

RESEARCH ARTICLE

Documentation of some of the major medicinal plants used by the irula people in Palamalai hills of Coimbatore district, Tamil nadu, India

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ABSTRACT

Our traditional health practices rely heavily on medicinal herbs. Protecting biological diversity requires understanding living things and being aware of how to protect them. A preliminary study on the diversity of medicinal plants was carried out at Palamalai Hills, Nikenpalayam, Coimbatore District, Tamil Nadu. This study examined his 36 most useful medicinal herbs with high healing potential. Herbal medicines are used by the Irula people to treat red rash, diabetes, jaundice, asthma, fertility, infertility, hay fever, and other illnesses. Scientific knowledge is required to cultivate the above-mentioned medicinal plants to prevent most diseases and both to develop and protect natural resources.

Keywords: Ethnobotany, traditional knowledge, medicinal plants

1. INTRODUCTION

Homemade herbal remedies have long been used to treat various infections. Plants and plant products have excellent antimicrobial properties and have been shown to be useful in the prevention and treatment of both communicable and non-communicable infections [1]. The currently accepted allopathic treatments have gradually evolved over many years of scientific efforts by scientists. Nevertheless, the basis of development remains in the roots of traditional medicine. For the majority of humans, plants are the only source of medicine. Plants are widely used in traditional medical systems in different cultures and countries around the world [2].

However, most of the traditional knowledge about the use of plants is unknown to us and only known to tribal people. Therefore, understanding traditional knowledge through participatory tribal research is critical to transmitting knowledge to the next generation. This study focuses on the tribal and village knowledge of Palamalai Hills. Palamalai Hills are small hills that connect to the southern Western Ghats. It has expanded physically due to its interaction with the Biligulianga hills extending up to the Western Ghats of the Nilgiris. The Palamalai

Hills have both dry tropical and dry deciduous forests [3].

The Irular people are a small Dravidian-speaking tribe living in southeastern India. They belong to the Negrito tribe, one of the six major ethnic groups that contribute to this racial mosaic of ideas [4]. The origin of the word "Irular" is unknown, but some speculate that it is derived from the Tamil word Irular. Villagers often see them as shadowy shadows in the forest, lending credence to their local name, Forest People [5]. In recent years, several researchers have recorded a large number of medicinal plants used by Irish tribes in the Anaikatti, Siruvani and Maruthamalai hills of Coimbatore district. There is no data documenting the knowledge regarding the use of medicinal plants for various diseases. Therefore, with an aim to identify, investigate and document the ethnomedicinal plants prescribed by the Irula tribal community of Palamalai Hills, Western Ghats and Coimbatore district, record the ethno-medical knowledge of the Irula tribe living in the study area. Attempts have been made to document and. Identification of endemic and endangered medicinal plants of Palamalai Hills, Western Ghats, Coimbatore District.

2. MATERIALS AND METHODS

2.1. Study area

The current project was implemented in Coimbatore district, Palamalai Plateau, Tamil Nadu, South India. Palamalai is a tributary of the Eastern Ghats and is geographically connected to the Biligurilianga Range, which joins the Western Ghats at the Nilgiris. This location is located at an altitude of 1839 meters above mean sea level and the coordinates are 11: 720438 and 77: 739486. The coordinates of this location are 11:43 N, 13.58 E. The climate is tropical, with annual rainfall of 910 mm [6]. The region's vegetation is characterized by dry tropical forests and dry deciduous forests.

Palamalai is an ethnoarchaeologically and culturally rich forest place. These are the cheap Lianga hills below the Nilgiris hills of the Western Ghats. To the east, it borders Coimbatore in the state of Tamil Nadu. North of the Nilgiris, south of Periyanaiken Palayam taluk and west of Koobanur-I and II Naiken Palayam and Palamalai villages in Coimbatore district. Palamalai consists of 25 hamlets. The population consists of the Palamalai tribe of Irula, parts of the Badagas, and settlers from neighboring districts of Tamil Nadu and Coimbatore. Irula is the largest settlement in the region, home to 80% of the indigenous population.



