

RESEARCH ARTICLE

POTENTIAL OF MEDICINAL PLANTS FOR CURING HUMAN AILMENTS IN VELLAMALAIPATTI, MADURAI DISTRICT, TAMIL NADU, INDIA

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ABSTRACT

In the Vellamalaipatti Village of the Madurai district, the current study was conducted to examine the potential of medicinal plants for treating a variety of human illnesses. The study focuses on 50 plant species from 32 families that are used to cure human and animal ailments. 86 human disorders are treated with fifty plant species. Utilizing a modified questionnaire method, details about the plants and their regional

Keywords: Medicinal plants, Vellamalaipatti, Human ailments.

1. INTRODUCTION

All life on Earth, including humanity, depends on mechanisms that biodiversity supports. We cannot have the healthy ecosystems that depend on a variety of creatures, plants, and bacteria to give us the oxygen we breathe and the food we eat. People have an innate preference for some parts of biodiversity, but as we learn more about it, we realise how crucial all of it is (1). The flora and fauna, which make up a large portion of life on earth, are made up of numerous distinctive biological species, but they are not uniform throughout the planet and differ according to local microclimates, topography, altitude, and sunlight availability. As a result, the tropics have a higher concentration of these species than the poles, where the climate is unsuitable for biomass. It illustrates the complicated interrelationships between the various diversity levels where the loss of vegetation in such areas is now mostly induced by deforestation as a result of global warming and greenhouse gas emissions (2). The effects of climate change ultimately resulted in variations in rainfall patterns, a decrease in the amount of groundwater that is available to the soil, and changes to the floral diversity (3). In order to comprehend and create a population that can be conserved and sustainably managed through

surveying methods, information on these floras in the area needs to be acquired.

Taxonomy undoubtedly has a huge impact, and it is important to recognise this because it serves as the foundation for the other sciences. To conserve, manage, understand, and appreciate the natural world, civilization needs more reliable taxonomic knowledge than ever before, but funding for taxonomy and collections is falling behind and in crisis (4,5). There is a severe funding shortage in taxonomy. A considerable portion of taxonomic funding is directed to phylogeny research, despite the fact that thousands of species are in danger of going extinct (6,7).

Medicinal plants remain an important therapeutic tool for treating human illnesses. Typically, the earliest generation of plant medications consisted of straightforward botanicals that were used in a very raw state (8). Over 80% of the world's populations, according to the World Health Organization, rely on such conventional plant-based medical systems to treat them for their primary diseases (9). In developed nations, they serve as models for the production of contemporaneous pharmaceutical drugs, but in developing nations, they provide a valuable resource for the management of a wide range of illnesses and play a significant role in the provision of primary healthcare.

In the current study, an effort has been made to compile medical information and plant-based treatments for diverse human ailments.

Objectives

- ✓ To determine the medicinal value of plants through Vellamalaipatti hill.
- ✓ To determine the distribution and population of the plants species present in the study area.

2. METHODS OF DATA COLLECTION

2.1. Study area

Vellamalaipatti (10°15'09N 78° 23'02.9E) is a small Village/hamlet in Lottampatti Block in Madurai District of Tamil Nadu State, India. It comes Pallapatti Panchayath. It is located 54Km towards North from District headquarters Madurai 12Km from Kottampatti, 436 Km from State capital Chennai

