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# Phytodiversity and indigenous knowledge in coastal line of Rajakamangalam Thurai, Kanyakumari District, Tamil Nadu, India

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**Key words:** Phytodiversity, Coastal line, Rajakkamangalam, Conservation

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**ABSTRACT**

Ethnobotanical knowledge of the village communities from various ecosystem use largest proportion of biodiversity for human and veterinary healthcare of different organism, medicinal plants have been greatly considered by rural communities as they improve the economy of rural people. India's traditional system of medicine is related to richness of herbal plants biodiversity. The ultimate aim of the study is to document the Angiosperms and their indigenous uses from the coastal line from Periyakadu to Rajakamangalamthurai, which is located in the Rajakamangalam Panchayat of Kanyakumari district in Tamil Nadu. The present study documented as a total 97 taxa distributed in 41 families. Among the 97species 88 plants are dicotyledons and 9 plants are monocotyledons. Family wise distribution shows that Solanaceae is the dominant family represented by 8 species under 5 genera. Of these 97 taxa, 43 (44%) were herbs, 20 (21%) were shrubs, 26 (27%) were trees and 8(8%) were climbers belonging to 39 different families were recorded. Among the 97 plants 88 plants are used as medicine and 26 plants are edible. The plants are also used as fodder, ornamental, timber, dye, oil and Fibre of 14, 10, 7, 6, 1 and 1 species respectively. The various plant parts are used as medicine such as Leaves of 54 plants are used as medicine in various forms for various diseases. It is followed by other parts such as Roots, Fruits, Bark, Flower, Seeds, Stem and Latex of 18, 13, 8, 5, 5, 2 and 2 species respectively. Most of the people in the study area depend on traditional medicine for primary healthcare system. Therefore, conservation Angiosperms is more essential for our future generation.

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## INTRODUCTION

Ethnobotanical studies have shown that humans have discovered and improved plants for a variety of purposes including food, shelter and medicine. Even in this case of medicine where modern inventions appear to dominate, we owe a great debt to folk medicine for knowledge of the healing properties of plants (Schultes, 1978).

In traditional medicine, plants are required as a major component to cure many diseases caused by bacteria, fungi and virus in man. The world Health Organization (WHO) has estimated that 80% of the populations of developing countries still rely on traditional medicines mostly plant drugs for their primary health care needs (Jayakumar *et al.*, 2019).

Herbal therapy has come of age and today medicinal plants play a significant role in human healthcare globally. In USA about 25% of all prescriptions dispensed in public pharmacies contain drugs extracted from higher plants are about 64% of the total global populations remains depended on traditional medicine for their healthcare needs. In India alone approximately 7500 medicinal plants are traditionally used against various ailments while Korea, Japan, China and Malaysia together with few other Southest Asian countries are the other leading in the world in the use of herbal medicines (Kingston *et al.*, 2009).

India has rich plant diversity and is one among the mega biodiversity countries of the world. Indians have been using medicinal plants since antiquity and the Ayurvedic methods date back to 5000 B.C. India is rich in its coastal population from the immemorial time with their traditional knowledge system which deals with the many significant aspects and the health problems of coastal communities. Indigenous knowledge on natural resources, utilization of medicinal plants not exceeding the resilience of the surrounding environment is regarded as an important measure of sustainable plants biodiversity conservation (Kingston *et al.*, 2009).

The therapeutic properties of plants are existing since few thousand years ago. However, use of plants to cure diseases and relieve physical sufferings dates back to the earlier times of mankind's history probably starting from the first moment when a human being or their animal got ill. It is also reported that expeditions, undertaken by those interested in the cultural attributes of primitive societies, obtained valuable information regarding the use of plants for medicine (Muhammad *et al.*, 2014).

Medicinal plants are in use for human health management since ages and still today it is serving the purpose with stability through scientific validity. That means, with the help of modern science plant drug occurrence and quantitative estimation of active principles, alkaloids, terpenoids, phenolics, etc., as per the requirements for management of diseases.

Accordingly, it has created the platform for exploration and identification of medicinal plants in different climatic zones, area, and district and at state level. During exploration in different Northeastern states, it was observed that medicinal plants are categorized in the form belonging to established systems of medicines like Ayurveda, Unani, Siddha, Homoeopathy and modern medicines and secondly, the plants used by local traditional healers provide health services hy obtaining locally available herbs from nature (Rama Shanker, 2017).

