

# DOCUMENTATION OF TRADITIONAL HERBAL MEDICINES AMONG THE INDIGENOUS MUSLIM COMMUNITIES IN UTHAMAPALAYAM, THENI DISTRICT OF TAMIL NADU, INDIA

A. M. RASHIDA BANU\* and R. MAHESH<sup>1</sup>

1. Department of Botany, S. T. Hindu College, Nagercoil – 629 002, Tamil Nadu, India.

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli – 627 012, Tamil Nadu, India).

Corresponding Author

E-mail: [am.rashidabanu@gmail.com](mailto:am.rashidabanu@gmail.com)

DOI: [https://doi.org/10.63001/tbs.2024.v19.i02.S.I\(1\).pp277-287](https://doi.org/10.63001/tbs.2024.v19.i02.S.I(1).pp277-287)

## KEYWORDS

*Ethno-medicinal plants, ICF, UV, Euphorbia hirta, Muslim healers, Uthamapalayam.*

Received on:

08-08-2024

Accepted on:

25-11-2024

## ABSTRACT

To learn more about the medicinal plant knowledge and usage within the Muslim community in the research area, an ethnobotanical plant survey was carried out. The ethnomedicinal survey encompasses 73 plant species from 65 genera and 39 families that are used by the Muslim hakims, or traditional healers, in the Uthamapalayam district of Theni district, Tamil Nadu, India. While on field trips in the study area, questionnaires and casual in-person interviews were used to gather the necessary data. The period covered by this data was July 2023–December 2023. The majority of the medicinal herbs that were gathered were used to treat wounds, jaundice, diabetes, skin infection, headaches, Urinary infection and sexual dysfunctions. The Muslim community has a systematic approach to organising its medicinal plants, which includes documenting the plant name, family name, neighbouring name(s), part(s) used, treatment method, and associated illness. Utilising statistical techniques like informant consensus factor and use value, the collected results were further discussed. *Euphorbia hirta*, with an ICF value of 0.92 and a UV of 0.71 for respiratory illnesses. To combat the most common ailment, it is necessary to preserve Islamic ethnomedicinal techniques as well as botanicals. This has forced us to return people's lives to their natural way of healing process.

## INTRODUCTION

Over the past ten years, traditional medicine has become more and more popular worldwide. Evidence suggests that ethnomedicine is no longer simply used by the impoverished but is also becoming more and more popular in nations where allopathic medicine is recommended for patient care. According to the World Health Organisation (WHO), traditional folk knowledge is a collection of skills, information, and practices derived from the experiences, theories, and beliefs inherent to many cultures. This traditional wisdom can be used to improve mental and physical health as well as to diagnose, prevent, and preserve health. Due to influences from culture, history, philosophy, and individual attitudes, traditional medical practices differ greatly throughout nations and regions (WHO, 2000). Islamic medicine is one of the oldest forms of traditional medicine, dating back to 661-750 C.E. ([https://www.medicalnewstoday.com/articles/323612\\_dated\\_on\\_17.01.2022](https://www.medicalnewstoday.com/articles/323612_dated_on_17.01.2022)) Over the past ten years, traditional medicine has gained popularity in Islamic medicine combines the teachings of the Prophet Mohamed about health, illness, and treatment, which later became known as "The Medicine of the Prophet" (Elgood, 1962 and Rassool, 2000), with ancient Greek medicine, which was first introduced to the Islamic world through translations of Hippocrates, Galen, and Hippocrates' works (Ghazanfar, 1994). Islamic medicine adopted the humoral

system's understanding of sickness as an imbalance, which it learned from ancient Greek medicine (Elgood, 1962; Deuraseh, 2006 and Greenwood, 1981). Known as the pioneer of paediatrics, Al-Razi authored over 200 scholarly publications and articles. Ibn Sina, often known as Avicenna, penned about 450 works and articles, of which 240 still exist and 40 of these were focused on medicine. The most significant contributions to mediaeval medicine came from "The Book of Healing," a comprehensive scientific encyclopaedia, and "The Canon of Medicine," which were taught in many of the era's medical schools. During the Abbasid dynasty, which was the epicentre of Islam's Golden Age, Islamic medicine in India developed and presented as the traditional healers, or Hikkims. The Last Prophet's associates Hajarat Ukkasha and Hajarat Thameemul Ansari introduced Islam to Tamil Nadu in the seventh century. According to Bhuiyan et al. (2013), 5.86% of people in Tamil Nadu are Muslims, compared to 18.2% of people in India. ([https://en.wikipedia.org/wiki/Theni\\_Allinagaram\\_dated\\_on\\_17.01.2022](https://en.wikipedia.org/wiki/Theni_Allinagaram_dated_on_17.01.2022)). 3.18% of people in Theni identify as Muslim (Bhuiyan et al., 2013), with Tamil Muslims predominating. Muslims have an apathetic attitude towards medicine and health. Muslims who live in remote locations have little access to healthcare and against modern treatment. They favour the conventional medicinal approach, which combines water, herbs, oils, honey, and Quranic readings for therapeutic effects. Salat (prayer), Dhikr, or remembering Allah, and Quran recitation are

typical instances of spiritual healing techniques that our people actively engage in. During prayers, the verses of the holy Quran are chanted, and amulets with their Some parts of the Quran are thought to have extensive medicinal properties, hence verses with curative powers are attributed to them (Syed, 2003 and Hussaini 2013).

Islamic traditional medicine adheres to the precepts of the Holy Quran and Prophetic tradition regarding what to eat and drink, as well as proper behaviour before, during, and after meals (Andrade and Radhakrishnan, 2009). The Islamic ritual prayer, known as salat, is similar to active meditation in that it incorporates specific physical postures. As such, it offers all the

health advantages of meditation, including improvements in mental, bodily, and spiritual well-being (Albinati, 2004). A new definition of "Islamic medicine" is emerging today as a result of the fusion of traditional Islamic medical folk knowledge and discoveries with the most recent advancements in contemporary medical sciences. Islamic teachings are supposed to provide relevant guidance on leading a physically, psychologically, and spiritually healthy existence.

Thus, the goal of the current investigation to explore and document the folk knowledge on Ethnomedicine and quantify the data by using statistical parameters of local Muslim people in Uthamapalayam, Theni District of Tamil Nadu, India.

## Methodology

### Study area

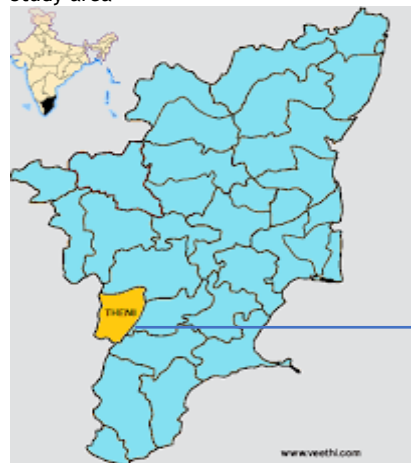


Fig 1. Study area - Uthamapalayam

Uthamapalayam is a small town in Tamil Nadu's Theni district that is located in the southeast [Fig. 1]. It is located in a hilly and Western Agroclimatic Zone. Agriculture is the primary industry. Large-scale trade in cardamom, cotton, garlic, grapes, and chilies is well-known. The geographic coordinates of the place are 9° 80' latitude, 77° 32' longitude, and 384 m above sea level. The Uthamapalayam region has a semi-arid climate and red, black, and alluvial soil. In the plains, the temperature can drop as low as 13 °C and rise as high as 39.5 °C; in the hills, it can drop as low as 4-5 °C and rise as high as 25 °C. Summers receives more yearly rainfall than winter. The rainfall is around 869 mm per year. Many medicinal plants are also grown and naturally occur here. But due to the urbanization, there is a reduction of green cover, this leads to loss of many herbal medicines naturally grown in that area.

