

## Medicinal plants used by *Paliyan* tribes of Sirumalai hills of southern India

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### Abstract

An ethnobotanical survey was carried out to collect information on the use of medicinal plants by *Paliyan* tribes in Sirumalai hills of Eastern Ghats. About 90 medicinal plants are used in 17 various health problems; highest being for wound healing (12%). The majority of the remedies are prepared from freshly collected plant parts especially leaves from single species only. The treatment mode is usually oral, but some pastes using ingredients such as honey, common salt and milk are also applied.

**Keywords:** Ethnobotany, Sirumalai hills, *Paliyan* tribes, Medicinal plants.

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### Introduction

Plants have been an integral part of life in many local communities for food and medicine both. India has more than 3000 years of medicinal heritage based on medicinal plants. Medicinal plants are widely used by all sections of the population either directly as folk remedies or indirectly in the preparation of modern pharmaceuticals. Out of nearly 17,000 higher plants recorded in India, 7500 are reported to be in medicinal use by the rural and tribal communities<sup>1, 2</sup>.

A review of literature revealed that ethnobotanical study in Sirumalai hills

of southern India is limited especially the traditional knowledge of *Paliyan* tribes which inhabit this area at large<sup>3-6</sup>. Therefore, a need was felt to document the information on medicinal plants used by these tribal people.

### Study area

The area under study, the Sirumalai hills, is located in Dindigul district of Tamil Nadu between 10°07'-10°18' N latitude and 77°55'-78°12' E longitude. It covers 52 km<sup>2</sup> hill range, with an average temperature of 28°C in summer and 10°C in winter. The area is

characterized by tropical scrub forest, dry deciduous, mixed deciduous and semi-evergreen forests<sup>7</sup>. In Sirumalai hills, the *Paliyans* usually live at an altitude of 900-1350m in isolated settlements on the hill slopes. They are pre-Draavidian scheduled tribes living in forest thickets<sup>8, 9</sup>.

During present investigation, two groups of *Paliyans*, the one living in natural rocks, caves and crivices (nomadic group) and the other living in temporary



*Gymnema sylvestre*



*Secamone esculentum*



*Bupleurum mucronatum*



*Sarcostemma acidum*



*Ceropegia juncea*



*Eugenia caryophyllata*



*Capparis zeylanica*



*Kalanchoe laciniata*



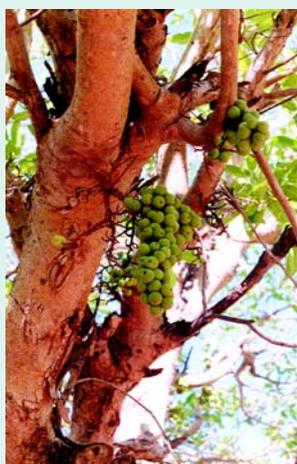
*Carissa spinarum*



*Caralluma umbellata*



*Memecylon umbellatum*



*Ficus glomerata*



*Bauhinia racemosa*



*Theriophonum fischeri*



*Didymocarpus gambleanus*

settlements and working as plantation laborers (semi-nomadic) were observed.

In the study area only 26 *Paliyan* families with 124 individuals (39 males, 64 females and 21 children) were noticed. In every *Paliyan* family, more

than 3 children with 2 or 3 female adults were seen. All of them are illiterate and speak Tamil. The population of the *Paliyans* in Sirumalai hills is dwindling because of inbreeding. The *Paliyans* are short in stature, dolichocephalic and generally black or dark brown in skin complexion. Some of them have flat nose and thick lips. The males have a tuft of curly hairs, goatee beards and very little hairs on their chest, resembling that of a Negroid race.

They collect their food such as tubers, fruits, nuts and leaves from the forests. The nomadic group lives on *Dioscorea* roots and honey. Economically *Paliyans* are very poor. Some forest

produces like honey and nuts are sold to contractors at very low prices.

The nearest hospital is in Dindigul 40 km away. Recently non-governmental agencies and tribal welfare departments established a health care centre at Sirumalai Pudur, but *Paliyans* showed little interest as they believe in their traditional way of healing only.

