# ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED BY THE RURAL PEOPLE OF SUBRAMANIAPURAM VILLAGE, TIRUNELVELI DISTRICT, TAMILNADU, INDIA

**J. Celin Pappa Rani\*, T. Jayavarthana and S. Jeeva**

Department of Botany and Research Centre, Scott Christian College (Autonomous), Nagercoil-629 003 (Tamilnadu), India.

## Abstract

Ethnobotanical surveys were conducted in Subramaniapuram of Tirunelveli district, Tamilnadu, India. A semi-structured interviews conducted to 50 informants in order to determine traditional medicinal knowledge of villagers to treat simple ailments. Medicinal uses were analyzed using quantitative ethnobotanical indices such as Use Value (UV), Informant Consensus Factor (Fic) and Fidelity Level (FL). The present study identified a total of 70 medicinal plants belonging to 65 genera and 35 families used for the treatment of human ailments. A total of 711 use reports were recorded from fifty informants of Subramaniyapuram village. *Ocimum tenuiflorum* with 36 use reports, giving the highest use value of 0.72, followed by *Cocos nucifera* (0.66), *Calotropis gigantea* (0.54) and *Aloe vera* (0.52). The ailment categories having the highest level of Informant Consensus Factor (ICF = 1.00) obtained for Genito-urinary problem, General health, Liver problem and Poisonous bite. In the present study 22 taxa were recorded with 100% fidelity level for different ailment category. This documentation of medicinal plants shows rich traditional knowledge of the villagers of Subramaniapuram. The study provides opportunity for pharmacological research and serve as reference for quantitative ethnobotanical investigations.

*Key words :* Subramaniapuram, quantitative ethnobotany, medicinal plants.

## Introduction

Medicinal plants have always been a part of human healthcare. Documentation of indigenous knowledge on medicinal plants is the starting point for drug discovery. Various diseases, both common and uncommon, have necessitated the discovery of alternative medicines (Shinwari, 2010). As more than 50% of all allopathic drugs are of plant origin, traditional medicines can play a vital role in advancing pharmacological research (Deka *et al*., 2013). Medicinal plants forms the raw materials for both conventional and traditional medicinal preparations, since most of the people prefer plant medicines more than conventional modern medicines (World Health Organization, 2002). The traditional knowledge of the villagers are in edge of extinction. So, there is an immediate need to document their medicinal plant knowledge. Ethnomedicine denotes plant or animal products used by the people of a particular region or a country for medicinal purposes other than those mentioned in classical streams of the respective cultures. It is a science that acts as a bridge between botany and

traditional knowledge regarding the medicinal properties of plants (Sharma and Majumdar, 2003). Quantitative techniques in ethnobotanical data inventorying had never been attempted in the study area. Due to these reasons an attempt has been made to document the medicinal plants used in the traditional system of medicine in Subramaniapuram village of Tirunelveli district.

## Materials and Methods

### Data collection

An ethnobotanical survey was conducted among the village people of Subramaniapuram of Tirunelveli district. Intensive field surveys were conducted during the period of 2015 November to 2017 April. A total of 50 informants (9 males and 41 females) ranging from 20-80 years old and which includes farmers, Housewives and herbalist were interviewed and their responses recorded in detail. The survey was conducted through semi-structured open-ended interviews based on standard ethnobotanical methods (Martin, 1995 and Alexiades, 1996).

Semi-structured interviews permit in-depth information and spontaneous remarks by respondents

*\*Author for correspondence :* E-mail : celinpapparani@gmail.com

(Hardon *et al.*, 2001). Data collected included plant parts used, mode of preparation of each medication, mode of utilization, the disease each plant helps to cure, local name and biocultural conservation. Interviews were conducted in Tamil. Data collected through direct interviews were directly documented in field notebooks as preliminary data.

## Plant collection and identification

Some of the plants were identified in the field itself. Photographs were taken. During collection the taxa were classified according to their habit: herb, shrub, tree and climber. Plant samples were collected for the preparation of voucher specimens. Voucher specimens were deposited in the Department of Botany and Research Centre, Scott Christian College, Nagercoil. The Angiosperm Phylogeny Classification (APG 111, 2009) was followed to classify the taxa. The plant specimens were identified with the help of local and regional floras (Gamble and Fischer, 1956; Nair and Henry, 1983). In order to check the spelling, eliminate the use of older synonyms and ensure uniform nomenclature all plant names were verified using The Plant List (2013).

## Quantitative analysis of data

The ethnobotanical data recorded in the study were analyzed quantitatively. The quantitative techniques used in the present study were done by the method, Use Value (UV) (Philips *et al.*, 1994), Informant Consensus Factor ($F_{ic}$) (Heinrich *et al.*, 1998) and Fidelity Level (FL) (Friedman *et al.*, 1986).

