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Medicinal plants using traditional healers and Malayali tribes in Jawadhu hills of Eastern ghats, Tamil Nadu, India

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ABSTRACT

Ethnobotanical survey was made on the utilization of medicinal plants among the people of selected several villages from Jawadhu hills, in one of the largest in the Eastern Ghats in Thiruvannamalai District, Tamil Nadu, was carried out during June 2012 to August 2013. A total number of 150 Species of ethnomedicinal plants belonging to 128 genera and 57 families were reported with the help of tribal people between the ages of 35-75years. The survey indicates that many number of ethnomedicinal plants of Jawadhu hill for the treatment of various diseases. The results of the present study provide evidence that medicinal plants continue to play an important role in the health care system of this tribal (Malayalis) community were traditionally used by the Irular tribes in Jawadhu hills of Tami Nadu.

Keywords: Ethno-botany, Malayali tribals, Medicinal uses, Tamil Nadu.

INTRODUCTION

Plants are playing an important role in the health of millions of people's life in many villages of India in their day today life by its traditional usage. Herbal medicine is the foundation for about 75– 80% of the World population, mainly targeting primary health care for in the developing countries because of better cultural acceptability, compatibility with human body and lesser side effects. However, there is a drastic increase in the usage of herbal medicine was found in last few years from the developed countries [1].

The World Health Organization (WHO) has compiled a list of 20,000 medicinal plants used in different part of the globe. A large number of these species have local uses within the country or spread over several countries in a region. Amongst these, over 100 botanicals are reported to have consistently large demand and are traded in major drug markets in the world. The medicinal virtues of these raw materials including chemical contents and composition of these species have been well worked out to have merited inclusion in National Pharmacopoeias and official formularies in different countries [2]. The study highlights the importance of documenting, ethno botanical information and indigenous traditional knowledge about the medicinal plants used by the tribes in their day to day life to cure some common ailment [3].

Nearly 80% of the world populations rely on traditional medicines for primary health care, most of which involve the use of plant extracts [4]. In developing countries and rural societies, the use of medicinal plants is both a valuable resource and a necessity, and furthermore it provides a real alternative for primary health care systems [5]. Official medical attention is usually based on commercial drugs that have to be purchased with money, while a traditional medical consult in these countries has a much lower cost, including the consumption of the medicinal plants required [6].

Jawadhu hills are one of the plant biodiversity rich hubs in the part of Eastern ghats, Thiruvannamalai district, Tamilnadu. The hills are endowed with rich biodiversity of species. The main objective of this study was to assess the diversity of ethnomedicinal plants used by Malayali's and document the traditional medical practices followed in healing ailments. Therefore, it is the need of the hour to preserve the traditional knowledge the primary objective of this study is to present a database on indigenous among the local traditional healers [7].

MATERIALS AND METHODS

Study area

Studies were carried out in the Jawadhu hills located at Thiruvannamalai district in Tamilnadu. The hills situated between About 50 miles (80 km) wide and 20 miles (32 km) long, they are bisected into eastern and western sections by the Cheyyar and Agaram rivers, tributaries of the Palar. They consist of bluish gray granites, with peaks averaging 3,600–3,800 feet (1,100–1,150 m). The hills are sparsely populated; the majority of the inhabitants are Malayali tribespeople, though other castes are also present. The hills are famous for the sandal wood and fruit bearing trees. The hills had the histry of tribal life and it helps us to understand the utilization of native plants as medicine to the tribes. For the awarness of medicinal potential of plants used by tribes in jawadhu hills is presented in this paper. The history of jawadhu hills reveals that inhabitants were dated back to the period of late Stone Age. Jawadhu hills had the history of tribal life while witnessing the polished stones,the axes and other hunting materials. Their steep southeastern flanks are forested with sandal wood. In jawadu hills collection various medicinal nuts are labour intensive.

Our survey protocols are based on our previous study of the Malasars in the velliangiri Hills of India [8]. Frequent field trips were conducted for ethnobotanical studies from June 2012 to August 2013. Ethnobotanical data's were collected using questionnaires, interviews and discussion among the Irular tribes' and malayali tribals in Jawadhu hills. A total 75 members responded to the interviewed, randomly and selected between40 - 75 age. Among them most of them were elderly people who had wide knowledge and hands on experience and practice on use of medicinal plants for treating various diseases. The collected plants were botanically identified using the Flora of Presidency of Madras [9] and the Flora of Tamil Nadu Carnatic [10]. Some plants were identified in the field itself along with some of the members of the local community who already were using those plants for traditional medicine. During the survey, plants have been collected in their flowering and fruiting stages as far as possible from the natural habit and standard ethnobotanical methodology was followed to collect data on ethnomedicinal aspects [11].

RESULTS AND DISCUSSION

Medicinal plant diversity of Utilization

In the present study ethnobotanical survey was documented, 150 plant species are used for medicines representing 128 genera and 57 families (Table 1). Among them 53 herbs, 40 trees, 20 shrubs, 6 small trees, 5 vines, 5 were climbers (Table 2). Collected data contains the list of plants of different families with their medicinal uses, which are listed in the order of Bentham and Hooker classification. Based on the interview with the elder people the list of various plants used by the malayali tribes to cure various diseases were highlighted (Table – 3).The representing plants are mostly used to cure skin diseases, jaundice, cough, wounds, and stomach ache and snake bite, wound healing, scorpion bite, fever, malaria, tooth ache, diuretic, rheumatism and swelling. These are medicinally important and dominated plants are observed in Caesalpinaceeae 12 Species, Fabaceae 11 Species, Apocyanaceae 8 Species, Acanthaceae 6 Species, Mimosaceae 6 Species, Rutaceae 6Species and Asclepidiaceae 5 Species.

Habit form and plant parts used

Among 150 plant species, studied 18 habit forms were identified; herb(53), tree(40), shrub(20), small tree(6), vine(5),climbing(5), climbing shrub(3), erect herb(3), straggler (2), straggling shrub(2), twining shrub(2), twiner (2), climbing herb(1), erect shrub(1), large shrubby(1), woody shrubby(1), under shrub(1) (fig:1). Among the various dominant medicinally important largest to decreasing order of the family Caesalpiniaceae (12), Fabaceae (11), Apocynaceae (8), Acanthaceae (6), Mimosaceae (6), Rutaceae (6), Asclepiadaceae (5), Euphorbiaceae (5), Lamiaceae (5), Malvaceae (5), Poaceae (5), Amaranthaceae (4)etc, (fig: 2).

