

Ethnopharmacological Studies on the Medicinal Plants Used By Urali Tribes of Kadambur Hills, Sathyamangalam, Erode District, Tamil Nadu, India

Research Article

Vadivalagan A* and Kannan R

Chikkaiah Naicker College, Department of Botany, India

*Corresponding author: Vadivalagan A, Chikkaiah Naicker College, Department of Botany, Erode, Tamil Nadu, India, E-mail: vadivalagan.guru@gmail.com

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Abstract

Indigenous traditional knowledge is an integral part of the culture and history of a local community. The present study is aimed to document the ethno medicinal plants used for various ailments by the Urali tribe and rural people living in Kadambur hills. The research work is mainly focused on gathering information on traditional usage of plants from the tribal community inhabiting in the area. A total of 80 plant species belonging to 40 families used by them as herbal medicines to cure various common ailments. 25 plants were herbs followed by 24 trees, 15 shrubs and 16 climbers and leaves 43 followed by fruits 12, whole plant 12, bark 9, roots 8, seed 4, flower 4, stem 2, tuber, rhizomes and aerial part 1. The indigenous information of medicinal plants has important potential for research and the discovery of modern medicines. The potential ethno medicinal plants could be conserved and further validation need for better utilization and provisions of the documented knowledge.

Keywords: Ethnobotany; Medicinal plants; Urali tribes; Kadambur hills; Tamil Nadu

Introduction

Nature has been a source of medicinal plants for thousands of year and an impressive number of modern drugs have been isolated from natural sources. The World Health Organization has estimated that 80% of the populations of developing countries still rely on traditional medicines [1], mostly plant drugs, for their primary health care needs. The medicinal plant sector has traditionally occupied a pivotal position in the socio cultural, spiritual and medicinal areas of rural and tribal families [2]. India is rich in cultural and floristic diversity and also a store house of ethno-botanical knowledge. Most of the Indian population still rely on plant-based medicines as they are abundantly available, economical, and have little or no side-effects in addition to their cultural acceptability [3-5].

Medicinal plants have gained global importance in alternative health-care system, for their proven and effective curative properties. Certain plant drugs used in modern medicine have ethno-botanical background [6,7]. It is hoped that in the future, ethnobotany may play an increasingly important role in sustainable development and biodiversity conservation out of nearly 17,000 higher plants recorded in India. 7500 are reported to be in Medicinal use by the rural and tribal communities [8,9].

Ethnobotany and ethno medical studies are today recognized as the most viable method of identifying new medicinal plants or refocusing on those earlier reported for bioactive constituents. Research has been focused on plants for the treatment of diseases [10-13].

Ethno medicine is one of the systems of medicine that is widely practiced among the tribal and aboriginal populations of our country for the treatment of ailments. Primitive societies have depended on herbal remedies for the treatment of diseases and disorders since time immemorial [14,15]. They gathered the knowledge from the environment, inched them and pass them through generation to generation with or without written documents. Many have disappeared due to several reasons. Improper documentation, these resourceful information is left it may be disappeared for ever [16]. To avoid the occurrence of toxic side effects in a long-term usage of synthetic drugs during treatment of chronic diseases, herbal drugs are being used widely [17].

Ethnobotanical study in Kadambur hills of Southern India is limited especially the traditional knowledge of Urali tribes. Recent considerable attention has been paid to utilize eco-friendly and bio – friendly plant based product for the preservation and cure of different human disease. The objective of this study is to assess the diversity of ethno medicinal plant species used by Urali tribes and villagers in Kadambur hills Erode district of Tamil Nadu and to document the traditional medical practices in therapeutic the ailments.

Study area

Kadambur forests are some of the most beautiful mountain ranges situated in Eastern Ghats of Tamil Nadu, India. Forest area is located in Sathyamangalam Taluk, Gobichettipalayam taluk and Anthiyur taluk which includes 7 villages such as Ekkathur, Yeriur, Kalkadambur, Keelathur, Thottakombai, Kakkayanur and Kinathadi. The Geographical position of the study area is latitude 11029" - 1104 N and longitude 76029"-77027" E. The area is reported with rich biodiversity which receives annual rain fall of about 725 mm. The area is having minimum elevation 280m and maximum elevation at 1698m. Highest peak reported here is Kambatrayan Giri (1698 m). The vegetation such as thorny forest, dry deciduous and tropical hill forest is extensively dominant (Figure 1).

