



ETHNOPHARMACOLOGICAL STUDIES ON THE MEDICINAL PLANTS USED BY KANI TRIBES OF THACHAMALAI HILL, KANYAKUMARI, TAMILNADU, INDIA

Divya, V. V., Karthick, N. and Umamaheswari, S.

Department of Biotechnology, Manonmaniam Sundaranar University, Sri Paramakalyani Centre for Environmental Science Campus Alwarkurichi, Tamil Nadu, India.

ABSTRACT

An ethnobotanical survey was carried out among Kani tribes of Thachamalai hill, Kanyakumari Wild life sanctuary TamilNadu. The present paper documents traditional knowledge of Kani tribes about medicinal plants along with their family names and mode of preparation and uses. Information was collected through regular visits and interviews with local people and traditional healers. The study offer information about 106 plants which are used to treat around 25 diseases. Kani tribes of Thachamalai hill have rich knowledge on traditional remedies which will be useful to divulge new drugs for mankind.

KEY WORDS: Ethnobotanical survey, Kani Tribes, Kanyakumari, medicinal plants.

INTRODUCTION

From the time of immemorial, the world population relies mainly on the plants and herbal products for health care. According to Turner (1995), ethnobotany may be defined as the science of people's interaction with plants, where as ethnopharmacology associate with experimental investigation of indigenous drugs and their biological activities. Harvey (2008) reported that there exist around 250000, higher plant species in the planet; whereas only 10% could be biologically studied. Side effects of several allopathic drugs, development of resistance to currently used drugs for infectious diseases, population rise, and insufficient supply of drugs and unaffordable cost of treatments have led to increased importance on the use of plant materials as a source of medicines for a wide variety of human ailments. Traditional systems of medicine continue to be widely practiced on many accounts. It is widely accepted that indigenous use of plants can offer better clues about the biological activities of the plant. Ethno medicinal studies have offered immense scope and opportunities for the development of new drugs (Sivaperumal *et al.*, 2010). In India 550 ethnic tribes possess rich traditional and indigenous knowledge. The tribal people are exploiting a variety of herbals for effective curing of various ailments (Alagesabopathi, 2011). Kanikkars, a tribal community in the Western Ghats of South Tamil Nadu seems to have rich knowledge of herbs and they depend on the forest resources to meet their livelihood and health care needs. The aim of the present study is to collect information on traditional uses of medicinal plants used in the preparation of herbal drugs by the Kanikkars settled at Thachamalai hill of Kanyakumari forest division. Kanyakumari Wild life Sanctuary with adjacent areas of Kalakkad Mundanthurai Tiger reserve and Neyyar wild life Sanctuary of Kerala State constitute South most tip of

Western Ghats and approximately lies between 77°10'-77°35' east longitude and 8°5'-8° 35 north latitude. The natural vegetation of this region represents biomass ranging from southern thorn forests, dry deciduous, moist deciduous, semi evergreen forest to ever green hill shoals with grassy downs. In due recognition of the tremendous biological potential, Kanyakumari forest division was declared as Kanyakumari Wild life Sanctuary during 2002. This forest forms the southern most ranges of Agastiamalai, a compact forested tract in the Southern Western Ghats. Thachamalai is a hilly Kani settlement which comes under Veerapuli reserved forest. Kanikkars are also known as Kanikkaran or Kani with forty seven tribal settlements located well within the sanctuary area scattered mainly in Kilamalai and Veerapuli reserve forests with an extent of 1282.29 hectares of reserve forest. Each Kani settlement has a "Mootukani", a custodian of all social affairs and justice deliverance. The problems pertaining to his people will be taken care by him and he presides over the meetings where solutions to the problems will be found. There is a 'Pilathi' in each settlement who finds out the reason for a disease is due to evil spirits or harm done to God. There is a Vilikani, an informer who assembles people in a place, Chattumadam to inform the orders of the Mootukani. The language they speak closely resembles Malayalam (Palanichamy *et al.*, 2010) with few Tamil words (Arun *et al.*, 2007) economically they are highly backward. They engage themselves in cultivating tapioca, banana, coconut, mango, jackfruit, cashew nut, areca nut, pepper, pulses along with collection of bee wax, honey, cane etc.