### Studied local people

In the research region, an ethnobotanical survey was carried out between July 2021 and December 2021. The information was gathered in accordance with accepted practices. Traditional healers, neighbourhood merchants, traders, and local residents are the sources of the traditional medical knowledge regarding the use of medicinal plants. According to the census, Uthamapalayam has 29,050 residents (14587 women and 14,463 men).

### Collection of ethnobotanical information

The local hakim and elderly Muslim residents of the area were informed of the purpose of the field excursion, and they subsequently assisted us in investigating the traditional knowledge of locally available plants. Open-ended, semi-structured interviews were used to conduct the survey. They conducted the interview in Tamil and Urdu, their native tongues. The following ethnomedicinal information was compiled into a questionnaire for the informants: the plant's local name, the components utilised, the preparation process, the application method, and the plant's healing properties and uses. The participants' age, gender, and educational background were among the other information that was noted.

### Plant identification and herbarium preparation

Triplicate plants were gathered in their natural blossoming habitat. Three specimens are taken from the natural

environment of the species during its blossoming stage. Plant specimens are placed on herbarium sheets after being dried, compressed, stitched, conserved, and poisoned. (Forman and Bridson, 1992). For future use, identified and validated matched informants with voucher plant specimens are stored at S. T. Hindu College, Nagercoil. The Flora of Presidency of Madras (Gamble et al., 1967) and The Flora of Tamil Nadu Carnatic (Matthew, 1983) served as the basis for the identification and nomenclature of all the plants on the list.

### Data analysis

#### Use value (UV)

According to Phillips et al. (1994), use value (UV) was taken into account for every plant as a quantitative indicator of its relative significance to the informant.

$UVs = \sum U/n$  was the formula used to compute use value.

Here The use value of a plant species is represented by "UVs," the number of use reports that informants have cited for that species is represented by "U," and the total number of informants interviewed is represented by "n." UV is typically used to calculate the degree of medicinal value associated with a particular species of plant. Plants with many medicinal applications or those that are widely acknowledged as the solution to a certain condition will receive a high UV rating.

### Informant consensus factor (ICF)

To assess the consistency of information regarding a particular plant's ability to treat a particular illness, the Informant Consensus Factor (ICF) was computed (Giday et al., 2009). The range of ICF values is 0.00 to 1.00. When a high proportion of informants document that one or a few plant species are castoff for the treatment of a certain condition, the ailment group's ICF value rises to 1.0; conversely, a low ICF value indicates that informants cannot agree on which plant to use. The formula for calculating ICF is  $ICF = (N_{ur} - N_t) / (N_{ur} - 1)$

In this case, "Nt" denotes the total number of species utilised for this sickness group, and "Nur" denotes the total number of use reports for a certain illness category. In order to apply above parameter, several diseases are pooled into extensive ailment category on the basis of ailments.

Table 1. Demographic report of informants in the study area.

| Factor            | Categories                 | No. of the persons | % of informants |
|-------------------|----------------------------|--------------------|-----------------|
| Gender            | Male                       | 33                 | 58              |
|                   | Female                     | 24                 | 42              |
| Age               | 20-30 year                 | 8                  | 14              |
|                   | 30-40 year                 | 11                 | 19              |
|                   | 50-60 year                 | 19                 | 33              |
|                   | 60-70 year                 | 13                 | 23              |
|                   | More than 70 year          | 6                  | 11              |
| Class             | Local people               | 25                 | 44              |
|                   | Medicinal plant collectors | 18                 | 32              |
|                   | Traditional healers        | 12                 | 21              |
|                   | Traders                    | 2                  | 03              |
| Educational level | Illiterate                 | 13                 | 23              |
|                   | Primary education          | 16                 | 28              |
|                   | Secondary education        | 11                 | 19              |
|                   | Higher secondary education | 11                 | 19              |
|                   | Graduates                  | 6                  | 11              |

## Results and Discussion

### Demographic profile of informants

Of the 57 informants who were contacted to document ethnomedicinal data, 44% were locals with little knowledge of herbal medicine, 21% were traditional healers who practise herbal medicines or Hakkims and have folk knowledge about medicinal plants, 32% were local plant collectors who gather herbs from their surroundings and sell them to local traders, and 3% were traders (who gather herbs from local plant collectors) (Table 1). The majority of the informants' ages ranged from 21 to 82 years old. Hakkims, or traditional healers, choose when to gather particular plant species, then base the preparation, delivery method, and dose on the type of ailment and its intensity.

A handful of well-educated Hakkims frequently maintain a log of the plant material utilised, as well as its preparation and dose. When preparing folk medicines, some traditional healers, or Hakkims, turn to Qur'anic writings, which are based on Qur'anic passages from the Holy Quran. As is customary in many parts of the world, the majority of traditional healers pass along the specifics of folk medicine orally to their family members or assistants (Giday *et al.*, 2009; Teklehaymanot, 2009 and Islam *et al.*, 2014).

### Medicinal plant diversity and their uses

A total number of 73 plant species which belongs to 54 genera and 39 families were explored during the field survey in the study area. From the collected plant species (Fig. 2), 43% (31 species) were herbaceous species followed by 18% (13 species) of shrubs, 27% (20 species) of trees and climbers of 12% (9 species). Likewise, life form analysis has been done in different parts of India (Ayyanar and Ignacimuthu, 2011; Silambarasan and Ayyanar, 2015; Krupa *et al.*, 2019; Giday *et al.*, 2010). The highest number of species (9 plant species) belong to Leguminosae followed by Amaranthaceae (6 plant species), Solanaceae (5 plant species), Malvaceae, Acanthaceae, Apocyanaceae (each with 4 plant species), Euphorbiaceae (3 plant species). Previous ethnobotanical studies show similar result as the present study in vedaranyam (Balamurugan *et al.*, 2017) and Manar beat of Karanmadai Range, Western Ghats (Ramya *et al.*, 2019). Although, Apocyanaceae family was

dominated in ethnic groups of theni district (Ayyanar *et al.*, 2010), another study shows the dominance of Acanthaceae family among the paliyers tribal people of theni district (Jeyaprakash *et al.*, 2011). Asteraceae family is more in use by the people of Karandamalai in Dindigul District (Yasothkumar, 2021).

Amid the plant parts, leaf (33 reports) was most commonly used part followed by fruit (10 reports), root (18 reports) and whole plant parts (13 reports), seed (9 reports), stem (5 reports) bark (9 reports), flower (3 reports), rhizome and latex (each with 2 reports). Most of previous traditional medicinal knowledge-based documentation studies across the world also reported leaves as widely used plant parts for formulation of herbal medicines, because a greater number of metabolites is present in leaves (Ayyanar and Ignacimuthu, 2011; Silambarasan and Ayyanar, 2015; Krupa *et al.*, 2019; Ramya *et al.*, 2019; Ayyanar *et al.*, 2010; Jeyaprakash *et al.*, 2011; Yasothkumar, 2021; Parthiban *et al.*, 2016; Gonzalez *et al.*, 2010; Amri and Kisangau, 2012; Ullah *et al.*, 2013 and Yemele *et al.*, 2015).

The local people and hakkims practicing traditional medicine prepare their formulation by various methods (Fig. 3). This formulation mainly consists of juice (33 reports, 30 %), decoction (29 reports, 26 %), paste (21 reports, 19%) was mostly used by them followed by raw plant parts (18 reports, 16%), and powder (9 reports, 8%). The same type of herbal preparation method was reported (Kumar *et al.*, 2010). Herbal paste is prepared by crushing the raw (fresh or dried) plant part into paste with water or oil. Juice or extract was prepared by crushing the raw (fresh or dried) plant part with water or oil and extract the juice after filtration. Plant decoction was prepared by boiling the plant parts in water till the volume is reduced to half of its original volume. Herbal powder was prepared by crushing and making powder of the shade dried raw plant materials. With respect of practice of folk medicinal preparations, oral administration (74%) of herbal medicine is more than the topical uses (26%). Many researchers also reported traditional healers directly use herbal paste more often than decoction and juices etc as same in present study also.

