medicinal plants need immediate conservation and their cultivation should be encouraged through which their extinction can be prevented and local village people may also get low-cost cure their disease.

Table 1: Medicinal plants used by local people from Vellore district of Tamilnadu.

S.No	Botanical Name	Family	Local Name (Tamil)	Plant Parts used
1.	Albizia lebeck (L.) Benth	Mimosaceae	Vagai	Leaves
2.	Aegle marmelos Corr.ex Roxb	Rutaceae	Vilvam	Leaves
3.	Alstonia venenata (R.Br).	Apocynaceae	Paalai	Latex
4.	Ammannia baccifera L.	Lythraceae	Neermalneruppu	Leaves
5.	Anisomeles malabarica (L.) R. Br. ex Sims.	Lamiaceae	Peithumbai	Leaves
6.	Annona squamosa L.	Annonaceae	Sitapali	Fruits
7.	Argemone mexicana L.	Papaveraceae	Narimirati	Flowers

8.	Andrographis paniculata (Burm.f.) Wallich ex Nees	Acanthaceae	Nilavaambu	Leaves
9.	Abrus precatorius L.	Fabaceae	Kundumani	Seeds
10.	Aloe vera, (Linn.)Burm.	Liliaceae	Chothukatalai	Leaves
11.	Achyranthes aspera L.	Amaranthaceae	Nayuruvi	Leaves
12.	Acalypha indica L.	Euphorbiaceae	Kuppaimeni	Leaves
13.	Alternanthera sessilis L.	Amaranthaceae	Ponaganikerai	Leaves
14.	Azadirachta indica (A.Juss).	Meliaceae	Vaipamaram (Neem)	Bark
15.	Acacia catechu (Linnf.)Willd (Khair)	Mimosaceae	Karunkali	Leaves
16.	Bambusa arundinacea, (Willd).	Poaceae	Mungil	Flower
17.	Cassia auriculata L.	Caesalpiniaceae	Aavaram poo	Entire plant
18.	Cynodon dactylon (L.) Pers.	Poaceae	Arugampul	Entire plant
19.	Catharanthus roseus G. Don.	Apocynaceae	Nithyakalyani	Entire plant
20.	Cissua quadrangularis L.	Vitaceae	Pirandai	Seed
21.	Caesalpinia pulcherrima (L.) S. W.	Caesalpiniaceae	Mailkondarai	Leaves
22.	Cardiospermum halicacabum L.	Sapindaceae	Mudakkaththan	Leaves
23.	Centella asiatica L.	Apiaceae	Vallarai	Leaves
24.	Cataranthus pusillus (Murr).	Apocynaceae	Mukkuthipoo	Leaves
25.	Caesalpinia bonducella, (Flem).	Caesalpiniaceae	Kalakaai	Latex
26.	Calotropis gigantea, (L.) R. Br.	Asclepidaceae	Erukku	Root
27.	Clitoria ternatea L.	Fabaceae	Sangu Pushpam	Latex
28.	Carica papaya L.	Caricaceae	Pappaali	Leaves
29.	Coccinia grandis (L.) J. Voigt	Cucurbitaceae	Kovai	Leaves
30.	Datura metel L.	Solanaceae	Oomathai	Root
31.	Dioscorea oppositifolia L.	Dioscoreaceae	Valli kizhangu	Leaves
32.	Euphorbia hirta, L.	Euphorbiaceae	Ammanpachcharisi	Leaves
33.	Eclipta prostrata L.	Asteraceae	Manjal Karisalankanni	Leaves
34.	Eclipta alba L.	Asteraceae	Karisalaanganni	Leaves
35.	Eucalyptus tereticornis (Smith)	Myrtaceae	Thailamaram	Leaves and Flower
36.	Erythrina indica, (Lam).	Papilionaceae	Kalyana murungai	Stem latex
37.	Ficus benghalensis L.	Moraceae	Alamaram	Leaves
38.	Ficus religiosa L.	Moraceae	Arasu	Leaves
39.	Gymnema sylvestre (Retz).	Asclepiadaceae	Sirukurinchan	Tuber and Leaves
40.	Gloriosa superba L.	Liliaceae	Kanuvalikodi	Leaves
41.	Hemidesmus indicus,(R. Br).	Asclepidaceae	Nannari	Leaves
42.	Hibiscus rosa-sinensis L.	Malvaceae	Semparuththi	Flower
43.	Ixora coccinea L.	Rubiaceae	Idlipoo	Leaves and Flower
44.	Jasminum angustifolium.(L.) Wild	Oleaceae	Malligai	Leaves
45.	Lawsonia inermis L.	Lythraceae	Maruthani	Leaves
46.	Leonotis nepetaefolia (L.) R. Br.	Lamiaceae	Theanthumpai	Leaves
47.	Leucas aspera (Willd).	Lamiaceae	Thumbai	Leaves
48.	Marsilea minuta L.	Marsileaceae	Aarakkerai	Leaves
49.	Mimosa pudica L	Mimosaceae	Thottasurungi	Leaves
50.	Mukia maderaspatana (L.) M. Roemer	Cucurbitaceae	Musumusukai	Leaves
51.	Morinda tinctoria Roxb.	Rubiaceae	Nuna	Leaves
52.	Moringa oleifera (Lam).	Moringaceae	Murungai	Leaves

