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Research Article

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A survey of medicinal plants used by the inhabitants in Padiyur, Kangeyam Taluk, Tirupur District, Tamil Nadu, India

M. Devasenathipathi, S. Rajeswari, J. Anuja*, S. Athira

Department of Botany, PSG College of Arts & Science, Coimbatore-641014, Tamil Nadu, India

ABSTRACT

In this investigation, the local people were enquired to know about the common medicinal plants and their usage in their day-to-day life. An attempt was made to make a systematic approach to record the local name, binomial name, and mode of administration from the inhabitants of Padiyur, Kangeyam Taluk, Tirupur District. The ethnomedicinal data were collected and documented by randomly planned visits from December 2020 to May 2021. This paper provides the herbal preparations of the medicinal plants which are used till now. A total of 105 species belonging to 47 families were documented. The ethnobotanical work with valid information was analyzed and verified using the Informant Consensus Factor (ICF), Use Value Index (UVI) and Relative Frequency of Citation (RFC).

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***Corresponding author:**
J. Anuja
E-mail: anuja@psgcas.ac.in

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INTRODUCTION

The plants are highly beneficial to mankind. They contribute either directly or indirectly from dates back. They are used in various fields such as food, fodder, medicines, commercial materials, furniture, agricultural tools, and many more products like firewood, ritual resin, gums, and spiritual purposes. In these, medicinal usage to man and veterinary therapeutic is more appreciated. The word 'ethnobotany' by John W. Harshberger in 1895 emphasizes the indigenous knowledge of the usage of plants (Seligmann, 1996). This is not a new field. Many aboriginals were documented in various forms such as baked clay tablets, papyri, parchments, manuscripts, herbal books, and e-documents (latest form). As this knowledge is passed to successive generations through oral communication and utilized with great respect. The WHO emphasizes that the traditional knowledge of any community should be documented as such with their practices, preparation, ingredients, and nature of the ailment. This not only provides information but also helps in the conservation of cultural knowledge and medicinal plants for all the people of the current approaching generation. The use and respect for the traditional way of using therapeutic plants are increasing day by day. There are various reasons for adopting the traditional way of healing. To mention a few, the side effects in modern medicine, the easy availability of native plants, and their mode of preparation can be trusted. The ethnobotanical study is a very old field in India. The country is rich in its folklore diversity, according to various literature surveys, there are about 54 million people who follow their own culture, rites, food, and medicines. According to the ENVIS center (2020), Tamil Nadu which is a state in India is rich in forest cover, around 20% of the state's geographical area. Not only do the forest and tribal communities contribute to indigenous medicinal preparation but local people have many unique procedures for treating the ailments. This study was carried out at the Tirupur district of Tamil Nadu which is an unexplored area. The current work aims to list the medicinal plants with their vernacular, binomial, and family names, to file the indigenous therapeutic preparation of the listed plants, and to analyze the collected data using Relative Frequency of Citation (RFC), Use Value Index (UVI) and Informant Consensus Factor (ICF). Due to the diversity of the medicinal plants, herbal preparation varies from place to place hence studying and documenting always adds more value.

MATERIALS AND METHODS

Description of the Study Area

Padiyur is a large village located in Kangeyam Taluk of Tirupur District, Tamil Nadu (Figure 1). The total geographical area in

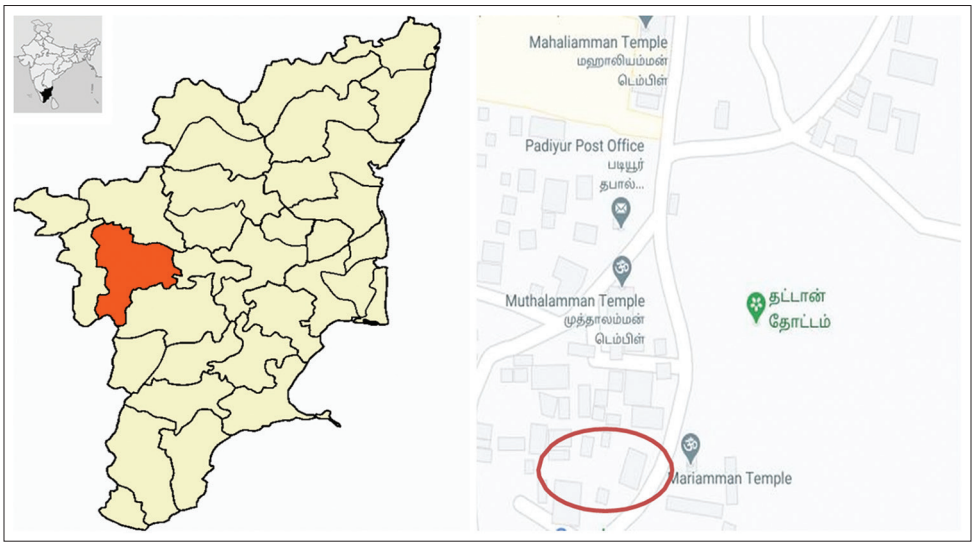

Figure 1: Area Map of Padiyur, Tirupur district, Tamil Nadu, India

which this village is expected is 1127.67 hectares/111.2767 km^2. A total of 759 families residing in the Padiyur village have a population of 2628 of which 1315 are males, and 1313 are females. The literacy rate of Padiyur village was 73.16% compared to 80.09% in Tamil Nadu. In Padiyur male literacy stands at 80.07% while the female literacy rate was 66.33%. The total number of workers in the Padiyur area is 1436 persons, but the main workers are 1234 persons, and at the same time marginal workers are 202. The male marginal worker is 82, and the female marginal worker is 120. Padiyur village has more than 10 temples. There are Shri Lakshmi Narayana Perumal Temple, Muthalamman Temple, Maariyamman Temple, Bagavathi Amman Temple, Pasubathi Paal Vennisvarar Temple (Shivan temple), etc., Among them, the Muthalamman temple is very important in this area. As this temple festival is considered to be very oldest and has the most traditional ethics which they strictly follow every year.