## Ailment categories

In the present study, therapeutic indications are grouped into 18 based on the International Classification of Diseases and Related Problems (ICD-10) classified by the World Health Organization (WHO, 2015). The ailment categories are :

1) Circulatory System/Cardiovascular; 2) Dental care; 3) Dermatological infection and disorder; 4) Ear, Nose, Throat; 5) Endocrine Disorder; 6) Fever; 7) Gastro-intestinal; 8) Genito-urinary; 9) General health; 10) Gynecological ailments; 11) Hemorrhoids; 12) Kidney problem; 13) Liver problem; 14) Oncology; 15) Poisonous bite; 16) Respiratory system; 17) Hair care and 18) Skeleto-muscular.

## Results and Discussion

The present study identified a total of 70 medicinal plants belonging to 65 genera and 35 families were used for the treatment of human ailments by the villagers. Out of the documented medicinal plants, 35 belong to the polypetalae 12 belong to the gamopetalae, 12 belong to the Monochlamydeae and 11 belong to the monocotyledons. In the present study, habit wise distribution of ethnomedicinal plants showed the herbs were mainly used in medicine preparation. Herbs 34 species (49%) were found to be the most used plants followed by tree 14 species (20%), Shrub 11 species (16%) and climbers 10 species (15%) in descending order. With respect to habit of medicinal plants, herbs (49%) were the most represented in the present study. The frequent use of herbs among the indigenous communities is a result of wealth of herbaceous plants in their environs (Ayyanar and Ignacimuthu, 2005; Uniyal *et al.*, 2006; Ragupathy *et al.*, 2008; Giday *et al.*, 2003). Among the different plant parts used, leaves (50%) were most frequently used for the preparation of medicine solely or mixed with other plant parts. It is evident from the recent ethnobotanical studies which confirmed that leaves are the major portion of the plant used in the treatment of diseases (Jeyprakash *et al.*, 2011). Family wise distribution of the medicinal plants shows that Leguminosae the dominant family with 8 taxa followed by Amaranthaceae, Apiaceae, Lamiaceae, Malvaceae, Phyllanthaceae, Poaceae and Zingiberaceae each with 3 taxa, followed by Amaryllidaceae, Euphorbiaceae, Myrtaceae, Rutaceae, Solanaceae with 2 taxa each, Annonaceae, Arecaceae, Aristalochiaceae, Basellaceae, Brassicaceae, Capparaceae, Caricaceae, Meliaceae, Moringaceae, Polygalaceae, Rhamnaceae, Ruibiaceae, Sapindaceae, Vitaceae and Xanthorrhoeceae were monospecific. Leguminosae was found to be the best represented plant family. Leguminosae have been found to be the most prominent in treating various ailments among the Kanis. Members of the Leguminosae hold significant medicinal properties and have been widely used as components of pharmaceutical products (Gao *et al.*, 2010). In the present study, various plant parts used as medicines were leaves (29 taxa), fruit (8 taxa), flower (7 taxa), Stem (6 taxa), root (3 taxa), bulb (2 taxa), seed (2 taxa) and whole plant (1 taxa). Leaves are the most predominant part utilized by the villagers for ethnomedicine preparation. The reason why leaves are used mostly is that they are collected more easily than underground parts, flowers and fruits (Giday *et al.*, 2009) and in scientific point of view leaves are active in photosynthesis and production of metabolites (Ghorbani, 2005). Halim *et al.* (2007) observed that abundant usage of leaves ensures sustainable harvesting of medicinal plants. The leaves and other aerial organs, which are present in most plants the whole year round in these homegardens make materials for traditional remedies easily available and also ocular examination of leaves