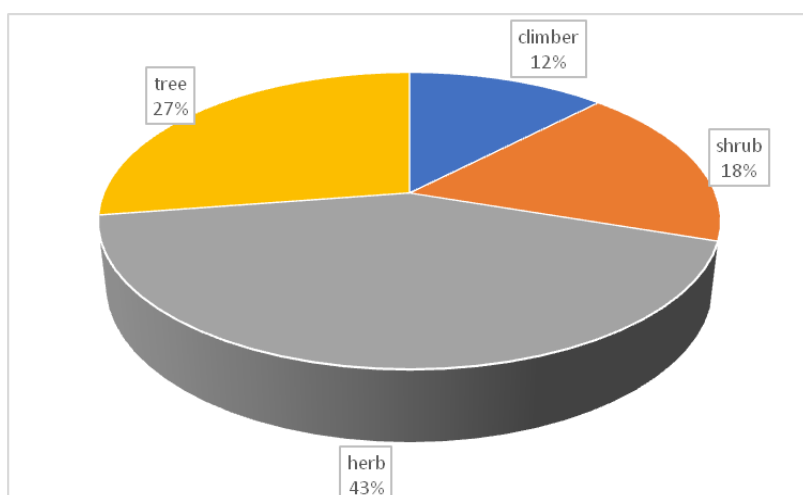


Fig. 2 Distribution of plant habit in a study area

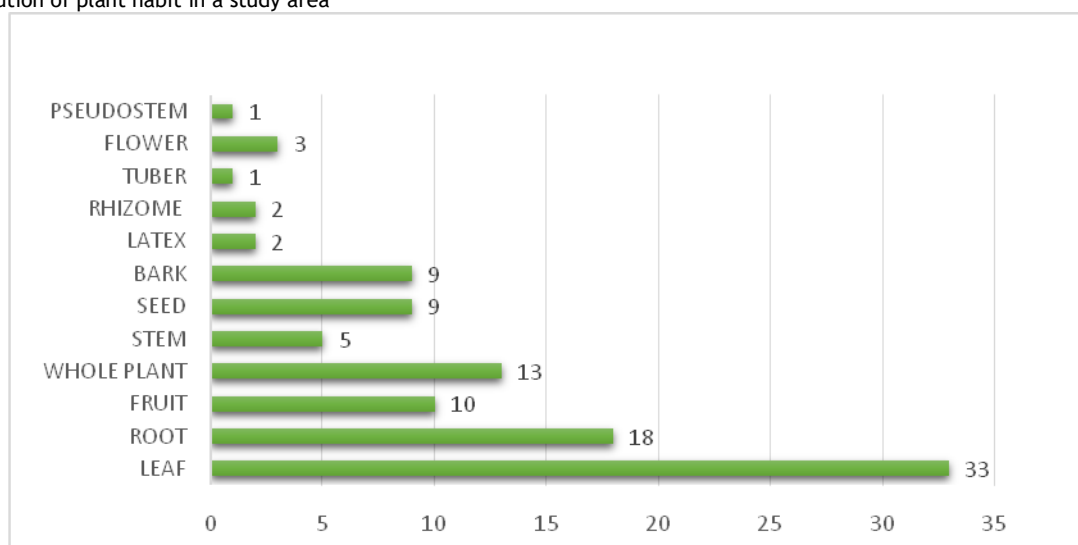


Fig. 3 Plant parts used for the formulation of folk medicine

Table. 2 Details of ethnomedicinal plants used by the Muslim people of Uthamapalayam in Theni district, Tamil Nadu.

| S. No. | Botanical Name                      | Family        | Tamil Name | Habit   | Part used      | Adminis tration          | Medicinal Uses   | FC | UV   |
|--------|-------------------------------------|---------------|------------|---------|----------------|--------------------------|--|----|------|
| 1.     | <i>Abrus precatorius</i> L.         | Leguminosae   | Kundumani  | Climber | Leaf and seed  | Oral                     | Leaf and seed are powdered, mixed with water is given for cough; also used to stimulate the ovarian functions.   | 13 | 0.20 |
| 2.     | <i>Abutilon indicum</i> (L.) Sweet. | Malvaceae     | Thuthi     | Shrub   | Root and leaf  | Oral                     | The roots and leaves are boiled in water for few minutes and the extract is used to treat fever.   | 15 | 0.30 |
| 3.     | <i>Acalypha indica</i> L.           | Euphorbiaceae | Kuppaimeni | Herb    | Leaf and root  | Oral                     | Fresh leaves directly consumed for ulcer; Juice of the leaves is considered as an efficient vomit inducer; Roots are boiled in water. This water enhances bowel movement to treat constipation; The whole plant is to promote the discharge of mucus from nasal passage. | 20 | 0.35 |
| 4.     | <i>Achyranthes aspera</i> L.        | Amaranthaceae | Naayuruvi  | Herb    | Leaf and root  | Oral and applied on skin | Dry root is powdered and dusted to cure the skin infection; Seeds are edible as a rich source of protein; Whole plant is grinded and aqueous extract prepared is used to cure boils, diarrhoea.  | 12 | 0.20 |
| 5.     | <i>Adhatoda vasica</i> L.           | Acanthaceae   | Adhatoda   | Shrub   | Leaf           | Oral                     | Leaves crushed and extract is orally consumed to cure wheezing.  | 7  | 0.10 |
| 6.     | <i>Aegle marmelos</i> (L.) Correa.  | Rutaceae      | Vilvam     | Tree    | Leaf and fruit | Oral and paste applied   | The leaf juice effective against diabetes and the raw fruit pulp used to cure diarrhoea; The leaves  | 18 | 0.30 |