Figure 1. Study area

2.2. Method

From August 23 to October 28, 2023, the tribal communities of Palamalai Hills were subjected to ethnopharmacological field survey and ethnobotanical habitat identification. Face-to-face communication, questionnaires, and discussions with elders from surrounding villages were conducted to obtain information about medicinal plants from indigenous tribes, herbalists, and villagers of the Palamalai Hills. To know more about plant phenology, a comprehensive and detailed field survey was carried out in Palamalai hills of Mettur taluk, Coimbatore district. Data collection involved repeated field visits and careful interactions with local residents and traditional practitioners in their native language (Tamil). The preserved plant specimens were taxonomically identified using the Madras Presidency Flora [7] and the Flora of India [8].

3. RESULTS AND DISCUSSION

The current investigation found that tribals used several plants from the Palamalai Hills in the Coimbatore area to cure different diseases. A total of 36 plant species were discovered, with members of the Amaranthaceae family dominating. All 36 species have therapeutic properties. The botanical names, family names, and therapeutic applications of the plants collected are listed below.

3.1. Morphological Parts used

Current research has revealed that the tribes of the Palamalai hills of Coimbatore district used certain herbs to treat various ailments. A total of 36 plant species were identified, mainly from the Amaranthaceae family. Each of the 36 species has therapeutic properties. The scientific names, family names, and medicinal uses of the collected plants are shown below.

S. No	Plant part used	Number	Experiment Percentage
1	Whole plants	7	21.87%
2	Root	3	9.37%
3	leaves	18	56.25%
4	Fruits and seeds	7	21.87%
5	Bark	6	18.75%
6	flower	1	3.12%

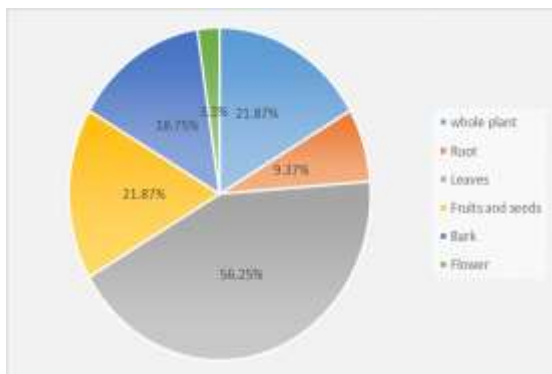


Figure 2. Plant parts used for the various ailments.

3.2. Medicinal Plant Distribution in Terms of Habit

In terms of plant habits, herbs with 16 species constitute the largest number of species followed by shrubs with 8 species, trees and climber used 9 and 3 respectively (Table 2 & fig 3)

Table 2. Habit of plant species

S.No	Habit	Number of species
1.	Herbs	16
2.	Shrubs	8
3.	Tree	9
4.	Climber	3

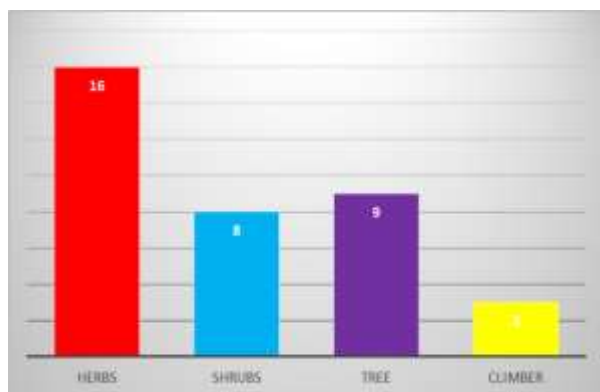


Figure 3. Distribution under different forms of habit

1. *Abelmoschus moschatus* L.

