



RESEARCH ARTICLE

DIVERSITY, DISTRIBUTION AND INDIGENOUS KNOWLEDGE OF MEDICINAL PLANTS IN ELAMBALUR VILLAGE OF PERAMBALUR DISTRICT

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ABSTRACT

Plants are playing an important role in the health of millions of people's life in many villages of India in their day today life by its traditional usage. The village peoples are mostly depends on plants for food, medicine, fodder and shelter and they are highly used to plants for medicinal purpose. Therefore, the present study focused to assess the medicinal plant diversity in Elambalur village of Perambalur district, Tamilnadu. In the present investigation 98 medicinal plant species used in the treatment of different diseases were discussed. The information on correct botanical identities with family, local name and medicinal uses of 98 plant species were recorded in a scientific manner. The information was collected on the basis of personal interviews with traditional healers and elder people of the village. The documented medicinal plants were used to cure different ailments such as skin problems, cold, fever, cough, headache, diarrhea, toothache, stomach ache, wounds, diabetes, asthma, dysentery, etc. This Preliminary investigation will pave the way for the discovery of new medicines.

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INTRODUCTION

Biodiversity brings enormous benefits to mankind from direct harvesting of plants for food, medicine, fuel construction material, and other uses to aesthetic, cultural, recreational and research values. People have been using medicinal plants from time immemorial for the treatment of various types of disease traditionally. That kind of traditional medicine plays an important role in the health care of India (Sivasankari et al., 2013). India is one of the twelve mega- diversity countries of the world having rich vegetation with a wide variety of Plants having medicinal value. The value of medicinal plants to the mankind is very well proven. It is estimated that 70% to 80% of the people worldwide rely chiefly on traditional health care system and largely on herbal medicines. About 90% of medicinal plants found growing wild in different climatic regions of the country (Sindhu et al., 2012). The plants used in ethno medicine contain a wide range of substances that can be used to teach chronic as well as infectious diseases. They are rich in secondary metabolites and essential oils of therapeutic importance. The important advantages claimed for therapeutic uses of medicinal plants in various ailments are their safely

besides being economical, effective and their easy availability (Ranganathan et al., 2012). Moreover it is an undeniable fact that the knowledge of indigenous people is invaluable in the present day context of biodiversity for its sustainable utilization and novel drug development programs. Medicinal plants are largely used by all divisions of the population either directly as folk medications or indirectly in the preparation of recent pharmaceuticals. Many of these indigenous medicinal plants are used as spices and food plants (Govindaswamy Bosco et al., 2012). The main objective of this study was to assess the diversity, distribution and indigenous knowledge of medicinal plant species used by villagers in Elambalur village of Perambalur district. Therefore, documenting indigenous knowledge through ethnobotanical studies is important for the conservation of biological resources and their sustainable utilization.

MATERIALS AND METHODS

Ethnobotanical survey of the villagers from Elambalur village of Perambalur district was carried out. Species of plants belonging to 37 families used by these people to be different ailments were collected and reported.

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Table 1. Medicinal plant used by villagers of Elambalur village of Perambalur district, Tamilnadu, India

