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Survey of medicinal plants from Vadachennimalai Hill, Salem district of Tamil Nadu, India

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Abstract

Ethnobotanical survey was conducted to collection of medicinal plants used by local people at Vadachennimalai Hill, Salem district of Tamil Nadu, India. In this present collection 70 medicinal plant species of 61 genera belonging to 36 families are discussed. The maximum number of medicinal plants belonging to family *Euphorbiaceae* observed is 8 species. Three species of *Euphorbia* and two species of *Acacia*, *Albizia*, *Ficus*, *Ocimum*, *Phyllanthus*, *Solanum* and *Zizyphus* genera are also reported among the 70 species. The plants were mostly used for to cure fever, common cold, cough, asthma, rheumatism, jaundice, ulcers, headache, stomach problem, diarrhea, diabetes, wounds, skin problem, plies *etc.* Therefore, this work will also contribute for the search of new drugs and treatments. Medicinal plants used by local people in Vadachennimalai have been listed along with plant parts used with its ethnomedicinal significance.

Keywords: Ethno-Medicine, Vadachennimalai Hill, Medicinal plants, Human diseases

1. Introduction

In the developed countries the medicinal drugs (25%) are based on plants and their derivatives and use of medicinal plants among the indigenous people in rural area of many developing countries [1]. Botanically derived medicinal plants played a major role in human societies throughout history and prehistory [2]. Ethnomedicinal survey is one of the reliable sources to natural and synthetic drug discovery [3]. The ethnobotanical use of this unique group is of immense importance [4, 5]. India has rich plant diversity and is one among the mega biodiversity countries of the world. Indians have been using medicinal plants since antiquity and the Ayurvedic methods date back to 5000 B.C [6]. These medicinal plants have a long-standing history in many indigenous communities and continue to provide useful tools for treating various diseases [7]. There is also a renewal of interest in the natural plant products as these are biologically more compatible with the system and have little toxicological concerns. As per World Health Organization (WHO), nearly 80% of the world inhabitants, especially living in the rural areas of developing countries, rely mainly on traditional medicines for their primary health care [8]. Ethnomedicinal plants are the anthropological approach of plant science that encompasses every possible interrelationship between plants and human societies [9, 10]. Documenting the indigenous knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources. Several active compounds have been discovered from plants on the basis of ethnobotanical information and are used directly as patented drugs [11]. As indigenous cultures are closely maintained by the tribal and other forest dwellers throughout the world, the ethnobotanical investigation is a prerequisite for any developmental planning concerned with the welfare of tribals and their environment. This study aimed at recording information on the traditional practices of plant which is used in the objectives included to document the botanical name, family, local name, habitat, plant part and medicinal uses of the plants. In this purpose study, only local people with knowledge of ethnobotanical plants and to make people aware of its future utilities.

2. Material and Methods

The present medicinal plant survey area of Vadachennimalai hill is situated in Salem district of Tamil Nadu in South India (Figure A). The hill division is located between 11.17°N and 77.62°E in situated at 400 meters above the sea level. Seasonal visits of the area were done to know the diversity of plants growing there. The local people inhabits this hill area and in the surrounding use various plants growing here in their routine life due to many ethno-medicinal values which have been customary to their ancestors.

The plants were collected from different sites of the hill area, identified by their local names with the help of villagers. The data on ethno-botanical uses of plants was collected through general conversation and questionnaire with people of the area. The photographs of these plants species were taken during the field visits. Proper data regarding each plant species was collected by assigning botanical name, family, local names, habitat, useful parts and medicinal uses.