Mostof indegenious people interviewed were traditional healers who were familiar with the medicinal plants and they use these plants for treating common ailments like cold, cough, fever, digestive problems, headache, and skin

infection, like other rural and tribal communities [12]. The tribal and rural population of India in general and Tamil Nadu in particular is highly independent on natural cure for meeting their healthcare needs. Traditional healers, use their eyes, ear, nose and hands to diagnose the diseases, this way of diagnose is interesting because they live in interior areas and lake the use of modern scientific equipment for treatment, they however treat diseases using medicinal plants [13]. The forests of Jawadhu hills are rich in medicinal plants. Over use of plants affect the flora it will leads to harmful for future ancestors. The ancestors of tribes had acquired some knowledge about medicinal plants by their experiences. Otherwise technically advanced people need to understand the problems of destruction before conserving the plants. The results of present study revealed that a wide usage of plants by tribes of jawadhu hills.

TABLE – 2: FAMILIES WITH MAXIMUM NUMBER OF GENUS & SPECIE

S. No	Family	No. Of Genus	No. Of Species
1.	Caesalpiniaceae	8	12
2.	Fabaceae	11	11
3.	Apocynaceae	8	8
4.	Acanthaceae	4	6
5.	Mimosaceae	3	6
6.	Rutaceae	6	6
7.	Asclepiadaceae	5	5
8.	Euphorbiaceae	5	5
9.	Lamiaceae	4	5
10.	Malvaceae	3	5
11.	Poaceae	5	5
12.	Amaranthaceae	3	4
13.	Asteraceae	4	4
14.	Rubiaceace	4	4
15.	Solanaceae	2	4
16.	Annonaceae	3	3
17.	Convalvulaceae	2	3
18.	Moraceae	1	3
19.	Zingiberaceae	2	3
20.	Anacardiaceae	2	2
21.	Burseraceae	1	2
22.	Cucurbitaceae	2	2
23.	Lythraceae	2	2
24.	Meliaceae	2	2
25.	Oleaceae	2	2
26.	Sapotaceae	2	2
27.	Verbenaceae	2	2
28.	Vitaceae	1	2
29.	Capparaceae	1	2
30.	Agavaceae	1	1
31.	Amaryllidaceae	1	1
32.	Apiaceae	1	1
33.	Araceae	1	1
34.	Aristolochiaceae	1	1
35.	Cannaceae	1	1
36.	Combretaceae	1	1
37.	Commelinaceae	1	1
38.	Crassulaceae	1	1
39.	Cruciferae	1	1
40.	Cyperaceae	1	1
41.	Discoreaceae	1	1
42.	Gentianaceae	1	1
43.	Guttiferae	1	1
44.	Liliaceae	1	1
45.	Melastomataceae	1	1
46.	Menispermaceae	1	1
47.	Moringaceae	1	1
48.	Musaceae	1	1
49.	Myrtaceae	1	1
50.	Oxalidaceae	1	1
51.	Pedaliaceae	1	1
52.	Polygonaceae	1	1

53.	Possifloraceae	1	1
54.	Santalaceae	1	1
55.	Sapindaceae	1	1
56.	Tiliaceae	1	1
57.	Ulmaceae	1	1
	Total	**128**	**150**

TABLE – 2: DISTRIBUTION OF PLANTS UNDER DIFFERENT HABITS

S.NO.	HABITS	NO. OF SPECIES
1.	Herb	53
2.	Tree	40
3.	Shrub	20
4.	Small tree	6
5.	Vine	5
6.	Climber	5
7.	Climbing shrub	3
8.	Erect herb	3
9.	Straggler	2
10.	Sub shrub	2
11.	Straggling shrub	2
12.	Twining shrub	2
13.	Twiner	2
14.	Under shrub	1
15.	Climbing herb	1
16.	Erect shrub	1
17.	Large shrubby	1
18.	Woody shrub	1
	TOTAL	**150**

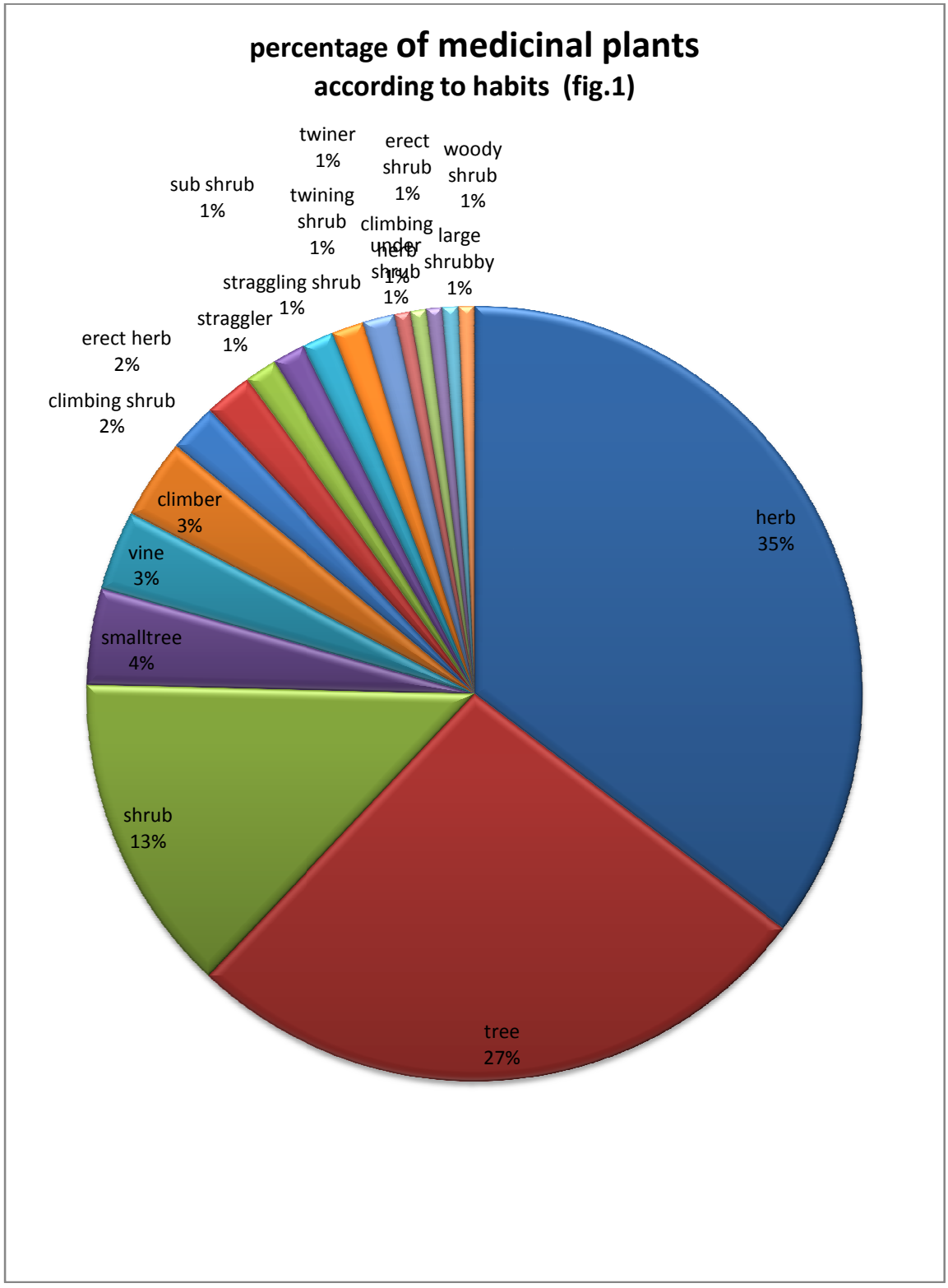
percentage of medicinal plants
according to habits (fig.1)
herb 35%
tree 27%
shrub 13%
smalltree 4%
vine 3%
climber 3%
climbing shrub 2%
erect herb 2%
straggler 1%
straggling shrub 1%
sub shrub 1%
twiner 1%
twining shrub 1%
erect shrub 1%
woody shrub 1%
climbing herb 1%
under shrub 1%
large shrubby 1%