Urali tribes

Urali tribes are inhabitants and are skilled people in honey collection, food harvesting and medicine preparation. The medicinal plants are collected from deep forest area and utilize it efficiently. These people live in forest area in habitat of wild animals and they are able to sense the smell of the animals nearby or on the way. They make money by selling honey, wild fruits, milk, ghee etc., these people build their houses with straw, stones and red soil.

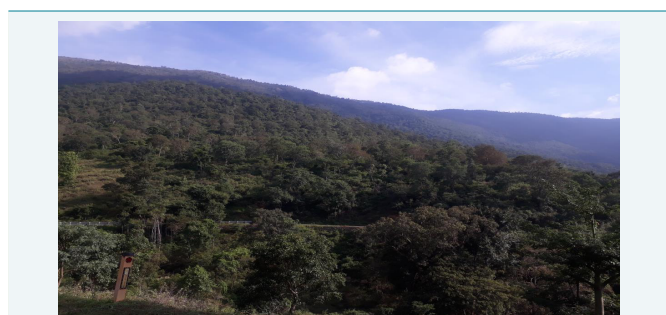


Figure 1: View of the Study Region.

Methods

Data collection

The present investigation was carried out from Kadambur hills of Sathyamangalam taluk to get information from the tribal practitioners and also to cross check the information provided by the practitioners during the earlier visits. The survey was conducted during January 2017 to march 2019. The medicinal plants growing in natural habitats of Kadambur forest was collected, identified and authenticated with the help of valid references [18-20]. At the same time plant species were collected and herbarium sheets were prepared by traditional method and were deposited in Department of Botany, Chikkaiah Naicker College, Erode, Tamil Nadu. The details on vernacular name of the plant, disease they treat, usage of plants were collected from the tribal practitioners through direct interviews and oral conversations. The tribal practitioners have a sound knowledge about the medicinal plants around their place to treat the common diseases in family and neighborhood.

Result

Documentation of Indigenous ethno medicinal knowledge of Urali tribes inhabiting in Kadambur hills, it has a very rich floral and faunal diversity. The results of the present study revealed that about 80 plant species are used by Urali tribes for herbal remedy for the treatment of various ailments. The collected plant species are arranged in alphabetical order by the botanical name. These species belong to 40 families the most representative being Apocynaceae, Euphorbiaceae and Fabaceae 5 followed by Lamiaceae and Mimosaceae with 4 species and other families such as Acanthaceae, Amaranthaceae, Asclepiadaceae, Asteraceae, Liliaceae, Malvaceae and Solanaceae have three species each and other families are represented with one or two species each (Figure 2). Previous records have correlated with the study as many species belong to families Acanthaceae, Asclepiadaceae, Euphorbiaceae and Solanaceae are the most frequently used families are used in treatment of various ailments [21]. The mostly used plant parts among the tribal community are fruit and leaves followed by seeds, root, bark, whole plant, flowers, stem, rhizome, bulb and gum.

Life form and parts used

Analysis of habit forms indicates 25 plants were herbs followed by 24 trees, 15 shrubs and 16 climbers (Figure 3). Among the selected species, parts used wise contribution was maximum for leaves 43 followed by fruits 12, whole plant 12, bark 9, roots 8, seed 4, flower 4,

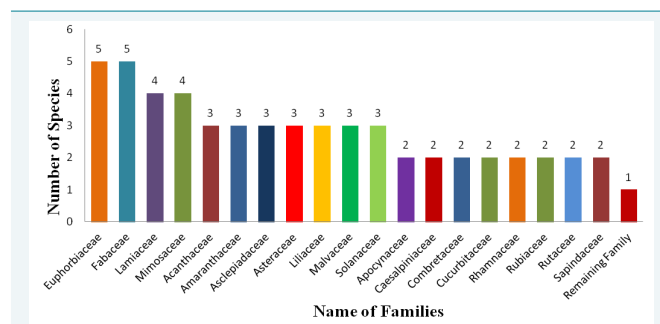


Figure 2: Family wise distributed in medicinal plants study region.