Coastal vegetation provides habitats, food and fodder for fauna as well as protection from the wave action. Coastal sand is continually being eroded and deposited on the shore by wave action. Therefore, the role of vegetation in dune fixation is critical since, they serve as wind trappers, sand binders and dune stabilizers (Costanza *et al.,* 1997). Tamil Nadu coastal line has a length of about 1076 km; it constitutes about 15% of the total coastal length of India. The coastal zone is an important biogeographically habitats of the Indian subcontinent (Rodgers and Panwar, 1998).

Coastal vegetation contains many species of specific flora and thus it is an ecological store house rich in biodiversity and also has ecological values. The plants are source of food, fodder, medicine, edible oil etc. In this region and they are proving their potential to be cultivated as each crop in many parts of the world. Despite their credentials, these plants had been relatively under explored for exploiting their potential (Muhammad *et al.*, 2014). The coastal plants are also used for construction materials, fuel wood and many other purposes.

The characteristic feature of the coastal zone is high population density dominated by fisherman and coir workers. Coastal sand dunes are formed from wind, tide and wave action. The plants are playing a vital role in protecting the coast from erosion and flooding.

Even today this area holds much more hidden treasure; almost 80% of the information on the uses of plants as traditional medicines has not been documented from different sectors of the district. Keeping this is view, the present study was initiated, with an aim to document the Angiosperms and its indigenous uses including the knowledge of rural people and folklore on the utilization of medicinal plants in remote of Rajakamangalam thurai of Kanyakumari District. Similar types of works were carried out by many authors in different regions of India (Jayakumar and Rejitha, 2022); Ramarajan and Murugesan (2014); Padmavathy and Anbarashan (2011); Das and Kamboj (2020); Sugumaran and Avudainayagam (2017); Vidyasagaran and Madhusoodanan (2014); Uma and Devi Renchu (2022).

## MATERIALS AND METHODS

### Study area

Kanyakumari district is commonly referred to as Nanjil Nadu due to its ancient region that once formed a part of the Cheran Kingdom in Tamilakam, primarily known for its fertile lands and extensive agricultural activities. From Periyakadu to Rajakamangalam thurai coastal area comes under Rajakamangalam panchayat located in Kanyakumari district. It is located approximately 13 kilometers from Nagercoil, which is the administrative headquarters of Kanyakumari District.

The region is notable for the Centre for Marine Science and Technology located in Azhathangarai. Ecologically, the Rajakkamangalam estuary and Azhathangarai marshland are significant for their coastal ecosystems, featuring mangroves, sand dunes and serving as breeding sites for sea turtles. These areas are also habitats for various bird species. Lamore Beach is a serene and picturesque beach located in Rajakkamangalam in the Kanyakumari District of Tamil Nadu. It is an emerging tourist destination known for its tranquil atmosphere and natural beauty, offering visitors a peaceful escape from the bustling city life.

### Methods

The present study was conducted in the wild plants used for medical purpose by the local communities in their traditional health care system and to assess the status of medicinal plant diversity around Periyakadu to Rajakamangalam thurai coastal area of Kanyakumari district.

Intensive surveys carried out to collect data on indigenous knowledge on uses of medicinal plants and phytodiversity practices by local communities of villages in an around the present study area. The target groups were interviewed based on their occupation which includes medicinal plant collections, practitioners and local farmers.

### Data collection

A survey was conducted randomly in the study area at different distance gradients from Periyakadu to shoreline of the Rajakamangalam thurai. The data collection includes plant collection, herbarium preparation and ethnobotanical survey. Plant collection was done by direct visit to coastline, and the specimens were properly tagged and noted important characters in the field note book. Information are collected from the local people,

traditional healers and herbal dealers regarding the indigenous uses by interview method and include questions about famous church and believes, medicinal uses of plants in coastline, part of plant used, mode of preparation, mode of application and other uses of the plant. All the information received from the respondents was recorded. GPS photographs were shown to the traditional healers for better understanding instead and the collected plant specimens were made into herbarium and deposited into STHC herbarium, Department of P.G and Research centre of Botany S.T Hindu college, Nagercoil. The collected specimens were identified with the help of local floras like Flora of Presidency of Madras (Gamble and Fisher 1915) and an Excursion flora of Central Carnatic Tamilnadu (Mathew, 1983) and also with help of experts for plant identification. Some of the medicinal information were collected from the available pertinent literature and Google search engine (The Botanical survey of India).