Fig-2

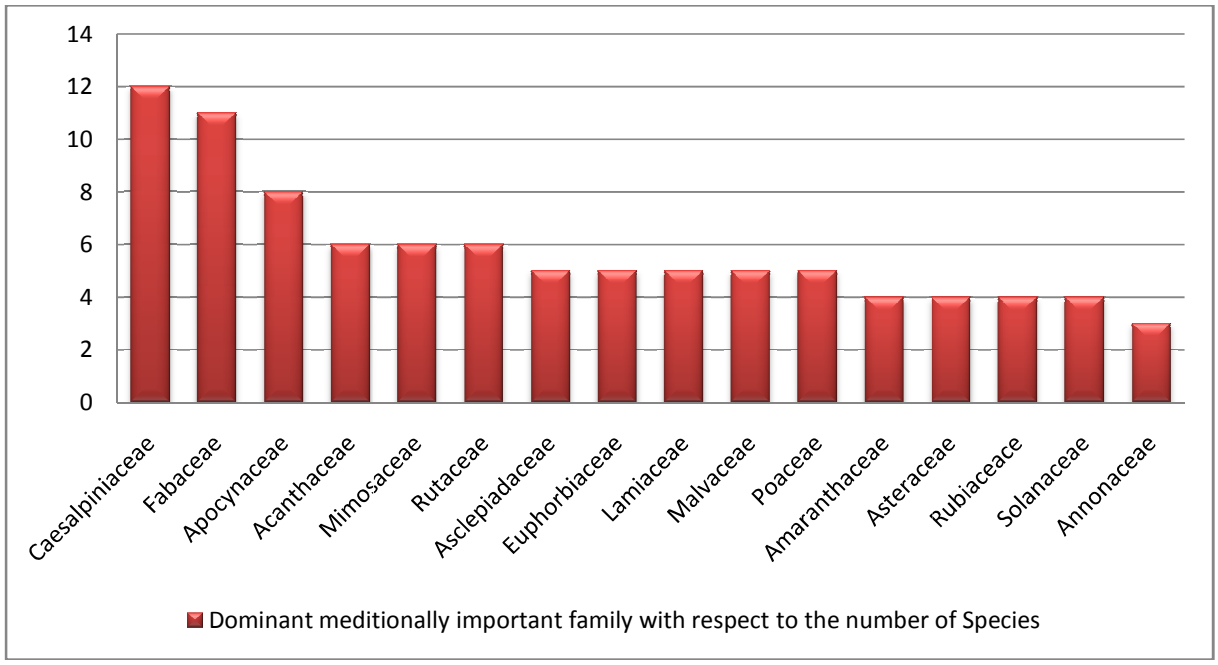
14
12
10
8
6
4
2
0
Caesalpiniaceae
Fabaceae
Apocynaceae
Acanthaceae
Mimosaceae
Rutaceae
Asclepiadaceae
Euphorbiaceae
Lamiaceae
Malvaceae
Poaceae
Amaranthaceae
Asteraceae
Rubiaceace
Solanaceae
Annonaceae
Dominant meditionally important family with respect to the number of Species