Field Survey

The ethnomedicinal data were collected and documented by randomly planned visits. Before starting the interview, the informants were clarified about the purpose of the study. This inquiry is for academic purposes, not for any commercial use, and they were also conversant about the importance of this kind of information. This study mainly concentrates on recording the indigenous knowledge of elderly people who dwell in this place. A total of 53 informants were selected mainly based on their age. 9 males and 44 females were selected because they still believe in hand medicine which was taught by their descendants. Informants took us to the place and identified the plants by their local names.

Qualitative Methods of the Study

The qualitative method of the study includes 9 males and 44 females a total of 53 people who believe in practicing traditional methods were interviewed. In the current study, two methods were employed one by means of the Visual Appraisal Approach (VAA) and another by Rapid Rural Appraisal (RRA). In the first method, we are intense in the work done by the informants and their mode of administration. In RRA, the dwellers were questioned with varied themes in an open-ended way and comprehended way as the community (Ishtiaq & Khan, 2012). Questionnaires were prepared in the local language (Tamil) and information was collected. This study is very important to know the real deal of medicinal plants and how the local people are identifying these plants (Martin, 1995; Alexiades & Sheldon, 1996; Ishtiaq & Khan, 2008; Ishtiaq *et al.*, 2012). Most of the informants identified plants and explained their vernacular names. For further authentication reliability and publication purposes, the information is translated into English. The plants were translated to botanical names and the families of each plant were documented with the help of standard manuals Gamble (1915-1936). After the interview, informants identified the plants and they were photographed at the spot. The medicinal data were recorded in alphabetical order including family name, vernacular name, plant parts used, mode of administration, and treatment diseases.

Data Analysis

Collected data were documented in the form of tables and graphical representations.

Informant consensus factor (ICF)

The Informant Consensus Factor (ICF) is a numerical measure used to assess the level of agreement among informants' knowledge, particularly in the context of categorizing plants based on their practical use. ICF (Trotter & Logan, 1986; Bibi *et al.*, 2014) was calculated by using the following formula:

$$ICF = (N_{ur} - N_t)/(N_{ur} - 1)$$

where "N_{ur}" denotes the total count of use reports for each disease category, while "N_t" represents the number of taxa utilized within

that category. The values of ICF range between 0 and 1. A higher ICF value suggests a consensus among respondents regarding the use of taxa within a medicinal category. The significance of a species is assessed based on the percentage of respondents who mention it (Asiimwe *et al.*, 2021).

Use value

Use value (UV) is an index widely used to quantify the relative importance of useful plants. It combines the frequency with which a species is mentioned with the number of uses mentioned per species and is often used to highlight prominent species of interest. It is calculated by Phillips *et al.* (1994),

$$\text{Use of Value (UV)} = (\sum \text{Ui})/\text{N}$$

Where "U" refers to the number of uses mentioned by the informants for a given species, and "N" refers to the total number of informants interviewed. If a plant secures a high UV score that indicates there are many use reports for that plant, while a low score indicates fewer use reports cited by the informants.

Relative frequency citation (RFC)

The Relative Frequency of Citation (RFC) index (Tardío & Pardo-De-Santayana, 2008) was evaluated by dividing the number of informants who mentioned the use of the species (FC) by the total number of informants participating in the survey (N). The RFC index ranges from "0" when nobody referred to a plant as useful to "1" when all informants referred to a plant as useful.

$$\text{RFC} = \text{FC/N}$$

$$\text{RFC} = (0 < \text{RFC} < 1)$$

$$\text{RFC} - \text{FC/N}\ (0 < \text{RFC} < 1)$$

RESULTS

Characteristic Survey of the Informants

In this study a total of 53 informants were selected out of which 44 females and 9 males (Table 1). The age of all the informants was above 30 years and 39.62% of the informants belonged to the age group 50-65 years. Majority (56.6%) of the people is illiterate and 71.68% informants were doing agricultural works for living.

Table 1: Demographic characteristics of informants N=53

Age	No. of informants	Percentage of informants
30-40	6	11.32%
40-50	19	35.84%
50-65	21	39.62%
65- above	7	13.2%
Gender		
Men	9	16.98%
Women	44	83.01%
Educational Background		
Literacy rate	23	43.39%
Illiteracy rate	30	56.6%
Occupation		
Daily wages (agricultural)	38	71.69%
Homemade	15	28.3%

Family, Genera and Use of Plants

In the investigation, a total of 104 species that belongs to 93 genera in 46 families were observed (Table 2). Most of the species belongs to Fabaceae (10), followed by Cucurbitceae (8), Amaranthceae (6), and Solanaceae (5). All the 104 species along with their family, local name, life form, parts used, mode of preparation, administration quantity, usages, usage report, Use Value Index (UVI), and Relative Frequency Citation (RFC) are listed in Table 3. 23 species are used by more than 40 informants for medicinal purposes. *Curcuma longa* and *Azadiracta indica* are the two species used by all the informants.

Table 2: List of families with total number of taxa

S. No.	Family	No. of genus	No. of species
1	Magnoliaceae	1	1
2	Annonaceae	1	1
3	Menispermaceae	1	1
4	Capparidaceae	1	1
5	Malvaceae	4	4
6	Zygophyllaceae	1	1
7	Rutaceae	3	3
8	Meliaceae	1	1
9	Rhamnaceae	1	1
10	Vitaceae	1	1
11	Sapindaceae	1	1
12	Anacardiaceae	1	1
13	Moringaceae	1	1
14	Fabaceae	10	12
15	Caesalpiniaceae	1	1
16	Mimosaceae	1	1
17	Myrtaceae	3	3
18	Lythraceae	2	2
19	Passifloraceae	1	1
20	Caricaceae	1	1
21	Cucurbitaceae	8	8
22	Cactaceae	1	1
23	Apiaceae	2	2
24	Rubiaceae	1	1
25	Asteraceae	3	3
26	Oleaceae	1	1
27	Apocynaceae	3	3
28	Convolvulaceae	1	1
29	Solanaceae	3	5
30	Bignoniaceae	1	1
31	Pedaliaceae	1	1
32	Acanthaceae	1	1
33	Verbenaceae	2	2
34	Lamiaceae	4	5
35	Nyctaginaceae	2	2
36	Amarantaceae	5	6
37	Piperaceae	1	1
38	Moraceae	1	3
39	Euphorbiaceae	4	7
40	Phyllanthaceae	1	1
41	Zingiberaceae	2	2
42	Musaceae	1	1
43	Liliaceae	2	2
44	Arecaceae	2	2
45	Cyperaceae	1	1
46	Poaceae	3	3
Total	46	93	104