| S.No. | Binomial name | Family | Medicinal uses |
|-------|--|----------------|---|
| 1. | <i>Abutilon indicum</i> (Link.) Sweet. | Malvaceae | Piles, ulcer, cough, leprosy and jaundice. |
| 2. | <i>Acalypha indica</i> L. | Euphorbiaceae | Worm infection, burns, piles, cough, skin eruptions and urinary diseases. |
| 3. | <i>Achyranthes aspera</i> L. | Amaranthaceae | Diarrhea, piles, ear diseases and anaemia. |
| 4. | <i>Adathoda vasica</i> (L.) Nees. | Acanthaceae | Cough, fever, tuberculosis, vomiting and leprosy. |
| 5. | <i>Aegle marmelos</i> (L.) Correa | Rutaceae | Venereal, piles, diseases, digestive and abdominal disorders. |
| 6. | <i>Aerva lanata</i> (L.) Juss. & Schult. | Amaranthaceae | Wounds, polyuria, piles, dysuria, cardiac diseases and abdominal disorder. |
| 7. | <i>Allium cepa</i> L. | Liliaceae | Earache, piles, Anorexia, cough, jaundice, cardiac diseases and skin diseases. |
| 8. | <i>Aloe vera</i> (L.) Burm.f. | Liliaceae | Leprosy, piles, stomach, eye and mental disorders, |
| 9. | <i>Alternanthera sessilis</i> (L.) R. Br. ex Dc. | Amaranthaceae | Leprosy, night blindness and fever. |
| 10. | <i>Andrographis paniculata</i> (Brum.F) wall.ex. Nees. | Acanthaceae | Liver disorder, malaria fever, worm infestation and skin diseases. |
| 11. | <i>Anisomeles malabarica</i> (L.) Merr. | Lamiaceae | Digestive disorder, diarrhea, eczema, fever and cough. |
| 12. | <i>Annona squamosa</i> L. | Annonaceae | Diarrhea, dysentery, cardiac diseases and fever. |
| 13. | <i>Arachis hypogaea</i> L. | Fabaceae | Infantile paralysis. |
| 14. | <i>Artocarpus heterophyllus</i> Lam. | Moraceae | Liver diseases, indigestion, stomachache and cough. |
| 15. | <i>Azadirachta indica</i> A.Juss. | Meliaceae | Worm infestation, digestive disorder, fever, pox, skin eruption, vomiting and abdominal disorder. |
| 16. | <i>Bambusa arundinacea</i> (Retx.) rexb. | Poaceae | Leprosy, wounds, cough, fever, jaundice and anaemia. |
| 17. | <i>Boerhaavia diffusa</i> L. | Nyctaginaceae | Nasal disorders, jaundice, cardiac diseases and piles. |
| 18. | <i>Borassus flabellifer</i> L. | Arecaceae | Bleeding, thirst, burning sensation, fever, general debility and cardiac diseases. |
| 19. | <i>Calotropis gigantea</i> (L.) W.T. Aiton. | Asclepiadaceae | Nervous disorders, cough, piles, abdominal disorders, and worm infestation. |
| 20. | <i>Canthium parviflorum</i> Lam. | Rubiaceae | Disorder of throat. |
| 21. | <i>Capsicum frutescens</i> L. | Solanaceae | Digestive stimulant in jaundice and rheumatism. |
| 22. | <i>Cardiospermum helicacabum</i> L. | Sapindaceae | Tumors, dermal disorders and piles. |
| 23. | <i>Carica papaya</i> L. | Caricaceae | Worm infestation, skin diseases, fever and piles. |
| 24. | <i>Carissa spinarum</i> L. | Apocynaceae | Eye diseases, ear diseases, sweating, throat pain and body pain. |
| 25. | <i>Casabela thevetia</i> (L.) Lippold | Apocynaceae | Leprosy, skin diseases, cardiac diseases and asthma. |
| 26. | <i>Catharathus roseus</i> (L.) G. Don. | Apocynaceae | Cancer, diabetes, dysentery, blood pressure, neurosis and cardiac diseases. |
| 27. | <i>Celosia aegentea</i> L. | Amaranthaceae | Eczema, glandular swellings, ulcer and dysentery. |
| 28. | <i>Centella asiatica</i> L. | Apiaceae | Digestive disorder, urinary diseases, cough, fever and mental retardation. |
| 29. | <i>Cissus quadrangularis</i> L. | Vitaceae | Piles, abdominal disorders, diarrhea and dysentery. |
| 30. | <i>Citrus lemon</i> A.Juss. | Rutaceae | Vomiting, eye diseases, dysentery, cough and worm infection. |
| 31. | <i>Cleome viscosa</i> L. | Cleomaceae | Indigestion, ear diseases, skin eruption, fever and abdominal diseases, |