MATERIALS & METHODS

Regular visits were made at different seasons throughout the year in the Thachamalai hill during 2012-2013. The ethno botanical data was collected through interviews and

discussions with Mootukani, the medicine man for the tribals. Authenticated information was also collected from the elder people (ladies and men) through video tapes for the effective survey. Information regarding plants, parts used, usage, mode of preparation and doses were documented. Information thus gathered was cross checked between people in the subsequent visits. Sample specimens and photographs were deposited in the herbarium of the Microbial Biotechnology Laboratory, Manonmaniam Sundaranar University, Alwarkurichi, Tirunelveli for future reference.

RESULTS & DISCUSSION

The study reveals that the tribal people of Thachamalai hill have been preserving a rich heritage of information on medicinal plants. Mootukani and other medicine men exhibit great interest in sharing information about medicinal plants and treatments. 106 plants were documented as medicinal plants for the treatment of around 25 diseases (Figure 1 and Table 1). They generally treat all kinds of diseases including gynecological disorders and pediatric problems. Most of the plants are used as single medicine. Common people never consult Mootukani or other medicine men for simple ailments like wounds, constipation, fever etc. Many plants are used in more than one preparation. Same preparations are used to cure different diseases also. Fresh leaf extracts are used for many diseases and they are either consumed or applied as such or mixed with milk, honey or rice soup water. They use herbal medicines not only for simple ailments like cough, cold and fever but are also used to treat diseases like leprosy, leucorrhoea, dysmenorrhoea, menorrhoea, vitality, jaundice, liver problems etc. Such knowledge is restricted to Mootukani. Plants are also dried and stored for long periods. Decoctions are prepared from the dried plant material. Generally they do not care to preserve or cultivate medicinal herbs excepting those that are used for insect or snake bites. They grow snake repellent plants

around their bamboo huts. For skin infections, they mainly use coconut or gingelly oil as such or boiled with some other plant pastes. Such simple medicated oil preparations are made at home level. They give extra care to pregnant ladies and nursing mothers. Some herbs are made into paste with jaggery and boiled to form slurry and given to nursing mothers. This will stop extra bleeding after delivery and these single herbal preparations are made with different herbs which make it more delicious. Few fruits like *Baccaurea courtallensis* (Wight) M.Arg (Figure. 2) are consumed as seasonal fruits and many leaves are cooked like side dishes and consumed with rice or rice soup in their daily life. *Solanum nigrum* L., *Cissus quadrangularis* L., *Moringa oleifera*, *Dioscorea oppositifolia* etc which makes them healthier than other people. They treat their domestic animals with herbal remedies. For example, *Bambusa arundinaceae* is fed to cattle to cure diarrhoea and *Cissus quadrangularis* is used for easy delivery and also to stop post bleeding after delivery in cattle. Some plant products are consumed for general health, for example tender coconut and toddy from *Cocos nucifera* (L.) and *Aringa wightii* (Griff) (Figure 3). 20.14 % of the plants are used for skin infections and 19.08% plants are anti inflammatory. Many plants like *Crassocephalum crepidioides* (Benth.) (Figure 4), *Ravoulfia serpentina* (L.) Benth (Figure.5) are being used in variety of ayurvedic and Siddha formulations for years. Besides medicinal use, they prepare herbal preparations for cosmetic problems like hair fall, body odour, dandruff etc. For pimple, acne and fairness *Curcuma aromatica* Salisb. paste is applied (Figure 6). Many plants are endemic to the study area, for example *Smilax ovalifolia* Roxb. (Figure 7) is reported nowhere in South India, while the other species of the same genus *Smilax zeylanica* Linn. (Figure 8) is reported at many parts of TamilNadu and Kerala. Apart from herbal treatment they practice special workshops and offerings to cure diseases in their temple 'Chattumadam'.