Table 3: Relative Frequency of Citation (RFC) and Use Value Index (UVI) of most commonly used medicinal plants by the dwellers

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Justicia adhatoda L. (26)	Acanthaceae	Adathodai	Shrub	Leaves	Powder	Oral	2 spoons with honey	Phlegm-18 Cold andcough-22 Headache-8 Asthma-6.	54	1.018	0.4905
Allium cepa L. (35)	Liliaceae	Chinnavengayam	Herb	Bulb	Cook Paste	Oral External	50 g 50 g with turmeric	Headache -28 Rheumatism-12 Pimple-22 Hair fall- 28	90	1.698	0.6603
Achyranthes aspera L. (22)	Amaranthaceae	Nayuruvi	Herb	Leave	South Indian soup	Oral	50 mL	Indigestion-18 Boost immunity system-9 Asthma-5	32	0.603	0.4150
Aerva lanata L. (7)	Amaranthaceae	Sirupoolai	Herb	Leave & Root	Decoction	Oral	10 mL	Blood circulation-3 Kidney stone-5	8	0.150	0.1320
Aervato mentosa L. (8)	Amaranthaceae	Perumpoolai	Shrub	Flowers	Billow	External	5 kg	Headache-8 Remove the water from head-8	16	0.301	0.1509
Alternanthera sessilis L. (29)	Amaranthaceae	Ponnankannikeerai	Herb	Whole plant	Cooked	Oral	2 hands	Digestive problem-24 Eye problem -18 Headache-5	47	0.886	0.5471
Amaranthus viridis L. (38)	Amaranthaceae	Kuppaikeerai	Herb	Leave	Cook	Oral	2 hands	Constipation-38 intestine problems-38 blood purification-14	90	1.698	0.716
Digera muricata L. (29)	Amaranthaceae	Thoyakeerai	Herb	Leave	Cook	Oral	2 hands	Constipation-29 Urinary disorders-23 Astringent-16 Diuretic-11 Diabetic-9	88	1.660	0.5471
Mangifera indica L. (22)	Anacardiaceae	Mamaram	Tree	Fruit	Juice	Oral	150 mL	Asthma-5 Astringent-4 Increasing fiber content-1 Invigorating-8	32	0.603	0.4150
Annona squamosa L. (16)	Annonaceae	Sithappalam	Tree	Fruit	Raw form	Oral	1	Spinal Disorders-8 Invigorating-14 Mental Depression-6	28	0.528	0.3018
Centella asiatica L. (38)	Apiaceae	Vallarai	Herb	Leave	Cook Decoction	Oral Oral	150 g 20 mL	Constipation-34 Urinary tract infection-24 Boosts the immune system- 38 Improves brain functions- 22	118	2.226	0.7169
Coriandrum sativum L. (44)	Apiaceae	KothumalliThalai	Herb	Leave	Cook/decoction	Oral	150 g/20mL	Stomach problems-38 Diabetics-28 Liver dysfunction-22 Dizziness-34 Bile-29 Emesis-44	191	3.603	0.8301

(*Contd...*)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Calotropis gigantea L. (22)	Apocynaceae	Erukku	Shrub OR Small tree	Latex	Drops	External	5	The antidote of snake poison-18 remove the broken spine in our damage part-22	40	0.754	0.4150
Catharanthus roseus L. (22)	Apocynaceae	Nithiyakalyani	Herb	Leave	Paste	External	10 g with turmeric	Wounds-18 Wasp bite- 15	33	0.622	0.4150
Plumeria alba L. (23)	Apocynaceae	Perungalli	Small tree	Leave Latex	Paste Drops`	External External	10 g 3 drops	Joint pain-15 wounds- 18 Itching- 22 Toothache-8	63	1.188	0.4339
Borassus flabellifer L. (35)	Arecaceae	Panaimaram	Tree	Palm wine, fruit (ice apple) palm shoots	Raw form Cook	Oral Oral	300 mL with calcium/1 2	Diuretic-28 Cooling-35 Constipation-23 Anti-inflammatory-18 Gastritis-21 Anorexia-25	150	2.830	0.6603
Cocos nucifera L. (39)	Arecaceae	Thennaimaram	Tree	Tender coconut	Raw form	Oral	200 mL with rock sugar	Antioxidants-31 Control the blood pressure-27	147	2.773	0.7358
				Fruit	Cook & milk form	Oral	1	The benefit of heart health-28 Boost immune system-39 Pulmonary affection-22			
Helianthus annuus L. (28)	Asteraceae	Suriyakanthi	Shrub	Flower & seed	Cook (oil)	Oral	2 tablespoons	Joint pain-18 Whooping Cough-20 Pulmonary affection-15 Boost the immune system-28	81	1.528	0.5283
Tridax procumbens L. (45)	Asteraceae	Thathappu	Herb	Leave	Paste	External	15 g or 1 hand of leaves	The wound caused by cut- 45	45	0.849	0.8490
Wedelia biflora Dc. (48)	Asteraceae	Manjalkarisalankanni	Herb	Leave & flower	Cook Oil	Oral External	2 hands of leave 5 mL	Stomach ache-22 Eye problems-15 Blood purification-8 Chronic skin diseases-18 Hair fall and Dandruff-45	108	2.037	0.9056
Tecoma stans L. (16)	Bignoniaceae	Manjaralli	Shrub	Root	Extract	External	5 mL	Snake bites-6 Wasp bites12	18	0.339	0.3018
Opuntia dillenii Haw. (12)	Cactaceae	Sappathikalli	Shrub	Fruit	Raw form	Edible	2	Digestive problem-7 Boost the immune system-7 Anorexia-5	19	0.358	0.2264
Cassia auriculata L. (33)	Caesalpinaceae	Aavaram	Shrub	Leave	Paste	External	Apply to the body before bath	Skin troubles- 32 Itching- 27 Psoriasis22	81	1.528	0.6226
Cleome viscose L. (10)	Capparaceae	Naaikadugu	Herb	Leave	Paste	External	10 g	Wounds-8 Insect bite-9.	17	0.320	0.1886