**Methodology**

The field study was conducted from January 2001 to December 2005. Each family of *Paliyans* was visited and information on local traditional remedies recorded by using pre-scheduled interview. All the specimens were critically identified and the nomenclature was followed as given in Flora of Tamil Nadu<sup>10, 11</sup>. All the voucher specimens are deposited in Gandhigram Rural Institute, Deemed University, Gandhigram, Tamil Nadu. The medicinal plants are enumerated disease-wise under each section arranged in the

alphabetical order of plant species name followed by family name, local name, part(s) used and mode of administration for reported plant species (Table 1).

**Table 1 : Medicinal plants used by the *Paliyan* tribes of Sirumalai hills**

Disease/ Botanical name/ Family	Local name (Tamil)	Part used	Mode of administration
<b>Wound healing</b>			
<i>Allium cepa</i> Linn. /Liliaceae	Vengayam	Bulbs	Paste with common salt is applied on injured parts.
<i>Angiopteris evecta</i> (Forst.) Hoffm./Angiopteridaceae	Yanaivanangi	Leaves	Paste with common salt applied externally for fire burns.
<i>Areca catechu</i> Linn./Arecaceae	Pakku	Seeds	Fine paste applied on wounding part.
<i>Argyrea cymosa</i> Sweet /Convolvulaceae	Kattukodi	Leaves	Paste applied on cracks and wounds.
<i>Buchanania lanzan</i> Spreng. /Anacardiaceae	Kolamavu	Stem bark	Paste used for cut wounds.
<i>Careya arborea</i> Roxb. /Lecythidaceae	Ayma	Stem bark	Paste applied for cracks in toes and heels.
<i>Centella asiatica</i> (Linn.) Urban/ Apiaceae	Vallarai	Leaves	Paste applied externally on wounds.
<i>Coffea arabica</i> Linn./Rubiaceae	Coppi	Seeds	Powder applied on fresh cuts.
<i>Didymocarpus gambleanus</i> Fischer /Gesneriaceae	Paraiotti	Leaves	Paste applied on pimples and external cracks.
<i>Scutellaria violacea</i> Heyne /Lamiaceae	Malainangai	Leaves	Paste applied on cuts and wounds.
<b>Cold, Cough and Fever</b>			
<i>Buddleja asiatica</i> Lour. /Buddlejaceae	Karukattan	Leaves	Strong decoction orally taken to relieve headache with cold.
<i>Cissampelos pareira</i> Linn. /Menispermaceae	Appata	Leaves	Decoction given orally for 3 days to treat fever.
<i>Exacum pedunculatum</i> Linn. /Gentianaceae	Chakkalathi	Whole plant	Decoction taken three days to fever with dysentery.
<i>Kedrostis foetidissima</i> Cogn./ Cucurbitaceae	Appakovai	Leaves	Five drops of juice given orally to treated common cold in children.
<i>Lobelia nicotianaefolia</i> Heyne/ Lobeliaceae	Kattupugaielai	Leaves	Dried powder used as snuff to get rid off cold.
<i>Ocimum tenuifolium</i> Linn./Lamiaceae	Thulasi	Leaves	Juice taken in morning with empty stomach to cure fever with vomiting.
<i>Piper betle</i> Linn./Piperaceae	Vettilai	Leaves	Five drops of juice with honey given orally to children for cough.
<i>Pteris longipes</i> D.Don. /Pteridaceae	Kadavalai	Leaves	Juice taken in sore throat.
<i>Trichosanthes lobata</i> Roxb. /Cucurbitaceae	Paeipudal	Leaves	Decoction taken orally twice a day for malarial fever.
<i>Vitex negundo</i> Linn. /Verbenaceae	Notchi	Leaves	Boiled with water and out coming vapours are inhaled for cold and cough.
<b>Stomach problems</b>			
<i>Adiantum raddianum</i> C. Presl./Adiantaceae	Kanjankorai	Leaves	Juice orally taken for indigestion.
<i>Alangium salviifolium</i> (Linn.f.) Wang./Alangiaceae	Alingilai	Stem	Boiled with water and bark filtrate is taken orally once a day for stomach pain.
<i>Alpinia calcarata</i> Rosc./Zingiberaceae	Chittarathai	Rhizome	Juice with pepper powder taken orally to relieve stomach pain.
<i>Bauhinia racemosa</i> Lam./Caesalpiniaceae	Kolathi	Stem bark	Extract taken orally to relieve abdominal pain.
<i>Bupleurum mucronatum</i> Wight & Arn./ Apiaceae	Kattucheeragam	Seeds	Strong decoction taken orally for once a day to cure chronic stomach pain.