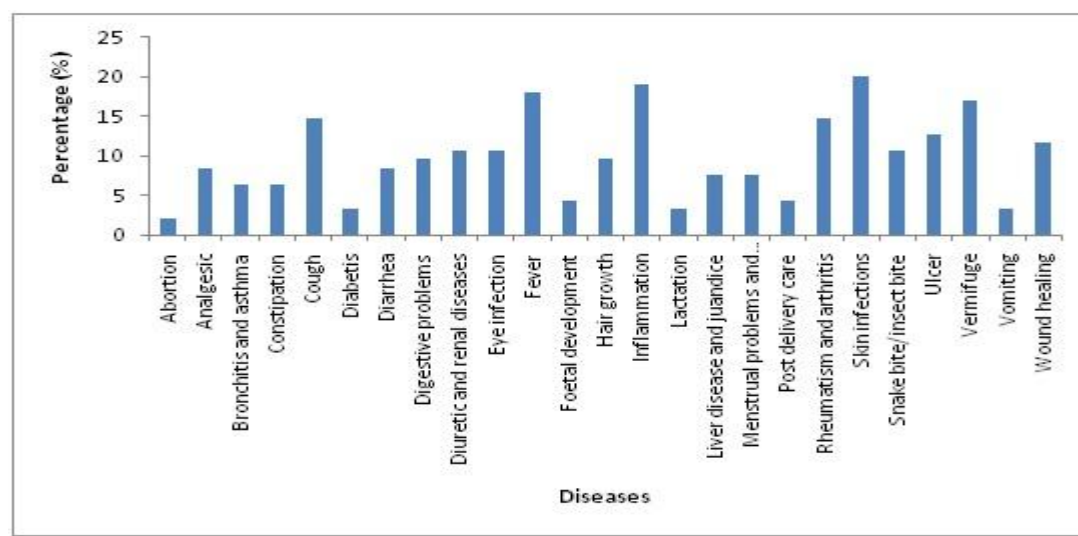


FIGURE 1: Number of plants used to cure different ailments by Kani tribes

TABLE 1: Medicinal plants used by Kani tribes of Thachannalal hill of Kanyakumari Wild life Sanctuary

