

ETHNOMEDICINAL PLANTS OF VILLUPURAM DISTRICT, TAMILNADU, INDIA

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An ethnobotanical survey was carried out in Villupuram district of Tamilnadu. About 45 herbal practitioners were interviewed of which 30 were women. The survey resulted in the documentation of 55 medicinal plants that are used to cure different diseases like cold, cough, wounds, burns, cuts, dysentery, bone fracture, joint pains, animal and insect bites, biliousness, birth control, stomach, dental, skin and sprains complaints by the inhabitants of the study area. *Andrographis paniculata* (Acanthaceae) is widely used plant for treating various human ailments. The most commonly used plant part is leaf followed by roots, stems, seeds and flowers. A single practice is reported on the use of flower, where the flowers of *Mesua ferrea* along with the seeds of *Piper longum* are used to cure leucoderma.

Keywords: *Andrographis paniculata*; Therapeutic plants; Traditional knowledge.

Introduction

Since the beginning of civilization, perhaps as early as Neanderthal man, plants were believed to have healing powers. In India, the sacred Vedas give many references to medicinal plants. One of the remotest works in traditional herbal medicine is "Virikshayurveda", compiled even before the beginning of Christian era and formed the basis of medicinal studies in ancient India. The Rig Veda, dating between 3500 B.C to 1800 B.C, seems to be the earliest record available on medicinal plants¹. There are a few example of documented report on medicinal plant but still a remarkable rich knowledge of plants and their curative properties in remote areas is undocumented and it is slowly fading away due to various reasons. According to World Health Organization (WHO), about 80% of the world's population relies on the traditional medicine for their primary health care². The need to document and publish such a rich knowledge in an organized manner was initiated in India³. Hence, a necessity is felt to document the wealth of knowledge before this treasure is being lost completely. Besides, the documentation of traditional knowledge especially on the medicinal uses of plants throws light on the formulation of many important drugs of the modern days⁴. India, being one of the world's 12 mega biodiversity countries, enjoys a rich wealth of the medicinal plants. India witnesses 8000 species of plants that are used by traditional healers^{5,6}. Ethnobotanical studies in Tamilnadu includes that of Kollimalai⁷, Mundanthurai Sanctuary⁸, Coimbatore

district⁹, Nilgiri Hills¹⁰, Palni Hills¹¹, Namakkal district¹², tribes of Madurai District¹³ and Piranmalai Hills¹.

The present study aims at documentation of traditional knowledge on medicinal plants that have been used to cure various human and animal diseases by the herbal practitioners as well as the rural inhabitants of Villupuram district, Tamilnadu, India.

Material and Methods

Villupuram district is thickly populated (29,43,917) with a geographical area 7,011 sq.kms and a forest area about 800 sq.kms. The mountainous part of the district is 2,000 feet above the sea level. The forest area is mostly hilly with rocky mountains. The climate is tropical/subtropical. The temperature varies from 28°C to 32°C. The average annual rainfall is about 250 mm which is mostly from the south east monsoon.

Initially, an elaborate questionnaire was prepared indicating the name of the place visited, practitioners' names, the duration of the practices and mode of administration etc. Later on an extensive survey was made in Villupuram district and related information was gathered from practitioners and local inhabitants. The plant parts that are used as medicine were carefully recorded. voucher specimens were collected and identified with the help of Flora of Tamilnadu Carnatic¹⁴ and referred with the help of specimens deposited at Botanical Survey of India, Coimbatore. Medicinal property of plant species collected in this study had strengthened with preveously existing literature. About 40 people were interviewed which

Table 1. Medicinal plants, uses and formulations recorded in Villupuram district of Tamilnadu.