Figure A : Location Map of Vadachennimalai Hill

3. Results and Discussion

In most cases, the active molecules of the medicinal plant reported here are unknown. Studying the biological and pharmacological properties of medicinal plant extracts is a rational approach in the quest for new drugs. Phytochemical and pharmacological studies can lead to evidence of potential therapeutic use of medicinal plants and the development of new medicines. The traditional information accumulated by local people has an important role to play in this effort [12]. Out of the 17,000 economic species of angiosperms known worldwide, about 5000 occur in India. Of these, 3000 are medicinal plants in which root drugs constitute the largest number of species (680) followed by drugs originating from fruits (450) [13]. Many researchers and scientists are reported traditional uses of medicinal plants from different regions of India and world [14-17]. Over all 70 species of medicinal plants were collected during the field survey, out of which species were of ethnobotanical value. These species belonged to 61 genera and 36 families. Among all families Euphorbiaceae (5 genera and 8 species), Lamiaceae (5 genera and 6 species) are the more dominant families followed by Apocynaceae (4 genera and 4 species), Mimosaceae (2 genera and 4 species), Asclepiadaceae and Menispermaceae (3 genera and 3 species), Solanaceae (2 genera and 3 species), Amaranthaceae, Boraginaceae, Cactaceae, Convolvulaceae, Cucurbitaceae, Meliaceae, Verbenaceae, Sapindaceae (2 genera and 2 species), Moraceae, Rhamnaceae (1 genera and 2 species) and 19 families were represented by single genera and single species (Table-1).

Table 1: Family wise representation of the Medicinal plants from the Study area

S. No.	Number of Family	Number of Genera	Number of Plant Species
1	Euphorbiaceae	5	8
2	Lamiaceae	5	6
3	Apocyanaceae	4	4
4	Mimosaceae	2	4
5	Asclepiadaceae	3	3
6	Menispermaceae	3	3
7	Solanaceae	2	3
8	Amaranthaceae	2	2
9	Boraginaceae	2	2
10	Cactaceae	2	2
11	Convolvulaceae	2	2
12	Cucurbitaceae	2	2
13	Meliaceae	2	2
14	Moraceae	1	2
15	Verbenaceae	2	2
16	Rhamnaceae	1	2
17	Sapindaceae	2	2
18	Fabaceae	1	1
19	Papilionaceae	1	1
20	Arecaceae	1	1
21	Asteraceae	1	1
22	Caesalpinaceae	1	1
23	Commelinaceae	1	1
24	Erythroxylaceae	1	1
25	Gentianaceae	1	1
26	Liliaceae	1	1
27	Malvaceae	1	1
28	Molluginaceae	1	1
29	Moringaceae	1	1
30	Myrtaceae	1	1
31	Oleaceae	1	1
35	Passifloraceae	1	1
33	Poaceae	1	1
34	Rubiaceae	1	1
35	Santalaceae	1	1
36	Vitaceae	1	1

Among the identified medicinal plants, 26 were herbs (37.14%), 18 each were trees (25.71%), 15 were shrubs (21.42%) and 11 were climbers (15.71%) (Table 2). Different parts of the plants were used for the treatment of various ailments /disorders fever, common cold and cough, asthma, rheumatism, jaundice, ulcers, headache, stomach problem, diarrhea, diabetes, wounds, skin problem, plies *etc.*

Table 2: Habitat of documented medicinal plants

Habitat	No of Habitat	Percentage %
Herb	26	37.14
Tree	18	25.71
Shrub	15	21.42
Climber	11	15.71

The most commonly used plant part was leaves (15 species), followed by leaf, leaves and roots, whole plants (of 9 species), roots (6 species), bark (4 species), latex (3 species) and leaves

and bark, seeds (2 species). In most of the plants more than leaves part was used as medicine. (Table 3)

Table 3: Parts used from documented Medicinal plants

Plants part used	Numbers of Plants
Leaves	15
Leaf	9
Leaves and root	9
Whole plants	9
Roots	6
Bark	4
Latex	3
Leaves and bark	2
Seeds	2
Fruits	1
Leaf and seed	1
Leaves and fruits	1
Leaves and seeds	1
Leaves and stem	1
Leaves, roots and seeds	1
Leaves, roots and bark	1
Roots and Seeds	1
Roots and bark	1
Stem and fruits	1
Tubers	1

Most of the species were used for curing more than one disease. These were administrated mostly orally and a range of preparations such as decoction, paste and powder were adopted. Most of these preparations were made from the freshly collected plants just before the use; however, some are also used in dry form.