(Contd...)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Carica papaya L. (42)	Caricaceae	Pappali	Tree	Fruit	Juice	Oral	300 mL	Stomach-33 Digestive-(38) Intestine problem-(35) Diabetes- 37 low blood sugar-33	176	3.320	0.7924
				Leaf	Decoction	Oral	20 mL				
Ipomoea batatas L. (31)	Convolvulaceae	Sakkaravallikilangu	Tuber's root	Tuber	Cook	Oral	500 g	Diabetes- 27 Blood pressure- 24 Digestion-31 Boosting immune system-31 Anorexia-22	135	2.547	0.5849
Citrullus colocynthis L. (26)	Cucubitaceae	Kumuttikkai	Herb	Fruit	Shooter in the fire	External	2	Foot explosion-26 Joint pain and Leg pain-22	48	0.905	0.4905
Coccinia grandis L. (30)	Cucubitaceae	Kovaikai	Climber	Fruit	Juice and cook	Oral	1 hand	Antipyretic-22 Jaundice30 Digestion28 Anorexia-22	136	2.566	0.5660
				Leaf Stem	Decoction	Oral	10 mL	Kidney stones-18 Hand & leg swelling-16			
Cucurbita maxima Duch. (29)	Cucubitaceae	Arasaanikkai	Climber	Fruit	Cook	Oral	250 kg	Diuretic- 21 Migraine18 Antioxidant-20 Boost immunesystem-29 Digestive-29 Constipation-29	146	2.754	0.5471
Momordica charantia L. (31)	Cucubitaceae	Paavakkai	Climber	Fruit	Cook juice	Oral	1 tumbler	Ulcers-28 Jaundice-22 Increase immunity-31 Anorexia-19	100	1.886	0.5849
Mukia maderaspatana L. (26)	Cucubitaceae	Musumusukkankai	Climber	Whole plant	South Indian soup	Oral	100 mL	Cough- 26 Cold-26 Lung disorders-15 Asthma-18 Diuretic-14	99	1.867	0.4905
Lagenaria siceraria Mol. (36)	Cucubitaceae	Surakkai	Climber	Leave	Soup	Oral	½ tumbler	Bronchitis-29	91	1.716	0.6792
				Fruit	Cook	Oral	2	Asthma-18 Jaundice-8 boost immunity system-36			
Luffa cylindrical L. (33)	Cucubitaceae	Pirkankai	Climber	Fruit	Cook	Oral	2	Migraine-29 Anemia-23 Constipation-30 Blood purification-33	115	2.169	0.6226
Cyperus rotundus L. (16)	Cyperaceae	Koraikkilangu	Herb	Tuber	Raw form	Oral	10 g	Respiratory problems-9 Increases immunity-16Dizziness-5	30	0.566	0.3018

(*Contd...*)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Acalypha indica L. (44)	Euphorbiaceae	Kuppaimeni	Herb Herb	Leave	Paste	External	Apply to the body before bathing with turmeric	Skin diseases- 44 Itching-44 Psoriasis-44	132	2.490	0.8301
Euphorbia hirta L. *(37)*	Euphorbiaceae	Amman paccharisi	Herb	Whole plant Latex	Powder Drop	Oral External	1 spoon add with 1 tumbler milk 5 drops	Stomach problems-28 Dysentery- 22 Wound-37	87	1.641	0.6981
Euphorbia geniculata Ovt. (15)	Euphorbiaceae	Palperukki	Herb	Leave & seed	Paste	External	Small quantity	Skin problem- 13 Wounds-15	28	0.528	0.2830
Euphorbia tirucali L. (26)	Euphorbiaceae	Pachchampaal	Tree	Latex	Drops	External	Small quantity	Uvula remove- 26 Cough-26 Wasp stings14	66	1.245	0.4905
Phyllanthus maderaspatensis L. (19)	Euphorbiaceae	Mela nelli	Herb	leave	Paste	Oral	1 ball	Astringent-14 Bronchitis-11 Stomach problems-18 Jaundice-10	53	1	0.3584
Phyllanthus niruri L. (28)	Euphorbiaceae	Kila nelli	Herb	Leave	Paste	Oral	1 ball mixed with goat's milk	Jaundice-22 Kidney stones-18 Stomach problems-25 Diabetes- 11	66	1.245	0.5283
Ricinus communis L. (37)	Euphorbiaceae	Kottamuthu	Shrub	Seed	Oil	External Oral	1 Drop 2 drops mixed with breastfeeding	Eye problems-37 Constipation- 32 Bronchitis-22 Stomach problems-28	119	2.245	0.6981
Acacia arabica L. (17)	*Fabaceae*	Karuvelam	Tree	Stick	Brush	External	1	Dental problems-17	17	0.320	0.3207
Acacia catechu L. (8)	*Fabaceae*	Karungali	Tree	Bark	Decoction	Gargle	10 mL	Dental problems-8	8	0.150	0.1509
Bauhinia variegata L. (7)	*Fabaceae*	Mantharai	Tree	Flower	Decoction	Gargle	10 mL	Mouth ulcer-7	7	0.132	0.1320
Clitoria ternatea L. (17)	*Fabaceae*	Sangu poo	Herb	Flower	Decoction	Oral	1 cup	headache- 17 migraine- 15 blood purification-10	42	0.792	0.3207
Cyamopsis tetragonoloba L. (35) 2	*Fabaceae*	Koththavarankai	Herb	Pods	Cook	Oral	200 g	Digestive-30 Appetizer-35 eye problems-22 boost the immunity-35	122	2.301	0.6603
Delonix elata Gamb. (12)	*Fabaceae*	Vaathanarayanamaram	Tree	Leave	Grained South Indian soup	External Oral	Small quantity 1 cup	Joint swelling-8Wounds-9 Indigestion-12 boost immunity system-12	41	0.773	0.2264
Delonix regia Raf. (7)	*Fabaceae*	Mayilkondrai	Tree	Leave & flower	South Indian soup	Oral	1 cup	Constipation-5 Joint inflammation-7.	12	0.226	0.1320