|     |  |                  |                   |       |                     |                          |  |    |      |
|-----|--|------------------|-------------------|-------|---------------------|--------------------------|--|----|------|
|     |  |                  |                   |       |                     | on skin                  | paste is used in the treatment of snakebite.   |    |      |
| 7.  | <i>Aerva lanata</i> (L.) Juss. exSchult.                             | Amaranthaceae    | KoolaChedi        | Herb  | Whole plant         | Oral                     | The aqueous extract is prepared from whole plant and boiled and is used to treat urinary tract infection.  | 8  | 0.14 |
| 8.  | <i>Aloe vera</i> (L.) Burm.f.  | Xanthorrhoeaceae | Sothukatthalai    | Herb  | Leaf                | Applied on skin          | The mature leaf gel is taken and prepared an aqueous extract and a few amounts of turmeric is added. It is effective in case of liver and splenic enlargement; The mature leaf gel is taken on directly skin burn and skin infections. | 16 | 0.28 |
| 9.  | <i>Alternanthera pungens</i> Kunth.                                  | Amaranthaceae    | Kuppaikerai       | Herb  | Stem                | Applied on skin          | Stem are ground in to a paste and applied over the boils enable to early ripening and bursting of wound.   | 12 | 0.33 |
| 10. | <i>Alternanthera sessilis</i> (L.) R.Br. ex DC.                      | Amaranthaceae    | Ponnagannik eerai | Herb  | Skin and leaves     | Oral and applied on skin | Stem and leaves paste are applied to treat snakebite; Young shoots nutritious, rich in protein used as food; Leaves are cooked and eaten to reduce the body temperature and improves the eye sight.                                    | 20 | 0.35 |
| 11. | <i>Amaranthus dubius</i> Mart.ex.thell .                             | Amaranthaceae    | Arakkeerai        | Herb  | Whole plant         | Oral                     | Whole plant cooked in ghee and consumed to cure cold and fever.  | 27 | 0.47 |
| 12. | <i>Amaranthus spinosus</i> L.  | Amaranthaceae    | Mulkeerai         | Herb  | Leaves and root     | Applied on skin          | Leaves and roots are boiled given to treat diarrhoea and effective against excess menstruation; Leaves along with water prepared a paste and applied on boils and burns to fast heal.  | 23 | 0.40 |
| 13. | <i>Andrographis paniculata</i> (Burm.f.) Nees.                       | Acanthaceae      | Nilaveembu        | Herb  | Whole plant         | Oral                     | The entire plant is grind and prepared as a tonic to treat the fever, jaundice, skin disease and also as a blood purifier.   | 26 | 0.45 |
| 14. | <i>Annona muricata</i> L.  | Annonaceae       | Mulseethapulam    | Tree  | Fruit               | Oral                     | Fruit consumed and reduce cancerous growth.  | 8  | 0.14 |
| 15. | <i>Annona squamosa</i> Delile.                                       | Annonaceae       | Sithapalam        | Tree  | Bark, root and Leaf | Oral                     | Bark is cooked in water to prepare an aqueous tonic to cure diarrhoea; leaves are boiled in water to prepare an aqueous tonic, used for cold and to clarify urine.   | 31 | 0.54 |
| 16. | <i>Argemone mexicana</i> var. <i>aculeatissima</i> Moric. Ex. Prain. | Papaveraceae     | Prammathandu      | Herb  | Root and seed       | Applied on skin          | Roots along with water prepared a paste used to cure skin diseases; Seed oil used for skin infection; Seeds paste is used to treat snake bite.   | 16 | 0.28 |
| 17. | <i>Areca catechu</i> L.  | Arecaceae        | Kamuku            | Tree  | Stem                | Applied on skin          | Tender shoots roasted with oil and applied on swelling to heal inflammatory pain.  | 19 | 0.33 |
| 18. | <i>Azadirachta indica</i> A. Juss.                                   | Meliaceae        | Veppamarai        | Tree  | Leaf                | Oral                     | Leaves grounded into paste with turmeric, consumed to cure stomach pain.   | 21 | 0.36 |
| 19. | <i>Azima tetraacantha</i> Lan.                                       | Salvadoraceae    | Esanku            | Shrub | Leaf                | Oral and applied on skin | Leaves extract mixed with rice flour and cooked and consumed to cure heat burn. Also grounded leaves applied on painful areas to reduce pain.  | 31 | 0.54 |
| 20. | <i>Bambusa arundinacea</i> Willd.                                    | Poaceae          | Moongil           | Tree  | Stem                | Oral                     | The young shoot tip-pieces are mixed with honey and consumed early morning in the empty stomach for three days for abortion  | 20 | 0.35 |
| 21. | <i>Boerhaavia diffusa</i> L.   | Nyctaginaceae    | Mukkirattai       | Herb  | Root, leaf and seed | Oral                     | Few leaves along with a small piece of ginger are effective against cough; boil roots in water and its intake are effective for nausea and jaundice.   | 34 | 0.59 |
| 22. | <i>Calotropis gigantea</i> (L.) Dryand.                              | Apocynaceae      | Erukkalai         | Shrub | Root, leaf and stem | Oral                     | The root bark is boiled in water and that water is given to cure fever, indigestion; Latex exudate from  | 18 | 0.31 |

|     |   |                        |                 |         |                |                          |   |    |      |
|-----|---|------------------------|-----------------|---------|----------------|--------------------------|---|----|------|
|     |   |                        |                 |         | latex          |                          | stem and root is used as antidote for snake bite.   |    |      |
| 23. | <i>Cardiospermum halicacabum</i> L.                   | Sapindaceae            | Mudakkathann    | Climber | Root and leaf  | Oral and applied on skin | Root is boiled in water and its extract is effective for diuretic; leaves are crushed and directly applied on itchy skin;   | 11 | 0.19 |
| 24. | <i>Catharanthus roseus</i> (L.) G. Don.               | Apocynaceae            | Kasarali        | Herb    | Leaf           | Oral                     | The leaves are crushed to prepare juice which is effective against high blood pressure and cancer.  | 13 | 0.22 |
| 25. | <i>Centella asiatica</i> (L.) Urb.                    | Apiaceae               | Vallarai        | Herb    | Whole plant    | Oral                     | The entire plant parts are boiled in water and the extract is given for the treatment of leprosy.   | 9  | 0.15 |
| 26. | <i>Cissus quadrangularis</i> L.                       | Vitaceae               | Pirandai        | Climber | Stem and leaf  | Applied on wound         | A paste of stem and leaves is applied for healing of bone fracture.   | 24 | 0.42 |
| 27. | <i>Coccinia grandis</i> (L.) Voigt                    | Cucurbitaceae          | Kovai           | Climber | Leaf and root  | Oral                     | Juice from leaves and roots are used in diabetes.   | 23 | 0.40 |
| 28. | <i>Coriandrum sativum</i> L.                          | Apiaceae               | Kothamalli      | Herb    | Leaf           | Oral                     | Leaf juice or chewing the leaves is good for stomatitis.  | 15 | 0.26 |
| 29. | <i>Curcuma longa</i> L.                               | Zingiberaceae          | Manjal          | Herb    | Rhizome        | Applied on skin and oral | Rhizome paste is used externally applied to sprains and wounds; Fresh juices are used as antiseptic for many skin disease.  | 31 | 0.54 |
| 30. | <i>Cynodon dactylon</i> (L.) Pers.                    | Poaceae                | Arugampullu     | Herb    | Root           | Oral                     | Fresh juice of plant used to stop bleeding and effective for lowering blood sugar; crushed roots mixed with curd used in cystitis.  | 28 | 0.49 |
| 31. | <i>Datura metel</i> L.                                | 5uuuuuuuuuuuSolanaceae | Ummatham        | Herb    | Leaf and seed  | Oral                     | Its leaves and seeds are dry tossed and smoke is used for asthma; Seeds are used as a tranquilizer.   | 21 | 0.36 |
| 32. | <i>Eclipta prostrata</i> (L.) L.                      | Asteraceae             | Karisilangan ni | Herb    | Whole plant    | Applied on hair and oral | Leaves is powdered and mixed with butter milk to cure jaundice; entire plant is boiled in coconut oil and applied to enhance hair growth and prevent early greying; whole plant aqueous extract is used as tonic to prevent hepatic and spleen enlargement. | 40 | 0.70 |
| 33. | <i>Enicostema axillare</i> (Poir. ex Lam.) A. Raynal. | Gentianaceae           | Vellarugu       | Herb    | Whole plant    | Oral                     | Whole plant is boiled in water to prepare the bitter tonic used for stomach ache and as a blood purifier.   | 17 | 0.29 |
| 34. | <i>Euphorbia hirta</i> L.                             | Euphorbiaceae          | Amman Pacharisi | Herb    | Whole plant    | Oral                     | Whole plant aqueous extract as a cure for cough and asthma; also used in colic, dysentery and diseases of Genito-urinary tract.   | 41 | 0.71 |
| 35. | <i>Ficus benghalensis</i> L.                          | Moraceae               | Allamaram       | Tree    | Bark and latex | Oral and applied on skin | The stem latex used in rheumatism and lumbago; Soaking bark in water for a day and that extract considered as tonic used in diarrhoea, dysentery and diabetes.  | 18 | 0.31 |
| 36. | <i>Gloriosa superba</i> L.                            | Colchicaceae           | Kalapaikilangu  | Climber | Tuber          | Oral and applied on skin | A tonic is prepared by boiling tuber in water and used as stomachic and anthelmintic; used as an abortifacient; tuber paste is applied externally for neuralgic pains and skin troubles.  | 28 | 0.49 |
| 37. | <i>Gymnema sylvestre</i> (Retz.) Schult.              | Apocynaceae            | Sirukurichan    | Climber | Leaf           | Oral                     | Leaves juice prepared in water is used in diabetes since it arrests the sense of taste temporarily; Leaf powder act as a cardiac stimulant and diuretic.  | 17 | 0.29 |