All 36 families were found to contribute for various ethno botanical values are used by the local people for the treatment of various diseases like diarrhoea, dysentery, cough, sore throat, fever, malaria, eczema, ulcers, headache, asthma, toothache, diuretic, diabetes, cholera, smallpox, jaundice, wounds, skin disease, piles and *etc* (Table-4).

Table 4: Details of medicinal plants collected from Vadachennimalai hill

S. No	Botanical name	Family	Vernacular name	Habit	Useful parts	Medicinal uses
1	<i>Abrus precatorius</i> L.	Papilionaceae	Kundumani	Climber	Roots and Seeds	Diuretic, tonic and emetic.
2	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Tutthi	Herb	Leaves	Demulcent, ulcers and toothache
3	<i>Acacia catechu</i> (L.) Willd.	Mimosaceae	Karunkali	Tree	Bark	Tooth ache and skin diseases.
4	<i>Acacia nilotica</i> L.	Mimosaceae	Karuvelam	Tree	Leaves, roots and seeds	Ulcers, colds, bronchitis, biliousness, diarrhoea, dysentery and smallpox
5	<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppaimeni	Herb	Leaf	Toothache and earache.
6	<i>Achyranthes aspera</i> L.	Amaranthaceae	Nayurvi	Herb	Leaves and root	Diuretic, toothache and asthma.
7	<i>Aerva lanata</i> (L.) A. L. Juss.	Amaranthaceae	Pindiconda, Thelagapindi	Herb	Leaves and stem	Cough, sore throat, diabetes and lithiasis.
8	<i>Albizia amara</i> (Roxb.) Bon.	Mimosaceae	Usilai	Tree	Leaves	Cough and dyspnoea.
9	<i>Albizia lebbek</i> (L.) Willd.	Mimosaceae	Vaagai	Tree	Leaves and seeds	Eye troubles.
10	<i>Aloe vera</i> (L.) Burm. f.	Liliaceae	Chotthukathalai	Herb	Leaves	Lung disease and stomach disorders. skin burns.
11	<i>Alstonia scholaris</i> R.Br.	Apocynaceae	Paalai	Tree	Bark	Fever, malaria, ulcers, asthma and forth.
12	<i>Anisochilus carnosus</i> (L.f.) Wallich	Lamiaceae	Poochenthirapattai	Herb	Leaves	Stomach ache, expectorant, diaphoretic, liver disorders and colds.
13	<i>Anisomeles malabarica</i> (L.) R. Br. ex Sims.	Lamiaceae	Peyameratti	Shrub	Leaves	Dyspepsia and fever
14	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Vembu	Tree	Leaf and seed	Chickenpox, earaches, sprains and headache.
15	<i>Bambusa arundinacea</i> Willd.	Poaceae	Moongil	Herb	Leaf	Astringent and inflammatory conditions
16	<i>Cactus ficus-indica</i> L.	Cactaceae	Chapatikalli	Herb	Latex	Diabetes, burns, bronchial, asthma and indigestion
17	<i>Calotropis procera</i> R.Br.	Asclepiadaceae	Erukku	Shrub	Latex	Leprosy, eczema, inflammation, malarial, fevers, colds and cough.
18	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Mudakkattan	Climber	Leaves and roots	Diuretic, diaphoretic and emetic.
19	<i>Carissa carandas</i> L.	Apocynaceae	Kalaaka	Shrub	Leaves and	Stomachic, anthelmintic and fever.