(*Contd...*)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Pongamia pinnata L.(30)	*Fabaceae*	Pongumaram	Tree	Seed	Neckless (babies)	External	10	whooping cough-28	80	1.5094	0.5660
				Seed	Oil	External	10 mL	Skin diseases-22 Ortho problems-30			
Sesbania grandiflora L. (29)	*Fabaceae*	Agathi	Tree	Flower	Cook	Oral	Small quantity	Boost the immune system-29 Digestive-24 Mouth ulcer-19	72	1.358	0.5471
Tamarindus indica L. (42)	*Fabaceae*	Puliyamaram	Tree	Fruit	Cook	Oral	Small quantity	Body cooling-42	107	2.018	0.7924
				Seed	Grained	External	Small quantity	Digestive-37 Swelling-28			
Tephrosia purpurea L. (17)	*Fabaceae*	Kolunchi	Herb	Leave & flower	Powder	Oral	1/2 spoon with honey	Cough-11 Bronchitis-8 Urinary disorder-6	25	0.471	0.3207
Vicia faba L. (32)	*Fabaceae*	Avarakkaai	Herb	Pods	Cook	Oral	200 g	High blood pressure-28 Cholesterol-32 Boost the immune system-32	92	1.735	0.6037
Leucas aspera L. (27)	*Lamiaceae*	Thumbai	Herb	Leave	Grained	External	Small quantity	Wounds-27 Snake bite-18 Wasp bites-21	81	1.528	0.5094
				Leave	Extract	External	3 drops	Migraine-15			
Mentha arvensis L. (29)	*Lamiaceae*	Pothina	Herb	Leave	Cook & juice	Oral	Small quantity	Dental caries-28 Digestive-29 Arthralgia problems-21 Anorexia-32	110	2.075	0.5471
Ocimum basilicum L. (33)	*Lamiaceae*	Thinnirpaththini	Herb	Leave& seed	Decoction	Oral	1 tumbler	Cold-33 Antibacterial-28 Mouth ulcers-30	144	2.716	0.6226
				Leave	paste	External	Apply the body before bath	Headache-29 Skin disease for babies-24			
Ocimum sanctum L. (49)	*Lamiaceae*	Thulasi	Herb	Leave	Decoction	Oral	Small quantity with *Piper betle*	Asthma-28 Digestive-38 Headache-40 Cough and cold-32 Phlegm-35 Boost the immunity-49	222	4.188	0.9245
Plectranthus amboinicus L. (41)	*Lamiaceae*	Karpuravalli	Shrub	Leave	Decoction	Oral	Small quantity with *Piper betle & Ocimum sanctum*	Phlegm-22 Cough and cold-27 Increases immunity-41	131	2.471	0.7735
					Paste	Oral	Small quantity	Hair fall-41			
Aloe vera L. (46)	Liliaceae	Chotthukatthallai	Succulent Herb	Gel	Raw form	External	Small quantity	Skin diseases-29 Hair fall and dandruff-38	232	4.377	0.8679

(*Contd...*)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
					Juice	Oral	1 tumbler	Stomach problems-33 Digestive problems-40 Body cooling-46 Eye cooling-46			
Lawsonia inermis L. (39)	Lythraceae	Maruthani	Shrub	Leave	Paste	External	Small quantity	Hair fall and dandruff-31 Body cooling-39	96	1.811	0.7358
					Paste	External	Small quantity with turmeric	Foot eruption-26			
Punica granatum L. (37)	Lythraceae	Madhulai	Shrub	Young Fruit with	Grinned	Oral	1 Young Fruit with ½ tumbler buttermilk	Stomach ache-23 Boost the immune system-37	146	2.754	0.6981
				Fruit	Raw form juice	Oral	1	Blood purification- 28 Blood pressure-21 Increase memory power-3			
Michelia champaca L. (11)	*Magnoliaceae*	Shenbagam	Tree	Flower	Grain	External	10 g with Oleoresin	Joint pain andknee pain-11	11	0.207	0.2075
Ablemoschus esculentus L. (44)	*Malvaceae*	Vendakka	Shrub or Small tree	Fruit	Cook	Oral	250 g	Anemia-36 Boost the immune system-44 Digestive problems-33 Increase memory power-44	157	2.962	0.8301
Abutilon indicum G. (5)	*Malvaceae*	Thuthippoodu	Shrub	Leave	Oil	External	2 drops	Pile's part-5	5	0.094	0.0943
Gossypium herbaceum L. (27)	*Malvaceae*	Paruthi	Herb	Seed	Milk	Oral	1 tumbler with brown sugar	Jaundices-18 Toothache-16 Diabetics-21 Boost the immune system-27	82	1.547	0.5094
Hibiscus rosa-sinensis L. (50)	*Malvaceae*	Semparuthi	Shrub or Small tree	Leave	Decoction Paste	Oral External	10 mL Small quantity	Cholesterol-44 Digestive-31 Headache-45 Immunity system-42 Hair fall and dandruff-50	212	4	0.9433
Azadriacta indica L. (53)	*Meliaceae*	Veppamaram	Tree	Young leave	Paste	External	Apply to the body before bath	Chickenpox- 53	356	6.716	1
				Bark	Decoction	Oral	10 mL	Stomach problems- 44 Increase the immunity-53 Mouth ulcer-33 Headache-31 Throat pain-36			