Table-3: Medicinal Plant Utility in Jawadhu Hills

S. No	Botanical Name	Family	Local Name	Habit	Plant Part Used	Ethnomedicinal uses	Mode of Administration
1.	*Annona squamosa*, **L.**	Annonaceae	Seethamarm	Tree	Root, bark	Scorpion bite	Root paste for external application. Root bark decoction orally
2.	*Artabotrys odoratissimus* **R. Br.**	Annonaceae	Manoranjitham	Climbing	Leaves, roots	Cholera, malaria	A decoction of the leaves is given in cholera. The root of *A. odoratissimus* is a Chinese folk remedy for malaria.
3.	*Polyalthia longifolia* **Soon.**	Annonaceae	Ashoka maram	Tree	Flower	Loose motion	Dried flower and cumin seeds are mixed with gingerly oil and eaten.
4.	*Cyclea peltata* **Diels**	Menispermaceae	Senthil kodi	Climbing Shrub	Stem	Fever	Decoction is taken.
5.	*Brassica juncea*, **(L.) Czern.**	Cruciferae	Kadugu	Herb	seed	Diuretic, for arthritis, tooth ache, lumbago, and rheumatism	Diuretic, for arthritis, footache, lumbago, and rheumatism, its decoction is useful in amenorrhea.
6.	*Cleome gynandra*, **L.**	Capparaceae	Nalvelai	Herb	leaves	Could	Leaves of the species could be more nutritious than most exotic leafy vegetables.
7.	*Cleome viscosa*, **L.**	Capparaceae	Peikaduku	Herb	Leaves	Head ache, toothache and swelling in teeth	Leaf paste is applied on fore head and a little portion on the right leg big toe for men; and for women applied on the fore head and little portion on the left leg big toe to treat head ache, toothache and swelling in teeth.
8.	*Calophyllum inophyllum* **L.**	Guttiferae	Punnai	Tree	Seeds	Ingredient in skin creams	Medicinal use or hair greese active ingredients in the oil to regenerate the tissue and an ingredient in skin creams.
9.	*Abutilon indium*, **G. Don.**	Malvaceae	Duthi	Herb	Leaves	Piles & stomach ulcer	Leave extract is taken.
10.	*Hibiscus tiliaceus*, **L.**	Malvaceae	Atharasu	Tree	Bark, root	Cool fever	To use externally
11.	*Hibiscus vitifolius*, **L.**	Malvaceae	Attuparuthi	Herb	Root	Kill head lice, skin diseases	Root is used to externally
12.	*Hisbicus rosasinesis* **L.**	Malvaceae	Semparuthi	Shrub	Leaves & Flower	Hair tonic	Powdered leaves and flowers are used for hair wash.
13.	*Sida carpinifolia*, **L.**	Malvaceae	Arrival manippundu	Shrub	Leaves	Diarrhoea during pregnancy	The leaf juice of Arrival manippundu is given to treating diarrhoea during pregnancy.
14.	*Grewia orientalis* **L.**	Tiliaceae	Poonaikokukkan chedi	Small Tree	Root	Sterility	To develop sterility in women.
15.	*Oxalis corniculata* **L.**	Oxalidaceae	Chootu chedi	Herb	Leaves	Dysentery	Induce to child
16.	*Aegle marmelos*, **(L.) Correa**	Rutaceae	Vilva maram	Tree	Leaves	Diabetes	Leaves are dried and powdered used for diabetes.
17.	*Atalantia monophylla* **Corr**.	Rutaceae	Kattu Elumichai	Small tree	Leaves, root and bark	Anti-spasmodic, stimulant, rheumatism and swelling.	A decoction of the leaves is applied in itch and other cutaneous complaints. The roots possess anti-spasmodic, stimulant and resolvent properties and used rheumatism and swelling.
18.	*Chloroxylon swietenia* **DC.**	Rutaceae	Purusu	Tree	Leaves, Stem	Wound Healing, given to pregnant mother's hand to reduce labour pain	Leaves, Wound Healing. Stem given to pregnant mother's hand to reduce labour pain.
19.	*Clausena dentata*,**(Willd.) Roem.**	Rutaceae	Chavatai	Small tree	Whole plant	Eye irritation, head ache, cough	Plant based repellent against mosquito borne diseases are used recently because synthetic repellents cause side effects like breathing problem, eye irritation.
20.	*Limonia acidissima* **L.**	Rutaceae	Vilam pazham	Tree	Leaves, fruits	Snakebite, hiccough, sore throat and diseases of the gums.	The leaves are aromatic and carminative. Leaves, bark, roots and fruit pulp are all used against snakebite. The fruit is much used in India as a liver and cardiac tonic, and when curipe, as an astringent means of halting diarrhea and dysentery
21.	*Murraya kenigii*, **(L)Spreng.**	Rutaceae	Karuveppilai	Small tree	Tender leaves	Arrest vomiting	Juice of tender leaves of karuveppilai is taken orally to arrest vomiting.
22.	*Commiphora caudata*, **Engl.**	Burseraceae	Kiluvai	Tree	Leaves	Stomach ache	Leaves are crushed and mix with lime juice 2 times a day for 2 days.
23.	*Commiphora mukul* **(Hook. Ex stocks)Engl.**	Burseraceae	Velikiluvai	Herb	Whole plant	Nervous diseases	Entire plant is used nervous diseases
24.	*Azadirachta indica* **A. Juss.**	Meliaceae	Veppamaram	Tree	Leaves	Stomach pain.	Leaves ground with ginger applied externally for poisonous insect bites and young leave juice taken for
25.	*Melia dubia* **Willd. Cav.**	Meliaceae	Malai vembu	Tree	Leaves, seeds	Small pox, rheumatism and skin diseases	Leaves paste is applied topically on the body to treat small pox, rheumatism and skin diseases. The young twigs are used as toothbrush to develop strong teeth.
26.	*Cissus quadragularis*, **L.**	Vitaceae	Perandai	Shrub	Whole plant	Skin disease & bone fractures	Leaves grind into paste and applied externally.

27.	*Cissus setosa*, **Roxb.**	Vitaceae	Puli naralai	Vine	Leaf	Worms	Leaf extract is given to drink for 2 days to expel the intestinal worms
28.	*Cardiospermum halicacabum* **L.**	Sapindaceae	Mudakkaruthan kodi	Climber	Leaves	Ear pain	Leave juice used to cure.
29.	*Anacardium occidentale* **L.**	Anacardiaceae	Cashewnut	Tree	Endosperm	Tooth problems	Fried to dark black and powder, added with tooth powder and brush daily.
30.	*Mangifera indica*, **L.**	Anacardiaceae	Maamaram	Tree	Seeds	Bleeding during mensus	Seeds of Maamaram ground with cow's milk is takes to arrest excess bleeding during mensus.
31.	*Moringa oleifera*, **Lam.**	Moringaceae	Murungai	Tree	Leaves and flowers	Increase fertility	Leaves and flowers of Murungai are boiled and eaten to increase fertility in man.
32.	*Abrus precatorius* **L.**	Fabaceae	Kundumani	Straggler	Seeds	Eczema	Seeds of kundumani are crushed into paste used to cure eczema.
33.	*Cassia fistula* **L.**	Fabaceae	Sarakkondri	Tree	Whole plant	antibilious, aperitif, carminative and laxative. Adenopathy, burning sensations, leprosy, skin diseases	Ayurvedic medicine recognizes the seed as antibilious, aperitif, carminative and laxative. The root for adenopathy, burning sensations, leprosy, skin diseases, syphilis and tubercular glands.
34.	*Clitoria ternatea*, **L.**	Fabaceae	Neela kakkanam	Vine	Leaves	Thorn pricked in hand and leg	Leaf is ground into juice applied over the part of thorn pricked in hand and leg.
35.	*Crotalaria verrucosa*, **L.**	Fabaceae	Kilugluppai	Woody shrub	Leaves	Stomach troubles	Herbal medicine, Tonic, Dosage 1-2 tablets 2-3 times a day.
36.	*Dalbergia latifolia* **Roxb.**	Fabaceae	Rose wood	Tree	Root	Menorrhagia	Two spoonfuls of root paste is administered with a glass of water daily once for 7 days
37.	*Erythrina indica*, **Lam**.	Fabaceae	Kalyana murungai	Tree	Leaves, bark	Liver trouble, joint pain, dysentery, convulsion, as a diuretic, laxative, and anthelmintic.	Used traditionally for the treat, Its powered bark is used in Indian folk medicine
38.	*Glycyrrhiza glabra* **L.**	Fabaceae	Athimathuram	Herb	Root	Cough and cold	Root is boiled with water and taken orally to treat cough and cold.
39.	*Hardwickia binata* **Roxb.**	Fabaceae	Achan	Tree	Bark	Diarrhoea, worms, indigestion and leprosy	Tannins from the bark are used to produce medicines for the treatment of diarrhea
40.	*Mimosa pudica*, **L.**	Fabaceae	Manivatti	Herb	Leaves	Piles	Leaf juice is mixed with castor oil and the decoction is taken orally to cure piles.
41.	*Pithecellobium dulce* **(Roxb.) Benth.**	Fabaceae	Kattupillai	Tree	Leaves, bark	Leprosy, tooth ache, ear ache	Leaves are used as leprosy, tooth ache, ear ache
42.	*Sesbania grandiflora*, **(L.) Poiret.**	Fabaceae	Agaththi	Small tree	Leaves	Peptic ulcer	Soup prepared from the leaves of agaththi is takes to cure peptic ulcer.
43.	*Bauhinia purpurea* **L.**	Caesalpiniaceae	Mandari	Tree	Whole plant	Carminative, diarrhoea, anthelmintic.	Roots carminative, bark used in diarrhoea, leaves used as a fodder, flower are laxative & anthelmintic.
44.	*Bauhinia tomentosa* **L.**	Caesalpiniaceae	Eruvachi	Shrub	Flower, root and bark	diarrhoea, dysentery, stomach disorders, snake bites.	The juice of the flowers is used to treat diarrhoea, dysentery, stomach disorders.
45.	*Caesalpinia pulcherrima*, **Sw.**	Caesalpiniaceae	Mailkondrai	Erect shrub	Seeds	Tooth ache	The seeds of mailkondrai are ground and paste is applied to cure toothache.
46.	*Caesalpinia bonducella*, **Flem.**	Caesalpiniaceae	Kalichikai	Straggling shrub	Leaves	Nutritional tonic.	A decoction is prepared from the leaf of kalakaai is used as nutritional tonic.
47.	*Caesalpinia jayabo*, **Maza; merr.**	Caesalpiniaceae	Kalakkai	Straggling shrub	Leaves, fruits, and seeds	Febrifuge and antiperiodic,	Leaves and bark is used for treatment of febrifuge and antiperiodic. Fruits are used as tonic and antipyretic. Fatty oil extracted from the seeds is used as a cosmetic and for discharges from the ear.
48.	*Cassia alata* **L.**	Caesalpiniaceae	Vandukolli	Shrub	Leaves	Ringworm and other fungal infections of the skin	The leaves are ground in a mortar to obtain a kind of "green cotton wool". This is mixed with the equal amount of vegetable oil then rubbed on the affected area 2-3 times a day. A fresh preparation is made every day.
49.	*Cassia auriculata*, **L.**	Caesalpiniaceae	Avaram poo	Shrub	Flowers	Reducing body heat	Flowers are dried, powdered and it used for cleaning the hair and reducing body heat.
50.	*Delonia elata*, **Gamble**	Caesalpiniaceae	Vadhanarya	Tree	Leaves	Piles	Applied as paste.
51.	*Delonix regia* **(Boj.ex. Hook) Raf.**	Caesalpiniaceae	Mayaram	Tree	Leaves	Constipation, arthritis	Leaves is used constipation, arthritis
52.	*Pterolobium hexapetalum* **(Roth.) Sant.& Wagh**	Caesalpiniaceae	Peenjha	Herb	Leaves	diarrhoea	leaf and fruit paste is used in the treatment of diarrhoea
53.	*Senna occidentalis*, **L.**	Caesalpiniaceae	Paayavarai	Subshrub	Root	Stomachache	Root extract taken internally
54.	*Tamarindus indica*, **L.**	Caesalpiniaceae	puliamaram	Tree	Seed coats, Leaves	Scorpion bite, Hand pain	Seed coats of puliamaram are crushed into paste and applied to a scorpion bite, Leaves tied in a cotton cloth and heated, later massage done.