					roots	
20	<i>Cassia auriculata</i> L.	Caesalpiniaceae	Avaram	Shrub	Leaves, roots and bark	Skin troubles, astringent and anthelmintic.
21	<i>Cestrum nocturnum</i> L.	Solanaceae	Therani	Shrub	Leaf	Epilepsy, disorders, headache and nervous imbalance.
22	<i>Cissampelos pareira</i> L.	Menispermaceae	Appatta	Herb	Root	Diuretic, purgative, dyspepsia, dropsy and urinary troubles.
23	<i>Cissus quadrangularis</i> L.	Vitaceae	Pirandai	Shrub	Whole plants	Obesity, diabetes, asthma, malaria and pain.
24	<i>Coccinia indica</i> L.	Cucurbitaceae	Kovai	Climber	Whole plants	Leprosy, fever, asthma and bronchitis
25	<i>Cocculus hirsutus</i> (L.) Diels	Menispermaceae	Sirukattukodi	Climber	Roots	Skin diseases, dyspepsia, colic, cough and fever.
26	<i>Commelina benghalensis</i> L.	Commelinaceae	Adutinnapai	Herb	Whole plants	Demulcent, emollient laxative and refrigerant used in leprosy.
27	<i>Corallocarpus epigaeus</i> (Rottl. ex Willd.)	Cucurbitaceae	Kollankovai	Climber	Tuber	Wounds, obesity, skin disease, tumours, cough and bronchitis
28	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Moodillathalli	Climber	Seeds	Diaphoretic, demulcent and tonic.
29	<i>Dodonaea viscosa</i> Jacq.	Sapindaceae	Virali	Tree	Leaves	Febrifuge also in burns, swellings and wounds.
30	<i>Enicostemma axillare</i> (Lam.)	Gentianaceae	Vellaragu	Herb	Leaves	Bitter tonic, stomachic and laxative.
31	<i>Erythroxylum monogynum</i> Roxb.	Erythroxylaceae	Sempulichan	Herb	Bark	Stomachic, diaphoretic and diuretic
32	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Palperuki	Herb	Leaf	Skin problems
33	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Amman Pachcharsi	Herb	Leaf	Asthma, respiratory infections
34	<i>Euphorbia tirucalli</i> L.	Euphorbiaceae	Kodikalli	Shrub	Latex	Asthma, dropsy, leprosy, biliousness, leucorrhoea, dyspepsia, jaundice and colic.
35	<i>Evolvulus alsinoides</i> (L.)	Convolvulaceae	Vishnu kiranthi	Herb	Leaves and roots	Asthma, amnesia and fever
36	<i>Ficus benghalensis</i> L.	Moraceae	AlamMaram	Tree	Bark	Skin diseases.
37	<i>Ficus carica</i> L.	Moraceae	Athi	Tree	Stem and fruits	Cold and removal of warts.
38	<i>Gmelina arborea</i> Roxb.	Verbenaceae	Kumalaamaram	Tree	Leaves	Demulcent and fever.
39	<i>Heliotropium indicum</i> L.	Boraginaceae	Telkodukupoondu	Herb	Whole plants	Skin affections, fever, bronchitis, ringworm, rheumatism and ulcers.
40	<i>Hemidesmus indicus</i> (L.) Schult.	Asclepiadaceae	Nannari	Herb	Whole plants	Demulcent diaphoretic, diuretic, urinary diseases and skin troubles.
41	<i>Jasminum angustifolium</i> (L.) Willd.	Oleaceae	Kaattumalligai	Shrub	Leaf	Emetic.
42	<i>Jatropha curcas</i> L.	Euphorbiaceae	Kaatuamanku	Shrub	Seed	Sciatica and dropsy.
43	<i>Lantana camara</i> L.	Verbenaceae	Unnichi	Shrub	Leaves	Dysentery
44	<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Tumbai	Herb	Leaves	Cough and colds.
45	<i>Mollugo nudicaulis</i> Lam.	Molluginaceae	Parpadagam	Herb	Leaves	Cough
46	<i>Moringa concanensis</i> Nimma ex. Gibs.	Moringaceae	Kattumurangai	Tree	Roots	Ascites and rheumatism
47	<i>Ocimum americanum</i> L.	Lamiaceae	Nayitulasi	Herb	Whole plants	Diuretic and tonic.
48	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Nallatulasi	Herb	Leaves	Stimulant, diaphoretic, antiperiodic and expectorant.
49	<i>Opuntia dillenii</i> Haw.	Cactaceae	SappathiKalli	Shrub	Whole plants	Cough, asthma and gonorrhoea
50	<i>Passiflora foetida</i> L.	Passifloraceae	Siruppunakiili	Climber	Leaves	Wounds
51	<i>Pavetta tomentosa</i> Roxb. ex sm.	Rubiaceae	Therani	Shrub	Leaves and roots	Urinary complaints and hemorrhoidal pain.
52	<i>Pergularia daemia</i> (Forsst) Chiov.	Asclepiadaceae	Velipparuthi	Climber	Leaf	Emetic, asthma, diarrhea and swellings.
53	<i>Phoenix sylvestris</i> (L.) Roxb.	Arecaceae	Icham	Tree	Roots	Toothache
54	<i>Phyllanthus amarus</i> Schum.	Euphorbiaceae	Kizhanelli	Herb	Leaf	Jaundice.
55	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Malainelli	Tree	Fruits	Fever, cough and asthma,
56	<i>Pongamia glabra</i> L.	Fabaceae	Pungam	Tree	Leaf	Skin diseases
57	<i>Santalum album</i> L.	Santalaceae	Santhanamaram	Tree	Leaves	Dysentery, headache and fever.
58	<i>Solanum nigrum</i> L.	Solanaceae	Manathakkali	Herb	Whole plants	Stomach ulcer
59	<i>Solanum trilobatum</i> L.	Solanaceae	Toothuvalai	Climber	Leaves	Cold and cough
60	<i>Syzygium cumini</i> (L.)	Myrtaceae	Naavalmaram	Tree	Leaves and bark	Diabetes.
61	<i>Thevetia nerifolia</i> Juss.	Apocynaceae	Manja arali	Shrub	Leaves and roots	Cough, bronchitis and skin diseases