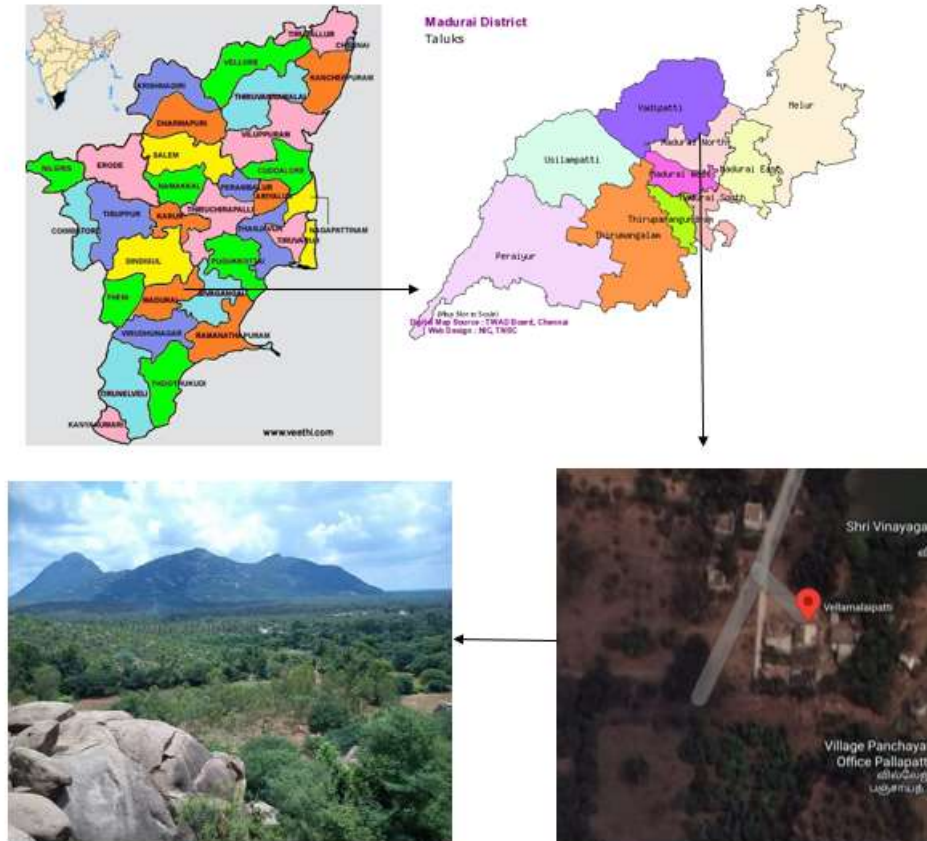


Fig.1. Study area on Map

2.2. Method of Random Sampling

One of the most straightforward methods for collecting information from the entire population is random sampling (Figure 2). Here, the flora of several plant species was randomly examined, and their ethnobotanical applications were established by gathering traditional knowledge and by studying the literature pertinent to this survey. Each member of the subset has an equal chance of being chosen as part of the selection process when using random sampling.

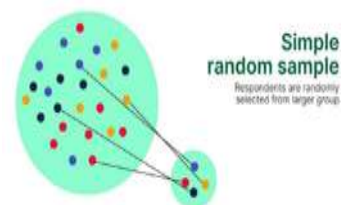


Fig. 2. Random sampling method

2.3. Interview with informants

From September 2022 to November 2016, an extensive survey was conducted in Vellamalaipatti. The number of informants interviewed was sixteen (9 Male, 7 Female). The information for this study was gathered using a

questionnaire from villagers, elderly people, and traditional healers who live in the study areas to collect data on medicinal plants commonly used by them. This includes various common human ailments, their occurrence, symptoms, and regular modes of treatment, including herbal remedies, plants, and plant parts used for treatment.

2.4. People

The people who live around this hill are mostly from villages. Farmers and shepherds are the primary occupations of these peoples, who graze their cattle.

2.5. Method of plant collection

The entire collection of small vascular plants, including the underground portion, should be collected. Roots of underground stems and storage organs were frequently (and sometimes critically) helpful in identifying specimens. Digging out a plant required a strong knife or a small trowel. Specimens must be cut from the plant that contain all essential features (all leaf types, twigs, flowers, fruits, and so on). If the species is a large herb, such as a thistle, the specimen should include basal leaves as well as enough stem to illustrate the range of stem, leaves, flowering, and fruiting material. If the lower and upper leaves differed, or if there was a significant difference between the shaded and un-shaded sides of a tree, collections should be made from both. Twigs should always be cut cleanly off with a sharp knife or pruners to minimise damage to parent trees and specimens. Breaking the twig could ruin a specimen by removing the bark or cause unnecessary harm to the tree or shrub from which it was taken.

2.6. Preparation of herbarium

A herbarium is a collection of dried plants or plant specimens that have been systematically arranged for reference using Bentham and Hooker classification. Plants that could not be kept fresh or preserved in a herbarium to serve as a reference collection for botanical comparison and research.

It consists of five steps:

- ✓ Collection,
- ✓ Poisoning,
- ✓ Pressing and drying,
- ✓ Mounting,
- ✓ Labelling.

2.6.1. Collection

Plants chosen should be good representatives of the species and have all of the essential features required for identification,

including such leaves, stems, flowers, and seedlings (roots if the plant is common and abundant).

2.6.2. Poisoning

Plant specimens were dipped in 40% formaldehyde to prevent it from insect or fungal attack.