**Table 1:** List of ethnomedicinal plants used by the villagers

| S.no. | Botanical Name | Family | Local name | Parts used | Habit | Disease cures | Mode of preparation | Mode of administration | Use value |
|---|---|---|---|---|---|---|---|---|---|
| 1. | *Acalypha indica* L. | Euphorbiaceae | Kuppaimeni | Leaf | Herb | Cold and cough | Decoction | Oral | 0.26 |
| 2. | *Achyranthes aspera* L. | Amaranthacerae | Nairuvi | Leaf | Herb | Piles | Juice | Oral | 0.34 |
| 3. | *Aerva lanata* (L.) Juss. | Amaranthaceae | Pongal poo | Flower | Herb | Vomiting | Paste | Oral | 0.32 |
| 4. | *Allium cepa* L. | Amaryllidaceae | Venkayam | Bulb | Herb | Increase immunity power | Juice | Oral | 0.22 |
| 5. | *Allium sativum* L. | Amaryllidaceae | Vellai Poondu | Bulb | Herb | Cough and cold | Paste | Oral | 0.2 |
| 6. | *Aloe vera* (L.) Burm.f. | Xanthorrhoeaceae | Kattalai | Leaf | Herb | Prevent Hair fall | Raw | Topical | 0.52 |
| 7. | *Alternanthera sessilis* (L.) R.Br. ex DC. | Amaranthaceae | Ponnankanni | Leaf | Herb | Hair dye | Juice | Topical | 0.12 |
| 8. | *Amaranthus viridis* L. | Amaranthaceae | Kuppaikeerai | Leaf | Herb | Increase iron content | Cooked | Oral | 0.24 |
| 9. | *Ammannia baccifera* L. | Lythraceae | Kalladipan pachillai | Leaf | Herb | Kidney stone | Juice | Oral | 0.08 |
| 10. | *Annona squamosa* L. | Annonaceae | Seetha pazham | Seed | Shrub | Reduce lice | Paste | Topical | 0.12 |
| 11. | *Aristolochia bracteolata* Lam. | Aristolochiaceae | Aduthinna palai | Leaf | Climber | Cold | Juice | Oral | 0.3 |
| 12. | *Azadirachta indica* A.Juss. | Meliaceae | Veppa maram | Leaf | Tree | Destroy intestinal worm and blood pressure | Juice | Oral | 0.3 |
| 13. | *Basella alba* L. | Basellaceae | Pasalai keerai | Leaf | Climber | Increase iron content | Cooked | Oral | 0.2 |
| 14. | *Brassica juncea* (L.) Czern. | Brassicaceae | Kadugu | Seed | Herb | Joint pain | Paste | Topical | 0.24 |
| 15. | *Calotropis gigantea* (L.) Dryand. | Apocynaceae | Erukku | Leaf | Herb | Thorn pricked wound | Ash | Topical | 0.54 |
| 16. | *Cardiospermum halicacabum* L. | Sapindaceae | Mudakkattan | Leaf | Climber | Diabetes | Juice | Oral | 0.26 |
| 17. | *Carica papaya* L. | Caricaceae | Pappali | Fruit | Tree | Eye vision | Raw | Oral | 0.14 |
| 18. | *Carum carvi* L. | Apiaceae | Omam | Seed | Herb | Cold and cough | Decoction | Topical | 0.14 |
| 19. | *Catharanthus roseus* (L.) G.Don | Apocynaceae | Nithya kalyani | Flower | Herb | Diabetes and cancer | Decoction | Oral | 0.22 |
| 20. | *Cissus quadrangularis* L. | Vitaceae | Perandai | Stem | Climber | Indigestion | Paste | Oral | 0.02 |
| 21. | *Citrus limon* (L.) Osbeck | Rutaceae | Elumichai | Leaf | Shrub | Cold | Smoke | Topical | 0.36 |