S/no	Plant	Family	Vernacular name	Uses
1	<i>Abrus precatorius</i> (L.)	Fabaceae	Kunnimani	Juice from crushed seeds (1:1:00) is diluted and applied on the eye lids for chronic conjunctivitis or inflammation of mucous membrane of eyelids. Leaf paste is applied over skin rashes.
2	<i>Abutilon indicum</i> (L.)	Malvaceae	Thuthi	Decoction prepared from the leaves is used in fever and cough. Decoction of stem is diuretic.
3	<i>Acalypha indica</i> (L.)	Euphorbiaceae	Kuppamni	Juice from crushed leaves is filtered through a white cloth and used internally in case of severe cough as an expectorant, to expel worms and applied on the skin during skin infections.
4	<i>Achyranthus aspera</i> (L.)	Amaranthaceae	Nayuruvi	Decoction prepared from the leaf, seed and root is used daily in case of severe cough. The decoction is diuretic and cures digestive problems.
5	<i>Adathoda vasica</i> Nees.	Acanthaceae	Adathodai	Roots of the plant are used to cure bronchitis, asthma and vomiting. Extract from the fresh flowers fruits and leaves induce menstrual flow, cause abortion, and cures cough and rheumatism. Smoking of leaf rolls is practised to cure asthma.
6	<i>Aerva lanata</i> Juss. Ex Schult.	Amaranthaceae	Cheru peela	Decoction prepared from whole plant is boiled with cow milk until the volume becomes one cup. This is consumed twice a day, early morning and evening, after sixth month of pregnancy for easy delivery.
7	<i>Aloe vera</i> Mill.	Liliaceae	Katar vaazha	Jelly mass present in the fleshy leaves is used to cure menstrual problem. It is a laxative and is used to expel worms from the body
8	<i>Alpinia calcarata</i>	Zingiberaceae	Sitharathai	Daily consumption of about 1 gm rhizome powder with jaggery will cure cough, cold and fever.
9	<i>Alstonia scholaris</i> (L.) R.Br.,	Apocynaceae	Mukkampala	Fresh paste from rhizome can be applied over inflammation and will reduce pain. Latex is applied over wounds to expel foreign particles from the wound opening and to heal the wounds.
11	<i>Amomum zerumbet</i> (L.)	Zingiberaceae	Kattu Chenithi	Juice from the rhizome is mixed with honey and consumed for digestive problems.
12	<i>Andrographis paniculata</i> (Burm.f.) Wall	Acanthaceae	Kirinsath	Leaf extract is filtered and consumed three times to get rid of fever. The decoction of root and leaves together will cure fever, sore throat, indigestion, liver problems and constipation
13	<i>Areca catechu</i> (L.)	Arecaeae	Kavungu	Consumption of 1-2 tea spoons of powdered nut with water will expel tape worm from the body. Young seeds are laxative
14	<i>Aringa wightii</i> (Griff)	Arecaeae	Aalathengu	Toddy prepared from the spadix is good for general health (Fig 4).
15	<i>Asparagus racemosus</i> Willd	Liliaceae	Sahavari	Boiled leaf is mixed with ghee and applied over inflammation. Daily consumption of fresh leaf juice along with milk cures leucorrhoea and excess body heat. Fresh juice from root is boiled with milk and consumed for diarrhoea and tastelessness. Consumption of fresh juice from roots with honey relieves ulcer induced pain. Decoction of the root is a good appetizer, promotes lactation after delivery, stops dysentery and is also used as a liver tonic.
16	<i>Baccaurea courtallensis</i> (Wight) M.Arg	Euphorbiaceae	Mootuppazham	Fruits are acidic and are edible and used for infertility problems. Consumption of ripe fruits also cures mouth and stomach ulcers (Fig 2)
17	<i>Bacopa monnieri</i> ,	plantaginaceae	Brahmi	Juice of fresh leaves is given for inflammation of mucous membrane and severe cough.
18	<i>Bambusa arundinaceae</i> (Retz.) Willd	Poaceae	Mula	Consumption of juice of fresh leaves at empty stomach is good for memory power in children. Paste prepared by macerating stem applied on the inflamed joint will relieve pain and inflammation. Decoction of the root induces urination. Leaves are fed to cattle for digestive problems and diarrhoea
19	<i>Basella alba</i> (L.)	Basellaceae	Pasalakeera	The consumption of cooked leaves of the plant has a soothing effect and protects the alimentary tract by relieving it of inflammation. The leaves are used internally for constipation in children and pregnant women.
20	<i>Biophytum sensitivum</i> (L.) DC,	Oxalidaceae	Mukkuti/ Kadanthakkanni	Crushed leaves or powdered seeds are applied over wounds. The decoction of the whole plant is a diuretic and dissolves calculi. Whole plant extract is applied over insect or snake bite