(Contd...)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
				Seed	Oil	External	3 drops	Wounds-53 Insect bites-53			
Tinospora cordifolia Willd. (17)	*Menispermaceae*	Amirthavallielalai	Shrub	Leave	Extract	External	5 drops	Wounds-17 Insect bites-17	34	0.641	0.3207
Acacia leucophloea Roxb. (8)	*Mimosaceae*	Vella velaamaram	Tree	Bark	Paste	External	Small quantity	Cut wounds -8	8	0.150	0.1509
Ficus benghalensis L. (29)	*Moraceae*	Aalamaram	Tree	Bark	Decoction	Oral	Small quantity	Seminal weakness- 22 Nervous disorders-18 Dental problems- 17	57	1.075	0.5471
Ficus glomerata L. (38)	*Moraceae*	Atthimaram	Tree	Fruit Dried fruit	Raw form Powder	Oral Oral	Small quantity 1 table spoon of powder add with 1 glass of milk	Astringent-27 Antiseptic-18 Urinary problems- 14 Increase sperm cell-33	92	1.735	0.7169
Ficus religiosa L. (31)	*Moraceae*	Arasamaram	Tree	Young Leave	powder	Oral	1 spoon with honey	Pressure – 18 stomach problems-29 ulcer- 25 boost the immunity system-31 jaundice- 15	118	2.226	0.5849
Moringa oleifera L. (42)	Moringaceae	Murunga maram	Tree	leave, pods, seed	Cook	Oral	Small quantity	Constipation- 42 Boost the immune system-42 Increase sperm cell-36	120	2.264	0.7924
Musa paradisiaca L. (49)	Musaceae	Vaalaimaram	Herb	Fruit Stem & flower	Raw form Cook	Oral Oral	1 Small quantity	Constipation-49 Digestion-41 Urinary problems-49 Blood purification 34 Increases the immunity-49	222	4.188	0.9245
Psidium guajava L. (38)	Myrtaceae	Koyyamaram	Tree	Fruit Young leave Young leave	Juice Grained Raw form	Oral Oral Oral	1 tumbler 3 g mixed with butter milk2	Digestion-28 Increase the immunity-38 Stomach problems-22 Dysentery-17 Dental problem-11	116	2.188	0.7169
Eucalyptus globules Labill. (37)	Myrtaceae	Karpuramaram	Tree	Leave	Oil	External	2 drops	Migraine-34 Congestive headache-41 Joint pain and knee pain-33	145	2.735	0.6981
					Boil	External	Small quantity	Cold and cough-37			
Syzygium cumini Skeels. (28)	Myrtaceae	Nagapalamaram	Tree	Fruit	Raw form	Oral	Small quantity	Digestive- 22 Diabetes-8 Boost immunity system-28 Blood purification-10	68	1.283	0.5283

(Contd...)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Boerhavia diffusa L. (16)	Nyctaginaceae	Mukkurattai	Herb	Whole plant	Paste	External	Small quantity	Knee pain-10Wounds-13	23	0.433	0.3018
Bougainvillaea spectabilis Willd. (7)	Nyctaginaceae	Kagitha poo	Shrub	Flower	Decoction	Oral	Small quantity	Low blood pressure-5 Diabetes-2 Digestive problems-8	15	0.283	0.1320
Jasminum sambac L. (9)	Oleaceae	Gundu malli	Shrub	Flower	Decoction	Oral	Small quantity	Cardiac disorders-9 Blood purify-7 Breast cancer-3	19	0.358	0.1698
Passiflora foetida L. (10)	Passifloraceae	Siruppunaikkali	Herb	Whole plant	Paste	External	Small quantity	Skin diseases-10 Insect bites-8 wounds-8	26	0.490	0.1886
Sesamum indicum L. (40)	Pedaliaceae	Ellu	Herb	Seed	Oil	Oral	2 spoons with food	Hair fall- 37 Body cooling, 40 Digestive problems-40 Stomach problems-40.	157	2.962	0.7547
Phyllanthus amarus Schum. (36)	Phyllanthaceae	Nellikkamaram	Tree	Fruit	Pickle	Oral	2 spoons	Diabetes-22 Anemic-11 Bronchitis-25	173	3.264	0.6792
					Raw form	Oral	Small quantity	Antioxidant- 35 Jaundice-8 Digestive-36 Boost the immunity system-36			
Piper betle L. (42)	Piperaceae	Vetrilai	Climber	Leave	Chewing	Oral	3 with calcium	Bronchitis-39 Astringent-26 Antiseptic-42 Digestive problems-42 Toothache-38	187	3.528	0.7924
Bambusa arundinacea Wight. (18)	Poaceae	Moongil	Tree	Rice	Cook	Oral	Small quantity	Anti-inflammatory-9 Ophthalmia-12 Joint pains and rheumatic pain-18 cholesterol- 10 blood pressure-11	60	1.132	0.3396
Chloris barbata L. (5)	Poaceae	Mayilkondaipul	Herb	Leave	Paste	External	Small quantity	Skin diseases-35 Wounds-4	9	0.169	0.0943
Cynodon dactylon L. (41)	Poaceae	Arrugampullu	Herb	Leave	Juice	Oral	½ cup	Treat gastric problems-41 digestive disorders-38 boost the immunity system-41 Stomach problems-31 Urinary disorders-23 blood Purification-22	196	3.698	0.7735
Ziziphus jujuba Mill L. (21)	*Rhamnaceae*	Elandai	Small tree	Fruit	Faw form \ paste	Oral	Small quantity	Blood purify- 17 Boost the immunity system-21 Weight loss-8	46	0.867	0.3962