Disease/ Botanical name/ Family	Local name (Tamil)	Part used	Mode of administration
<i>Cardiospermum canescens</i> Wall. /Sapindaceae	<i>Kuthumadakan</i>	Leaves	Paste applied for curing abdominal pain.
<i>Cissus quadrangularis</i> Linn. /Vitaceae	<i>Perandai</i>	Stem	Roasted stem eaten to cure stomach pain.
<i>Glycosmis pentaphylla</i> (Retz.) Correa/Rutaceae	<i>Kuttivila</i>	Fruits	Juice administered orally twice a day to cure chronic stomach pain.
<i>Oxalis corniculata</i> Linn./Oxalidaceae	<i>Puliyarai</i>	Leaves	Juice with pepper powder taken to cure stomach pain.
<b>Ulcer</b>			
<i>Caralluma umbellata</i> (Roxb.) Haw. /Asclepiadaceae	<i>Kallimulayan</i>	Stem	Burnt in direct fire and eaten for five days regularly in empty stomach.
<i>Ceropegia juncea</i> Roxb. /Asclepiadaceae	<i>Pulichan</i>	Stem	Crushed with milk taken orally for three days.
<i>Cynanchum callialatam</i> Buch.-Ham. ex Wight/ Asclepiadaceae	<i>Vepadalkodi</i>	Latex	Three drops with milk taken orally for five days to cure mouth and intestine ulcer.
<i>Hemidesmus indicus</i> R.Br. /Asclepiadaceae	<i>Nannari</i>	Root	Juice orally taken in morning times.
<i>Ichnocarpus frutescens</i> R.Br./Apocynaceae	<i>Paravalli</i>	Leaves	Paste with honey taken internally to treat ulcers.
<i>Jatropha curcas</i> Linn. /Euphorbiaceae	<i>Kattukottai</i>	Latex	Three drops with a glass of water taken orally for 3 days to cure mouth ulcer.
<i>Sarcostemma acidum</i> Voigt/Asclepiadaceae	<i>Kodikalli</i>	Latex	Three drops with honey taken orally thrice a day for chronic ulcer.
<i>Solanum nigrum</i> Linn. /Solanaceae	<i>Manalthakali</i>	Leaves	Eaten raw for intestinal ulcer.
<b>Jaundice</b>			
<i>Andrographis lineata</i> Wall. ex Nees/Acanthaceae	<i>Periyanangai</i>	Root	Paste with milk taken orally for seven days.
<i>Cyperus rotundus</i> Linn. /Cyperaceae	<i>Koraikilangu</i>	Tubers	Crushed with water taken for ten days.
<i>Justicia adhatoda</i> Linn. syn. <i>Adhatoda vasica</i> Nees /Acanthaceae	<i>Adathoda</i>	Leaves	Paste administered with honey for five days.
<i>Phyllanthus amarus</i> Schum. & Thonn. Euphorbiaceae	<i>Keelanelli</i>	Whole plant	Paste taken orally to three times a day till cure.
<b>Nervous disorder</b>			
<i>Celastrus paniculatus</i> Willd./Celastraceae	<i>Valuruvai</i>	Seeds	Powder mixed with water taken orally.
<i>Citrullus colocynthis</i> (Linn.) Schrad./Cucurbitaceae	<i>Peykumati</i>	Fruit	Five drops of juice with milk given orally for five days.
<i>Habenaria longicornu</i> Lindl./Orchidaceae	<i>Pullukilangu</i>	Root tuber	Tubers stored in honey for 5 more days and then eaten for nine days.
<i>Secamone emetica</i> R. Br./ Asclepiadaceae	<i>Angaravalli</i>	Leaves	Juice with milk taken orally for fifteen days.
<b>Dysentery and Diarrhoea</b>			
<i>Anisomeles malabarica</i> (Linn.) R.Br./Lamiaceae	<i>Payemiratti</i>	Leaves	Juice administered orally for three days.
<i>Capparis zeylanica</i> Linn./Capparidaceae	<i>Adhandai</i>	Root	Extract of root bark administered orally for twice a day.