37	<i>Crinum deflexum</i> Ker-Gawl	Amaryllidaceae	Visha narayanana	Juice from the crushed bulbs is given orally for snake bites for three days. Use of lemon, tamarind and turmeric is avoided during treatment.
38	<i>Crotalaria verrucosa</i> (L.)	Fabaceae	Kilu kiluppai	Whole plant paste is applied for skin infections. Infusion of leaves is good for vomiting and diarrhoea
39	<i>Croton bonplandianus</i> Baillon	Euphorbiaceae,	Milakai poondu	Cooked leaves are consumed with rice as a side dish for constipation. Consumption of water boiled with the leaves two or four times a day will cure inflammation and small tumours. Consumption of the water obtained by boiling 50 gm of the root with 250 ml of water being reduced to 100 ml cures arthritis and reduces pain.
40	<i>Cucurbitigo orchnioides</i> Gaertner	Hypoxycdaceae	Nilappana	Decalcated root is powdered and about 5 gm of the root powder is consumed daily with sugar for body pain, wounds and skin infections.
41	<i>Curcuma aromatica</i> Salisb	Zingiberaceae	Kattu Kasthoori manjal	Rhizome paste is applied over sprain to relieve pain. Rhizome is generally used as an antiseptic and applied over insect bite. Application of rhizome paste on face will improve complexion and cure all kinds of skin infections and pimples (Fig 5).
Sl.no	Plant	Family	Vernacular name	Uses
42	<i>Cuscuta reflexa</i> Roxb	Convolvulaceae	Moodilathali	About half kg of the plant is boiled in 20 litres of water and is used to take bath to take care of body aches. The decoction of the plant is useful in expelling worms from the body. Whole plant paste is a very good medicine for constipation.
43	<i>Cymbopogon citratus</i> (DC.) Stapf.	Poaceae	Chukkunaari pullu	Whole plant is boiled in earthen pots and the volatile oil is applied externally to get rid of arthritic pain. Juice from the leaves is taken internally with milk for expelling gas from the body.
44	<i>Cyperus rotundus</i> (L.)	Cyperaceae	Muthanga, Korakkizhangu	Consumption of about one gram of root powder with honey twice a day will make children sharp, induce appetite and improves body health. Consumption of paste made from equal amount of descaled roots and ginger will cure bloody stool and kills intestinal worms.
45	<i>Datura innoxia</i> Mill	Solanaceae	Ummathai	Leaves boiled in coconut oil is used for piles externally; local application of crushed leaves relieves pain and inflammation
46	<i>Dioscorea oppositifolia</i> (L.)	Dioscoreaceae	Kavalan kizhangu	Dried tubers are ground and applied over swellings. Cooked tubers are edible.
47	<i>Drimys indica</i> (Roxb) Jessop	Hyacinthaceae	Kattuli	Bulbs are diuretic. The paste of bulb is applied over snake and other insect bites.
48	<i>Eclipta alba</i> (L.)	Asteraceae	Karisilankanni	Fresh plant decoction is useful in asthma. One to two tea spoon of fresh juice from the plant is used to cure oedema, fever, excess fluid in the body and rheumatism. Fresh juice of leaves is rubbed on the scalp to check hair fall. Daily application of coconut oil boiled with the crushed plant will improve hair growth.
49	<i>Elephantopus scaber</i> (L.)	Asteraceae	Aanachuvadi	Fresh extract prepared from crushed leaves will stop bleeding from cuts and helps in wound healing. Whole plant is made into paste along with rice and boiled until it becomes semisolid. The preparation is consumed for wound healing after delivery.
50	<i>Erythrina indica</i> (L.)	Fabaceae	Mulmuninagai	Juice from boiled young leaves is mixed with jaggery and consumed for first three months of pregnancy. This will stop bleeding and help foetal development.
51	<i>Emilia sonchifolia</i> (L.) DC.	Asteraceae	Ezhuthanipachlia/ Muyalchevi	Leaf juice is filtered and used in eye sores and night blindness. Decoction of the whole plant is consumed daily for a week for bowel complaints.
52	<i>Eupatorium odoratum</i> ,	Asteraceae	Aanavanthan pachila	Leaf extract is rubbed with lime and is applied for wound healing.
53	<i>Euphorbia cyathophora</i>	Euphorbiaceae	Palazhi/palperukki	Daily consumption of cooked leaves will improve lactation in nursing mothers. Cooked leaves are also used to cure constipation.
54	<i>Euphorbia hirta</i> (L.)	Euphorbiaceae	Amman pacharisi	Juice of the whole plant is used in acute abdominal pain and skin diseases. Decoction of the stem and leaves is used as a mouth wash. Root paste is used for snake bite. Juice from the crushed leaf is used to stop local bleeding.
55	<i>Evohulus nummularius</i> (L.)	Convolvulaceae	Vishnukranthi-white	Decoction of the whole plant is used for fever and cold, decrease of body heat. Whole plant is used in hair oil preparations.