53.	Musa paradisiaca L.	Musaceae	Vazhai	Leaves
54.	Mangifera indica L.	Anacardiaceae	Maamaram	Tender leaves
55.	Murraya koenigii L. Sprengel	Rutaceae	Karuveppilai	Fruits, leaves & seed
56.	Momordica charantia L.	Cucurbitaceae	Pavakai	Bark
57.	Melia azedarach L.	Meliaceae	Malaivembu	Stem bark
58.	Nerium oleander (Sol).	Apocynaceae	Arali	Fruit edible
59.	Opuntia dillenii (Haw).	Cactaceae	sappathikalli	Leaves
60.	Ocimum americanum, L.	Lamiaceae	Naithulasi	Flower and bark
61.	Prosopis cinearia L.	Mimosaceae	Vanni maram	Seed
62.	Pongamia pinnata L.	Fabaceae	Pungam	Leaves
63.	Phyllanthus amarus, Schum. & Thonn.	Euphorbiaceae	Kizhanelli	Leaves and root
64.	Polycarpaea corymbosa L.	Caryophyllaceae	Malligaimottuchedi	Leaves
65.	Sesbania grandiflora (L.) Poiret	Fabaceae	Agaththi	Leaves
66.	Solanum torvum L.	Solanaceae	Sundaikai	Leaves
67.	Solanum trilobatum, L.	Solanaceae	Thuthuvalai	Leaves and Fruit
68.	Solanum nigrum, L.	Solanaceae	Mana thakkaali	Seed
69.	Syzygium cumini L.	Myrtaceae	Navel	Leaves
70.	Sida cordata	Malvaceae	Arrival manippundu	Seed
71.	Tamarindus indica L.	Caesalpiniaceae	puliyamaram	Tender fruit
72.	Thespesia populnea (L.)	Malvaceae	Poovarasu	Leaves
73.	Vitex negundo L.	Verbenaceae	Notchi	Rhizome
74.	Zingiber roseum(Rose).	Zingiberaceae	Inji	

Enumeration of species with their uses:

Albizia lebeck (L.) Benth
A leaf paste is applied to cure eczema.

Aegle marmelos Corr.ex .Roxb
A Leaf paste is applied topically to heal wounds. The dried and powdered leaves are used for diabetes.

Alstonia venenata (R.Br).
The milky latex is used to heal wounds and cuts.

Ammannia baccifera L.
A leaf paste is applied to relieve swelling

Anisomeles malabarica (L.) R. Br. ex Sims.
A paste of the leaves is applied to cure eczema.

Annona squamosa L
The young fruits are dried and made into a powder. A spoonful of this powder, mixed with water, is taken internally to cure dysentery.

Argemone mexicana L.
The yellow latex is used to cure ulcers of the lips and pimples and for wound healing.

Andrographis paniculata (Burm.f.) Wallich ex Nees
A handful of leaves is taken and an extract is made, which, mixed with milk, is taken internally to cure snakebites.

Abrus precatorius L.
A paste of the seeds is used to cure eczema.

Aloe vera, (Linn.)Burm.
Fresh juice is used as cathartic and for cooling. It is also used in treating fever eye infections and ulcer.

Achyranthes aspera L.
The boiled leaves are consumed to relieve internal piles and the roots are used as a brush to relieve pain and clean the teeth.

Acalypha indica L.
A leaf paste, mixed with common salt, is used to cure eczema and chest pain.

Alternanthera sessilis L.
It is used as a treatment for headaches. It is also used to treat hepatitis and asthma.

Azadirachta indica (A.Juss).
Seed oil is used in skin diseases and in lice. Bark is useful in malarial fever. Tender twigs are used as tooth brush. Leaf paste applied for mumps.