## RESULTS AND DISCUSSION

The ecosystem of coastal villages is rich in important medicinal plant species. The plants are not only valuable as herbal drugs but also significant as a source of food, fodder, spices etc. The ethno botanical informations are gathered from the Rajakamangalam thurai coastal village.

The present exploration on indigenous uses of Angiosperms of Rajakamangalam thurai coastal area has yielded information on 97 plant species. Of these 97 plants, 88 plants are dicotyledons and 9 plants are monocotyledons and the plants are distributed under 88 genera and 41 families. They include herbs, shrubs, trees and climbers. Among 97 taxa, 43 species (44%) were herbs, 20 species (21%) were shrubs, 26 species (27%) trees, 8 species (8%) were climbers and belonging to 41 different families were recorded. The collected plant specimens were tabulated with its binomial, family, local name, useful part, indigenous uses and medicinal uses (Table 1).

**Table 1.** List of medicinal plants and their Binomial name, local name, family, habit, useful part, indigenous uses and their medicinal uses collected from coastal area of Rajakamangalam thurai

| Sl | Botanical name | Family | Habit | Useful part | Indigenous uses | Medicinal uses |
|---|---|---|---|---|---|---|
| 1. | *Abutilon indicum* [L.] Sweet | Malvaceae | Shrub | Leaves | Medicinal | Piles, relief pain |
| 2. | *Acacia planifrons* [Wight and Arn] | Leguminosae | Tree | Bark and Leaves | Medicinal | Wound healing and reduce inflammation |
| 3. | *Acalypha indica* L. | Euphorbiaceae | Herb | Whole plant | Medicinal | Cough, cold and asthma |
| 4. | *Achras zapota* L. | Sapotaceae | Tree | Fruit and leaves | Medicinal | Cough, cold and diarrhoea |
| 5. | *Achyranthes aspera* L. | Amaranthaceae | Herb | Root | Medicinal | Kidney stone, urinary disorders |
| 6. | *Aerva lanata* (L.) ex Schult. | Amaranthaceae | Herb | Whole plant. | Medicinal, ornamental | Kidney stones and flushes out toxin from the urinary tract |
| 7. | *Agave vivipara* L. | Amaryllidaceae | shrub | Leaves | Medicinal, edible | Digestion, healing ulcers |
| 8. | *Aloe vera* (L.) | Lilliaceae | Herb | Whole plant | Medicinal | Liver detoxification and jaundice |
| 9. | *Alternanthera sessilis* (L.).Dc. | Amaranthaceae | Herb | Whole plant | Medicinal | Wounds, skin eruption and rashes |
| 10. | *Amaranthus viridis* L. | Amaranthaceae | Herb | Leaves | Medicinal | Haemoglobin level, anaemia |
| 11. | *Anacardium occidentale* L. | Anacardiaceae | Tree | Leaves, Bark and Fruit | Medicinal, timber | Maintaining normal Blood sugar level |
| 12. | *Andrographis paniculata* (Burma.f.) Wall.ex Nees | Acanthaceae | Herb | whole plant | Medicinal, fodder | Fever, body pain and viral infections |
| 13. | *Anona muricata* L. | Anonaceae | Tree | Leaves and Fruit | Medicinal | Preventing the growth of cancer cells |
| 14. | *Anona squamosa* L. | Anonaceae | Tree | Whole plant | Medicinal | Diarrhoea |
| 15. | *Artocarpus heterophyllus* Lam. | Moraceae | Tree | Latex fruit, leaves and | Medicinal, edible, | Wound healing and dental care |