55.	*Acacia arabica*, **Willd.**	Mimosaceae	Kaurvelam	Tree	Bark	Tooth problems	Enrich the tooth gums and brush the teeth it strong the tooth roots.
56.	*Acacia caesia*, **(Linn.) Willd.**	Mimosaceae	Incakkai	Climbing shrub	Bark, flower	Menstrual disorders	Flower used santal women to treat
57.	*Acacia catechu* **(Linnf.)Willd.**	Mimosaceae	karunkali	Herb	Fruit, bark, shoot	Skin disease, dysentery	Fruit, bark used to treat Skin disease, dysentery
58.	*Albizia amara* **(Roxb.) Boivin.**	Mimosaceae	Thurinji	Tree	Leaves, root, bark	Treat snake and scorpion bites and skin diseases.	Paste of leaf and root bark along with root bark of *jasminum angustifolium* Vhal and rhizome of *Cyperus rotundus* Linn. Is heated with neem oil and applied externally on affected places for 10 days
59.	*Albizia lebbeck* **(L.) Benth.**	Mimosaceae	Vagai	Tree	Stem	Asthma, allergic rheumatics	The plant parts used for blood condition-higher blood cholesterol, respiratory tract conditions, asthma, allergic rheumatics.
60.	*Prosopis cineria* **L.**	Mimosaceae	Vannimaram	Tree	Flowers	Safeguard against miscarriage	Flowers of vannimaram is pounded, mixed with sugar and used during pregnancy as safeguard.
61.	*Kalanchoe pinnata* **(Lam.) Pers.**	Crassulaceae	Ragakanni	Erect Herb	Leaves	Stomach ulcer	Raw leaves eaten daily in empty stomach.
62.	*Combretum albidum* **G. Don.**	Combretaceae	Karlan kodi	Climber	Fruit, stem, bark	Diarrhoea and dysentery, jaundice	The decoction of the fruit used to diarrhoea and dysentery, stem barks used in jaundice
63.	*syzygium cumini*, **L.**	Myrtaceae	Naval	Tree	Seeds	Reduce blood sugar level	Seeds of naval are dried, powdered, and mixed with hot water to reduce blood sugar level.
64.	*Memecylon edule*, **Roxb.**	Melastomataceae	Kashavu	Small tree	Leaves	Gonorrhea	leaves are used in the treatment of gonorrhea
65.	*Lawsonia inermis*, **L.**	Lythraceae	Maruthani	Shrub	Leaf	Foot cracks	Leaves are ground and prepared of Maruthani applied to foot cracks to cure it.
66.	*Ammannia baccifera*, **L.**	Lythraceae	Neermel neruppu	Herb	Whole plant	burning sensation, anorexia, fever	Whole plant is used to treat burning sensation, anorexia
67.	*Passiflora foetida* **L.**	Possifloraceae	Mupparisavalli	Vine	Leaf, Fruit	Diarrhea, intestinal tract, throat, ear infections, fever and skin diseases	Herbal extract
68.	*Mukia maderaspantanta*, **(L.) M. Roem.**	Cucurbitaceae	Masumasu	Climber	Whole plant	Cold & fever	Leaves extract given to children.
69.	*Coccinia grandis* **(L.) J.Viogt**	Cucurbitaceae	Koovaikodi	Vine	Leaves	Ulcer	Leaves juices are taken internally
70.	*Centella asiatica* **Urb.**	Apiaceae	Vallarai	Shrub	Whole plant	Gas trouble	The whole plant is dried, powdered and their powder mixed with hot water take internally to cure gas trouble.
71.	*Hedyotis puberula* **(G.Don) R.Br. ex Arn.**	Rubiaceae	Theevanki	Shrub	Leaves	Burns	Leaf is ground with tender coconut or coconut oil and taken orally as well as applied on the site of burns.
72.	*Morinda tinctoria* **Roxb.**	Rubiaceae	Nuna maram	Tree	Bark	Cuts & wounds	Tie the bark on the affected portion.
73.	*Oldenlandia umbellata*, **L.**	Rubiaceae	Muthakasu	Herb	Leaves root	Asthma, bronchitis	Leaves and root are used asthma, bronchitis
74.	*Tarenna asiatica* **(L.) Kuntze. ex. K.**	Rubiaceae	Tharani cheddy	Shrub	Leaves	Skin diseases	The leaves are used in skin disease
75.	*Eclipta prostata* **L.**	Asteraceae	Karisalankanni	Herb	Leaves	Malaria fever	Leaves extract is taken.
76.	*Guizotia abyssinica* **(L.f.) cass.**	Asteraceae	Malai ellu	Herb	Seeds	Stomachache, rheumatism, burns, scabies, antirheumatic parasiticide and poultice.	Seed oil is used reduce the body heat to cure the stomachache, rheumatism; it is applied to treat burns. A paste of the seeds is applied as a poultice in the treatment
77.	*Tridax procumbens*, **L.**	Asteraceae	Murian pachilai	Herb	Leaves	Cuts, jaundice, head to remove dandruffs	Leaf juice is applied over affected places to cure cuts. Leaf juice is mixed with coconut oil and applied over head to remove dandruffs.
78.	*Vernonia cinerea*, **(L.) Less.**	Asteraceae	Kucheri kuuttam	Herb	Leaves	Eye diseases	Leaf juice is applied over the affected places to cure all types of eye diseases.
79.	*Madhuca indica* **Gmel.**	Sapotaceae	Elupai	Tree	Flowers, seed, bark	Relieve pain in the muscle and joints to improve the texture and vigor of skin, bleeding gums and ulcers	Seed paste is applied to curve muscle fatigue and relieve pain in the muscle and joints to improve the texture and vigor of skin. Bark decoction is used in curing bleeding gums and ulcers.
80.	*Jasminum angustifolium*, **(L.) Willd.**	Oleaceae	Malligai	Climbing	Leaves and flowers	Clot of Breast milk	Leaves and flowers paste of Malligai applied externally to remove the clot of Breast Milk.
81.	*Nyctanthus abortristis*, **Linn.**	Oleaceae	Pavalamalli	Shrub	Leaves	Cough, asthma, inflammation	Leaves are used as cough, asthma, inflammation
82.	*Caralluma attenuata* **Wt.**	Apocynaceae	Kallimuliyaan	Shrub	Leaves	Bone fracture	Fresh leaves are taken orally at empty stomach to cure bone fracture.
83.	*Catharanthus pusillus*, **(Murr).**	Apocynaceae	Mukkuthipoo	Shrub	Root	Hemostatic and tooth ache	Root is used for Hemostatic and tooth ache
84.	*Ichnocarpus frutescens*, **(L.) R.Br.**	Apocynaceae	Udarkodi	Climbing shrub	Leaves, stem	Diuretic, fever, dyspepsia	Leaves are used to diuretic, fever