Acacia catechu (Linnf.)Willd (Khair)
The bark of the tree is used in chronic diarrhoea

Bambusa arundinacea, (Willd).
Young leaves and terminal bud of bamboo along with turmeric and the leaves. Aloe Vera is ground and the paste is applied to the fractured bones for two weeks to join quickly.

Cassia auriculata L.
Dried and powdered flowers are used for cleaning the hair, reducing body heat and cures diabetes.

Cynodon dactylon (L.) Pers.
The juice of the whole plant is used to reduce body heat and to lower the blood pressure.

Catharanthus roseus G. Don.
Whole plant is powdered and mixed with cow's milk and taken orally to treat diabetes.

Cissus quadrangularis L.
A paste of the whole plant is taken for improving the digestion and inducing appetite.

Caesalpinia pulcherrima (L.) S. W.
A seed paste is applied to inflamed teeth to cure toothache.

Cardiospermum halicacabum L.
A leaf paste is applied for joint pain or leaves are prepared in the form of a soup and consumed to cure rheumatic pains.

Centella asiatica L.
The dried plant is powdered and this powder, mixed with hot water, is taken for gas troubles; the fried plants are used in the diet of children for improving their memory.

Cataranthus pusillus (Murr).
A leaf paste is applied externally for tumors

Caesalpinia bonducella, (Flem).
A decoction of the leaf is used as nutritional tonic.

Calotropis gigantea, (L.) R. Br.
Milky latex is applied on the wounds on legs of livestock.

Clitoria ternatea L.
Root powder is mixed with water and taken orally to treat indigestion, eye diseases and headache.

Carica papaya L.
The milky latex of the plant is applied to teeth in order to relieve inflammatory pain.

Coccinia grandis (L.) J. Voigt
The leaf extract, mixed with milk, is used in cases of jaundice.

Datura metel L.
Few drops of leaf juice is poured into ear to treat earache.

Dioscorea oppositifolia L.
Boiled root tubers are taken orally to reduce body heat.

Euphorbia hirta, L.
Leaf paste mixed with goat's milk is consumed to stop diarrhea and dysentery.

Eclipta prostrata L.
A leaf extract is applied to the head to relieve dandruff and to blacken gray hair.

Eclipta alba L.
Plant is used for the treatment of hepatitis.

Eucalyptus tereticornis (Smith)
The vapours of boiled leaves are inhaled for coughs and a cold. The oil from the plant, mixed with coconut oil, is applied to the chest to relieve a dry cough and chest pain.

Erythrina indica, (Lam).
The leaves and flowers, are used to cure epidemic skin diseases.

Ficus benghalensis L.
Stem latex is applied topically on heel cracks.

Ficus religiosa L.
Dried leaf powder is mixed with water and taken normally to get relief from body pain.
Gymnema sylvestre (Retz).
Leaves dried in shade and powdered is taken for Diabetes to reduce Blood sugar.

Gloriosa superba L.
The pasted tubers are used as an abortifacient. Leaves are used to destroy head lice.

Hemidesmus indicus, (R. Br).
The leaf, root extract is used for blood purification.

Hibiscus rosa-sinensis L.
Shade dried and powdered flowers are used for cleaning the hair and to prevent hair loss.

Ixora coccinea L.
Hundred grams of the dried flowers are boiled in coconut oil and the oil extract is applied externally twice a day to treat eczema.

Jasminum angustifolium, (L). Wild
Leaves and flowers made into a paste and applied externally to remove the clot of Breast Milk.

Lawsonia inermis L.
A leaf paste is applied to cracks of the feet. It also has a cooling effect on the body.

Leonotis nepetaefolia (L.) R. Br.
A leaf paste is used for eczema.

Leucas aspera (Willd).
The vapours from the boiled leaves are inhaled to relieve coughing and colds.

Marsilea minuta L.
The dried and powdered leaves, mixed with hot water, are taken in cases of diabetes.

Mimosa pudica L.
Pinch of leaves paste is applied topically to cuts and wounds.

Mukia maderaspatana (L.) M. Roemer.

The leaf extract is taken internally to cure piles; it is applied to the hair of the head to blacken gray hair.

Morinda tinctoria Roxb.
The leaf extract is used to cure dysentery.

Moringa oleifera Lam.
The boiled leaves and flowers are eaten to increase fertility in men. A handful of bark juice of the plant is used to cure stomach pain.

Musa paradisiaca L.
A plant extract is given for snake bite and also for burns.