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| | | | | bark | fodder | |
| 16. | *Azadirachta indica* A. Juss | Meliaceae | Tree | Whole plant | Medicinal | Skin Diseases like Eczema and psoriasis |
| 17. | *Boerhavia diffusa* L. | Nyctaginaceae | Herb | Whole plant | Edible | Reduces swelling and maintain kidney and liver health |
| 18. | *Boerhavia erecta* L. | Nyctaginaceae | Herb | Whole plant | Medicinal | Fatigue and liver function |
| 19. | *Borassus flabellifer* L. | Arecaceae | Tree | Whole plant | Medicinal, edible | Cough & Respiratory disorders |
| 20. | *Brachiaria distachyos* (L.) | Poaceae | Herb | Leaves and Stem | Medicinal | Fever, detoxify the body |
| 21. | *Bulbostylis barbata* (Rotta.) C.B Clarke | Cyperaceae | Herb | Whole plant | Medicinal, edible | Fever and flush out toxins |
| 22. | *Calotropis gigantea* (L.) Dryand | Asclepiadaceae | Shrub | Whole plant | Medicinal, edible | Leprosy and ringworm |
| 23. | *Cantharanthus roseus* (L.) G.Don | Apocynaceae | Shrub | Root and Leaves | Medicinal | Fever, wounds and muscle pain |
| 24. | *Canthium coromandelicum* (Burma.f.) Alston | Rubiaceae | Shrub | Leaves, Bark and Fruit | Timber | Indigestion, bloating and acidity |
| 25. | *Capsicum annum* L. | Solanaceae | Herb | Fruit | Medicinal | Relieve pain, arthritis and muscle stiffness |
| 26. | *Cardiospermum halicacabum* L. | Sapindaceae | Climber | Fruit and Root | Medicinal, ornamental | Joint pain, cough & stomach disorders |
| 27. | *Carica papaya* L. | Caricaceae | Tree | Leaves | Medicinal | Dengue fever, enhance platelets |
| 28. | *Cascabela thevetica* (L) Lippold | Apocynaceae | Shrub | Leaves | Medicinal | Chronic wound and skin infection |
| 29. | *Casuarina equisetifolia* Forster & Forster.f. | Casuarinaceae | Tree | Root and Bark | Medicinal, edible | Pimple and dysentery |
| 30. | *Chromolaena odorata* (L.) R.king H.Robinson | Asteraceae | Shrub | Root and Leaves | Medicinal | Wounds to stop bleeding |
| 31. | *Cleome viscosa* L. | Capparaceae | Herb | Leaves | Medicinal,ornamental | Joint pain, swelling and insect bites |
| 32. | *Clitoria ternatea* L. | Leguminosae | Climber | Flower and Root | Medicinal | Memory, reduce stress and boost immunity |
| 33. | *Cocos nucifera* L. | Arecaceae | Tree | Fruit | Edible | Body coolant |
| 34. | *Coleus amboinicus* Lour. | Lamiaceae | Herb | Leaves | Timber, dye | Cough, cold, asthma and bronchitis |
| 35. | *Commelina benghalensis* L. | Commelinaceae | Herb | Leaves | Medicinal, fodder | Urinary infection, kidney stone pain |
| 36. | *Cucurbita maxima* Duchesne | Cucurbitaceae | Climber | Fruit and seed | Medicinal | Deep sleep and Reduce stress |
| 37. | *Cynodon dactylon* (L.) Pers. | Poaceae | Herb | Leaves and Root | Medicinal | Cough, cramps, dysentery and headache |
| 38. | *Datura metel* L. | Solanaceae | Shrub | Leaves | Medicinal, fodder | Asthma, bronchitis and chest congestion |
| 39. | *Dyschoriste madurensis* (Burma.f.) Kuntze | Acanthaceae | Herb | Leaves | Medicinal, ornamental | Wound healing |
| 40. | *Eclipta prostrata* (L.) | Asteraceae | Herb | Leaves | Edible, timber ,coir, oil | Premature graying, strengthens hair roots |
| 41. | *Euphorbia heterophylla* L. | Euphorbiaceae | Herb | Latex | Edible, dye | Warts, ringworm and skin disease |
| 42. | *Euphorbia hirta* L. | Euphorbiaceae | Herb | Leaves | Medicinal | Asthma, cough and bronchitis |
| 43. | *Ficus religiosa* L. | Moraceae | Tree | Leaves and Bark | Medicinal, fodder | Asthma, constipation, wounds and Ulcers |
| 44. | *Gomphrena celosioides* Mart. | Amaranthaceae | Herb | Whole plant | Medicinal, timber | Cough, Respiratory issues |
| 45. | *Gomphrena globosa* L. | Amaranthaceae | Herb | Leaves and Flower | Medicinal, edible | Digestion, constipation and boosts immunity |
| 46. | *Hibiscus rosa sinensis* L. | Malvaceae | Shrub | Flower | Medicinal, fodder, dye | Hair fall, premature graying and dandruff |
| 47. | *Ipomoea pes- caprae* (L.) R.Br | Convolvulaceae | Climber | Leaves | Medicinal, edible | Rheumatism, arthritis, swelling and muscle pain |