62	<i>Tinospora cordifolia</i> (Willd.)	Menispermaceae	Chintil	Climber	Roots	Leprosy, debility, dyspepsia, fever and urinary disease.
63	<i>Tragia involucrata</i> L.	Euphorbiaceae	Chenthatti	Climber	Roots	Diaphoretic and skin problem
64	<i>Trichilia connaroides</i> (Wight & Am.)	Meliaceae	Karai	Tree	Leaves and bark	Cholera.
65	<i>Trichodesma indicum</i> (L.) R. Br.	Boraginaceae	Kavil Thumbai	Herb	Leaves and roots	Emollient, diuretic and dysentery.
66	<i>Tridax procumbens</i> L.	Asteraceae	Kinatrupaasan	Herb	Whole plants	Wound healing, anti-diabetic activity, dysentery and diarrhea.
67	<i>Vinca rosea</i> L.	Apocyanaceae	Nithyakalyani	Herb	Leaves and roots	Ulcers and sore throats
68	<i>Vitex negundo</i> L.	Lamiaceae	Nochi	Shrub	Leaves and roots	Eczema, skin diseases, liver disorders, spleen enlargement, rheumatic pain, gout and backache.
69	<i>Zizyphus mauritiana</i> Lam.	Rhamnaceae	Ilanthai	Tree	Leaves and fruits	Astringent, diaphoretic and fever, piles and wound
70	<i>Zizyphus oenoplia</i> (L.) Miller	Rhamnaceae	Suraiyilandai	Shrub	Roots and bark	Wound and pills used for stomachache.

4. Conclusion

The present investigation revealed that medicinal plants still play a vital role in the primary health care of the people. The information gathered from the local people is useful for further researchers in the field of ethno-medico-botany, taxonomy and pharmacological studies. This study offers a model for studying the relationship between plants and people, within the context of traditional medical system. The purpose of standardizing traditional remedies is obviously to ensure therapeutically efficacy. The value of using ethno medical information is to initiate drug discovery efforts. This study also generated a broad spectrum of information concerning medicinal plants used by local people. The plants with highest fidelity level and use values in the present study may indicate the possible occurrence of valuable phytochemical compounds and it requires a search for potential new drugs to treat various ailments.

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