stem 2, tuber, rhizomes and aerial part 1 (Figure 4). Healers diagnose diseases based on symptoms but sometime they may also associate it to spirit. Therefore, preparation of medicines and treatment of diseases are sometimes accompanied by rituals. Tribal practitioner(s) use specific plant parts and dosages for treatment of specific ailments. Plant products are consumed raw or taken as decoction /infusion (oral treatment) and paste (external application). Fresh leaves, root and stem were more frequently used when compared to other parts of the plant. Paste formulations were quite common for external applications. Earlier ethno botanical studies confirmed that leaves are the major portion of the plant used in the treatment of diseases [22].

The use of various Ethno medicinal plants against the common

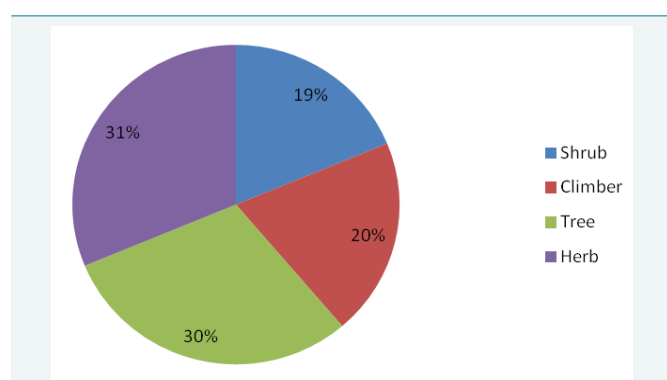


Figure 3: Habit wise distributed in medicinal plants study region.

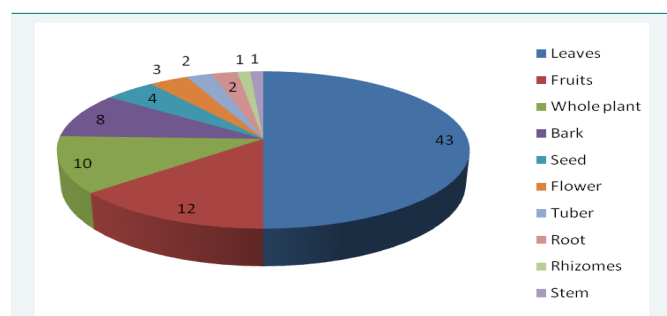


Figure 4: Part wise used medicinal plants in study region.

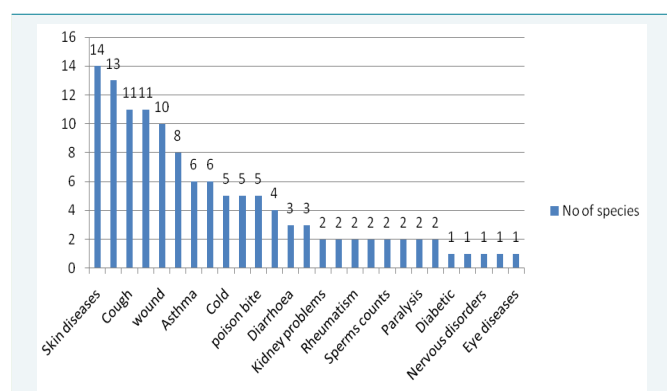


Figure 5: Frequency of medicinal plants used to cure diseases.