S.N	Name of species	Mode of preparation and administration
1	<i>Abrus precatorius</i> L. (Fabaceae) <i>Kundumani</i> SJCSR013	The whole plant is tied around the neck of cattle to repel insects and flies.
2	<i>Acalypha indica</i> L. (Euphorbiaceae) <i>Kuppaimeni</i> SJCSR044	Decoction of root is administered early in the morning to the person suffering from dysentery and to kill intestinal worms in children.
3	<i>Achyranthes aspera</i> L. (Amaranthaceae) <i>Naiyuruvi</i> SJCSR045	Leaves of <i>Achyranthes</i> , betel and <i>Piper longum</i> are chewed together in case of scorpion bite.
4	<i>Adhatoda zeylanica</i> Medik. (Acanthaceae) <i>Adathoda</i> SJCSR014	The decoction of the leaves is given orally twice a day to get relief from cold and cough.
5	<i>Aerva lanata</i> (L.) Juss. (Amaranthaceae) <i>Poolai</i> <i>poo</i> SJCSR001	Decoction of the leaves is given on empty stomach to cure fever. Leaf paste is also applied on the chest for the same purpose.
6	<i>Aloe vera</i> L. (Liliaceae) <i>Sothu kathalai</i> SJCSR043	Leaves are ground in coconut oil and applied on the joints thrice a day for about a month to relieve joint pains.
7	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees. (Acanthaceae) <i>Siriyamangai</i> SJCSR015	5-6 fresh leaves are eaten as soon as a snake bites or scorpion stings. In case of children, juice of the leaves with honey could be used for the same purpose.
8	<i>Anisomeles malabarica</i> (L.) R. Br. (Lamiaceae) <i>Paimerratti</i> SJCSR002	Paste of leaves is applied on wounds, cuts and burns twice a day.
9	<i>Aristolochia bracteolata</i> Lamk. (Aristolochiaceae) <i>Aduthinna palai</i> SJCSR032	Paste of leaves is applied on the head at night to kill lice.
10	<i>Azadirachta indica</i> A. Juss. (Meliaceae) <i>Vembu</i> SJCSR016	Tender leaves are slightly fried in the oven and paste is prepared with salt and orally given along with rice to dispel worms in the stomach. Juice of the leaves is applied on the wounds and cuts twice a day until cure.
11	<i>Azima tetracantha</i> Lam. (Salvadoraceae) <i>Mullu</i> <i>sangu</i> SJCSR046	Leaves of <i>Andrographis paniculata</i> and <i>Azima</i> are dried and powdered and administered orally with the fodder for a week.
12	<i>Bambusa arundinacea</i> (Retz.) Willd. (Poaceae) <i>Moongil</i> SJCSR052	Paste of the leaves alone or with the seed paste of <i>Dolichos biflorus</i> is administered orally to pregnant women to induce abortion.
13	<i>Borassus flabellifer</i> L. (Arecaceae) <i>Panai</i> SJCSR017	Leaves are made into paste and applied on sores twice a day.
14	<i>Calotropis gigantea</i> (L.) R.Br. (Asclepiadaceae) <i>Erukku</i> SJCSR003	2-3 drops of leaf juice would help to get rid of irritation of eyes.
15	<i>Cassia hirsuta</i> L. (Caesalpinaceae) <i>Malai avarai</i> SJCSR047	Paste of leaves with salt is orally given with rice twice a day for a couple of days to dispel intestinal worm.
16	<i>Cassia tora</i> L. (Caesalpinaceae) <i>Oosithagarai</i> SJCSR018	Leaves are made into paste and given orally with cow's milk, twice a day to cure dysentery.
17	<i>Cardiospermum halicacabum</i> L. (Sapindaceae) <i>Mudakathan</i> SJCSR054	Decoction of leaves of <i>Cardiospermum</i> , <i>Achyranthes aspera</i> and <i>Pterolobium hexapetalum</i> is administered on empty

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		stomach in the morning for a week to cure joint pains. Leaves of <i>Cardiospermum</i> and <i>Mukia maderaspatana</i> are made into paste and given orally to cattle in the morning to cure dysentery.
18	<i>Cissus quadrangularis</i> L. (Vitaceae) <i>Pirantai</i> SJCSR048	A paste <i>Cissus</i> leaves and ground nut oil is prepared and consumed with food to promote digestion. Tender leaves of <i>Cissus</i> and <i>Mentha</i> are ground well along with ginger and orally administered to the cattle to remove giddiness.
19	<i>Coleus amboinicus</i> Lour. (Lamiaceae) <i>Karpooravalli</i> SJCSR019	Leaf juice with honey is given to cure asthma and cough.
20	<i>Croton bonplandianus</i> Baillon (Euphorbiaceae) <i>Railpoondy</i> SJCSR053	Fresh leaves are made into paste and applied on the wounds and sores twice a day until the cure.
21	<i>Datura metel</i> L. (Solanaceae) <i>Karu Oomathai</i> SJCSR010	Dried leaves are burnt and the smoke is inhaled twice a day for a week to get relief from respiratory disorders.
22	<i>Enicostema axillare</i> (Lam.) Rayal. (Gentianaceae) <i>Vellarugu</i> SJCSR049	Leaves are ground with a pinch of salt and garlic and made into paste. The paste is placed under the aching tooth for about half an hour.
23	<i>Euphorbia hirta</i> L. (Euphorbiaceae) <i>Amman Pacharisi</i> SJCSR004	Leaves are chewed as soon as the scorpion bites. For children, leaves are made into a paste and given orally along with honey.
24	<i>Evolvulus alsinoides</i> (L.) L. (Convolvulaceae) <i>Vishnu Kiranthi</i> SJCSR021	Plant decoction is administered two to three times a day to get relief from cough and cold.
25	<i>Ficus benghalensis</i> L. (Moraceae) <i>Aala maram</i> SJCSR033	The aerial roots are used to brush the teeth.
26	<i>Gloriosa superba</i> L. (Liliaceae) <i>Kanvali poondy</i> SJCSR005	The leaves are crushed and the juice is applied on the insect bitten parts of the body.
27	<i>Hemidesmus indicus</i> (L.) R. Br. (Asclepiadaceae) <i>Nannari</i> SJCSR022	Leaf decoction is administered orally to the children along with milk twice a day for cold and cough.
28	<i>Indigofera longiracemosa</i> Boiv. ex Baillon (Papilionoideae) SJCSR034	Ground the roots with dry ginger and the extract is administered orally 2-3 times a day to cure cold and fever.
29	<i>Jatropha gossypifolia</i> L. (Euphorbiaceae) <i>Katamanakku</i> SJCSR006	Goggle with leaf decoction to cure dental problems.
30	<i>Leucas aspera</i> (Willd.) Link (Lamiaceae) <i>Thumbai</i> SJCSR023	2-3 drops of leaf juice is dropped into the eyes to get relief from eye irritation.
31	<i>Melia azedarach</i> L. (Meliaceae) <i>Malai vembu</i> SJCSR035	The roots are made into paste and added with rice and kept in the corner of the house for the rat to eat. The rats would die immediately.
32	<i>Mentha spicata</i> L. (Lamiaceae) SJCSR007	Two spoonful of leaf powder is taken an hour before intercourse. This prevents conception as long as therapy is continued.
33	<i>Mukia maderaspatana</i> L. (Cucurbitaceae) <i>Musumusukkai</i> SJCSR024	Decoction of leaves with <i>Piper longum</i> and <i>Allium sativum</i> , administered along with cooked rice for 3-4 days to cure cold and sneezing.