85.	*Nerium oleander* **L.**	Apocynaceae	Arali	Shrub	Stem, bark	Ear ache	Juice prepared from the stem bark is boiled with gingelly oil
86.	*Pergularia daemia* **Forssk.**	Apocynaceae	Veleparathi	Straggler	Leaves	Stomach ache and ulcer	Leaf juice is mixed with egg and taken orally to cure stomach ache and ulcer.
87.	*Rauvolfia serpentina* **(L.) Benth. ex.**	Apocynaceae	Sarpagandha	Shrub	Tuber	Poison bites	Tuber is made into a paste and applied topically to cure all types of poison bites.
88.	*Vinca pusillus* **(Murray) G. Don.**	Apocynaceae	Melagainankai	Under shrub	Whole plant	Ulcer and stomach pain	Whole plant parts are ground into a paste and taken orally in empty stomach 3 times a day for 3 days to treat ulcer and stomach pain.
89.	*Wrighita tinctoria* **(Roxb.) R.Br.**	Apocynaceae	Veppalai	Tree	Latex	Thorn pricked in hand or leg	Latex is applied topically to get relief from any thorn pricked in hand or leg.
90.	*Asclepias curassavica* **L.**	Asclepiadaceae	Sivapu poochedi	Herb	Whole plant	Abortifacient	A decoction of the entire plant is used as an abortifacient.
91.	*Calotropis gigantea* ***R.Br.***	Asclepiadaceae	Erukam	Shrub	Latex	Dog bite	Applied directly on the affected area.
92.	*Gymnema sylvestre*, **R. Br.**	Asclepiadaceae	Sirukurinchan	Twining shrub	Leaves, root	Diabetes, reduce the sugar level of the blood, snakebite	Leaf powder is mixed with cow's milk and taken orally to treat diabetes. A powder of the dried leaves is used to reduce the sugar level of the blood. The root powder is taken orally and also applied on the bitter spot to treat snakebite.
93.	*Hemidesmus indicus*, **R. Br.**	Asclepiadaceae	Nannari	Twining shrub	Root	Pimples in the face	Paste made from the root or this plant and root of Aalamaram (Ficus benhalensis) applied externally
94.	*Tylophora indica*, **L.f.**	Asclepiadaceae	Nancharutthan	Herb	Leaves	Asthma	Some experts have used tylophora leaf taken in the amount of 200-400 milligrams dried herb daily.
95.	*Enicostemma axillare* **(Lam.)**	Gentianaceae	Vellarugu	Herb	Whole plant	Fever, cancer, diabetes	Entire plant is used Fever, cancer, diabetes
96.	*Convolvulus pluricaulisis*, **Linn.**	Convolvulaceae	Visnukarandai	Herb	Whole plant	Digestion	Entire plant is used digestion
97.	*Ipomoea lacunosa* **L.**	Convolvulaceae	Thali keeri	Twiner	Leaves	Bone fractures	Leaf paste is applied.
98.	*Ipomoea staphylina* **Roemer & Schultes**	Convalvulaceae	Onankodi	Vine	Leaf, root	Anti-dote for snake-bite, Edema	Root ground into a paste and applied locally to the affected parts
99.	*Manilkara hexandra* **(Roxb.) Dubard.**	Sapotaceae	Ulakkai palai	Tree	Bark, fruit	Odontopathy, dyspepsia, fever, colic	The bark is astringent, sweet, the fruit are milky, sweet
100.	*Datura fastuosa* **L.**	Solanaceae	Karuoomathai	Herb	Leaves, flower	Asthma or wheezing like symptoms	The leaves or juice of it, is consumed make the person dumb. The dry flower, particularly the violet colored, if rolled and used like cigar, will help to relieve the asthma or wheezing like symptoms.
101.	*Datura metal*, **L.**	Solanaceae	Oomathai	Large shrubby	Leaves	Ear ache	Juice extracted from oomathai leaves and few drops is poured into ear to treat earache.
102.	*Solanum americanum*, **L.**	Solanaceae	Manatthkkali	Herb	Leaves	Stomach to cures ulcer mouth wound and stomach pain	Leaf is ground into juice and taken orally in empty stomach to cures ulcer mouth wound and stomach pain.
103.	*Solanum virginianum*, **L.**	Solanaceae	Kandan kathirikai	Herb	Leaves	Skin diseases	Shade dried leaves made into powder and boiled with castor oil. The mixture is taken orally and applied externally to treat all types of skin diseases.
104.	*Seasamum indicum*, **L.**	Pedaliaceae	Ellusedi	Herb	Seeds, leaves	Clear the clotting cells of wounds	seeds have been used as a medicine since antiquity
105.	*Andragraphis echioides* **L.**	Acanthaceae	Malaithangi	Herb	Leaves	Relief from chest pain	Leaf is ground into a paste and taken orally to get relief from chest pain.
106.	*Andrographis paniculata* Nees.	Acanthaceae	Siriya nangai	Herb	Leaves	snake bite and fever	Leaf paste mixed with milk taken internally
107.	*Andrographis paniculata*, **Nees.**	Acanthaceae	Seraniagai	Herb	Leaves	Snake bite	Leave crushed into paste and taken twice daily.
108.	*Blepharis maderaspatensis* **(L.) Roth.**	Acanthaceae	Murivu porunthi	Herb	Leaves	Bone fracture and deep cuts	Leaf is ground into a paste and applied or taken orally to treat bone fracture
109.	*Hygrophila auriculata*, **(Schum) Heine**	Acanthaceae	Neermulli	Herb	Whole plant	Cancer, tubercular fistula.	The plant is used in cancer and tubercular fistula.
110.	*Justicia adhatoda* **L.**	Acanthaceae	Adhathoda	Shrub	Leaves	Sinus problems	Eaten raw.
111.	*Lantana camara* **L.**	Verbenaceae	Randanachedi	Shrub	Leaves	swellings and pain of the body, lotion in cutiginous eruptions, leprous ulcers	Leaves are boiled and applied for swellings and pain of the body. Its bark is astringent and used as a lotion in cutiginous eruptions, leprous ulcers.
112.	*Vitex negundo*, **L.**	Verbenaceae	Notchi	Tree	Leaves	Head ache	Leaves of notchi are boiled and inhale the leaves vapour to relieve headache.
113.	*Coleus forskohlii* **(Briq.)**	Lamiaceae	Maruthuva coorgan	Herb	Whole plant	Expectorant, ernmenagogue and diuretic	The leaf is used as an expectorant, ernmenagogue and diuretic.