2.6.3. Pressing and Drying

The specimens are spread out between the folds of lod newspapers or blotting sheets avoiding overlappin of parts. The larger specimen should be placed in the plant press for drying. After 24 to 48 hrs the press is opened

2.6.4. Mounting

The dried specimens are mounted on herbarium sheets of standard size (41*29cm). Mounting is done with die help of glue, adhesive or cello-tape. The bulky plant parts like dry fruits seeds cones etc. are dried without pressing and are put in small envelopes called fragment packet. Succulent plants are not mounted on herbarium sheets but are collected in 4% formalin or FAA (Formalin Acetic Alcohol).



Fig. 3. Herbarium of *Cucurbita pepo*, Linn.

2.6.5. Labelling

A plant specimen was incomplete without label data. A label is pasted or printed on the lower right hand corner. The label should indicate the information about the locality, altitude, habit, date and lime of collection, name

of collector, common name, complete scientific name etc.

2.6.6. Botanical identification of plants

All the medicinal plants recorded during the field visits were botanically identified by referring flora of Tamil Nadu Carnatic and an excursion flora of central Tamil Nadu, India

3. RESULT AND DISCUSSION

The Details of collected plants are enumerated with their scientific name, family, local name, parts used, Diseases Cured were presented in Table 1.

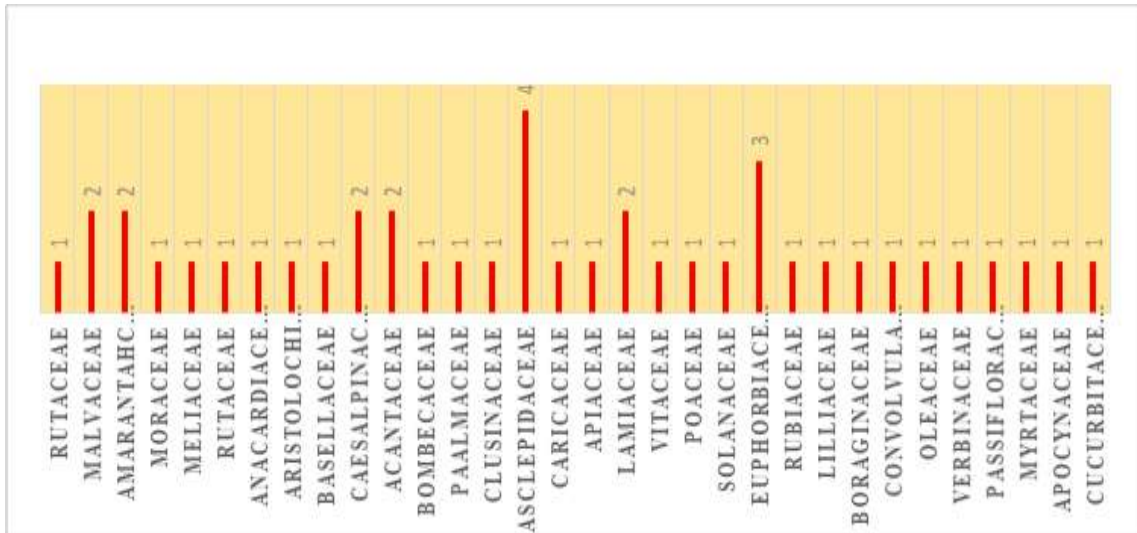


Fig. 4. Family distribution of ethnomedicinal plants used by local people in the study area