|     |  |                |                  |         |                        |                 |  |    |      |
|-----|--|----------------|------------------|---------|------------------------|-----------------|--|----|------|
| 38. | <i>Hemidesmus indicus</i> (L.) R. Br. ex Schult. | Apocynaceae    | Nannari          | Herb    | Root                   | Oral            | Dried roots are boiled in water and the extract is adaphoretic, diuretic; used in rheumatism and other urinary diseases.                         | 22 | 0.38 |
| 39. | <i>Hibiscus rosa-sinensis</i> L.                 | Malvaceae      | Sembaruthi       | Shrub   | Leaf                   | Oral            | Leaf extract dissolved in water and consumed for white discharge in women.   | 15 | 0.26 |
| 40. | <i>Hybanthus enneaspermus</i> (L.) F. Muell.     | Violaceae      | Orithaltham arai | Herb    | Whole plant            | Oral            | Plant juice is consumed with milk as sex inducer.  | 8  | 0.14 |
| 41. | <i>Hygrophila auriculata</i> (Schumach.) Heine.  | Acanthaceae    | NeerMulli        | Herb    | Whole plant            | Oral            | Whole plant powder is used to control urinary stone.   | 14 | 0.24 |
| 42. | <i>Jasminum angustifolium</i> (L.) Willd.        | Oleaceae       | Kattumalli       | Climber | Leaf                   | Oral            | The leaf is boiled in water and taken with food to cure diarrhoea.   | 13 | 0.22 |
| 43. | <i>Justicia adhatoda</i> L.                      | Acanthaceae    | Adadodai         | Shrub   | Leaf                   | Oral            | The leaves boiled in water and extract is taken internally to cure cold and cough.   | 28 | 0.49 |
| 44. | <i>Lantana camara</i> L.                         | Verbenaceae    | Unni             | Shrub   | Whole plant            | Oral            | Fresh leaves juice is useful for wound healing; fresh flower is consumed for stomach ache; root decoction is prepared in water given in tetanus. | 15 | 0.26 |
| 45. | <i>Lawsonia inermis</i> L.                       | Lythraceae     | Azhavanam        | Tree    | Leaf                   | Applied on skin | Leaves paste is used as a prevent skin troubles.   | 13 | 0.22 |
| 46. | <i>Mangifera indica</i> L.                       | Anacardiaceae  | Maa              | Tree    | Fruit and bark         | Oral            | Fruits are edible, effective diuretic; bark is powdered and mixed in water, used in uterine haemorrhage.   | 22 | 0.38 |
| 47. | <i>Mimosa pudica</i> L.                          | Leguminosae    | MudanguTha marai | Herb    | Leaf                   | Oral            | The leaves are dried and powdered and mixed with honey; taken orally for few days to reduce sexual potency.                                      | 9  | 0.15 |
| 48. | <i>Mimusopsele ngi</i> L.                        | Sapotaceae     | Magudam          | Tree    | Bark, fruit and flower | Oral            | Bark and fruit water extract is used in diarrhoea and dysentery; Dried flower is consumed in constipation.                                       | 28 | 0.49 |
| 49. | <i>Murraya koenigii</i> (L.) Spreng.             | Rutaceae       | Kariveppilai     | Tree    | Leaf                   | Oral            | The leaf paste is consumed to reduce early greying hair and to improve hair growth; also, for reducing bile.                                     | 18 | 0.31 |
| 50. | <i>Musa paradisiaca</i> L.                       | Musaceae       | Vazhai           | Herb    | Pseudo stem            | Oral            | Leaf juice is directly consumed for snake bite; pseudo stem is cooked and eaten which is effective against urinary infection.                    | 15 | 0.26 |
| 51. | <i>Passiflora foetida</i> L.                     | Passifloraceae | Poonaippalam     | Climber | Fruit                  | Oral            | Whole plant is boiled in water and the extract is effective against intestinal worms.  | 15 | 0.26 |
| 52. | <i>Phyllanthus amarus</i> Schumach. And Thonn.   | Phyllanthaceae | Keelanelli       | Herb    | Whole plant            | Oral            | Whole plant juice and boiled rice are mixed with goat milk drunken for 7 days to control jaundice.   | 18 | 0.31 |
| 53. | <i>Phyllanthus emblica</i> L.                    | Phyllanthaceae | Nelli            | Tree    | Fruit                  | Oral            | Dry fruit powder is effective against stomach ulcers; diuretic.  | 23 | 0.40 |
| 54. | <i>Physalis minima</i> L.                        | Solanaceae     | Sudakkuthak kali | Herb    | Fruit                  | Oral            | Fruits are consumed to cure stomach disorders.   | 8  | 0.14 |
| 55. | <i>Pithecellobium dulce</i> (Roxb.) Benth.       | Leguminosae    | Kodukkapuli      | Tree    | Leaf                   | Oral            | Leaves are boiled in water and extract is used as a nostrum for leprosy and for promoting growth of hairs.                                       | 17 | 0.29 |