*Table 1 continued....*

*Table 1 continued....*

| No. | Scientific name | Family | Local name | Plant part | Habit | Disease/Use | Preparation | Route | Value |
|---|---|---|---|---|---|---|---|---|---|
| 22. | *Coccinia grandis* (L.) Voigt | Cucurbitaceae | Kovan Keerai | Leaf | Climber | Intestinal worm | Cooked | Oral | 0.16 |
| 23. | *Cocos nucifera* L. | Arecaceae | Thennai | Fruit | Tree | Constipation | Ash | Topical | 0.66 |
| 24. | *Coriandrum sativum* L. | Apiaceae | Kothamali | Seed | Herb | Reduce blood pressure | Decoction | Oral | 0.24 |
| 25. | *Crateva religiosa* G.Forst. | Capparaceae | Mavilangapattai | Stem | Tree | Cold, health tonic | Juice | Oral | 0.08 |
| 26. | *Curcuma longa* L. | Zingiberaceae | Manjal | Root | Herb | Blood tumour | Paste | Topical | 0.34 |
| 27. | *Cynodon dactylon* (L.) Pers. | Poaceae | Arugampul | Leaf | Herb | Diabetes | Juice | Oral | 0.12 |
| 28. | *Elettaria cardamomum* (L.) Maton | Zingiberaceae | Elaichi | Fruit | Tree | Reduce blood pressure | Decoction | Oral | 0.2 |
| 29. | *Ferula asafoetida* H.Karst. | Apiaceae | Kayam | Stem | Herb | Stomach pain | Paste | Oral | 0.04 |
| 30. | *Gossypium hirsutum* L. | Malvaceae | Paruthi | Root | Shrub | Cold | Juice | Oral | 0.12 |
| 31. | *Hibiscus rosa-sinensis* L. | Malvaceae | Chembaruthi | Flower | Shrub | Purify of blood | Paste | Oral | 0.2 |
| 32. | *Ixora coccinea* L. | Rubiaceae | Idli poo | Flower | Herb | Leucorrhoea | Decoction | Oral | 0.2 |
| 33. | *Jasminum grandiflorum* L. | Oleaceae | Pichi poo | Flower | Climber | Prevent lactation | Paste | Topical | 0.04 |
| 34. | *Lablab purpureus* (L.) Sweet | Leguminosae | Avarai | Leaf | Herb | Leucorrhoea | Juice | Oral | 0.1 |
| 35. | *Lablab purpureus* (L.) Sweet | Lythraceae | Maruthani | Leaf | Shrub | Hair dye | Paste | Topical | 0.3 |
| 36. | *Leucas aspera* (Willd.) Link | Lamiaceae | Thumbai | Leaf | Herb | Cold and cough | Juice | Oral | 0.12 |
| 37. | *Momordica charantia* L. | Cucurbitaceae | Pakalkai | Leaf | Climber | Piles | Juice | Oral | 0.22 |
| 38. | *Moringa oleifera* Lam. | Moringaceae | Murungai | Leaf | Tree | Cold | Juice | Topical | 0.26 |
| 39. | *Mukia maderaspatana* (L.) M. Roem. | Cucurbitaceae | Musumusukai | Leaf | Climber | Bile duct problem | Juice | Oral | 0.22 |
| 40. | *Murraya koenigii* (L.) Spreng. | Rutaceae | Karivepilai | Leaf | Tree | Hair growth | Paste | Topical | 0.26 |
| 41. | *Musa paradisiaca* L. | Musaceae | Vazhai | Stem | Herb | Urinary problem | Decoction | Oral | 0.38 |
| 42. | *Ocimum tenuiflorum* L. | Lamiaceae | Tulasi | Leaf | Herb | Stomach pain and cold | Smoke | Oral | 0.72 |
| 43. | *Oryza sativa* L. | Poaceae | Nell | Seed | Herb | Swelling, blood clot | Paste | Topical | 0.08 |
| 44. | *Phyllanthus acidus* (L.) Skeels | Phyllanthaceae | Arainelli | Fruit | Tree | Bleeding gums | Raw | Oral | 0.14 |
| 45. | *Phyllanthus amarus* Schumach. & Thonn. | Phyllanthaceae | Keelanelli | Leaf | Herb | Jaundice | Juice | Oral | 0.12 |
| 46. | *Phyllanthus emblica* L. | Phyllanthaceae | Mulunelli | Fruit | Tree | Diabetes | Decoction | Oral | 0.02 |
| 47. | *Pimpinella anisum* L. | Apiaceae | Jeeragam | Seed | Herb | Vomiting | Decoction | Oral | 0.16 |

*Table 1 continued....*

*Table 1 continued....*

| No. | Scientific name | Family | Local name | Part used | Habit | Medicinal use | Mode of preparation | Route | Value |
|---|---|---|---|---|---|---|---|---|---|
| 48. | *Piper nigrum* L. | Piperaceae | Nallamilaghu | Fruit | Climber | Dry cough | Powder | Oral | 0.24 |
| 49. | *Plectranthus amboinicus* (Lour.) Spreng. | Lamiaceae | Omavalli | Leaf | Herb | Cold and cough | Decoction | Oral | 0.26 |
| 50. | *Polygala arvensis* Willd. | Polygalaceae | Seeria keerai | Leaf | Climber | Poison bite | Juice | Topical | 0.14 |
| 51. | *Pongamia pinnata* (L.) Pierre | Leguminosae | Pungu | Whole plant whole tree | Tree | Asthma | Raw | Topical | 0.08 |
| 52. | *Psidium guajava* L. | Myrtaceae | Koiyya | Fruit | Tree | Diarrhea | Raw | Oral | 0.22 |
| 53. | *Punica granatum* L. | Lythraceae | Mathulai | Furit | Shrub | Diabetes | Raw | Oral | 0.16 |
| 54. | *Ricinus communis* L. | Euphorbiaceae | Aamanaku | Seed | Shrub | Crack foot | Oil | Topical | 0.2 |
| 55. | *Saccharam officinarum* L. | Poaceae | Karumpu | Stem | Herb | Diarrhea | Powder | Oral | 0.06 |
| 56. | *Senna auriculata* (L.) Roxb. | Leguminosae | Avarampoo | Flower | Herb | Infertility | Paste | Oral | 0.26 |
| 57. | *Sesamum indicum* L. | Pedaliaceae | Ell | Seed | Herb | Regulate menstural cycle | Decoction | Oral | 0.26 |
| 58. | *Sesbania grandiflora* (L.) Pers. | Leguminosae | Agathi | Leaf | Shrub | Ulcer, increases iron content | Paste | Topical | 0.18 |
| 59. | *Solanum americanum* Mill. | Solanaceae | Mannathakkali | Seed | Herb | Asthma | Decoction | Oral | 0.08 |
| 60. | *Solanum trilobatum* L. | Solanaceae | Thoothuvallai | Leaf | Herb | Cold | Cooked | Oral | 0.1 |
| 61. | *Syzygium aromaticum* (L.) Merr. & L.M.Perry | Myrtaceae | Kirambu | Flower | Tree | Tooth ache | Raw | Topical | 0.14 |
| 62. | *Tabernaemontana divaricata* (L.) R.Br. ex Roem. & Schult. | Apocynaceae | Nanthiyyavattai | Leaf | Shrub | Tooth ache | Raw | Topical | 0.3 |
| 63. | *Tephrosia purpurea* (L.) Pers. | Leguminosae | Kolinchi | Root | Shrub | Cold, diarrhea | Juice | Oral | 0.16 |
| 64. | *Thespesia populnea* (L.) Sol. ex Corrêa | Malvaceae | Poovarasu | Stem | Tree | Ulcer | Juice | Oral | 0.08 |
| 65. | *Trigonella foenum-graecum* L. | Leguminosae | Venthayam | Seed | Herb | Dandruff | Paste | Topical | 0.16 |
| 66. | *Vigna mungo* (L.) Hepper | Leguminosae | Uzhunthu | Seed | Herb | Chest pain | Decoction | Oral | 0.08 |
| 67. | *Vigna unguiculata* (L.) Walp. | Leguminosae | Kanam | Seed | Herb | Reduce Cholestrol | Decoction | Oral | 0.08 |
| 68. | *Vitex negundo* L. | Lamiaceae | Nochi | Leaf | Shrub | Dissolves blood clot | Juice | Oral | 0.16 |
| 69. | *Zingiber officinale* Roscoe | Zingiberaceae | Inchi | Stem | Herb | Head ache | Decoction | Oral | 0.1 |
| 70. | *Ziziphus jujuba* Mill. | Rhamnaceae | Ilanthai | Fruit | Tree | Blood purification | Raw | Oral | 0.08 |