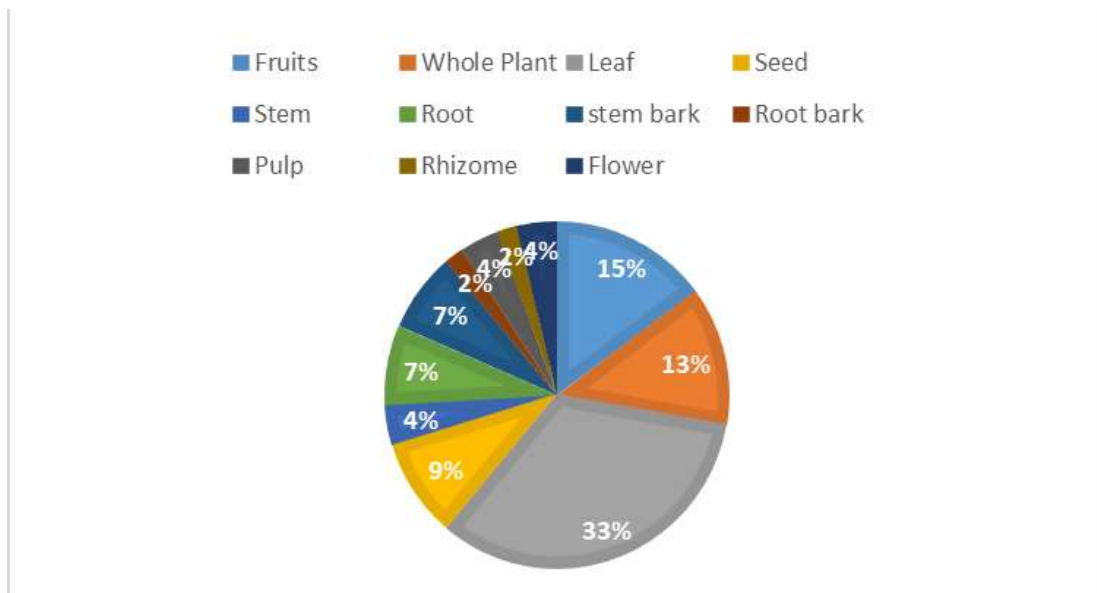


Fig. 5. The percentage of plant parts used by local healers.

Table1. The details of collected plants are enumerated with their scientific name, family, local name, parts used, diseases cured were presented.

s.no	Binomial Name	Family	Local Name	Part Used	Diseases Cured
1.	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Vilvam	Fruit	Dyspepsia
2.	<i>Abutilon crispum</i> (L.)	Malvaceae	Potti pazham	Fruits	Piles
3.	<i>Achyranthes aspera</i> Blume.	Amaranthaceae	Naayuruvi	Whole plant	Wounds
5.	<i>Artocarpus heterophyllus</i> Lamk.	Moraceae	Pala	Fruit	To increase immunity
6.	<i>Azadirachta indica</i> A. juss	Meliaceae	Vembu	Leaf paste	Treat acne, Antibacterial, Anti vira
7.	<i>Atalantia racemosa</i> , wright & Arn	Rutaceae	Kaattu elumpicha	Fruit oil	Cure paralysis, Chronic rheumatism
8.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Kuppaikeerai	Leaf	Flatulence
9.	<i>Anacardium occidentale</i> L	Anacardiaceae	Munthiri	Seed coat (oil)	Heel cracks
10.	<i>Aristolochia bracteolata</i> Lam	Aristolochiaceae	Aadu thinna chedi	Leaf	Fungal infection on head
11.	<i>Basella alba</i> L.	Basellaceae	Pasalai keerai	Leaf	Eye infections
12.	<i>Bauhinia purpurea</i> L.	Caesalpiniaceae	Manjari	Stem bark	Dysentery
13.	<i>Blepharis maderaspatensis</i> (L.) Roth.	Acanthaceae	Pappadak kola	Leaf	Wounds
14.	<i>Bombox ceiba</i> L.	Bombacaceae	Ilavamaram	Stem bark	Venereal diseases
15.	<i>Borassus flabellifer</i> L.	Palmaceae	Panai	Fruit	Haemorrhage, Hyper dipsia
16.	<i>Calophyllum inophyllum</i> Linn	Cluciaceae	Punnai	Seed oil	Wound healing, growth of healthy skin
17.	<i>Calotropis gigantea</i> (L)R.Br Ex Ait	Asclepiadaceae	Erukku	Root bark	Cough, Cold, and Constipation
18.	<i>Carica papaya</i>	Caricaceae	Pappali	Leaves	Nervous pain, Elephantoid growth