56	<i>Gardenia jasminoides</i> Ellis	Rubiaceae	Nanthyarvatvai	Juice from crushed flowers is used as eye drops for eye infections. Decoction of the root is used for gastric problems and indigestion. Crushed flower is a laxative and is used as an anti-helmintic drug.
57	<i>Gloriosa superba</i> (L.)	Liliaceae	Kalappakizhangu	Rhizome is anti-helmintic and laxative. Juice from crushed rhizome is used to reduce fever, induce labour pain and causes abortion. Crushed tuber is applied externally for skin diseases
58	<i>Heliotropium indicum</i>	Boraginaceae	Thelkodukku	Decoction of whole plant is consumed for carcinogenic ulcers.
59	<i>Hemidesmus indicus</i> (L.) R.Br	Asclepiadaceae	Naruneendi-wild	Decoction of the root is used to reduce fever, rheumatism, diarrhoea and leprosy. Latex of the plant is administered into the eye to check inflammation.
60	<i>Hibiscus rosa-Sinensis</i> (L.)	Malvaceae	Chemparuthi	Decoction of roots is used to cure cough and cold. Juice from the flowers is applied over wounds. Paste made from leaves, flower and bud is used to prepare hair oil which promotes hair growth. Paste from leaves is used as herbal shampoo. Flower is boiled in water and consumption of this filtered water relieves breast pain.
61	<i>Hybanthus enneaspermus</i> (L.)	Violaceae	Orithazh thamara	Paste made from the whole plant is applied over boils. Leaves are chewed with milk at the early morning for 45 days will cure leucorrhoea and improves potency.
62	<i>Indigofera tinctoria</i> (L.)	Fabaceae	Neela avuri	Whole plant is a main ingredient in oil preparations for pain and sprain. Whole plant is a diuretic. Leaf paste is mixed in 250 ml goat milk and consumed for three days at empty stomach to cure jaundice and night blindness
63	<i>Jatropha gossypifolia</i> (L.)	Euphorbiaceae	Kaattu avanakku, Simayavanakku	Decoction of the bark promotes menstruation and cure irregular periods. Paste of the leaves is applied over boils, eczema and itches. The leaves are boiled in water and is used to take bath to reduce fever
64	<i>Lantana camara</i> (L.)	Verbenaceae	unnichedi	Decoction of whole plant is given for rheumatoid arthritis and severe fever.
65	<i>Lawsonia inermis</i> (L.)	Lythraceae	Maruthami	Leaf paste is boiled in coconut oil and application of this preparation on hair improves hair colour and prevent greying of hair. Gargling of water mixed with leaf paste is practised to cure mouth ulcers and small wounds on the mucosa. Flowers are kept in the bed room for insomnia.
66	<i>Leucas aspera</i> (L.)	Lamiaceae	Thumbai	Decoction of flowers reduces cough, cold and fever. Total plant extract is used as an antihelmintic drug. Fresh juice of the plant is applied externally to cure skin infections.
67	<i>Lippia nodiflora</i> (L.);	Verbenaceae	Thali/ poduthalai	Whole plant is boiled with gingelly oil and is used to cure dandruff and other skin infections on the scalp. Whole plant is made into a paste with equal quantity of cumin seeds and consumed along with 10 gm of butter or butter milk which cures leucorrhoea.
68	<i>Melothria maderaspatana</i> (L.)	Cucurbitaceae	Mosunosukkai	Consumption of dosai prepared by mixing the leaf paste to the batter is practised to cure cold, fever and cough.
69	<i>Merremia tridentata</i> (L.) Hall. F	Convolvulaceae	Thiruppan pullu	Medicated oil prepared by boiling the juice from the crushed leaves in gingelly oil along with few other herbs is used to cure leprosy and other skin infections in children. Whole plant is an ingredient in hair oil preparations.
70	<i>Mimosa pudica</i> (L.)	Mimosaceae	Thottar vadi	Leaf infusion is used to cure liver diseases, constipation and kidney problem. Handful of crushed leaves and stem is applied over the scorpion sting to reduce the pain and swelling. Whole plant paste is boiled in coconut oil and applied for skin infections.
71	<i>Mirabilis jalapa</i> (L.)	Nyctaginaceae	Nalunani	Decoction is prepared from 20 gm of root tuber in 1 litre water and consumed 4-5 cups per day for inflammatory viral infections. Juice from fresh leaf is applied to wounds. Powder from dried flowers and seeds is used for topical application in inflammation.
72	<i>Momordica charantia</i> (L.)	Cucurbitaceae	(Paaval	Juice from the fruits is used to expel worms from the body.
73	<i>Moringa oleifera</i> (L.)	Moringaceae	Muringa	Leaves are boiled in water and consumed to reduce blood pressure, diabetes mellitus and fever. Leaves are applied over sprain. Fruits, leaves and flowers are used as food.