Disease/ Botanical name/ Family	Local name (Tamil)	Part used	Mode of Administration
<i>Combretum albidum</i> G.Don /Combretaceae <i>Dichrostachys cinerea</i> Wight & Arn./Mimosaceae <i>Punica granatum</i> Linn. /Punicaceae	<i>Vragay</i> <i>Vedathalan</i> <i>Madhulai</i>	Fruit Leaves Fruit	Decoction taken orally thrice a day. Pasted with curd taken once a day. Unripe fruits crushed with milk taken orally.
<b>Diabetes</b>			
<i>Gardenia resinifera</i> Roth/ Rubiaceae <i>Gymnema sylvestre</i> R. Br. /Asclepiadaceae <i>Helictres isora</i> Linn. /Sterculiaceae <i>Secamone esculentum</i> R. Br. /Asclepiadaceae <i>Ziziphus xylopyrus</i> Willd./ Rhamnaceae	<i>Kambili</i> <i>Sirukurinjan</i> <i>Valampuri</i> <i>Kolapalai</i> <i>Mullukottai</i>	Resin Leaves Fruit Flowers Fruit	Powder taken with milk once a day. Dried powder taken orally every morning. Decoction taken orally till cure. Crushed with water taken internally thrice a day for fifteen days. Powder with milk taken orally for five days.
<b>Respiratory problems</b>			
<i>Artemisia nilagirica</i> (C. B. Clarke) Pamp. Asteraceae <i>Eugenia caryophyllata</i> Thunb./Myrtaceae <i>Lobelia nicotianaefolia</i> Heyne/Lobeliaceae <i>Tylophora zeylanica</i> Decne/Asclepiadaceae	<i>Masipathri</i> <i>Kirambu</i> <i>Katupugaiyilai</i> <i>Palaikeerai</i>	Leaves Flower bud Leaves Leaves	Juice taken orally for three days to cure asthmatic eruption. Strong decoction with palm sugar orally administered for twice a day. Dried powder used as snuff to cure nasal allergy. Powder taken as snuff to cure respiratory trouble.
<b>Ear and Eye problems</b>			
<i>Cymbidium aloifolium</i> (Linn.) Sw./Orchidaceae <i>Eulophia graminea</i> Lindl. /Orchidaceae <i>Gymnema elegans</i> Wight & Arn./Asclepiadaceae <i>Tarenna asiatica</i> (Linn.)Alston/ Rubiaceae	<i>Panaipulluruvi</i> <i>Kattuvengayam</i> <i>Venkurinja</i> <i>Velichi</i>	Leaves Bulb Leaves Fruit	Juice used as drops to arrest ear pain. Extract used as eardrop. Juice applied on eye to reduce irritation. Juice applied on the eyelids to arrest infection.
<b>Skin diseases</b>			
<i>Ardisia solanacea</i> Roxb./Myrsinaceae <i>Aristolochia indica</i> Linn. /Aristolochiaceae <i>Commiphora caudata</i> Engl./ Burseraceae <i>Ficus glomerata</i> Linn./Moraceae <i>Gmelina arborea</i> Linn. /Verbenaceae <i>Memecylon umbellatum</i> Burm.f./ Melastomataceae	<i>Kohlikottai</i> <i>Urikakodi</i> <i>Malaikiluvai</i> <i>Athi</i> <i>Kumala</i> <i>Kaya</i>	Seeds Leaves Fruit Latex Stem bark Leaves	Paste applied externally for fungal infection. Paste applied on the body to prevent skin diseases. Pericarp eaten to cure dry skin. Applied on the skin to treat common infections. Used as hair cleaner and prevent dandruff. Paste applied on pimple to disappear.
<b>Urinary trouble</b>			
<i>Asparagus racemosus</i> Willd./Liliaceae	<i>Vanathikilangu</i>	Root tubers	Eaten as raw every day morning to cure kidney stones.