disease like Skin diseases (18.6 %) followed by Stomach ache (17.3%), Cough, Ulcer (14.6%), Wound (13.3%), Fever (10.6%), Asthma, Jaundice (8%), Cold, Headache and Poison bite (6.6%) Leprosy (5.3%), Diarrhoea, Liver disorders (4%) Kidney problems, Leucoderma, Rheumatism, Anemia, Sperms counts, Cancer, Paralysis and Piles (2.6%), Diabetic, Body pain (1%) (Figure 5). The survey showed that the local tribal are more familiar about the uses of medicinal plants available in Kadambur forest region. These tribal communities are depending on medicinal plants to get rid of various disorders instead of modern medicine. The information is passed from one generation to the next generation within the communities. Documentation of these plant species which are enrich in medicinal values is required which can be further studied for human welfare. Similarly reports have correlated to the present finding that among the collected 68 plant species from Kalkadambur villages most of the plants have been reported to treat skin diseases, poisonous bites, stomachache, cold, cough and diabetes [23]. The information's collected from this study is interrelated with the previous reports [21,22,24]. Most of the common ailments such as wounds, skin diseases, cold, cough and asthma are treated with hand remedies. Sometimes the healer may mix several plants as ingredients to cure a single disease but detailed information on the role of the components used in such formulations are obscure. As per published literature *Azadirachta indica*, *Cardiospermum halicacabum*, *Curcuma longa*, *Erythrina variegata*, *Jatropha curcas*, *Moringa oleifera*, *Phyllanthus amarus*, *Solanum nigrum*, *Sesbania grandiflora*, *Tamarindus indica*, *Tridax procumbens*, *Vitex negundo* and *Zingiber officinale* are regularly intaken by the tribal community [26-28]. Most commonly occurring and medicinally important plants are used in treatment of various diseases like asthma, skin diseases, sex related problems, rheumatism, hepatitis, diabetic, piles, ulcers, poisonous bites and wound healing etc,. This is consistent with other general observation which has been reported earlier in relation to medicinal plants studies by the Indian system of medicines [29-31].

The majority significant aspect of the Urali tribal cured drug is that fresh plant material is used for the preparation of medicine. Alternatively if fresh plant parts are not available, dried plant resources are used. For this reason several plants serve as different remedy to cure a single disease. From this study it is clear that Urali tribal possess innate ability to discern the character of plants and exploit the plant resources to meet their health care needs (Table 1).

Conclusion

The document shows an elevated degree of ethnobotanical novelty. Tribal knowledge of the plants and their therapeutic properties are held only by few people in their group of people. A few of them have a strong tendency of keeping their knowledge secret. For the sake of herbal based industry there is a need to promote drug forms, instead of collecting materials from the wild. Although the medicinally essential plants are not only conserved and preserved but indigenous knowledge also preserved for maintaining good health and sustainable utilization of resources for the present and future generations.

Table 1: List out the Ethnomedicinal Plants in Kadambur hills.