|     |  |                |                     |         |                            |                            |  |    |      |
|-----|--|----------------|---------------------|---------|----------------------------|----------------------------|--|----|------|
| 56. | <i>Plumbago zeylanica</i> L.                       | Plumbaginaceae | Chithiraimolam      | Herb    | Root                       | Applied on skin            | Root paste with gingelly oil is applied topically to cure for piles.   | 7  | 0.12 |
| 57. | <i>Pongamia pinnata</i> (L.) Pierre.               | Leguminosae    | Pungan              | Tree    | Root and bark              | Oral                       | Root juice used for cleaning foul ulcers and fistulous sores; for cleaning tooth and strengthening gums; Fresh bark is consumed in piles.  | 23 | 0.40 |
| 58. | <i>Ricinus communis</i> L.                         | Euphorbiaceae  | Amanakku            | Shrub   | Bark and seed              | Oral and applied on skin   | The stem bark paste mixed with goat milk is given orally to pregnant women to hasten the delivery; seed oil is useful for stomach ache.  | 13 | 0.22 |
| 59. | <i>Senna alata</i> (L.) Roxb.                      | Leguminosae    | SeemaiAgathi        | Shrub   | Flower                     | Oral                       | The dry flower is boiled with water taken orally for asthma.   | 18 | 0.31 |
| 60. | <i>Senna auriculata</i> (L.) Roxb.                 | Leguminosae    | Avaram              | Shrub   | Flower                     | Oral                       | The extract of the petals is taken orally for digestion and stomach ulcer.   | 17 | 0.29 |
| 61. | <i>Senna siamea</i> (Lam.) H.S. Irwin and Barneby. | Leguminosae    | PonAvaram           | Tree    | Leaves                     | Applied on skin            | Leaves along with leaves of <i>Diospyrosebenum</i> are grinded to prepare a paste and applied on bone fracture.  | 10 | 0.17 |
| 62. | <i>Sesamum indicum</i> L.                          | Pedaliaceae    | Yellu               | Herb    | Seed and leaf              | Oral and applied on skin   | Seed paste applied to cure piles; Seeds yield fatty oil called sesame oil or gingelly oil used in cooking; Fresh leaves juice is used to cure chicken pox  | 17 | 0.29 |
| 63. | <i>Sesbania grandiflora</i> (L.) Pers.             | Leguminosae    | Aagathi             | Tree    | Root                       | Oral                       | Juice of roots with honey given to treat cough; boiled root water act as a tonic in diarrhoea and dysentery.   | 22 | 0.38 |
| 64. | <i>Sida acuta</i> Burm.f.                          | Malvaceae      | Arivalmanai Poondur | Herb    | Whole plant                | Oral                       | Roots are boiled and that extract is used as tonic for indigestion, stomach ache, urinary disorders; roots are chewed to relieve from toothache; whole plant is boiled and the extract is given for fever. | 37 | 0.64 |
| 65. | <i>Solanum nigrum</i> L.                           | Solanaceae     | Manathakkali        | Shrub   | Whole plant                | Oral                       | Fruit is used as appetite stimulant; whole plant is crushed and juice is prepared which is used for ulcer.   | 15 | 0.26 |
| 66. | <i>Solanum torvum</i> Sw.                          | Solanaceae     | Sundakkai           | Shrub   | Fruit, root and leaves     | Oral and applied on skin   | Fruits are cooked and edible; Roots is crushed and prepared a paste and applied for cracks in the feet; leaves are crushed and applied on wound as antiseptic.   | 9  | 0.15 |
| 67. | <i>Solanum trilobatum</i> L.                       | Solanaceae     | Thuthuvilai         | Shrub   | Fruit                      | Oral                       | Dry fruit powder is mixed with luke warm powder and consumed for constipation; fruits and flowers are consumed directly to relieve cough.  | 17 | 0.29 |
| 68. | <i>Syzygium cumini</i> (L.) Skeels.                | Myrtaceae      | Naval               | Tree    | Bark and seed              | Oral                       | Powdered seeds and bark are boiled in water and that extract is used in diabetes.  | 18 | 0.31 |
| 69. | <i>Tamarindus indica</i> L.                        | Leguminosae    | Puli                | Tree    | Fruit, leaf and bark       | Oral and applied on wounds | Fruit pulp is edible; young leaves paste is applied on wounds and swelling; dry seeds are powdered given to cure dysentery; Soft bark is ground into paste used for abdominal pain                         | 36 | 0.63 |
| 70. | <i>Tectona grandis</i> L.f.                        | Lamiaceae      | Thekku              | Tree    | Seed and flower            | Oral                       | Seeds yield fatty oil which is used in scabies and to promote the growth of hair. Both flowers and seeds used as diuretic.   | 25 | 0.43 |
| 71. | <i>Thespesia populnea</i> (L.) Sol. ex Correa.     | Malvaceae      | Poovarasu           | Tree    | Fruit, seed, bark and root | Oral and applied on skin   | Fruit juice is consumed to cure herpes; Seed oil used in skin troubles; Bark, roots aqueous extract used in dysentery and haemorrhoids.  | 20 | 0.35 |
| 72. | <i>Tinospora</i>                                   | Menispermaceae | Seenthalkod         | Climber | Leaf and                   | Oral                       | Root boiled in water and that  | 17 | 0.29 |



|     |   |               |      |      |         |      |   |   |      |
|-----|---|---------------|------|------|---------|------|---|---|------|
|     | <i>cordifolia</i><br>(Willd.)<br>Miers. | ae            | i    |      | root    |      | extract is used in leprosy; Leaf boiled in water and that extract is given in gout. |   |      |
| 73. | <i>Zingiber officinale</i><br>Roscoe.   | Zingiberaceae | Ingi | Herb | Rhizome | Oral | Skin scrapped rhizome juices consumed for proper digestion                          | 9 | 0.15 |

Table. 3 Illness categories and their informant consensus factor values of documented ethnomedicinal plant uses.

| Illness categories                 | Disease reported   | Number of Use report (N <sub>ur</sub> ) | Number of taxa (N <sub>t</sub> ) | Fic  |
|------------------------------------|--|---|----------------------------------|------|
| Fever                              | Fever - 15,5,9,11,10,8,  | 58                                      | 6                                | 0.91 |
| Skin infection and disorder (SID)  | Skin infection - 3,3<br>Skin burn - 8,12<br>Boil -2,9,<br>Wound -7,7,13,8<br>Skin disease -8,8,10<br>Skin troubles -9,7,13<br>Leprosy -8, 8,9  | 152                                     | 19                               | 0.88 |
| Gastro - intestinal problem (GIP)  | Vomit -5,<br>Appetite inducer -8<br>Ulcer - 6,9,7,15<br>Stomachache -8,8,5,21,15,5,8,5<br>Constipation -6,8,10<br>Diaerheoa -7,6,9,9,5,13,3,13,13,8,13,18<br>Indigestion -8,8,9,5,<br>Abdominal pain -8<br>Acidity -13<br>Intestinal worms -5,15 | 337                                     | 37                               | 0.89 |
| Kidney disorder (KD)               | Urinary infection -10<br>Stone -14<br>Urine disorder - 8,10<br>Diuretic -11,8,8,2,5,13,8   | 97                                      | 11                               | 0.89 |
| Dental illness (DI)                | Tooth pain -8, 8,3<br>Gums - 3   | 22                                      | 4                                | 0.85 |
| Hair care (HC)                     | Hair growth -5,8,9,9   | 31                                      | 4                                | 0.90 |
| Respiratory illness (RI)           | Cold -3,18,10,15<br>Cough - 10,8,9,15,12,13<br>Respiratory problems<br>Asthma -18,13,11  | 155                                     | 13                               | 0.92 |
| Endocrinal disorder (ED)           | Diabetes -7,18,23,11,5,7   | 71                                      | 6                                | 0.91 |
| Poisonous bite (PB)                | Snake bite - 5,8,5,5   | 23                                      | 4                                | 0.86 |
| Skeleton - Muscular Disorder (SMD) | Infection pain -11<br>Swelling -8,8<br>Pain -18<br>Bone fracture -10, 24,<br>Rheumatism -3,5   | 87                                      | 8                                | 0.91 |
| Genito- urinary infection (GUI)    | Ovarian dysfunction -3<br>Induce abortion -20,2<br>Uterine heamorrhage-9<br>Sexual potency -8,9<br>Genital - urinary infection -5,10<br>Menstruration problems -5<br>Hasten delivery -5<br>White discharge - 15                                  | 81                                      | 11                               | 0.88 |
| Hemorrhoides (HEM)                 | Piles -7,5,10, 8,5   | 35                                      | 5                                | 0.88 |
| Cardiovascular disease (CVD)       | Cardio stimulant -8<br>Blood purifier -3,12<br>High BP -5  | 28                                      | 4                                | 0.88 |
| Oncology (ONC)                     | Cancer - 8,8<br>Cystitis -8  | 24                                      | 3                                | 0.91 |
| Liver disorder (LD)                | Liver disorder - 5,8<br>Spleen -3,6<br>Bile reducer -10<br>Jaundice -5,11,11,18  | 77                                      | 9                                | 0.89 |
| General health & Others (GHO)      | Wheezing -7<br>Nausea -8,<br>Sprain -8<br>Bleeding -9<br>Transquilizer -8<br>Lumbago -2  | 94                                      | 15                               | 0.84 |

|  |   |  |  |  |
|--|---|--|--|--|
|  | Neuralgic -6<br>Tetanus - 2<br>Herpes -3<br>Gout -9,<br>Scabies -5<br>Chicken pox -9,<br>Antiseptic - 9,<br>Eye - 7<br>Adiaphoretic-2 |  |  |  |
|--|---|--|--|--|