| 32. | <i>Clitoria ternatea</i> L. | Fabaceae | Piles, skin diseases, abdominal disorder and fever. |
| 33. | <i>Cocos nucifera</i> L. | Arecaceae | Urinary disorders, fever, head ache and eye diseases. |
| 34. | <i>Corchorus capsularis</i> L. | Malvaceae | Wounds, stomach disorders, dysentery and leprosy. |
| 35. | <i>Coriandrum sativum</i> L. | Apiaceae | Fever with rigor, mental disorders, indigestion, vomiting and head ache. |
| 36. | <i>Croton bonplandianum</i> Baill. | Euphorbiaceae | Cough, eczema, ringworm, heal cuts and wounds. |
| 37. | <i>Cynodon dactylon</i> (L.) Pers. | Poaceae | Thirst, skin diseases, distaste and vomiting. |
| 38. | <i>Datura metal</i> L. | Solanaceae | Eye diseases, wounds, ulcer, cough, eczema and diarrhea. |
| 39. | <i>Delonix elata</i> (L.) Gamble. | Fabaceae | Wounds and glandular swellings. |
| 40. | <i>Delonix regia</i> (Boj, ex Hook.) Raf. | Fabaceae | Diseases of vatam and inflammation. |
| 41. | <i>Dodonea angustifolia</i> L.f. | Sapindaceae | Inflammation. |
| 42. | <i>Eclipta prostrata</i> (L.) | Asteraceae | Hair falling, leprosy, eye diseases, cold, dental diseases and asthma. |
| 43. | <i>Euphorbia hirta</i> L. | Euphorbiaceae | Urinary disorders, worm infestation, asthma and polyuria. |
| 44. | <i>Ficus benghalensis</i> L. | Moraceae | Polyuria, diarrhea, uterine disorder and vomiting. |
| 45. | <i>Ficus religiosa</i> L. | Moraceae | Oedema, uterine disorders, thirst and burning sensation. |
| 46. | <i>Gomphrena globosa</i> L. | Amaranthaceae | Cough. |
| 47. | <i>Gossypium hirsutum</i> L. | Malvaceae | Leucorrhoea, ulcer, swellings, fever, piles, dysentery and cut wounds. |
| 48. | <i>Gymnema sylvestre</i> R.Br. | Asclepiadaceae | Fever, diabetes, cough, snake- bite poisoning and eczema. |
| 49. | <i>Heliotropium indicum</i> L. | Boraginaceae | Ulcer, eczema, digestive disorder and fever. |
| 50. | <i>Hemidusmus indicus</i> (L.) R.Br. | Asclepiadaceae | Diabetes, glandular swellings, fever, jaundice, thirst and urinary diseases. |
| 51. | <i>Hibiscus rosa-sinensis</i> L. | Malvaceae | Cough piles, diarrhea, hair falling and polyuria. |
| 52. | <i>Indigofera aspalathoides</i> L. | Fabaceae | Leprosy, cancer, abscess, oedema and skin diseases. |
| 53. | <i>Ixora coccinea</i> L. | Rubiaceae | Venereal diseases, fever, thirst, dysentery and ulcer. |
| 54. | <i>Jatropha curcas</i> L. | Euphorbiaceae | Constipation, wounds, eczema, ulcer, head ache, rat- bite poisoning and abdominal disorder. |
| 55. | <i>Justicia tranquebariensis</i> L.f. | Acanthaceae | Cough, nasal disorders and cold. |
| 56. | <i>Lablab purpureus</i> (L.) | Fabaceae | Chronic dysentery, cholera, ulcer and head ache. |
| 57. | <i>Lantana camara</i> L. | Verbenaceae | Diarrhea and kapha diseases. |
| 58. | <i>Lawsonia inermis</i> L. | Lythraceae | Diarrhea, leprosy, fever, headache, cardiac diseases and blood disorders. |
| 59. | <i>Leucas aspera</i> (Willd.) Link. | Lamiaceae | Fever, eye disease, thirst, snake-bite poisoning, nasal disorders, cough and venereal diseases. |
| 60. | <i>Manifera indica</i> L. | Anacardiaceae | Urinary disorders, leucorrhoea, thirst, diarrhea, ulcer and intermittent fever. |
| 61. | <i>Milletia pinnata</i> (L.) Panigrahi. | Fabaceae | Piles, ear diseases, cough, skin diseases, abdominal disorders, wounds and snake- bite poisoning. |
| 62. | <i>Mimosa pudica</i> L. | Mimosaceae | Diabetes, sinus wound, eye diseases and leprosy. |
| 63. | <i>Mirabilis jalapa</i> L. | Nyctaginaceae | Piles, abscess, boils and ulcer. |
| 64. | <i>Momordica charantia</i> L. | Cucurbitaceae | Leprosy, rheumatism, liver disorder, piles and diabetes. |
| 65. | <i>Morinda tinctoria</i> Roxb. | Rubiaceae | Eczema, fever, ulcer, digestive disorder and wounds. |