74	<i>Murraya koenigii</i> (L.)	Rutaceae	Kariveppilai	Bark, root and leaves are crushed and applied externally to cure skin eruptions. The decoction of the leaves is used to expel worms from the body. Leaves are grinded with rice and jaggery and boiled to make thick slurry and consumed for worm infections. The paste of the leaves is mixed with buttermilk and consumed for hair growth. About 50 gm of leaf paste is boiled with coconut oil and is applied for three months to reduce hair fall and to attain dark colour to hair. Juice is extracted from the chopped trunk, strained and consumed for renal colic and helps to eliminate kidney stones. This is a good solution for excess hair loss.
75	<i>Musa paradisiaca</i> (L.)	Musaceae	Vazhai	Leaf juice is applied externally for ring worms and other skin diseases. Handful of leaves is boiled in water and the hot steam is inhaled in severe cold. Leaves are boiled with pepper, dried ginger and jaggery and the preparation is consumed daily to reduce cold, cough and fever.
76	<i>Ocimum sanctum</i> (L.)	Lamiaceae	Krishna thulasi	Juice from leaves reduce local itching. Leaves are covered with cotton cloth and heat applied to affected area will reduce arthritic pain. Consumption of milk mixed with root will expel gas and worms.
77	<i>Pergularia daemia</i> (forsk.) Chiov	Asclepiadaceae	Velipparuthi	Handful of leaves is made into paste and consumed for jaundice. Decoction of young leaves is used for fever.
78	<i>Phyllanthus amarus</i> Schum &Thom	Phyllanthaceae	Keezhamelli	Decoction of the whole plant is used for constipation, ulcers and cough.
79	<i>Physalis minima</i> Linn.	Solanaceae	Kutti thakkali	Decoction or infusion of the unripe berries is used as a mouth wash in tooth aches. A preparation with
80	<i>Piper nigrum</i> (L.)	Piperaceae	Milagu	<i>Ocimum sanctum</i> and jaggery is very effective in reducing fever and cough.
81	<i>Plumbago indica</i> (L.)	Plumbaginaceae	Neelakoduveli	Decoction of root is an appetizer, used for stomach pain, vitality, expulsion of gas from stomach. The juice of the root is mixed with coconut oil and applied externally to take care of skin diseases.
82	<i>Polyanthia longifolia</i> (Thw.)	Annonaceae	Nettingam	Decoction of the bark is effective in fever, skin disease, diabetes. Bark is immersed in water for one day and the filtered water is used as an antiseptic solution for cleaning wounds.
83	<i>Psidium guajava</i> (L.)	Myrtaceae	Pera/koyya	Decoction of leaves is used in chronic diarrhoea, oedema and uterine haemorrhage. Decoction of young shoot consumed twice a day (one cup each at a time) will cure dysentery, diarrhoea, renal diseases and ulcers.
84	<i>Punica granatum</i> (L.)	Punicaceae	Madulam	Decoction of peel of fruits will relieve stomach pain. Paste made from young fruit is used to control diarrhoea. Powder made from fruit peel is antipyretic.
85	<i>Rauwolfia serpentina</i> (L.) Benth	Apocynaceae	Analpori	Decoction of roots will expel worms from the body.
86	<i>Rauwolfia tetraphylla</i> (L.)	Apocynaceae	Paanbukala/ Parachandrika	Extract of whole plant is mixed with castor oil and applied to skin diseases and snake bites.
87	<i>Rhinacanthus nasutus</i> (L.) Kurtz.	Acanthaceae	Nagamalli	Whole plant extract is consumed for blood disorders, poisoning and ring worm infections.
88	<i>Salacia oblonga</i> . Wall ex Wight & Arn	Hippocrateaceae	Ponkorandi	Bark of the plant is used to cure arthritis in multi herbal formulations.
89	<i>Saraca indica</i> (L.)	Caesalpinaceae	Asokam	Flowers are boiled in coconut oil and applied externally for skin diseases, boils and rashes. The paste of the bark is applied over painful joints. The decoction of bark is useful in menorrhoea, leucorrhoea, and dysmenorrhoea.
90	<i>Sauropus androgynus</i> (L.) Merr.	Euphorbiaceae	Madhurakkeera	Leaves are edible. Cooked leaves are advisable in constipation. Decoction of root is given to reduce fever.
91	<i>Sida acuta</i> Burmf.	Malvaceae	Malahangi	Leaves are made into paste with rice and jaggery and boiled to make slurry. This is consumed during post delivery period in ladies. Whole plant extract is given for leucorrhoea.
92	<i>Sida alnifolia</i>	Malvaceae	Kurumthotti	Fresh whole plant paste is mixed in milk and consumed in the last trimester of pregnancy for normal delivery. Root is used for arthritis, rheumatism, tuberculosis, in multi drug formulations with other herbs. Decoction of root promotes strength and imparts beauty to the body.