**Table 2 :** Informant consensus factor (ICF) values of ailment categories.

| S. no. | Ailment category | Number of use- reports (Nur) | Number of taxa (Nt) | ICF |
|---|---|---|---|---|
| 1. | Circulatory system/cardiovascular disease (CSCD) | 174 | 18 | 0.90 |
| 2. | Dental care (DC) | 29 | 3 | 0.93 |
| 3 | Dermatological infection and disorder (DID) | 85 | 5 | 0.95 |
| 4. | Ear, nose  and throat infections (ENT) | 53 | 5 | 0.92 |
| 5. | Endocrine disorder (ED) | 41 | 5 | 0.90 |
| 6. | Fever (FVR) | 21 | 2 | 0.95 |
| 7. | Gastro- intestinal ailments (GIA) | 155 | 23 | 0.86 |
| 8. | Genito urinary problem (GUP) | 5 | 1 | 1.00 |
| 9. | General health (GH) | 10 | 1 | 1.00 |
| 10. | Gynaeological disorder (GD) | 31 | 6 | 0.83 |
| 11. | Hemorrhoids (HEM) | 44 | 4 | 0.93 |
| 12. | Kidney problem (KP) | 37 | 5 | 0.89 |
| 13. | Liver problem (LP) | 6 | 1 | 1.00 |
| 14. | Oncology (ONC) | 11 | 2 | 0.90 |
| 15. | Poisonous bite (PB) | 7 | 1 | 1.00 |
| 16. | Respiratory system disorders (RSD) | 181 | 26 | 0.86 |
| 17. | Hair care (HC) | 56 | 7 | 0.89 |
| 18. | Skeleto-muscular system disorders (SMSD) | 32 | 10 | 0.71 |

(and by crushing and smelling) is also frequently used in identifying medicinal plants by both expert and non-expert informants. Ash, cooked, decoction, paste, powder, smoke, oil, juice and raw are the  common methods employed for the preparation of medicinal plants. Among these majority of the plant remedies were prepared by juice (28%) followed by decoction (21%), paste (19%), raw (13%) cooked and smoke (6% each), ash and powder (3% each) and oil (1%). The crude drug obtained from medicinal plants can be used in the treatment of various diseases. Plant medicine is mostly administrated by the oral form (49 taxa 70%), followed by topical application (21 taxa 30%). Oral mode of application is followed for treating circulatory system/cardiovascular ailments, fever, gynaeological ailments, genito-urinary ailments, etc. Similar finding was in concordant with Tugume *et al*. (2016).