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| 66. <i>Moringa oleifera</i> Lam. | Moringaceae | Eye diseases, fever and skin diseases. |
| 67. <i>Mukia maderaspatana</i> (L.) M. Roem. | Cucurbitaceae | Fever, abdominal disorder, cough and vomiting. |
| 68. <i>Murraya koenigii</i> (L.) Sprengel. | Rutaceae | Dropsy, dysentery and diarrhea. |
| 69. <i>Musa paradisiaca</i> L. | Musaceae | Diarrhea, eye diseases, polyuria, thirst and burning sensation. |
| 70. <i>Nerium oleander</i> L. | Apocynaceae | Leprosy, wounds and skin diseases. |
| 71. <i>Ocimum basilicum</i> L. | Lamiaceae | Diuretic, dysentery, earache, stomach disorder and nasal disorders. |
| 72. <i>Ocimum tenuiflorum</i> L. | Lamiaceae | Fever, mental disorder, digestive disorders, cough and ulcer. |
| 73. <i>Pergularia daemia</i> (Forssk.). Chiov. | Asclepiadaceae | Leprosy, piles and mental disorders. |
| 74. <i>Phyllanthus amarus</i> Schum. & Thonn. | Euphorbiaceae | Jaundice, diabetes, urinary disorders, skin diseases and vomiting. |
| 75. <i>Pithecellobium dulce</i> (Roxb.) Benth. | Fabaceae | Dysentery, diarrhea, toothache and ulcers. |
| 76. <i>Psidium guajava</i> L. | Myrtaceae | Vomiting and urinary disorders. |
| 77. <i>Ricinus communis</i> L. | Euphorbiaceae | Abdominal disorders, piles, worm infection, chest pain, cough and fever. |
| 78. <i>Rosa indica</i> L. | Rosaceae | Asthma. |
| 79. <i>Senna auriculata</i> (L.) Roxb. | Fabaceae | Fever, diabetes, urinary disorder, rheumatism. |
| 80. <i>Sida acuta</i> Burm.f. | Malvaceae | Fever, ear diseases, diarrhea, skin diseases and worm infection. |
| 81. <i>Solanum lycopersicum</i> L. | Solanaceae | Cancer, heart attack and urinary disorders. |
| 82. <i>Solanum melongena</i> L. | Solanaceae | Cough, vata and fever. |
| 83. <i>Solanum nigrum</i> L. | Solanaceae | Leprosy, piles, fever, cardiac diseases and vomiting. |
| 84. <i>Solanum surattense</i> Burm.f. | Solanaceae | Worm infection, blood disorders, skin diseases, urinary disorders and dysuria. |
| 85. <i>Solanum torvum</i> L. | Solanaceae | Worm infestation and diarrhea. |
| 86. <i>Solanum trilobatum</i> L. | Solanaceae | Respiratory disorders. |
| 87. <i>Tabernaemontana divaricata</i> R.Br. ex Roem. & Schult. | Apocynaceae | Toothache. |
| 88. <i>Tamarindus indica</i> L. | Caesalpiniaceae | Ulcers, anemia and dropsy. |
| 89. <i>Tectona grandis</i> L.f. | Lamiaceae | Leprosy, polyuria, skin diseases, ulcers and worm infestation. |
| 90. <i>Tribulus terrestris</i> L. | Zygophyllaceae | Polyuria, oedema, asthma, piles, urinary disorders and nervous disorders. |
| 91. <i>Trichodesma indicum</i> (Linn.) R.Br. | Boraginaceae | Dysentery, skin diseases, snake-bite poisoning and fever. |
| 92. <i>Trichosanthes cucumerina</i> L. | Cucurbitaceae | Cathartic. |
| 93. <i>Tridax procumbens</i> L. | Asteraceae | Dysentery, diarrhea and wounds. |
| 94. <i>Vachellia nilotica</i> (L.) P. J. H. Huster & Mabb. | Fabaceae | Wounds, diarrhea, dysentery, worm infestation and skin diseases. |
| 95. <i>Vernonia cinerea</i> L. | Asteraceae | Skin diseases, thirst, vomiting and blood disorders. |
| 96. <i>Vigna mungo</i> (L.) Hepper. | Fabaceae | Rheumatism and nervous disorders. |
| 97. <i>Vitex negundo</i> L. | Verbenaceae | Intermittent fever, worm infestation, ear diseases and cough. |
| 98. <i>Zea mays</i> L. | Poaceae | Cough, retention of urine and diuretic. |