114.	*Leucas aspera* **(Willd.) Link.**	Lamiaceae	Thumbai	Herb	Leaves	Cough and cold	Leaves of thumbai are boiled and vapours inhaled to relieve coughing and cold.
115.	*Ocimum americanum*, **L.**	Lamiaceae	Pachai Thulasi	Sub shrub	Leaves	Severe head ache and fever	Leaf juice is boiled with pepper and the decoction is taken orally to cure severe head ache and fever.
116.	*Ocimum canum*, **Sims.**	Lamiaceae	Tulasi	Herb	Leaves	Cold & fever	Leave juice given as tonic.
117.	*Plectranthus amboinicus*, **(Lour.)Spreng**	Lamiaceae	Navara pachilai	Herb	Leaves	Head to control running nose and cough	Leaf is boiling with coconut oil and applied on head to control running nose and cough.
118.	*Achyranthes aspera*, **L.**	Amaranthaceae	Nayurivi	Erect Herb	Leaves	Scorpion bites	Leave extract is taken.
119.	*Achyranthes bidentata*, **Blume**	Amaranthaceae	Kadaladi	Herb	Leaves	Cholera, testis pain, swellings	Leaf is fired and the ash is mixed with water and small quantity of salt and the mixture is taken orally to cure cholera, testis pain and swellings.
120.	*Aerva lanata* **(L.) Juss. ex. Schult.**	Amaranthaceae	Poolachedi	Herb	Leaves	Cure Kidney stone	Plant extract with *Cuminum cyminum* fruits and sugar is given for 10 – 15 days
121.	*Alternanthera sessilis*, **DC.**	Amaranthaceae	Ponnankanni	Herb	Leaves	Diuretic, tonic, cooling, eye problems	Diuretic, tonic, cooling, eye problems, medicinal hair oil.
122.	*Polygonum plebeium*, **R.Br.**	Polygonaceae	Kanganichedi	Herb	Leaves	Golic complaints, enzema	Plant decoction is given in golic complaints, plant ash with oil is applied on enzema
123.	*Aristolochia indica*, **L.**	Aristolochiaceae	Garudakodi	Twiner	Leaves	Snake bites	Extract is applied orally.
124.	*Santalum album* **L.**	Santalaceae	Santhana maram	Tree	Shoot	Skin disease	Shoot paste applied externally
125.	*Acalypha indica*, **L.**	Euphorbiaceae	Kuppaimeni	Erect Herb	Leaves	Cold & cough	Leave decoction taken internally.
126.	*Croton bonplandianum* **Baillon.**	Euphorbiaceae	Yerpoolan poondu	Herb	Leaves	Skin diseases	Leaf paste is applied
127.	*Euphoriba hirta* **L.**	Euphorbiaceae	Amam patchaiarisi	Herb	Latex	Pimples	Directly applied.
128.	*Phyllanthus amarus*, **L.**	Euphorbiaceae	Keezhanelli	Herb	Whole plant	Jaundice	Whole plant parts are ground into a paste and taken orally 3 times a day for 3days to treat jaundice
129.	*Ricinus communis*, L.	Euphorbiaceae	Aamanaku	Shrub	Seed	Reduce body heat	Seed oil taken to internally and externally
130.	*Holoptelea integrifolia* **(Roxb.) Planch.**	Ulmaceae	Aya	Tree	Whole plant	Oedema, diabetes, leprosy and other skin diseases, intestinal disorders, piles and spruce, ringworm	The leaves and bark are used to treat oedema, diabetes, leprosy and other skin diseases, intestinal disorders, piles and spruce. Seed and paste of stem bark is used in treating ringworm.
131.	*Ficus benghalansis*, **L.**	Moraceae	Aalamarm	Tree	Latex	Rheumatic complaints	The milky exudate of the plant is applied externally in rheumatic complaints.
132.	*Ficus racemosa* **Roxb.**	Moraceae	Atteeka	Tree	Bark, root, latex and fruits	Leucorrhoea, blood disorders, astringent to bowels and good in case of bronchitis whereas, dry cough loss of voice diseases of kidney and spleen. Promote the healing.	Fruits are astringent to bowels, styptic, tonic and useful in the treatment of leucorrhoea, blood disorders, etc. According to Unani system of medicine, leaves are astringent to bowels and good in case of bronchitis whereas, fruits are useful in treatment of dry cough, loss of voice diseases of kidney and spleen. Bark is useful in asthma and piles.
133.	*Ficus religiosa* **L.**	Moraceae	Arasu	Tree	Leaves	Body pain	The dried leaf of Arasu is powdered, mixed with water and takes normally to relief from body pain.
134.	*Alpinia galanga* **(L.) Willd.**	Zingiberaceae	Cittarattai	Herb	Rhizome	Skin infections like eczema, ringworm	Ground rhizome is washed, crushed and the juice is used to cure the treatment of skin infections like eczema, ringworm
135.	*Costus speciosus* **Sm.**	Zingiberaceae	Insulin plant	Herb	Leaves	Reduce sugar	Daily in empty stomach one raw leave eaten.
136.	*Curcuma aromatica* **L.**	Zingiberaceae	Kasturimal	Herb	Rhizome	Pimples	Directly apply on face.
137.	*Canna indica*, **L.**	Cannaceae	Kalvazhi	Herb	Rhizome root, bark	Ringworm, diuretic	Rhizome is used in ringworm, root is diuretic
138.	*Musa paradisiaca* **L.**	Musaceae	Vahzai	Tree	Pseudo stem	Kidney stone	Juice of stem is taken.
139.	*Curculigo orchioides* **(Gaertn.)**	Amaryllidaceae	Nilapanan kilengu	Herb	Leaves, shoots	Sedative, antispasmodic, relieve stomachache and expel intestinal worms.	A leaf infusion is given as an antispasmodic. Decoction of the shoots of wild plant is administered to improve appetite, relieve stomachache and expel intestinal worms.
140.	*Sansevieria roxburghiana*, **Schult.f.**	Agavaceae	Marul	Herb	Leaves	Cure pimples and skin diseases	The leaf is introduced
141.	*Discorea oppostifolia*, **L.**	Discoreaceae	Vallikizhangu	Climbing	Root tubers	Reducing body heat	Root tubers of vallikizhangu are boiled and taken orally to reduce body