Disease/ Botanical name/ Family	Local name (Tamil)	Part used	Mode of Administration
<i>Caralluma adscendens</i> (Roxb.) Haw./Asclepiadaceae	<i>Eluvan</i>	Tuber	Sliced stem with salt taken orally for diuretic condition.
<i>Carissa spinarum</i> Linn. /Apocynaceae	<i>Kila</i>	Fruits	Ripen fruits eaten for urinary infections.
<b>Toothache</b>			
<i>Spilanthes calva</i> DC. /Asteraceae	<i>Kattpudu</i>	Leaves	Chewed to cure toothache.
<b>Worms</b>			
<i>Andrographis lineata</i> Wall. /Acanthaceae	<i>Periyanagai</i>	Leaves	Three drops of extract given orally to children to expell worms.
<b>Digestion</b>			
<i>Cassia auriculata</i> Linn./Caesalpiniaceae	<i>Avarai</i>	Flowers	Juice given to improve digestion in children.
<i>Myristica fragrans</i> Houtt. /Myristicaceae	<i>Jathikay</i>	Seeds	Powder with milk given orally to improve digestion.
<b>Poisonous bites</b>			
<i>Achyranthes aspera</i> Linn. /Amaranthaceae	<i>Nayuruvi</i>	Root	Juice given orally for dog bite.
<i>Alseodaphne semecarpifolia</i> Nees /Lauraceae	<i>Attapattai</i>	Stem bark	Juice applied externally for leach bite.
<i>Alstonia venenata</i> R.Br. Apocynaceae	<i>Elaipalai</i>	Stem bark	Decoction taken orally to snake bite.
<i>Andrographis paniculata</i> Wall. ex Nees /Acanthaceae	<i>Siriyangai</i>	Leaves	Juice taken orally for scorpion sting.
<i>Barleria prionitis</i> Linn./Acanthaceae	<i>Kattukanagambaram</i>	Root	Decoction taken orally for snakebite.
<i>Rhinacanthus nasutus</i> (Linn.) Kurz /Acanthaceae	<i>Nagamalli</i>	Leaves	Juice given orally for snakebite.
<i>Strychnos potatorum</i> Linn. /Loganiaceae	<i>Thethamkottai</i>	Seeds	Powder with honey given orally to all poisonous bite.
<b>Rheumatic pain</b>			
<i>Atalantia monophylla</i> (Linn.) DC./ Rutaceae	<i>Kattupulasai</i>	Leaves	Decoction taken orally once a day.
<i>Curculigo orchioides</i> Gaertn./Amaryllidaceae	<i>Nilappanai</i>	Rhizome	Crushed with milk taken internally.
<i>Clerodendrum serratum</i> (Linn.) Moon/Verbenaceae	<i>Siruthekku</i>	Leaves	Paste applied externally for joint pain.
<i>Kalanchoe laciniata</i> (Linn.) DC. /Crassulaceae	<i>Chothuthalai</i>	Leaves	Leaf extract applied externally for joint pain.
<i>Theriophonum fischeri</i> M. Sivadasan/Araceae	<i>Puchandikilangu</i>	Tuber	Boiled tuber eaten for body pain.

## Results and Discussion

The study reveals that tribes in the area depend on plants for medicinal purposes. Information on the medicinal use of plants now seems to be confined to elder people (above 40 years of age)

only. Younger generation is ignorant about the vast medicinal resources available in their surroundings and is more inclined towards market resources. During present investigation 90 species used for curing 17 ailments were gathered; out of them

42 were herbs, 23 shrubs, 13 trees and 12 climbers (Table 1). In most of the cases leaves (46%) were used for curing ailments followed by root parts (18%), fruits and seeds (14%), stem bark (12%), whole plants (8%), latex and resin (6%),





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flowers and other parts (4%).

Maximum numbers of plants were used for curing wounded parts followed by stomach problems, cold cough and fever. It was also found that a single plant may be used for curing many ailments such as, *Lobelia nicotianaefolia* Heyne is used to treat both cold and respiratory problems. Similarly, *Andrographis lineata* Wall. ex Nees is used against jaundice and worms. The medicinal uses of *Exacum pedunculatum* Linn., *Kedrostis foetidissima* Cogn., *Tarenna asiatica* (Linn.) Alston and *Theriophonum fischeri* M. Sivasadan are being reported for the first time in this report as there is no such record in literature<sup>12-17</sup>.

Many of the plants that are used by Sirumalai *Paliyan* tribes are mentioned in ancient literature such as Sidha, Ayurveda and Unani. The use of medicinal plant species in treating a particular ailment is also fairly common among *Paliyan* tribes living in the other parts of Tamil Nadu<sup>18-20</sup>. The results of the present study provide evidence that medicinal plants continue to play an important role in the healthcare system of this tribal community.

### Conclusion

Traditional phytotherapy of South India in general could provide very interesting clues for further phytochemical and pharmacological research on lesser known plant sources of Indian flora. Now-a-days, there is an increasing demand for the production of health care medicines and cosmetic items from plant origin based on the ancient knowledge in folk

remedies. This study would provide some basic clues of medicinal properties of plants used by native of hill tribes of Sirumalai hills in Tamil Nadu.

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