## Use value

A total of 711 use reports were recorded from fifty informants of Subramaniyapuram village. The most commonly used taxa was *Ocimum tenuiflorum* with 36 use reports, giving the highest use value of 0.72 is attributed to its use in the treatment of various diseases and it is well recognized by the informants to treat stomach pain and cold. *Cocos nucifera* with 33 use reports giving the use value of 0.66 used by the rural people for treating Constipation. *Calotropis gigantea* with 27 use reports giving the use value of 0.54 used for treating thorn pricked wound. *Aloe vera* with 26 use reports giving the use

value of 0.52 used for treating prevent hair fall. *Musa paradisiaca* with 19 use reports giving the use value of 0.38 used for the treatment of urinary problem. *Citrus limon* (cold) with 18 use reports with the use value of 0.36 reports for treating cold. Achyranthes aspera (piles) and *Curcuma longa* (tumor) each having 17 use reports with the use value of 0.34 used for the treatment of piles and tumor, respectively. The very low use values *Ferula asafetida* (stomach pain) and *Jasminum grandiflorum* (prevent lactation) each with 2 use reports and giving the use value of 0.04, *Cissus quadrangularis* (indigestion) and *Phyllanthus emblica* (diabetes) each with the 1 use reports giving the use value of 0.02 ). UV ranges from 0 to 1. UV is high when there are many Use Reports for a plant and low when they are a few (Philips *et al*., 1994).

## Informant consensus factor

The Informant consensus factor (ICF) 18 ailments were shown in table 2. The ICF value for different disease categories ranges from 0.71 to 1 which indicates the greater agreement among the informants regarding the uses of medicinal plants for treating different ailments. The ailment categories having the highest level of Informant Consensus Factor (ICF = 1.00) obtained for Genito-urinary problem, General health, Liver problem and Poisonous bite. The Dermatological infection and disorder and Fever category each with the Informant Consensus Factor of 0.95. Hemorrhoids with the ICF value of 0.95, Ear, nose  and throat infections with the ICF value of 0.92 Dental care with the ICF value of

**Table 3 :** Fidelity level of commonly used plants by the villagers of Subramaniyapurum.

| S. no. | Ailment category | Specific ailment | Most preferred taxa | FL% |
|---|---|---|---|---|
| 1. | Circulatory system/cardiovascular disease | Swelling | *Oryza sativa* L. | 100.00 |
| | | Blood cholesterol | *Vigna unguiculata* (L.) Walp. | 100.00 |
| | | Blood purification | *Hibiscus rosa-sinensis* L. | 50.00 |
| | | | *Cynodon dactylon* (L.) Pers. | 50.00 |
| | | | *Punica granatum* L. | 87.50 |
| | | | *Ziziphus jujuba* Mill. | 100.00 |
| | | Blood clots | *Vitex negundo* L. | 100.00 |
| | | Blood pressure | *Coriandrum sativum* L. | 50.00 |
| | | Hemorrhage | *Moringa oleifera* Lam. | 76.92 |
| | | Disease resistant | *Allium cepa* L. | 54.55 |
| 2. | Dental care | Toothache | *Syzygium aromaticum* (L.) Merr. & L.M.Perry | 100.00 |
| | | Bleeding gums | *Phyllanthus acidus* (L.) Skeels | 100.00 |
| 3. | Dermatological infection and disorder | Scabies | *Acalypha indica* L. | 100.00 |
| | | Pimples | *Sesbania grandiflora* (L.) Pers. | 33.33 |
| | | Foot crack | *Ricinus communis* L. | 100.00 |
| | | Thorn pricked wound | *Calotropis gigantea* (L.) Dryand. | 37.04 |
| 4. | Ear, nose and throat infections | Cataract and eye pressure | *Tabernaemontana divaricata* (L.) R.Br. ex Roem. & Schult. | 33.33 |
| | | Earache | *Lablab purpureus* (L.) Sweet | 80.00 |
| 5. | Endocrine disorder | Diabetes | *Catharanthus roseus* (L.) G.Don | 100.00 |
| 6. | Fever | Fever | *Ocimum tenuiflorum* L. | 41.67 |
| 7. | Gastro- intestinal ailments | Stomach Pain | *Aloe vera* (L.) Burm.f. | 76.92 |
| | | Vomiting | *Aerva lanata* (L.) Juss. | 50.00 |
| | | Indigestion | *Pimpinella anisum* L. | 100.00 |
| | | Diarrhea | *Tephrosia purpurea* (L.) Pers. | 50.00 |
| | | Ulcer | *Solanum americanum* Mill. | 80.00 |
| | | Killing worms in stomach | *Azadirachta indica* A.Juss. | 66.67 |
| | | Constipation | *Cocos nucifera* L. | 30.30 |
| 8. | General health | Body Shining | *Aloe vera* (L.) Burm.f. | 23.08 |
| 9. | Genito urinary problem | Male fertility | *Senna auriculata* (L.) Roxb. | 38.46 |
| | | Urinary problem | *Musa paradisiaca* L. | 47.37 |
| 10. | Gynaeological disorder | Regulates menstural cycle | *Sesamum indicum* L. | 76.92 |
| | | Leucorrhoea | *Ixora coccinea* L. | 100.00 |
| | | | *Lablab purpureus* (L.) Sweet | 20.00 |
| | | Prevent lactation | *Jasminum grandiflorum* L. | 100.00 |
| 11. | Hair care | Dandruff removal | *Trigonella foenum-graecum* L. | 100.00 |
| | | Hair dye | *Lawsonia inermis* L. | 33.33 |