### Quantitative analysis of data

*Euphorbia hirta* was reported by many of the interviewed informants in the study area and gives the highest UV of 0.71 with 41 use reports due to its potent effectiveness in curing various diseases like respiratory illness, worm infestations, jaundice, digestive problems, female disorders. *E. hirta* has alkanes, phytosterols, polyphenols, flavonoids as therapeutic constituents (Kumar *et al.*, 2010). It was followed by 0.70 UV of *Eclipta prostrata*, whose cooked leaves were used for liver illness (Esakkimuthu *et al.*, 2018). *Sida acutahas* UV of 0.64, whose leaves are diuretic, antihelmintic and wound healing properties (Mohideen *et al.*, 2002). *Tamarindus indica* of UV of 0.63 show diuretic and wound healing properties (Radha *et al.*, 2021). *Boerhaavia diffusa* of 0.59 UV effective against urinary ailments (Esakkimuthu *et al.*, 2018). *Azima tetracanthagot* 0.54 UV used for the treatment of cold, asthma, rheumatism also show diuretic, antiulcer, antidiarrheal, analgesic properties (Prashith and Raghavendra, 2017). *Annona squamosa* show 0.54 UV, the unripe fruits, seed and roots destroy insects and abortifacient in nature (Devkota *et al.*, 2021). *Curcuma longa* UV of 0.54 show anti-inflammatory, antibacterial and treat cardiovascular disease (Ayyanara and Ignacimuthu, 2011) while *Adhatoda vasica* effective against cold and asthma against cold and asthma (Heinrich *et al.*, 2009) also revealed the lowest use value of 0.10 (Table 2).

To find out the value of informant consensus factor (ICF), all the recorded 69 ailments were grouped into 16 major illness categories based on their treated body parts (Table 3). For example, the diseases like leprosy, skin disease, ulcer, wound healing, and skin troubles are linked to various skin diseases and infections which are gathered together into a major illness category skin infection and disorder (SID). Furthermore, diseases like chicken pox, hypertension and uterine disorder are not relay to any of the over said 17 illness categories and are placed under a general health and others (Table 3). ICF values were calculated for the recorded plants and ranged from 0.92 to 0.84. A higher ICF suggests that the informants are in strong agreement on the use of a certain species in treating a particular ailment. Respiratory illness is recorded with highest ICF scoring of 0.92. The present work shows similar results with one of the quantitative analyses of traditional ethnobotanical knowledge in Udumalpet Block, Tiruppur District (Radha *et al.*, 2021). Illness categories with low value show that the plant species can be artifact and disuse due to the adaptation in their culture, or have become rare or ineffective for various conditions or may be in marginal cultural knowledge (Heinrich *et al.*, 2009).

### 3.4 Acuity and diffusion of knowledge

An Aboriginal person has several stories, myths, and recollections about his woodland places. We never had such a life in the past (Shepard, 2002). These people have a special method of verbally imparting their invaluable storehouse of knowledge. Strong memory power allows for the collection, recall, and transmission of information over many generations (Bennett, 2007 and Santhoshkumar Muthu *et al.*, 2024). Even still, the reinterpretation serves as a vehicle for knowledge transfer, elucidating how the plant can be used to treat specific conditions in contrast to the antiquated idea of signature (Donald, 1997). These signatures are meant to help recall complex memories rather than serve as previous clues (Shepard, 2002). Numerous published works have documented the dissemination of knowledge in India (Shepard, 2002). Numerous advantageous plant characteristics are preserved in the pharmacopoeia by non-literate societies in our country (Bennett, 2007).

### CONCLUSION

Through this study, a traditional use of medicinal herbs used by Muslims in the Theni district of Uthamapalayam was gathered, and as a consequence, 25% of novel traditional applications were recorded. According to the current study, one of the principal sources of medicine for the local populations' primary health care system is the flora. However, in their daily lives, some plant species—like *Zingiberilla officinale*, *Acalypha indica*, *Annona squamosa*, *Curcuma longa*, *Sida acuta*, *Tamarindus indica*, and *Musa paradisiaca*—are used in addition to food. In this study region, the plants with the highest utilised values suggest the presence of beneficial phytochemicals. However, compared to the older population, younger generations have less folk knowledge. Traditionally, Muslims in Uthamapalayam have employed therapeutic plants. Many different medicinal plants are used by the locals, and they continue to use their traditional knowledge of plant use. Folk knowledge may have been lost since informants could not remember which plants were used medicinally. The urgent need is to protect medicinal properties and to maintain traditional knowledge about medicinal plants, as these can help heal a wide range of untreated illnesses. Thus, the cultivation and preservation of therapeutic plants to preservation to be encouraged for our future generation.

### Acknowledgment

The authors are thankful to the herbalist and local communities of Uthamapalayam, Theni people for sharing the precious traditional knowledge about the usage of important medicinal plants resources.

### Conflict of interest

The authors of this manuscript have no conflicts of interest to declare.

### REFERENCES

- WHO 2000. General guidelines for methodologies on research and evaluation of traditional medicine. World Health Organization, Geneva. 1-71.
- <https://www.medicalnewstoday.com/articles/323612> dated on 17.01.2022
- Ghazanfar SA 1994. Handbook of Arabian medicinal plants. Boca Raton: CRC Press.
- Elgood C 1962. Tibb-ul-Nabbi or medicine of the Prophet. Osiris. 14: 33-192.
- Rassool GH 2000. The crescent and Islam: healing, nursing and the spiritual dimension. Some considerations towards an understanding of the Islamic perspectives on caring. J Adv. Nurs. 32: 1476-84.
- Deuraseh N 2006. Health and medicine in the Islamic tradition based on the book of medicine (Kitab Al-Tibb) of Sahih Al-Bukhari. JISHIM. 5: 2-14.
- Greenwood B 1981. Cold or spirits? Choice and ambiguity in Morocco's pluralistic medical system. Soc Sci & Med. 15:219-35.
- [https://en.wikipedia.org/wiki/Theni\\_Allinagaram](https://en.wikipedia.org/wiki/Theni_Allinagaram) dated on 17.01.2022
- Bhuiyan P, Khatun Z, Jahan S, Morshed M, Rahman S, Afsana NA, Nasrin D, Rahmatullah M 2013. Use of Quranic verses, amulets, numerology, and medicinal plants for treatment of diseases: a case study of a healer in Narsinghdi district, Bangladesh. American-Eurasian Journal of Sustainable Agriculture. 7(5): 415-25.
- Syed IB 2003. Spiritual medicine in the history of Islamic medicine. J. Int. Soc History Islamic Med. 2(1): 45-49.
- Hussaini MM 2013. Islamic Food Habits. In: Secondary Islamic Food Habits. 17.