S.N.	Name of species	Mode of preparation and administration
34	<i>Ocimum basilicum</i> L. (Lamiaceae) <i>Nalla thulasi</i> SJCSR036	Paste made from the leaves is applied on the throat. Decoction of leaves is orally given on empty stomach to cure throat pain.
35	<i>Ormocarpum senoides</i> L. (Papilionoideae) <i>Kattumurungai</i> SJCSR008	The powdered leaves are administered orally on empty stomach in the morning to cure bone fracture (for children, with milk).
36	<i>Passiflora foetida</i> L. (Passifloraceae) <i>Sirupunaikali</i> SJCSR037	Decoction of leaves is given to cure asthma. Leaf paste is applied on the forehead to get relief from head ache.
37	<i>Pavonia procumbens</i> Soiss. (Malvaceae) SJCSR025	Leaves are taken on empty stomach to stop loose motion.
38	<i>Phyla nodiflora</i> (L.) Greene (Verbenaceae) <i>Poduthalai</i> SJCSR050	A paste of leaves is taken orally twice a day (cattle) to control dysentery.
39	<i>Phyllanthus amarus</i> Schum & Thonn. (Euphorbiaceae) <i>Keelanelli</i> SJCSR038	Juice of the leaves is administered orally on empty stomach in the morning to cure jaundice.
40	<i>Plumbago zeylanica</i> L. (Plumbaginaceae) <i>Chithiramulam</i> SJCSR026	A paste of leaves made and fried in ground nut oil, inserted into the vagina in the morning and at night to prevent conception (Barnabas)
41	<i>Pongamia pinnata</i> (L.) (Papilionoideae) <i>Pungan</i> SJCSR009	Root powder is mixed with coconut oil and externally applied on sores twice a day.
42	<i>Sansevieria roxburghiana</i> Schult. & Schult.f. (Agavaceae) <i>Marul</i> SJCSR039	Slightly warm a leaf in flame and obtain the juice and instill it in the aching ear.
43	<i>Sapindus emarginatus</i> Vahl. (Sapindaceae) <i>Poonthikottai</i> SJCSR027	The juice is administered orally or the paste is applied on the vagina at the time of delivery to reduce labour pain.
44	<i>Sesamum orientale</i> L. (Pedaliaceae) <i>Ellu</i> SJCSR020	Leave juice is applied on vagina to prevent conception. Similarly the juice is also applied on the head so as to cool it.
45	<i>Solanum nigrum</i> L. (Solanaceae) <i>Manathakkali</i> SJCSR040	Fresh fruits and leaves consumed or decoction of leaves of <i>Solanum nigrum</i> , garlic and salt is administered orally with rice to cure ulcer.
46	<i>Solanum trilobatum</i> L. (Solanaceae) <i>Thuthuvalai</i> SJCSR028	Leaves, flowers and fruits are half boiled and the extract is administered orally twice a day to cure asthma.
47	<i>Strychnos nux-vomica</i> L. (Loganiaceae) <i>Etti</i> SJCSR041	The leaves and fruits are very poisonous and people use them to commit suicide.
48	<i>Tamarindus indica</i> L. (Caesalpiniaceae) <i>Puliamaram</i> SJCSR029	The raw fruits are consumed to stop dysentery.
49	<i>Teramnus labialis</i> (L.f.) Spreng. (Papilionoideae) SJCSR011	Juice of the whole plant is applied on the affected joints before sunrise to cure joint pain.
50	<i>Thespesia populnea</i> (L.) Sol. ex Corr. (Malvaceae) <i>Puvarasu</i> SJCSR042	Powdered bark is used to brush the teeth and to prevent tooth diseases.
51	<i>Tragia involucrata</i> L. (Euphorbiaceae) <i>Kanchira</i> SJCSR051	Leaf paste of this plant and castor leaf is taken along with rice from the third day of delivery to sixth day to promote sterilization.
52	<i>Tribulus terrestris</i> L. (Zygophyllaceae) <i>Nerungi</i> SJCSR030	A paste of leaves is administered orally thrice a day to cure urinary troubles.
53	<i>Tridax procumbens</i> L. (Asteraceae) <i>Muyalkathu</i> <i>sedi</i> SJCSR012	Juice of the leaves is applied on the wounds, cuts and bruises.
54	<i>Vitex negundo</i> L. (Verbenaceae) <i>Notchi</i> SJCSR031	The dry leaves are burned and the smoke is inhaled twice a day. The juice of the leaves is instilled in the nostril to treat cold and cough.