*Table 1 continued....*

|  |  | Hair fall | *Murraya koenigii* (L.) Spreng. | 23.08 |
|---|---|---|---|---|
| 12. | Hemorrhoids | Piles | *Achyranthes aspera* L. | 100.00 |
|  |  |  | *Momordica charantia* L. | 100.00 |
| 13. | Kidney problem | Kidney stone | *Ammannia baccifera* L. | 100.00 |
| 14. | Liver problem | Jaundice | *Phyllanthus amarus* Schumach. & Thonn. | 83.33 |
| 15. | Oncology | Cancer | *Catharanthus roseus* (L.) G.Don | 54.55 |
| 16. | Poisonous bite | Snake bite | *Polygala arvensis* Willd. | 100.00 |
| 17. | Respiratory system disorders | Cough and Cold | *Plectranthus amboinicus* (Lour.) Spreng. | 46.15 |
|  |  |  | *Piper nigrum* L. | 33.33 |
|  |  |  | *Moringa oleifera* Lam. | 46.15 |
|  |  |  | *Gossypium hirsutum* L. | 100.00 |
|  |  |  | *Leucas aspera* (Willd.) Link | 50.00 |
|  |  |  | *Citrus limon* (L.) Osbeck | 72.22 |
|  |  | Asthma | *Pongamia pinnata* (L.) Pierre | 100.00 |
|  |  |  | *Solanum americanum* Mill. | 100.00 |
|  |  | Chest pain | *Vigna mungo* (L.) Hepper | 100.00 |
| 18. | Skeleto muscular system disorders | Joint pain | *Brassica juncea* (L.) Czern. | 100.00 |
|  |  | Headache | *Zingiber officinale* Roscoe | 40.00 |

0.93, Oncology and Endocrine disorder category each with the ICF value of 0.90, Kidney problem and Hair care category with the ICF value of 0.89. The lowest Informant Consensus Factor 0.71 obtained for Skeleto-muscular system disorders (table 2). High $F_{ic}$ values (1.00) are obtained when only one or a few plant species are reported to be used by a high proportion of informants for treating a particular ailment category, whereas low $F_{ic}$ values indicate that informants disagree over which plant to use (Heinrich *et al.*, 1998).

### Fidelity level

In the present study, 22 taxa were recorded with 100% fidelity level for different ailment category (table 3). *Oryza sativa, Vigna unguiculata, Ziziphus jujuba, Vitex negundo, Syzygium aromaticum, Phyllanthus acidus, Acalypha indica, Ricinus communis, Catharanthus roseus, Pimpinella anisum, Ixora coccinea, Jasminum grandiflorum, Trigonella foenum-graecum, Achyranthes aspera, Momordica charantia, Ammannia baccifera, Polygala arvensis, Gossypium hirsutum, Pongamia pinnata, Solanum americanum, Vigna mungo, Brassica juncea* and *Zingiber officinale*. The lowest fidelity level 33% noted for *Piper nigrum* and *Lawsonia inermis* and *Aloe vera*. High FL (100%)

are obtained for plants for which are used for treating a particular ailment, whereas low FL are obtained for plants that are used for many different purposes (Friedman *et al.*, 1986).

## References

Alexiades, M. N. (1996). Collecting ethnobotanical data: an introduction to basic concepts and techniques. In: Alexiades, M. N. (ed.) *Selected guidelines for ethnobotanical research: A field manual*. The New York Botanical garden, New York, 53–54.

APG, III (2009). Angiosperm Phylogeny Group III: An update of the angiosperm phylogeny group classification for the orders and families of flowering plants. *Botanical J. Linnean Society*, **161** : 105–121.

Ayyanar, M. and S. Ignacimuthu (2005). Traditional knowledge of Kanitribals in Kouthalai of Tirunelveli hills, Tamil Nadu, India. *J. Ethnopharmacol.*, **102** : 246–255.

Deka, D. C., V. Kumar, C. Prasad, K. Kumar, B. J. Gogoi, L. Singh and R. B. Srivastava (2013). "*Oroxylum indicum* – a medicinal plant of North East India: an overview of its nutritional, remedial, and prophylactic properties. *J. App. Pharm. Sci.*, **3** : 104–112.