Elambalur Village

The study area Elambalur village is a nearest village to Perambalur (3.6 km). It is a special village in Perambalur district, Tamil Nadu, India. It is located at 11.26°N 78.88°E, elevation 436 ft. The pachaimalai (green hill) Eastern ghats starts from here. The normal rainfall of the district is 908 mm. Climatically, the area is of dry tropical type. The types of soil which is predominantly found here are red loamy and black soil. Loamy soil contain enormous amount of nutrients which is suitable for the growth of large plant vegetation. These plants contain high medicinal value for different ailments. The district has Vellar River in the north and it has well marked natural divisions but Cauvery is the major river flowing in the region. The major crops grown in the district are paddy, groundnut, sugarcane, cotton, banana, coconut, betel and millets. Cashew nut is the major plantation crop.

RESULTS AND DISCUSSION

The Living peoples of Elambalur village of Perambalur district are found to possess a very rich ethnobotanical knowledge. Even to this data, they have been making use of a large number of plants species for various purposes such as medicine, fodder, firewood, timber, food etc. A total of 98 plant species representing 37 families have been reported to be in use among the villager of the study area (Table 1). Among 98 plant species, 86 plants are wild, 8 plants are cultivated and 4 plants are ornamental. Wild plant species have adapted to very large areas. These plants are highly dominant in the study area. They occur in both disturbed and undisturbed areas

such as sacred groves, around the well, road site, temple and cultivated areas. *Delonix regia* is an ornamentally cultivated plant species and highly distributed in all areas. In the present study, 8 cultivated plants were recorded. They are *Arachis hypogaea*, *Solanum lycopersicum*, *Gossypium hirsutum*, *Capsicum frutescens*, *Trichosanthes cucumerina*, *Vigna mungo*, *Zea mays* and *Allium cepa*. These plants possess high medicinal and economical value. In addition to that, ornamental plants are also being noted.

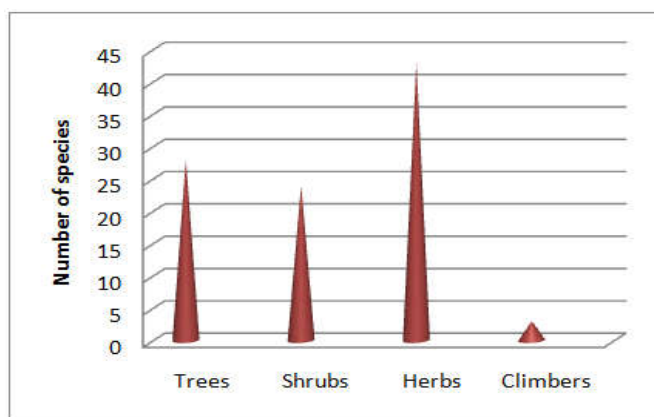


Figure 1. Habitwise distribution of medicinal plants in the study area

They are *Celosia argentea*, *Gomphrena globosa*, *Ixora coccinea* and *Rosa indica*. These plants are grown for decorative purpose in garden and houses. Among these ornamental species, *Rosa indica* and *Ixora coccinea* are