Sl. No	Botanical Name	Family	Tamil name	Habit	Parts used	Medicinal uses
1	<i>Abrus precatorius</i> L.	Fabaceae	<i>Kundumani</i>	Climber	Leaves and Seeds	Increases sperm count and stomach pain
2	<i>Abutilon indicum</i> G. Don.	Malvaceae	<i>Thuthi</i>	Shrub	Leaves	Leprosy, ulcers, headaches, gonorrhea, liver disorders, jaundice and bladder infection.
3	<i>Acacia nilotica</i> Willd	Mimosaceae	<i>Karuvelam</i>	Tree	Bark	Toothache, leucoderma, dysentery and seminal weakness.
4	<i>Acacia torta</i> Craib.	Mimosaceae	<i>Enkai</i>	Tree	Leaves	Cough, bronchitis, measles, tubercular fistula and in the treatment of menstrual disorders.
5	<i>Acalypha indica</i> L.	Euphorbiaceae	<i>Kuppaimeni</i>	Herb	Leaves	Ringworm, Rheumatoid arthritis, Scabies, bedsores and infected wounds.
6	<i>Achyranthes aspera</i> L.	Amaranthaceae	<i>Naiuruvi</i>	Herb	Leaves	Skin diseases.
7	<i>Adhoda vasa</i> Nees.	Acanthaceae	<i>Adathodai</i>	Shrub	Leaves	Cold and cough.
8	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	<i>Vilvam</i>	Tree	Leaves & fruits	Asthma, anemia, fractures, healing of wounds, swollen joints, cancer, high blood pressure, jaundice, diarrhea and troubles during pregnancy.
9	<i>Aerva lanata</i> (L.) A. L. Juss. ex Schultes	Amaranthaceae	<i>Poolaiseadi</i>	Herb	Leaves	Gonorrhea, headache, kidney disorders, sugar in urine, dissolves the stone and to clear the urinary path.
10	<i>Ageratum conyzoides</i> L.	Asteraceae	<i>Mookuthi poo</i>	Herb	Whole plant	Diarrhea.
11	<i>Ailanthus excels</i> Roxb.	Simaroubaceae	<i>Peenarimaram</i>	Tree	Leaves	Paralysis.
12	<i>Alangium salvifolium</i> Wang.	Alangiaceae	<i>Maradakodi</i>	Tree	Leaves	Chest burning.
13	<i>Albizia amara</i> Boiv.	Mimosaceae	<i>Usilai</i>	Tree	Leaves	Diarrhea, gonorrhea, skin diseases, poisonous bites and leprosy.
14	<i>Aloe vera</i> L.	Liliaceae	<i>Chottukattalai</i>	Herb	Whole plant	Laxative, Wound healing, Skin burns and Ulcer.
15	<i>Amaranthus spinosus</i> L.	Amaranthaceae	<i>MulluKeerai</i>	Herb	Leaves & Root	Stomach ulcer.
16	<i>Andrographis paniculata</i> Nees.	Acanthaceae	<i>Periaanangai</i>	Shrub	Leaves	Poison bite, fever, Chicken Kunaia.
17	<i>Anisomeles malabarica</i> , (L.) R.Br. ex Sims	Lamiaceae	<i>Paeimiratti</i>	Shrub	Leaves	Fevers, colic, boils, tetanus, inflammation, cough, cold, stomachache, itches and uterine affections.
18	<i>Argemone mexicana</i> L.	Papaveraceae	<i>Naikaduku</i>	Herb	Whole plant	Cough asthma, wounds, dropsy, jaundice, skin diseases, leprosy, blisters, conjunctivitis, inflammation, burning sensation and malarial fever.
19	<i>Asparagus racemosus</i> Willd.	Liliaceae	<i>Thanneervitan kizhangu</i>	Climber	Tuber	Kidney disorder, stomach ulcers, liver cancer, increases milk secretion in nursing mothers and regulates sexual behaviors.
20	<i>Azadirachta indica</i> A. Juss.	Meliaceae	<i>Veambu</i>	Tree	Leaves & bark	Removal of harmful worms in stomach and bacterial tumors.
21	<i>Azima tetraantha</i> Lamk.	Salvadoraceae	<i>Mullukuthichedi</i>	Shrub	Leaves	Cold and cough.
22	<i>Boerhaavia diffusa</i> L.	Nyctaginaceae	<i>Mukurattai</i>	Herb	Whole plant	Cough, skin diseases and jaundice.
23	<i>Calotropis gigantea</i> L.	Asclepiadaceae	<i>Erukku</i>	Shrub	Flower	Snake bite, dog bite and scorpion bite.
24	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	<i>Mudakathan</i>	Climber	Leaves	Diuretic, emetic, purgative, buboes, sore eyes, aperients, rheumatism and nervous disorders.
25	<i>Carissa carandas</i> L.	Apocynaceae	<i>Kalakka</i>	Tree	Leaves & fruits	Fever, stomach ulcer and cough.
26	<i>Caralluma adscendens</i> (Roxb.) Haw.	Apocynaceae	Kallimudayan	herb	Aerial parts	Removes gall bladder stones
27	<i>Cayratia pedata</i> (Lam) Gagnep	Vitaceae	Pannikkodi,	Shrub	Whole plant	Diuretic, cough, bronchitis, asthma, joint pain and to check uterine reflexes.
28	<i>Ceropegia juncea</i> Roxb.	Apocynaceae	Leafless Goglet Flower	Herb	Flower	Anti- diabetic activity.
29	<i>Cassia auriculata</i> L.	Caesalpiniaceae	<i>Avarai</i>	Shrub	Flower	Diabetes, liver toxicity, fungal infection, microbial infection, pyrexia and to relieve pain.
30	<i>Cassia fistula</i> L.	Caesalpiniaceae	<i>Sarakonnai</i>	Tree	Bark	Stomach ache.
31	<i>Chlorophytum laxum</i> R.Br.	Asparagaceae	Bichetii Grass	Herb	Whole plant	Cures stomach pain
32	<i>Cissus quadrangularis</i> L.	Vitaceae	<i>Pirandai</i>	Climber	Leaves	Wounds and bone fractures.
33	<i>Citrullus colocynthis</i> Schrad	Cucurbitaceae	<i>Kumbattikai</i>	Herb	Leaves & stem	Jaundice, asthma, tumors, leukoderma, ulcers, asthma, bronchitis, and urinary discharge
34	<i>Clitoria ternatea</i> L.	Fabaceae	<i>Sangupushapam</i>	Climber	Fruit	Insects and scorpion bites.
35	<i>Coccinia indica</i> W.	Cucurbitaceae	<i>Kovaikai</i>	Climber	Leaves	Stomach internally for ulcer.