				herb			heat.
142.	*Aloe barbendensis* **L.**	Liliaceae	Kattlai	Herb	Gel	Cooling agent	Eaten raw to cool the body.
143.	*Commelina benghalensis* **Linn.**	Commelinaceae	Kanavazhai	Herb	Whole plant	Diuretic, febrifungal and anti inflammatory effects	The whole plant used to cure a medicinal herb that is said to have diuretic, febrifungal and anti-inflammatory effects.
144.	*Acorus calamus*, **Linn**	Araceae	Vasambu	Herb	Rhizome	Blood pressure, respiration, intestinal cholis, anorexia, gastritis and gastric ulcers	The rhizome contains from 1.5-3.5% essential oil which is extracted from the fresh roots or the unpeeled dried root by stream distillation.
145.	*Fimbristylis cymosa*, **R. Br.**	Cyperaceae	Kothuppullu	Herb	Root	Dysentery, diarrrhoea	Root is used Dysentery, diarrrhoea
146.	*Bambusa arundinacea* **(Retz.)willd.**	Poaceae	Moongil	Tree	Leaves	Stomach problem	Young shoots used as food stem used to build huts and spiritual ceremonies
147.	*Cymbopogon citratus* **Stapf.**	Poaceae	Lemon grass	Shrub	Leaves	Body pain	Leave juice is given orally.
148.	*Cynodon dactylon* **Pers.**	Poaceae	Arugampul	Herb	Whole plant	Reduce blood pressure	The juice of the whole plant is used to reduce body heat and to lower the blood pressure
149.	*Dendrocalamus strictus*, **Ness.**	Poaceae	Moongil	Tree	Leaves	Stomach problem	Young shoots used as food stem used to build huts and spiritual ceremonies
150.	*Vetiveria zizanioides*, **Nash.**	Poaceae	Vettiver	Herb	Roots	Reduce the dandruff, and hair falling	Dried roots are mixed with coconut oil to reduce the dandruff, and hair falling.

CONCLUSION

This study shows that knowledge and usage of herbal medicine for the treatment of various ailments among Jawadhu hills tribals is still a major part of their life and culture. They use forest plants, weeds, fruit plants, vegetables, spices, ornamental plants, ferns and many others as traditional medicine. Although many of these species are known as medicinal plants, others are mainly used for non-medicinal purposes. The data collected show that majority of the remedies are taken orally. Most of the reported preparations are drawn from a single plant; mixtures are used rarely. In other parts of the country, the use of mixtures of plant species in treating a particular ailment is fairly common. Generally, the people of the study area still have a strong belief in the efficacy and success of herbal medicine. The results of the present study provide evidence that medicinal plants continue to play an important role in the health care system of this tribal (Malayalis) community in Jawadhu hills of Tami Nadu.

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REFERENCES

[1]Kamboj ,V. P,. Herbal medicine, *Current Science.*, **2000**, 78(1), 35.
[2]Govil,J.N., pandey, J., Shivakumar, B.G. and Sing, V.K.,H. Sci. Tech. Publ. Co. LLC. Texas, USA, **2002,** 1-42.
[3]Thirupathy S., Vaidyanathan D., Salai Senthilkumar M. S. and Ghouse Basha M., *Advances in Applied Science Research*, **2013,** 4(6), 90-95.
[4]Sandhya, T., Lathika, K. M., Pandey, B.N., Mishra, K.P., *Cancer letters*, **2006,** 231 (02), 206-214.
[5]Alexiades, M.N., Lacaze, D., Medicinal Resources of the Tropical Forest. Columbia University Press, New York, **1996,** 341–365.
[6] Naranjo, P., Ethnobotany: Evolution of a discipline. Chapman & Hall, Hong Kong, **1995,** 362–368.
[7]Tarun Chandra Taid, Ratul Chandra Rajkhowa and Jogen Chandra Kalita, Advances in Applied Science Research, **2014,** 5(1):296-301.
[8]Ragupathy S, Newmaster SG, Murugesan M and Balasubramanian V, *Journal of Ethnobiology and Ethnomedicine*, **2008,** 4:8.
[9] Gamble, J.S., *The Flora of Presidency of Madras*. Adlard and son, Ltd., London. **1935**.
[10] Matthew, K.M., *The Flora of the Tamil Nadu Carnatic*, Vol. I -III. The Rapinat Herbarium, St Joseph's College, **1983**.
[11] Vaidyanathan, D., Salai Senthilkumar, M. S., Sisubalan, N., Ghouse Basha, M., Advances in Applied Science Research, **2014**, 5(1):244-253.
[12] Pattanaik, C., Sudhakar Reddy, C. and Murthy, M.S.R., *Fitoterapia*, **2008,** 79:67-71.
[13] Santhya, B., Thomas, S., Isabe, lW. and Shenbagarathai, R., *A pilot study. Afr J Trad* CAM, **2006,** 3(1):101-114.