economically valuable plant species. In habit wise distribution, 28 were tree species, 24 shrubs, 43 herbs and 3 climbers (Figure 1). Similar to the present findings, Muthu *et al.* (2006) reported that herbs were found to be the most used plants followed by trees, shrubs and climbers. In the present study, Family wise distribution of the medicinal plants shows Fabaceae was the most dominant family, followed by Solanaceae, Euphorbiaceae, Malvaceae, Amaranthaceae, Apocynaceae, Lamiaceae, Asclepiadaceae, Rubiaceae, Asteraceae, Moraceae, Rutaceae, Acanthaceae, Poaceae, Cucurbitaceae, Boraginaceae, Arecaceae, Verbenaceae, Liliaceae, Nyctaginaceae, Sapindaceae, Apiaceae, Myrtaceae, Meliaceae, Caesalpinaceae, Vitaceae, Capparaceae, Annonaceae, Caricaceae, Lythraceae, Mimosaceae, Moringaceae, Musaceae, Zygophyllaceae, Rosaceae and Anacardiaceae were recorded. Among the different plant parts used for the preparation of medicine, leaves and whole plants were predominantly used, followed by fruits, root, flower, rhizome, stem, bark and latex. Similar to the above findings Mohan *et al.* (2008) stated that Kanikkars use a wide variety of parts structures in ethnomedicine and the percentage of plant parts used are as follows: leaves 49%, fruits 11%, roots 10%, tubers and aerial parts 8%, stem and flowers 5%. From the present study it was found that the plants are used to treat different types of ailments such as bone fracture, hair fall, diabetes, cold cough, jaundice, wounds, poisonous bites, dental carries, burns, diarrhea, small pox, ulcer, stomach disorders etc. From the discussion with traditional healers of the study area, large number of ailments was found to be treated using plant species. A single plant or groups of plants are used as ingredients to cure a single disease sometimes the healer may use single plant to cure various diseases. For example, *Millettia pinnata* (L.) Panigrahi. is used to cure piles, ear diseases, cough, skin diseases, abdominal disorders, wounds and snake-bite poisoning. The healers use the plants as fresh material or dried material. Likewise, Malayali tribal prepare medicine mostly by using fresh plant material. Alternatively, if the fresh plant parts are not available, dried plant materials are used. For this reason several plants serve as alternative remedy to cure a single disease (Ramya *et al.*, 2008).

Conclusion

The ethnobotanical survey indicated that, the study area has plenty of medicinal plants to treat a wide spectrum of human ailments. Therapeutic importances of these plants are beneficial to human beings but these plants become a red list category due to their overpopulation and exploitation.

Therefore, there is urgent need for conservation of plant species of this village for the sustainable utilization and natural resources. Further extensive ethnobotanical and ethnopharmacological study may help for prevention of most of the diseases and contribute to the discovery of new plant medicines in the future.

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REFERENCES

- Govindasamy Bosco, F. and Arumugam, R. 2012. Ethnobotany of irular tribes in Red hills, Tamil Nadu, India. *Asian Pacific Journal of Tropical Diseases*, 2(2): S874-S877.
- Mohan, V.R., Rajesh, A., Athiperumalsami, T. and Sutha, S. 2008. Ethnomedicinal plants of the Tirunelveli district, Tamil Nadu, India. *Ethnobotanical Leaflets*, 12: 79-95.
- Muthu, C., Ayyanar, M., Raja, N. and Ignacimuthu, S. 2006. Medicinal plants used by traditional healers in Kancheepuram district of Tamil Nadu, India. *Journal of Ethnobiology and Ethnomedicine*, 2(43): 1-10.
- Ramya, S., Rajasekaran, C., Sivapermal, R., Kirshnan, A. and Jayakumararaj, R. 2008. Ethnomedicinal perspectives of botanicals used by Malayali tribes in Vattal hills of Dharmapuri (TN), India. *Ethnobotanical leaflets*, 12: 1054-60.
- Ranganathan, R., Vijayalakshmi, P. and Parameswari, P. 2012. Ethnomedicinal survey of Jawadhu hills in Tamil Nadu. *Asian journal of Pharmaceutical and Clinical Research*, 5(2): 45-49.
- Sindhu, S., Uma, G. and Kumudha, P. 2012. Survey of medicinal plants in Chennimallai Hills, Erode district, Tamil Nadu. *Asian J Plant Sci Res*, 2(6): 712-717.
- Sivasankari, B., Pitchaimani, S. and Anandharaj, M. 2013. A study on traditional medicinal plants of Uthapuram, Madurai district, Tamil Nadu, South India. *Asian Pac J Trop Biomed.*, 3(12): 975-979.