(*Contd...*)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Ixora coccinea L. (11)	*Rubiaceae*	Idly poo	Shrub	Flower	drops	External	5 (Boil with coconut oil)	Wounds-8 Insect bites-9 Antiseptic-11 Headache-5	23	0.433	0.2075
Citrus limon L. (51)	Rutaceae	Elumuchhai	Tree	Fruit	Juice	Oral	1 glass	Headache-50 Digestive problems-47 Boost immune system-51	337	6.358	0.9622
					Cook	Oral	Small quantity	Stomach problems-38 Blood purify-33			
					Raw form	Smell	1	Dizziness- 38 Bile-29 Vomiting- 51			
Limonia acidissima L. (19)	Rutaceae	Vilvamaram	Tree	Leave Fruit	Raw form Powder	Oral Oral	1 hand 2 spoons with 1 glass of milk	Jaundice-14 Anemia-19 vomiting. 19	52	0.981	0.3584
Murraya koenigiiL. (37)	Rutaceae	Karuveppilai	Shrub OR Small tree	Leave	Cook	Oral	Small quantity	Appetizer-37 Dysentery-22 Hair fall and dandruff-37 Boost immune system-37 Blood purify-21	154	2.905	0.6981
Cardiospermum halicacabum L. (26)	*Sapindaceae*	Mudukottanthalai	Herb	Leave	Cook	Oral	Small quantity	Back pain, joint pain and body pain-26 Pain reliever. 26	53	0.981	0.4905
Capsicum frutescens L. (28)	*Solanaceae*	Milagai chedi	Herb	Fruit	Cook	Oral	Small quantity	increase the blood circulation-27 digestive problem-21	48	0.905	0.5283
Datura metel L. (19)	*Solanaceae*	Umatthai	Shrub	Stem	Burning	Smell	2 times	Asthma-11 Cold and cough-19 Phlegm-15	45	0.849	0.3584
Solanum nigrum L. (47)	*Solanaceae*	Sukkuttykeerai	Herb					Mouth ulcer-47 Cold and cough-33 Digestive-47 Diabetic-19 Stomach problems-40	186	3.509	0.8867
Solanum torvum Sw. (35)	*Solanaceae*	Sundaikkai	Shrub	Pods	Cook	Oral	Small quantity (soaked with butter milk then dried)	Pressure-30 Reduce body heat-33.	63	1.188	0.6603
Solanum trilobatum L. (42)	*Solanaceae*	Thoothuvalai	Shrub	Leave	Cook (soup)	Oral	Small quantity	Cold and cough-42 Asthma-32 Digestive-40 Boost immune system. 42	154	2.905	0.7924

(*Contd...*)

Table 3: *(Continued)*

Botanical Name with No. of Informant	Family	Local Name (Tamil)	Habit	Parts Used	Mode of Preparation	Administration	Quantity	Usages	Usage Report	UVI	RFC
Lantana camara L. (10)	Verbenaceae	Unnichedi	Shrub	Leave	Extract	External	5 drops	insect bites-10 wounds-10 skin diseases- 10	30	0.566	0.1886
Vitex negundo L. (36)	Verbenaceae	Notchi	Shrub	Leave Sticks	Boil Raw form	External External	catching the spirit 2	Headache- 36 Cold-36 Phlegm-27 Migraine-30 Sprain-12	141	2.660	0.6792
Cissus quadrangularis L. (45)	Vitaceae	Pirandai	Shrub	Stem & leave	Cook	Oral	100 g	Digestive-40 Stomachache-30 Boost immune system-45 Appetite problem-45	160	3.018	0.8490
Zingiber officinale L. (48)	Zingiberaceae	Enji	Herb	Tuber	Cook	Oral	Small quantity	Digestive problem-48 Stomach problems-38 Boost immune system-48 Gastric problems-30	164	3.094	0.9056
Curcuma longa L. (53)	Zingiberaceae	Manjal	Herb	Tuber Leave	Paste Paste	External External	Small quantity Small quantity	Wounds-53 Insect bites-53 Antiseptic-53 Skin troubles-50 Itching-45 Psoriasis-40 Footeruption-35	329	6.207	1
Tribulus terrestris L. (14)	*Zygophyllaceae*	Nerunji	Shrub	Thorn	Decoction	Oral	5 mL	kidney stone-14 urinary problems-14	28	0.528	0.2641

In this study 38% of plants were herbs, tree 32%, shrub 21%, climber 8% and tuber 1% (Figure 2). The most used plant part is the leaves (39%) and fruits (21%). Rest of the plant parts like flower, seed, stem, latex, bark, tuber, root, and whole plant are also used (Figure 3).

In this study, the habit of the medicinal plants was expressed in Figure 2, which includes 38 % herbs, 32% trees, 21% shrubs, 8% climbers, and 1% tubers. Current investigation reveals that the herbs contribute more in treating ailments.

Most of the informants use herbs and trees for herbal medicine preparation. In the usage of plants parts, leaves contribute more which is around 39%, fruit (19%), flower and seed with equal contribution of 9%, stem with 4%, tuber (4%) and few preparations with the whole plant which is around 3% about 13% of other plant parts were also used for herbal preparation. They are roots 4%, bark 3%, and even latex 3%. (Figure 3)

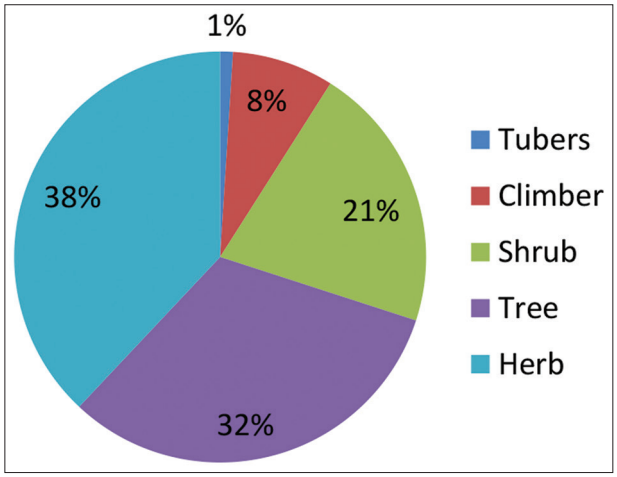

Figure 2: Habit of the plants used

Mode of Preparation

In the current investigation, the herbal preparation was done by the following methods. Cooked fully (4), made into a paste (23), powder (6), soup (6), and raw form (17). Extracted in the form of decoction (17), juice (10), and oil (8) (Figure 4). The details in Table 3 mention about the mode of preparation, administration, quality, and quantity of the medicine and curable diseases. Few interesting practices were shared during discussions. For instance, the seeds of *Pongamia pinnata* were dried and perforated in the middle, fashioned into necklaces, and worn by infants afflicted with whooping cough. Another widely practiced method involved chewing whole leaves of *Piper betel* with a minute quantity of calcium hydroxide (chunambu) and one or two areca nuts. This simple remedy proves beneficial in managing bronchitis.