Mangifera indica L.
Mixture of ¼ of the seed ground with cow's milk is taken to arrest excess bleeding during menses.

Murraya koenigii L. Sprengel
Juice of tender leaves is taken orally to arrest vomiting. Juice taken tender leaves, is taken orally to arrest vomiting.

Momordica charantia L.
Local peoples uses for the fruit, seeds, vines and leaves include gastroenteritis, diabetes, tumors and some viral infections.

Melia azedarach L.
The juice of the bark is taken internally in the early morning for three days in order to relieve stomach pain; it is also employed as an anthelmintic.

Nerium oleander (Sol).
Juice prepared from the stem bark is boiled with gingelly oil and two drops are poured into ear to treat ear pain.

Opuntia dilleanii (Haw).
Fruits edible used in whooping cough. Pulp also applied in ophthalmic and control spasmodic cough and expectoration

Ocimum americanum, L.
Leaf juice is taken for stomach upset.

Prosopis cineraria L.
The plant flower is pounded, mixed with sugar and used during pregnancy as safeguard against miscarriage. The bark is used as a remedy for [rheumatism](#), in [cough colds](#), asthma. The bark is prescribed for scorpion sting.

Pongamia pinnata L.
The seed oil is used to cure rheumatic pains and swellings.

Phyllanthus amarus, Schum. & Thonn.
Leaf juice is administered to cure fever and jaundice.

Polycarpha corymbosa L.
Roots leaves paste is applied externally.

Sesbania grandiflora (L.) Poiret
The leaves prepared in the form of a soup are taken as a vermifuge and also to cure peptic ulcer.

Solanum trilobatum,L.
The leaf juice is used to treat cough and cold.

Solanum nigrum, L.
The leaf and fruit extract is used for deworming and treating fever.

Syzygium cumini L.
The dried and powdered seeds, mixed with hot water, are taken for reducing the Blood sugar level.

Sida cordata, (Burmn. f.) Borssum
The leaf juice is effective in treating diarrhoea during pregnancy. The pounded leaves are applied locally to relieve cuts and bruises.

Tamarindus indica L.
A paste of the seed coat is applied to a scorpion bite to relieve pain or the scratched seed is placed in a warm condition on the area of a scorpion bite to relieve pain.

Thespesia populnea (L.)
Tender fruit mixed with castor oil and made in to a paste applied externally for skin disease.

Vitex negundo L.
Inhale boiled leaves vapour to relieve headache.

Zingiber roseum(Rosc).
The juice of the rhizome, mixed with honey, is taken internally to improve digestion and to relieve giddiness.

Acknowledgements

The authors are cordially grateful to the people inhabiting in different localities of Vellore District because of their kind support and co-operation during the field surveys.

References

- Azaizah, H., Fulder, S., Khalil, K., Said, O., 2003. Ethnomedicinal knowledge of local Arab practitioners in the Middle East Region. *Fitoterapia* 74, 98–108.
- Balandrin, M.F., Kinghorn, A.D., Farnsworth, N.R., 1993. Plant-Derived Natural Products in Drug Discovery and Development. In: Kinghorn, A.D., Balandrin M.F. (Eds). *Human Medicinal Agents from Plants*, ACS Symposium Series 534 American Chemical Society DC, 2-12.
- Gamble, J.S. 1935. *The Flora of the Presidency of Madras*. Adlard and Son's Ltd, London.
- Hansel, R., 1972. *Medicinal Plants and empirical drug research*. In : Swain, T. (Eds). *Plants in the Development of Modern Medicine*. Harvard University Press, Boston, 161-174.
- Ignacimuthu, S., Ayyanar, M., Sankara Sivaraman, K., 2006. Ethnobotanical investigations among tribes in Madurai District of Tamil Nadu India. *J Ethnobiol Ethnomed*. 2: 25-30.

Jain SK. 2001. Ethnobotany in Modern India. *Phytomorphology Golden Jubilee Issue: Trends in Plant Sciences* 39:54.

Katewa, S.S., Chaudhary, B.L., Jain Anita., 2004. Folk herbal medicines from tribal area of Rajasthan, India. *Journal of Ethnopharmacology* 92, 41–46.

Matthew, K. M. 1991. *An Excursion Flora of Central Tamilnadu*. Oxford and IBH Publishing Co., New Delhi.

Pei, S.J., 2001. Ethnobotanical approaches of traditional medicine studies some experiences from Asia. *Pharma Bio.* 39, 74-79.

Principe, P.E. 1991. Valuing the biodiversity of medicinal plants.