19.	<i>Cassia fistula</i> L.	Caesalpinaceae	Kontrai	Cassia pulp	Constipation, Aguesia
20.	<i>Centella asiatica</i> L.	Apiaceae	Vallarai	Whole plant	Improving memory, psychiatric disorder
21.	<i>Coleus aromaticus</i> Benth	Lamiaceae	Karpura valli	Whole plant	Cough, fever and liver tonic
22.	<i>Cissus quadrangularis</i> L.	Vitaceae	Pirandai	Shoot and leaf	To stimulate hunger
23.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Arugampullu	Whole plant	Rheumatism
24.	<i>Datura metel</i> L	Solanaceae	Karu oomatthai	Leaf	Earache
25.	<i>Decalepis hamiltonii</i> Wight & Arn	Asclepiadaceae	Mahali Kizhangu	Tuberous root	Cooling agent, Indigestion, Blood purifier
26.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Paalchedi	Whole plant	Stomachache
27.	<i>Emblica officinalis</i> Gaetn	Euphorbiaceae	Nelli	Leaves and fruit	Anti oxidant, tonic and Cosmetic
28.	<i>Garcinia indica</i> Chois.	Rubiaceae	Marukalam	Fruit and bark	Hair tonic and Soap
29.	<i>Gloriosa superb</i> L.	Liliaceae	Kalappa kilangu	Rhizome and seed	Intestinal worms, Snake bite and baldness
30.	<i>Heliotropium indicum</i> L.	Boraginaceae	Thel kodukku Chedi	Leaf	To kill dandruff
31.	<i>Hemidesmus indicus</i> (L.) R.Br.	Asclepiadaceae	Nannari	Root	Body cooling
32.	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Sembarutthi	Leaf	To get healthy and black hair
33.	<i>Ipomoea obscura</i> K. Gawl	Convolvulaceae	Siru oonan	Leaf	Wounds
34.	<i>Justicia adhatoda</i> L.	Acanthaceae	Vasambu	Leaf	Cold and Cough
35.	<i>Jasminum angustifolium</i> Vahl	Oleaceae	Kattu malligai	Flowers, and leaves	Ring worm and Cosmetics
36.	<i>Lantana camera</i> L.	Verbinaceae	Arisimalar	Whole plant	Dysentery, Swellings and Tumour
37.	<i>Leptadenia reticulate</i> W & A	Asclepiadaceae	Palaikkodi	Root	Skin diseases, and inflammation

38.	<i>Leucas aspera</i> Spreng	Lamiaceae	Thumbai	Leaves and flowers	Chronic skin eruption, Psoriasis and Cough
39.	<i>Mimosa pudica</i> L.	Mimosaceae	Thottal sinungi	Leaf	Psoriasis
40.	<i>Mollugo nudicaulis</i> Lam.	Molluginaceae	Parpadagam	Whole plant	Fever, cough & headache
41.	<i>Ocimum sanctum</i> L.	Lamiaceae	Tulsi	Leaves	Asthma, Bronchitis, Stomachache
42.	<i>Passiflora foetida</i> L.	Passifloraceae	Siruppunaikkali	Whole plant	Anxiety, Hypertension
43.	<i>Psidium guajava</i> L.	Myrtaceae	Koyya	Leaves, Pulp and Seed	Respiratory and Gastrointestinal disorder
44.	<i>Rauwolfia serpentina</i> Benth	Apocyanaceae	Sarpaganthi	Root	Hyper tension and blood purifier
45.	<i>Rubia cordifolia</i> L.	Rubiaceae	Manjanathi	Leaves and roo	Blood Purifying and Haemostatic
46.	<i>Ricinus communis</i> L.	Euphorbiaceae	Aamanakku	castor oil	Purgative, hair growth
47.	<i>Solanum anguivi</i> Lam.	Solanaceae	Mullu sundai	Fruit	To destroy round worms
48.	<i>Cucurbita pepo</i> L.	Cucurbitaceae	Parangi	Stem & fruit	To promote contipation
49.	<i>Terminalia arjuna</i> (DC.) W & A	Combretaceae	Maruthamaram	Stem bark	To reduce blood pressure
50.	<i>Wrightia tinctoria</i> (Roxb.) R. Br	Apocynaceae	Veppalai	Leaf	Skin diseases

In Vellamalaipatti, 50 plant species from 32 families were identified for the treatment of human ailments. The Asclepidaceae and Euphorbeaceae families are the most commonly used for human diseases. Plant parts include roots, leaves, seeds, fruit, wood bark, and flowers. Herbal preparations included powder, decoction, oil, and juice. Traditional medical knowledge of medicinal plants, as well as their use by indigenous cultures, are important not only for the preservation of cultural traditions and biodiversity, but also for community

care and drug development in the present and future.

4. CONCLUSION

The current study's findings primarily focused on the role of potential plants that are closely associated with rural, tribal, and traditional healers. It can be concluded that Natham taluk residents with extensive traditional knowledge and documentation of knowledge have provided information from the area. They continue to rely on the plants for medicinal purposes and are concerned about their depletion in the wild, as they now have to travel even further to collect these plants.

ACKNOWLEDGEMENT

The authors are cordially thankful to the informants for their kind support and giving valuable data on ethno medicinal plants during our field visits.

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