Table 2. Plant based pharmaceutical products sold in markets.

S.N.	Trade name	General purpose	Plants used
1	New Ever Youth	Face Wash	<i>Azadirachta indica</i>
2	Vaseline intensive care	Body Lotion	<i>Alove vera</i>
3	Liril	Toilet Soap	<i>Alove vera</i>
4	Dilo BM	Expectorant	<i>Mentha spicata</i>
5	Meera	Hair Wash Powder	<i>Eucalyptus globulus, Vigna radiata, Hibiscus rosa-sinensis, Madhuca longifolia, Acacia concinna, Ocimum sanctum, Hedychium spicatum, Albizia amara, Vetiveria zizanoides, Trigonella foenum-graecum, Sapindus trifoliatius</i>
6	Vasaka	Hair Wash Shamboo	<i>Solanum xanthocarpum, Adhatoda vasica, Solanum trilobatum, Ocimum sanctum, Taxus buccata, Emblica officinalis, Aegle marmelos, Glycyrrhiza glabra, Citrus aurantifolia, Zingiber officinale, Elettaria cardamomum, Saccharum officinarum</i>
7	Clinic Plus	Hair Wash	<i>Ocimum sanctum, Cinnamomum tamala, Azadirachta indica</i>
8	Shikar	Head Shamboo	<i>Acacia concinna, Aloe barbadensis, Eclipta alba, Hibiscus rosa-sinensis, Emblica officinalis and Cynodon dactylon</i>

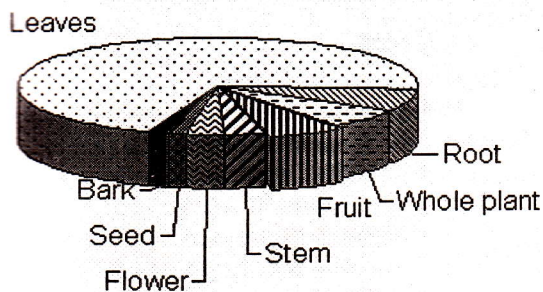


Fig. 1. Relative contribution of various plant parts being used as medicine.

includes five herbal practitioners who hold the practices as their livelihood and have well established herbal centre and the rest were the local inhabitants.

Results and Discussion

The present study includes about 55 ethnobotanically important medicinal species from 52 genera belonging to 27 families in the district of Villupuram. The study enumerates more than 64 practices to cure about 26 health related problems that are met in day today life.

Interest in traditional medicine in India has continuously been increasing especially to cure ailments like cold, cough, asthma, dysentery and curing of wounds

etc. Preparation of leaf decoction is the most common traditional formulations prepared followed by paste and application of fresh juice. There are a number of practices to prevent a disease or to increase the general health conditions. The practice of prevention of conception or treatment to abort portrays that the practice of child especially female child slaughter is prevalent in the rural areas till date.

The herbal practitioners most recurrently opted for the use of leaves then the root, stem and flowers¹⁵. Out of 64 practices 45 preparations were prepared with leaves and the rest of the formulations were with root, fruit, stem, flower and bark (Fig.1.). The herbal practitioners in this district mostly prefer only one plant for a given disease and occasionally they go for combination of many plants. A few formulations are similar to that of the previous publications; however a few new formulations have also been documented in the present study (Table 1). Ethnomedicinal knowledge is also important from a humanitarian point of view. In the long run, it would help to identify important drug formulation which in due course of time could be an commercialized¹⁶. The study also presents a few species already being introduced in commercial health care formulations (Table 2).

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