36	<i>Coleus aromaticus</i> Benth.	Lamiaceae	<i>Omavalli</i>	Herb	Leaves	Skin sores, ulcers, boils, sprain, swelling and throat pain.
37	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	<i>Arugampullu</i>	Herb	Whole plant	Diuretic, blood purified and stomach disorder.
38	<i>Datura metal</i> L.	Solanaceae	<i>Oomathai</i>	Shrub	Fruit	Antispasmodic, analgesic, and anesthetic, used in joint pain.
39	<i>Dodonaea viscosa</i> (L.) Jacq.	Sapindaceae	<i>Virali</i>	Tree	Leaves	Skin diseases particularly scabies, eczema and acne.
40	<i>Decalepis hamiltonii</i> Wight & Arn	Apocynaceae	<i>Magali kizhangu</i>	climbing shrub	Roots	appetite, relieve flatulence and as a general tonic, blood purifier
41	<i>Eclipta prostrata</i> L.	Asteraceae	<i>Karisalanganni</i>	Herb	Whole plant	Jaundice.
42	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	<i>PaalPoodu</i>	Herb	Leaves	Stomach problems and to treat dysentery
43	<i>Euphorbia hirta</i> L.	Euphorbiaceae	<i>Ammaanpachcharsi</i>	Herb	Leaves& fruit	Leucorrhoea and to keep the body cool.
44	<i>Feronia limonia</i> Swingle	Rutaceae	<i>Velvam</i>	Tree	Leaves & fruit	Cardiac tonic, diarrhea, dysentery and sore throat.
45	<i>Ficus retusa</i> L.	Moraceae	<i>Athimaram</i>	Tree	Fruit	Swellings, diabetes and fractured bones.
46	<i>Gloriosa superba</i> L.	Liliaceae	<i>Senganthal</i>	Climber	Rhizome	Poisonous bite and skin diseases.
47	<i>Gymnema sylvestre</i> R.Br. ex.Sch.	Asclepiadaceae	<i>Sakarakolli</i>	Climber	Leaves	Reduce blood sugar level.
48	<i>Hemidesmus indicus</i> R.Br.	Apocynaceae	<i>Nannari</i>	Climber	Roots	Coolant and mouth ulcers.
49	<i>Hibiscus rosa-sinesis</i> L.	Malvaceae	<i>Seamparuthi</i>	Tree	Flower	Diabetics and cosmetic.
50	<i>Holoptelea integrifolia</i> L.	Ulmaceae	<i>Ayamaram</i>	Tree	Bark	Wound infected.
51	<i>Hybanthus enneaspermus</i> (L.) F. Muell	Violaceae	<i>Orithazhthamara</i>	Herb	whole plant	Leucorrhoea and improves potency.
52	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	<i>Nattupoocheadi</i>	Shrub	Leaves	Colic disorders and stomachache.
53	<i>Jatropha curcas</i> L.	Euphorbiaceae	<i>Amanakku</i>	Tree	Seeds	Paralysis, dropsy, externally for skin troubles.
54	<i>Justicia adhotoda</i> L.	Acanthaceae	<i>Adathoda</i>	Shrub	Leaves	Diarrhea and dysentery.
55	<i>Lantana camara</i> L.	Verbenaceae	<i>Unnichi</i>	Shrub	whole plant	Rheumatoid arthritis and severe fever.
56	<i>Leucas aspera</i> Spreng.	Lamiaceae	<i>Thumbai</i>	Herb	Leaves	Swelling, cough and cold.
57	<i>Mimosa pudica</i> L.	Mimosaceae	<i>Thottasinnugi</i>	Climber	Leaves & Root	Skin infusion diarrhea and wounds.