Use Value and Relative Frequency Citation

The use value (UV) index is used to determine the relative importance of useful plants and how often they are cited by people. The highest use value was seen in *Azadiracta indica* (6.716), *Citrus limon* (6.358), and *Curcuma longa* (6.207) and the lowest use value was observed on *Abutilon indicum*, calculated at 0.0943 and cited by 5 informants, In the case of

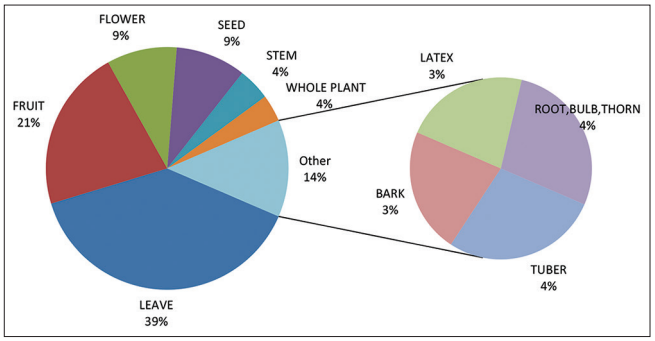

Figure 3: Usage of plant parts

Table 4: Disease categories and Informant consensus factor

Disease categories	No. of use reports	No. of species	ICF
Neurological diseases: Brain, nervous disorder, depression, memory loss	76	5	0.929
Respiratory diseases: Phlegm, cold, cough, asthma, bronchitis, pulmonary affection	1065	21	0.981
Cardiac/blood circulatory diseases: Blood circulation, blood purification, heart disease, cholesterol, anemia, blood pressure, seminal weakness	665	26	0.962
Gastrointestinal disease: Indigestion, constipation, intestine problem, stomach problem, bile, vomiting, gastritis, ulcer, dysentery, piles	2380	50	0.979
Gynecological/andrological disease: Breast cancer, sperm cell count	72	3	0.971
Glandular diseases: Diabetics, liver dysfunction, jaundice	353	16	0.957
Urogenital diseases: Kidney stone, urinary disorder, diuretic	282	15	0.950
Muscular/ortho related diseases: Rheumatism, arthralgia, joint pain, swelling, sprain	267	19	0.932
Ophthalmological diseases: Eye problem, eye cooling	150	6	0.966
ENT: Uvula, throat pain	62	2	0.983
Dental diseases: Toothache, dental carries	143	8	0.950
Dermatological diseases: Pimple, hairfall, dandruff, itching, psoriasis, foot eruption	943	24	0.975
Infectious diseases: Chickenpox	53	1	1
Antidote: Snakebite, insect bite, wasp bite	263	11	0.961
Others: Headache, dizziness, astringent, energy, wound, cooling, anorexia, antipyretic, weight loss, appetizer, anti-inflammatory, antibacterial, antioxidant, antiseptic, boost immune system, remove water from head	3048	465	0.948

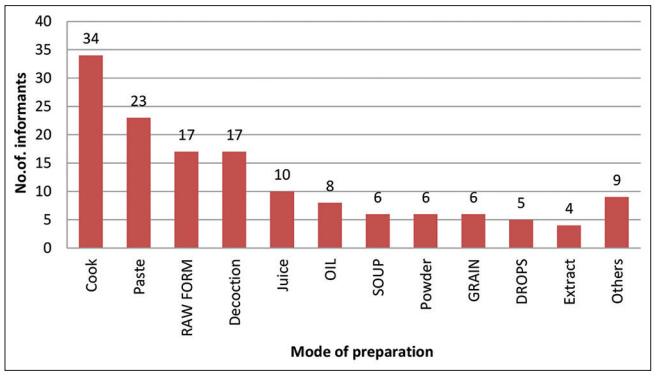

Figure 4: Mode of Preparation

relative frequency citation *Curcuma longa* and *Azadiracta indica* has the highest value 1, which means that all the informants found this plant useful and *Chloris barbata* which has the least RFC value (0.0943) was mentioned by least people.

Informant consensus factor (ICF)

Informant consensus factor is used to measure how much people agree on other people's knowledge about traditional medicine. In this study the ICF values varies from 0.929 to 1 (Table 4). Infectious disease has the highest ICF value 1 in which *Azadiracta indica* is only used for chicken pox and the least value were observed in neurological diseases (0.929).

DISCUSSION

In a previous study conducted by Umair *et al.* (2017) found out that *Mangifera indica* has the highest RFC value (0.14) and *Malvaviscus arboreus* and *Setaria glauca* has the lowest value (0.03).

Milky latex-producing families such as Apocynaceae, Asclepiadaceae, and Euphorbiaceae were used in realign ailments such as antidote, itching, wounds, and so on. This study goes hand in hand with da Silva Menecucci *et al.* (2019), who investigated the latex of the *Tabernaemontana catharinensis* an Apocynaceae member have been traditionally used as an antidote for snake bites, elimination of warts, and anti-toothache agent. And also, in accordance with Naidoo *et al.* (2022), the Apocynaceae family has many properties such as antibacterial, antifungal, antiviral, anti-amoebic, anti-inflammatory, anti-cancer, antioxidant, and anti-venom properties

According to an early survey, it is evident that herbs contribute more to the medicinal preparation in using ailments (Baydoun *et al.*, 2015; Issa *et al.*, 2018).

Bibi *et al.* (2014) found out that the antidote category has the highest ICF value of 1 and the category that has least value is ENT (0). The study conducted at Mabira and Mpanga Central Forest Reserves, Uganda showed that digestive disease category has the highest ICF value (0.7) (Asiimwe *et al.*, 2021).

CONCLUSION

The present investigation reveals that the plants used by the local people are considerably more. This data also gives strong evidence that the dwellers are having high level of herbal practices in treating many common ailments. A total of 104 species belonging to 46 families were documented. This traditional has to be preserved for the future generations. The study also recommends for standardizing the herbal preparations for the authentic usage.

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