Family : Malvaceae
Common name : Kasturi venda
Habit : Shrub
Parts used : Leaves, Fruits, Seeds
Uses by Irula : Tea made using the leaves are used to cure urinary infection. Seeds are made into paste and mix with honey taking this daily will cure mouth ulcers and sexual disorders.

2. *Abrus precatorius* L.

Family : Fabaceae
Common name : Kunni kuru
Habit : Shrub
Parts used : Leaves, Seeds
Uses by Irula : Paste of seed is used in skin disorders. Leaves of *Abrus* is mixed in and kept in the inflamed area. A tea made of using the leaves are used against cough and cold.

3. *Acacia pycnantha* Benth.

Family : Fabaceae
Common name : Acacia
Habit : Tree
Parts used : Bark
Uses by Irula : Decoction of bark is used for mouth ulcers.

4. *Achyranthes aspera* L.

Family : Amaranthaceae
Common name : Kadaladi
Habit : Herb
Parts used : Leaves
Uses by Irula : Leaves are made into paste and used against skin diseases. Seeds of this plant are used by tribal people as gruel. Leaves of *Achyranthus* mixed with honey is used for digestive problems.

5. *Adathoda vasica* L.

Family : Acanthaceae
Common name : Adalodakam
Habit : Herb
Parts used : Leaves
Uses by Irula : Leaves are made into paste and mixed with honey and taken in

empty stomach for cough and bronchitis. Leaves of *Adathoda* mix with jaggery used against menstrual problems.

6. *Adenanthera pavonina* L.

Family : Fabaceae
Common name : Manjadi

Habit : Tree
Parts used : Leaves & Bark
Uses by Irula : In traditional medicine, a decoction of the young leaves and barks used to treat diarrhoea. Also, the ground seeds are used to treat inflammation.

7. *Aegle marmelos* (L.)

Family : Rutaceae
Common name : Koovalam
Habit : Tree
Parts used : Root, Leaves, Fruits
Uses by Irula : Having Juice of leaves 10 mL daily will control diabetes, Root is made into juice and used against ear diseases, and also have healing properties. Leaves are made into paste and apply on the breast of feeding mother will prevent the child from diseases.

8. *Aerva lanata* (L.)

Family : Amaranthaceae
Common name : Cherula
Habit : Herb
Parts used : Whole plant
Uses by Irula : Boil water using *Aerva lanata* and taking bath using that water will reduce body pain. Juice of leaves mixed with milk taken daily will prevent kidney stones. Leaves are made into paste and mixed with curd, taken daily prevent diabetes.

9. *Ageratum conyzoides* L.

Family : Asteraceae
Common name : Kumminipacha
Habit : Herb
Parts used : Leaves
Uses by Irula : Oil made using the leaf is used to cure Arthritis. Leaf juice is also applied for healing wounds.

10. *Albizia lebbek* (L.) Benth

Family : Miomosaceae
Common name : Kattuvaka
Habit : Tree
Parts used : Bark
Uses by Irula : Decoction of bark is used medicinally to treat inflammation, jaundice and mouth ulcers.

11. *Alstonia scholaris* L.

Family : Apocynaceae
Common name : Daivappala
Habit : Tree
Parts used : Bark
Uses by Irula : Bark is made into paste used for skin diseases.

12. *Alternanthera brasiliiana* L.

Family : Amaranthaceae
Common name :
Habit : Herb
Parts used : Leaves
Uses by Irula : Paste of leaf is used for wound healing.

13. *A. sessilis* (L)

Family : Amaranthaceae
Common name : Ponnangann
Habit : Herb
Parts used : Leaves
Uses by Irula : Leaf decoction with adding a pinch of salt and used for digestion. Juice made up of tender leaves is used to increase blood count in dengue patients. Tribes make curry using the leaves without adding oil it is used for anemia. Soup made of leaves and stem are used to control

cholesterol and helps in digestion.