58	<i>Mimusops elengi</i> L.	Sapotaceae	<i>Maghizam</i>	Tree	Leaves	Fever, diarrhea and head ache.
59	<i>Piper nigrum</i> L.	Piperaceae	<i>Mellakku</i>	Climber	Seed	Cough cold, asthma hoarseness and hiccup.
60	<i>Pergularia daemia</i> (Forssk) Chior.	Asclepiadaceae	<i>Veliparuthi</i>	Climber	Leaves	Headache, joint pain and asthma.
61	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	<i>Chithiramulam</i>	Shrub	Roots	Fever, skin diseases, diuretic and dyspepsia.
62	<i>Ricinus communis</i> L.	Euphorbiaceae	<i>Kottaimuthu</i>	Tree	Leaves	Heat to relieve headache.
63	<i>Rubia cordifolia</i> L.	Rubiaceae	<i>Chevvaiikodi</i>	Climber	Leaves & root	Scorpion sting and dizziness.
64	<i>Solanum nigrum</i> L.	Solanaceae	<i>Manathakkali</i>	Shrub	Fruit	Stomach ulcer.
65	<i>Solanum surattense</i> Burm.f.	Solanaceae	<i>Kandankathiri</i>	Herb	Whole plant	Toothache
66	<i>Sesbania grandiflora</i> Pers.	Fabaceae	<i>Agathi</i>	Tree	Leaves	Dysentery, stomachache and eliminate worms.
67	<i>Tamarindus indica</i> L.	Fabaceae	<i>Pulli</i>	Tree	Leaves	Bleeding piles.
68	<i>Tephrosia purpurea</i> Pers.	Fabaceae	<i>Kozhinji</i>	Herb	Whole plant	Anemia, asthma, elephantiasis, Inflammation, piles, tooth ache, skin diseases, stomach pains.
69	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn	Combretaceae	<i>Marutham</i>	Tree	Bark	Cardiac problems.
70	<i>Terminalia chebula</i> Retz.	Combretaceae	<i>Kadukkai</i>	Tree	Seed	Wound ulcer, leprosy, inflammation and Cough.
71	<i>Thespesia populnea</i> (L.) Sol.	Malvaceae	<i>Poovarasu</i>	Tree	Bark & fruit	Skin diseases.
72	<i>Tinospora cordifolia</i> (Willd.) Milers.	Menispermaceae	<i>Cheenthil</i>	Climber	Leaves	Diabetes.
73	<i>Tribulus terrestris</i> L.	Zygophyllaceae	<i>Nerunjii</i>	Herb	Fruits &leaves	Urinary troubles and cuts and wounds.
74	<i>Tridax procumbens</i> L.	Asteraceae	<i>Vettukayapoond</i>	Herb	Leaves	Cuts and wounds.
75	<i>Trichodesma zeylanica</i> , (Burm.f.) R.Br.	Boraginaceae	<i>Kattetumbegida</i>	Herb	Leaves	Snake bite.
76	<i>Triumfetta rhomboidea</i> Jacq	Tiliaceae	<i>Elumpottiveru</i>	Shrub	Root	Bone fracture.
77	<i>Vanda coerulea</i> Linn.	Orchidaceae	<i>Seguduolai</i>	Herb	Leaves, Stem & Root	Skin treatment
78	<i>Ziziphus mauritiana</i> Linn.	Rhamnaceae	<i>Elanthai</i>	Tree	Fruit & bark	Paralyze.
79	<i>Ziziphus oenoplia</i> Mill	Rhamnaceae	<i>Churipala</i>	Climber	Fruit & Bark	Diarrhea.
80	<i>Mitragyna parvifolia</i> (Roxb.) Korth.	Rubiaceae	<i>Kadambam</i>	Tree	Leaves & Root	fevers, colic, muscular Pain, cough.

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