Friedman, J., Z. Yaniv, A. Dafni and D. Palewitch (1986). A preliminary classification of the healing potential of medicinal plants, based on a rational analysis of an

ethnopharmacological field survey among Bedouins in the Negev desert, Israel. *J. Ethnopharmacol.*, **16** : 275–287.

Gamble, J. S. and C. E. C. Fischer (1956). *Flora of the Presidency of Madras*, Vol. **I–III**, Botanical Survey of India, Calcutta.

Gao, T., H. Yao, J. Song, C. Liu, Y. Zhu, X. Ma, X. Pang, X. Xu and S. Chen (2010). Identification of medicinal plants in the Fabaceae using a potential DNA barcode ITS2. *J. Ethnopharnacol.*, **130(1)** : 116–121.

Ghorbani, A. (2005). Studies on pharmaceutical ethnobotany in the region of Turkmen Sahra North of Iran (Part 1): general results. *J. Ethnopharmacol.*, **102(1)** : 58–68.

Giday, M., Z. Asfaw, T. Elmqvist and Z. Woldu (2003). An ethnobotanical study of medicinal plants used by the Zay people in Ethiopia. *J. Ethnopharmacol.*, **85** : 43–52.

Giday, M., Z. Asfaw, Z. Woldu and T. Teklehaymanot (2009). Medicinal plant knowledge of the Bench ethnic group of Ethiopia: an ethnobotanical investigation. *J. Ethnobiol and Ethnomed.*, **5** : 24–34.

Halim, M. A., M. S. H. Chowdhury, A. I. Wahud, M. S. Uddin, S. K. Sarker and M. B. Uddin (2007). The use of plants in traditional healthcare practice of the shaiji community in southwestern Bangladesh. *J. Trop. For. Sci.*, **19(3)** : 168-175.

Hardon, A. P., P. Boonmongkon, P. Streefland, M. L. Tan, T. Hongvivatana, S. Van der Geest, A. Vanstaa, C. Varkevisser, M. Chowdhury, A. Bhutiya, L. Sringeryang, E. Van Dongen and T. Gerrits (2001). Applied health research, Anthropology of health and health care. Het Spinhuis, Amsterdam, 1–341.

Heinrich, M., A. Ankli, B. Frei, C. Weimann and O. Sticher (1998). Medicinal plants in Mexico healers' consensus and cultural importance. *Soc. Sci. Med.*, **47(11)** : 1859–1871.

Jeyaprakash, K., M. Ayyanar, K. N. Geetha and T. Sekar (2011). Traditional uses of medicinal plants among the tribal people in Theni district (Western Ghats), Southern India. *Asian Pac J Trop Biomed.*, **1(1)** : 20–25.

Martin, G. J. (1995). *Ethnobotany: A Methods Manual.* Chapman & Hall, London, 1–135.

Nair, N. C. and A. N. Henry (1983). *Flora of Tamilnadu*, India, Vol. **I**, Botanical Survey of India, Southern Circle, Coimbatore.

Phillips, O., G. H. Gentry, C. Reynel, P. Wilkin and B. C. Galvez–Durand (1994). Quantitative ethnobotany and Amazonian conservation. *Conserv. Biol.*, **8(1)** : 225–248.

Ragupathy, S., N. G. Steven, M. Maruthakkutti, B. Velusamy and M. M. Ul–Huda (2008). Consensus of the 'Malasars' traditional aboriginal knowledge of medicinal plants in the Velliangiri holy hills, India. *J. Ethnobiol. Ethnomed.*, **4(8)** : 1–14.

Sharma, P. P. and A. M. Mujumdar (2003). Traditional knowledge on plants from Toranmal Plateau of Maharashtra. *Indian J. Tradit. Knowl.*, **2(3)** : 292–296.

Shinwari, Z. K. (2010). Medicinal plants research in Pakistan. *J. Med. Plant Res.*, **4** : 161–176.

The Plant List (2013). Version 1.1. Published on the Internet; (http://www.theplantlist.org).

Tugume, P., E. K. Kakudidi, M. Buyinza, J. Namaalwa, M. Kamatenesi, P. Mucunguzi and J. Kalema (2016). Ethnobotanical survey of medicinal plant species used by communities around Mabira Central Forest Reserve, Uganda. *J. Ethnobiol. Ethnomed.*, **12** : 1–28.

Uniyal, S. K., K. N. Singh, P. Jamwal and B. Lal (2006). Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya. *J. Ethnobiol. Ethnomed.*, **20** : 14–23.

World Health Organization (2002). World health report, Reducing risks, promoting healthy life. Geneva, 1-250.

World Health Organization (2015). International Statistical Classification of Diseases and Related Health Problems, 10th Revision. ICD–10 Version for 2015. Edition WHO Library Cataloguing in Publication Data, Geneva.