14. *Amaranthus spinosus*

Family : Amaranthaceae
Common name : Mullucheera
Habit : Herb
Parts used : Leaves and stem
Uses by Irula : Leaf decoction with adding a pinch of salt and used for digestion. Juice made up of tender leaves is used to increase blood count in dengue patients. Tribes make curry using the leaves without adding oil it are used for anemia. Soup made of leaves and stem are used to control cholesterol and helps in digestion.

15. *Amorphophallus commutatus* (Schott)

Family : Arecaceae
Common name : Kattuchena
Habit : Herb
Parts used : Fruit
Uses by Irula : Including the fruit in diet will control obesity, in curing piles, control blood pressure and diabetes

16. *Anacardium occidentale* L.

Family : Anacardiaceae
Common name : Kasu mavu
Habit : Tree
Parts used : Fruit and Leaves
Uses by Irula : Fruit has anticancer activity, it is also used for vitamin C deficiency. Decoction of fruit is used for vomiting.

17. *Artocarpus hirsutus* Lam.

Family : Moraceae
Common name : Anjili

Habit : Tree
Parts used : Fruit
Uses by Irula : Fruits are used for digestive problems and it also increases sperm production.

18. *Artabotrys odoratissimus* R.Br.

Family : Annonacea
Common name : Manoranjini
Habit : Climber
Parts used : Leaves and flowers
Uses by Irula : Tea made up of leaves and root prevents cancer. Leaf decoction also used to treat cholera.

19. *Asystasia gangetica* L.

Family : Acanthaceae
Common name : Chinese Violet
Habit : Herb
Parts used : Leaves
Uses by Irula : Decoction of leaf is used for asthma

20. *Azadirachta indica* A.Juss.

Famil : Meliaceae
Common name : Veppu
Habit : Tree
Parts used : Leaves
Uses by Irula : 4-5cm long tender stem is caused in the form of tooth brush and bridging using that will cure tooth pain and cleanse the mouth. Dried leaves are made into power and mixing it with milk it is used for blood purification. Powered leaf mixed with turmeric is used for pimples and all skin diseases. Decoction of leaf is used to cleanse the scalp it cures dandruff problems.

21. *Bambusa arundinacea* (Retz.) Willd.

Family : Poaceae
Common name : Mula
Habit : Tree
Parts used : Bark, Root
Uses by Irula : An ointment from the root is said to be a folk remedy for cirrhosis and hard tumors, especially tumors of the

abdomen, liver, spleen and stomach, Decoction of bark is mixed with honey is used for respiratory disease. Decoction of leaf is used for stimulating mensuration. Tribal people used stripes of bamboo for curing back pain.

22. *Biophytum sensitivum* DC.

Family : Oxalidaceae
Common name : Mukkutti
Habit : Herb
Parts used : Whole plant
Uses by Irula : 25g of whole plant is made into paste and mixing it in coconut oil and massaging it in head helps to cure nasal polyps (small out growth in nose). The whole plant is made into paste and mixing it with milk and having it daily will help to maintain youth. Leaves made into paste and mixing it with 1 teaspoon of honey having it will help to cure white discharge in women.

23. *Bixa orellana* L.

Family : Bixaceae
Common name : Kurannumannal
Habit : Shrub
Parts used : Leaves and Fruits
Uses by Irula : The shrub is most well known as the source of the red-orange, annatto pigment. The plant has anticancer activity.

24. *Blepharis maderaspatensis* (L.)

Family : Acanthaceae
Common name : Elumbotti
Habit : Herb
Parts used : Leaves
Uses by Irula : Used to treat eye disease. Juice extracted from leaf is heated with gingelly oil and applied on affected places to heal wound.

25. *Blumea axillaris* (Lam).DC.

Family : Asteraceae
Common name : Kukkura
Habit : Herb
Parts used : Whole plant
Uses by Irula : Whole plant is made into juice and taken orally for diarrhea.