- Andrade C, Radhakrishnan R 2009. Prayer and healing: A medical and scientific perspective on randomized controlled trials. *Indian J Psychiatry*. **51**(4):247-53.
- Albinali H 2004. Traditional medicine among Gulf Arabs. *Heart Views*. **5**(2):1-11.
- Bridson DM and Forman L 1992. *The Herbarium handbook*. Royal Botanic Gardens, Kew.
- Matthew KM 1983. *The Flora of the Tamil Nadu Carnatic*. The Rapinat Herbarium, St. Joseph's College, Tiruchirapalli, Tamil Nadu, India. Vol. 3.
- Gamble JS, Dunn ST and Fischer CEC 1967. *Flora of the Presidency of Madras*. Botanical Survey of India, Calcutta. 2<sup>nd</sup> Edition.
- Phillips O, Gentry AH, Reynel C, Wilkin P, Galvez-Durand BC 1994. Quantitative ethnobotany and Amazonian conservation. *Conserv Biol*. **8**:225-248.
- Giday M, Asfaw Z, Woldu Z 2009. Medicinal plants of the Meinit ethnic group of Ethiopia: an ethnobotanical study. *J Ethnopharmacol*. **124**: 513-21.
- Teklehaymanot T 2009. Ethnobotanical study of knowledge and medicinal plants use by the people in Dek Island in Ethiopia. *J. Ethnopharmacol*. **124**: 69-78.
- Islam MDK, Saha S, Mahmud I, Mohamad K, Awang K, Uddin SJ, Rahman MDM, Shilpi JA 2014. An ethnobotanical study of medicinal plants used by tribal and native people of Madhupur forest area, Bangladesh. *J. Ethnopharmacol*. **151**(2):921-30.
- Ayyanar M, Ignacimuthu S 2011. Ethnobotanical survey of medicinal plants commonly used by Kani tribals in Tirunelveli hills of Western Ghats, India. *J Ethnopharmacol*. **134**:851-64.
- Silambarasan R, Ayyanar M 2015. An ethnobotanical study of medicinal plants in Palamalai region of Eastern Ghats, India. *J. Ethnopharmacol*. **172**: 162-78.
- Krupa J, Sureshkumar J, Silambarasan R, Priyadarshini K, Ayyanar M 2019. Integration of traditional herbal medicines among the indigenous communities in Thiruvavur District of Tamil Nadu, India. *Journal of Ayurveda and Integrative Medicine*. **10**: 32-37.
- Giday M, Asfaw Z, Woldu Z. 2010. Ethnomedicinal study of plants used by Sheko ethnic group of Ethiopia. *J Ethnopharmacol*. **132**:75-85.
- Balamurugan S, Vijayakumar S, Prabhu S, Yabesh JEM 2017. Traditional plants used for the treatment of gynaecological disorders in Vedaranyam taluk, South India - An ethnomedicinal survey. *J Tradit Complement Med*. **8**(2):308-323.
- Ramya EK, Mownika S and Sharmila S 2019. An Ethnobotanical Exploration Of Medicinal Plants In Manar Beat, Karamadai Range, Western Ghats, Tamil Nadu". *Asian Journal of Pharmaceutical and Clinical Research*. **12**(9): 145-53.
- Ayyanar M, Sankarasivaraman K, Ignacimuthu S and Sekar T 2010. Plant species with ethno-botanical importance other than medicinal in Theni district of Tamil Nadu, Southern India. *Asian J. Exp. Biol. Sci*. **1**(4): 765-771.
- Jeyaprakash K, Ayyanar M, Geetha KN and Sekar T 2011. Traditional uses of medicinal plants among the tribal people in Theni District (Western Ghats), Southern India. *Asian Pacific Journal of Tropical Biomedicine*. **1**(1): S20-S25.
- Yasothkumar N 2021. Medicinal Plants Used to Heal Wound in Karandamalai of Dindigul District in Tamil Nadu, Southern India. *Journal of Drug Delivery and Therapeutics*. **11**(2): 72-75.
- Parthiban R, Vijayakumar S, Prabhu S, Yabesh JGEM 2016. Quantitative traditional knowledge of medicinal plants used to treat livestock diseases from Kudavasal taluk of Thiruvavur district, Tamil Nadu, India. *Rev. Bras. Farm*. **26**: 109-21.
- Gonzalez JA, Garcia Barrriuso M, Amich F 2010. Ethnobotanical study of medicinal plants traditionally used in the Arribesdel Duero, Western Spain. *J. Ethnopharmacol*. **131**: 343-55.
- Amri E, Kisangau DP 2012. Ethnomedicinal study of plants used in villages around Kimboza forest reserve in Morogoro, Tanzania. *J. Ethnobiol Ethnomed*. **8**: 1.
- Ullah M, Khan MU, Mahmood A, Malik RN, Hussain M, Wazir SM, Daud M, Shinwari ZK 2013. An ethnobotanical survey of indigenous medicinal plants in Wana district South Waziristan agency. *Pak. J. Ethnopharmacol*. **150**(3): 918-24.
- Yemele MD, Telefo PB, Lienou LL, Tagne SR, Fodouop CSP, Goka CS, Lamarck MC, Moundipa FP 2015. Ethnobotanical survey of medicinal plants used for pregnant women's health conditions in Menouadivision West Cameroon. *J. Ethnopharmacol*. **160**: 14-31.
- Kumar S, Malhotra R and Kumar D 2010. *Euphorbia hirta*: Its chemistry, traditional and medicinal uses, and pharmacological activities. *Pharmacognosy Reviews*. **4**(7): 58-61.
- Mohideen S, Sasikala E, Gopal V 2002. Pharmacognostic Studies on *Sida acuta* Burm.f. *Ancient Science of Life*. **22**(1): 57-66.
- Radha P, Udhayavani C, Nagaraj R, Sivaranjani K 2021. Documentation and quantitative analysis of the traditional knowledge on medicinal plants in Udumalpet Block, Tiruppur District, Tamil Nadu, India. *Acta Ecologica Sinica*. <https://doi.org/10.1016/j.chnaes.2021.10.009>.
- Esakkimuthu S, Sylvester Darvin S, Mutheeswaran S, Gabriel Paulraj M, Pandikumar P, Ignacimuthu S, and Al-Dhabi NA 2018. A study on food-medicine continuum among the non-institutionally trained *Siddha* practitioners of Tiruvallur district, Tamil Nadu, India. *J Ethnobiol Ethnomed*. **14**: 45.
- Prashith TR and Raghavendra H 2017. Phytochemistry, traditional uses, and pharmacological activities of *Azima tetraantha* Lam. (Salvadoraceae) - An updated review. *International Journal of Green Pharmacy*. **11**: 217-229.
- Sekharan R and Jagadeesan M 1997. An ethnobotanical Survey of Javvadu Hills, Tamil Nadu, India. *Ancient Science of Life*. **16**: 206-14.
- Devkota HP, Anjana Adhikari-Devkota, Tarun Belwal, Rajan Logesh, Niranjana Das, Prakash Poudel, Dhaka Ram Bhandari, Rainer W. Bussmann 2021. *Curcuma aromatica* Salisb. *Curcuma longa* L. *Curcuma zedoaria* (Christm.) Roscoe Zingiberaceae. *Ethnobotany of the Himalayas*. 649-660.
- Ayyanar M and Ignacimuthu S 2011. Ethnobotanical survey of medicinal plants commonly used by Kani tribals in Tirunelveli hills of Western Ghats, India. *Journal of Ethnopharmacology*. **134**: 851-864.
- Heinrich M, Edwards S, Moerman DE and Leonti M 2009. Ethnopharmacological field studies: a critical assessment of their conceptual basis and methods. *Journal of Ethnopharmacology*. **124**: 1-17.
- Jain SK 2000. Human aspects of plant diversity. *Economic Botany*. **54**: 450-470.
- Shepard GH 2002. *Natures Madison Avenue: sensory cues as mnemonic devices in the transmission of medicinal plant knowledge among Matisigenka and Yora of Peru*. In: Stepp, J.R., Wyndham, F.S., Zarger, R.K. (Eds.), *Ethnobiology and Biocultural Diversity*. International Society of Ethnobiology, Athens, GA. 326-335.
- Santhoshkumar Muthu, Sivasankar Murugesha and Aravindhan Veerasamy 2024. Sacred Trees in Hindu Temples of Theni District, Tamil Nadu: A Perspective of Ethnomedicinal uses and Conservation study. *Bull.Sci.Res*. **6**:1:1-9.
- Bennett BC 2007. Doctrine of signatures: an explanation of medicinal plant discovery or dissemination of knowledge? *Economic Botany* **61**: 246-255.
- Donald M 1997. *Precis of origins of the modern mind: three stages in the evolution of culture and cognition*. *Behavioral and Brain Sciences* **16**: 737-791.