93	<i>Smilax zeylanica</i> (L.)	Smilacaceae	Karuvilanchi- white	Rhizome paste is consumed with milk for piles. Decoction of root and rhizome is used in venereal disease, rheumatism, arthritis and urinary complaints.
94	<i>Smilax ovalifolia</i> Roxb	Smilacaceae	Karuvilanchi- red	Decoction of root and rhizome is consumed for the venereal disease, rheumatism, arthritis and urinary complaints.
95	<i>Solanum nigrum</i> (L.)	Solanaceae	(Manihakkali, kuttathippazham	Juice from the whole plant is consumed for internal ulcers. Gargling of water boiled with fruits and leaves is useful in the treatment of mouth ulcers. The paste from unripe berry is used for ring worm infections. Leaves are cooked as side dish for rice.
96	<i>Solanum torvum</i> (L.) Sw.	Solanaceae	Chunda	Fruits are edible. Inhalation of steam from the boiled fruits and seeds will take care of cough, asthma, and sore throat. worm infestations.
97	<i>Solanum trilobatum</i> (L.)	Solanaceae	Thoothuvilai	Decoction of whole plant is used in asthma, bronchitis, cough and common cold. Inhalation of steam from leaves expels sputum.
98	<i>Spermacoce hispida</i> (L.)	Rubiaceae	Tharavu, Nathachoori	Juice from the whole plant is consumed to expel gall stones. Whole plant is used in multi drug oil preparations
99	<i>Splianthes acmella</i> (Murr.)	Asteraceae	Palvalipoondu	Flowers and leaves are crushed and the juice is applied in the dental canal to get rid of pain. Chewing flowers will give relief from throat infections.
100	<i>Stachytarpheta indica</i> (L.)	Verbenaceae	Nayuruvi – blue	Infusion of bark is used in diarrhoea and dysentery. Juice from crushed leaves is filtered through white cloth and used as eye drops in general ophthalmic problems and applied externally to cure ulcers.
101	<i>Syzygium aromaticum</i> (L.)	Myrtaceae	Grambu	Application of clove oil in the dental cavity relieves tooth ache. Clove oil is used as a mouth wash. Tea of cloves will relieve nausea.
102	<i>Tinospora crispa</i> Willd	Menispermaceae	Kaattu amuthavalli	Decoction of stem is used for general weakness, fever and inflammations. The decoction of the pulverized fruit is used as a tonic and also used to control rheumatism and jaundice.
103	<i>Tylophora asthmatica</i> Wight. & Arn	Asclepiadaceae	Vallippala	Decoction of leaf is used as expectorant in bronchitis and cough.
104	<i>Vernonia cinerea</i> (L.)	Asteraceae	Kucharikootam	Leaves are crushed and the filtered juice is used as eye drops to cure eye infections.
105	<i>Veriveria zizanioides</i> (L.)	Poaceae	Vetiver, Ramacham	Boils caused by summer heat could be treated with root powder smade into a paste with sandal wood powder and water and applied over affected area. Root paste is applied externally for swellings in the body.
106	<i>Vitex negundo</i> (L.)	Verbenaceae	Nochi	Decoction of the leaves is used as an expectorant. Leaf extract is applied over swollen joints in rheumatism. Infusion of leaves is used as vermifuge. Decoction of the leaves is used for tooth ache, rheumatism and eye diseases.



FIGURE 2: *Baccaurea courtallensis* (Wight) M.Arg



FIGURE 3: *Aringa wightii* (Griff).



FIGURE 4: *Crassocephalum crepidiodes* (Benth.)



FIGURE 5: *Ravoulfia serpentina* (L.) Benth



FIGURE 6: A Kani with *Curcuma aromatica* Salisb.



FIGURE 8: *Smilax ovalifolia* Roxb.



FIGURE 6: *Smilax zeylanica* Linn

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