26. *Boerhaavia diffusa* L. nom. cons

Family : Ncytaginaceae
Common name : Thazhuthama
Habit : Herb
Parts used : Whole plant
Uses by Irula : The whole plant is added in boiling water and it is used daily in empty for weight loss. The leaves are made into curry and used for constipation and anemia. 15 ml of leaf juice is taken daily for bronchitis. Whole plant is made into paste and mixed with milk and it is given to people who are addicted to alcohol. A handful of leaves are made in to juice and mixed in mother's milk and used for eye disease.

27. *Calotropis gigantea* (L.) Dryand.

Family : Apocynaceae
Common name : Erikku
Habit : Shrub
Parts used : Whole plant
Uses by Irula : 2 or 3 leaves are heated and holding it tightly to the heel will cure heel pain. Leaf is made into paste and applying it to the ear to cure ear pain. A 4-5cm long stem is taken and its tip is crushed in the tooth brush and brushing using it cure tooth pain.

28. *Capsicum annum* L.

Family : Solanaceae
Common name : Kanthari mulakku
Habit : Shrub
Parts used : Fruits

Uses by Irula : Including fruits in the diet regularly will control cholesterol, heart diseases and diabetes. A drink is made using fruits, curry leaves and curd used for digestion.

29. *Cardiospermum halicacabum* L.

Family : Sapindaceae
Common name : Karuttakunni
Habit : Herb
Parts used : Whole plant
Uses by Irula : Decoction of the plant is used daily by pregnant women for normal delivery. Whole plant is made into paste and it is used by traditional people as an alternative for shampoo which helps in hair growth. A paste is made using leaf and coconut milk and applying it on hair once in a week helps in hair growth.

30. *Cassia fistula* L.

Family : Caesalpiniaceae
Common name : Kanikkonna
Habit : Tree
Parts used : Leaves, Bark
Uses by Irula : Paste of leaf is used for scorpion bite. A paste made using leaf and rice water is applied on skin to treat skin diseases. Decoction of bark is used for stomach pain. Oil made using flowers are used for skin diseases.

31. *Cenchrus ciliaris* L.

Family : Poaceae
Common name : Buffel grass
Habit : Herb
Parts used : Leaves
Uses by Irula : Decoction of leaf is used for urinary tract infection.

32. *Centrosema pubescens* Benth.

Family : Fabaceae
Common name : Butterfly pea

Habit : Climber
Parts used : Whole plant
Uses by Irula : Decoction of whole plant is used for stomach discomfort

33. *Chromolaena odorata* (L.)

Family : Asteraceae
Common name : Communist pacha
Habit : Shrub
Parts used : Leaves, Root
Uses by Irula : Malayalam name communist pacha is because it has healed the wounds of many comrades during the freedom fights. Root Juice mixed in milk is used for kidney stones. Taking bath in water boiled using the leaf will cure body pain in chikengunia patients. Having the decoction of leaf daily will help to maintain the pH of stomach.

34. *Cleome rutidospermum* DC.

Family : Cleomaceae
Common name : spider flowers
Habit : Herb
Parts used : Leaves
Uses by Irula : Leaf juice is used for skin diseases.

35. *Clerodendron infortunatum* L.

Family : Verbenaceae
Common name : Perungulam
Habit : Perungulam Shrub
Parts used : Leaves
Uses by Irula : The tender leaves of the plant and make it into a paste and then applying it on the toe nail will cure migraine. Leaves are made into juice and mixing it with milk it's used as a medicine against snake bite.

36. *Chrozophora rotteleri* L.

Family : Euphorbiaceae
Common name : Suryavarthi
Habit : Shrub
Parts used : Leaves
Uses by Irula : A paste is made using

leaves and mixed with turmeric used for wound healing.

4. CONCLUSION

The present study was carried out in Palamalai 36 plant species belonging to 23 families. In recent days there is a hindrance in the transfer of traditional knowledge from generation to generation. So the knowledge about medicinal plants, traditional healers and their uses were highly important. This documentation study helped for the conservation of endangered plant species and for the identification of medicinal plants.

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