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| 48. | *Ipomoea sepiaria* J.konig ex Roxb | Convolvulaceae | Climber | Leaves | Medicinal, edible | PCOS and menstrual cramps |
| 49. | *Jatropha curcas* L. | Euphorbiaceae | Shrub | Seed | Medicinal, fodder | Swelling, reduce pain, scorpion stings and insect bites |
| 50. | *Justicia adhatoda* L. | Acanthaceae | Shrub | Root | Medicinal, fodder | Malarial fever and viral infection |
| 51. | *Justicia diffusa* ( Wild.) Nees | Acanthaceae | Herb | Leaves | Medicinal, ornamental | Viral fever and chronic inflammatory diseases |
| 52. | *Justicia gendarussa* Mart. ex Benth. | Acanthaceae | Shrub | Root | Medicinal, fodder | Fever and viral infections |
| 53. | *Kalanchoe delagoensis* Eckl.& Zeyh | Crassulaceae | Herb | Leaves | Medicinal | Burns, cuts and insect bites |
| 54. | *Lantana camera* L. | Verbenaceae | Shrub | Leaves | Medicinal | Eczema scabies and skin disorders |
| 55. | *Launaea sarmentosa* (Wild.) Kuntze | Asteraceae | Herb | Leaves | Medicinal | Liver health and jaundice |
| 56. | *Lawsonia inermis* L. | Lythraceae | Shrub | Leaves | Medicinal | Strengthened hair and dandruff |
| 57. | *Leucas aspera* (Wild.) | Lamiaceae | Herb | Leaves and Flower | Medicinal, fodder | Antifungal, anti-inflammatory, antibacterial and analgesic properties |
| 58. | *Lycopersicon esculentum* L. | Solanaceae | Herb | Fruit | Medicinal | Neturalizing stomach acid and improving digestion |
| 59. | *Mangifera indica* L. | Anacardiaceae | Tree | Leaves and Fruit | Medicinal | Diabetes, kidney stone and asthma |
| 60. | *Mimosa pudica* L. | Leguminosae | Herb | Leaves and Root | Medicinal, dye | Wound, diarrhoea, piles and skin disease |
| 61. | *Mirabilis jalapa* L. | Nyctaginaceae | Herb | Leaves and Flower | Medicinal, edible | Reducing fever, cough and pimples |
| 62. | *Momordica charantia* L. | Cucurbitaceae | Climber | Fruit | Medicinal | Digestive issues, worm infestation and blood sugar levels |
| 63. | *Morinda tinctoria* Roxb. | Rubiaceae | Tree | Root | Medicinal, ornamental | Used for treating fevers, joint pain and detoxification |
| 64. | *Moringa oleifera* L. | Moringaceae | Tree | Whole plant | Medicinal, edible | UTI,regulate menstrual cycle and digestive issues |
| 65. | *Murraya koenigii* L. | Rutaceae | Tree | Leaves | Medicinal, fodder | Premature graying and dandruff |
| 66. | *Musa paradisiaca* L. | Musaceae | Tree | Whole plant | Medicinal, edible | Anaemia, kidney stone and wound healing |
| 67. | *Nerium oleander* L. | Apocynaceae | Shrub | Leaves | Oranmental | Eczema, scabies and ulcers |
| 68. | *Ocimum sanctum* L. | Lamiaceae | Herb | Leaves | Medicinal, edible | Cold, cough, bronchitis, indigestion and bloating |
| 69. | *Oldenlandia corymbosa* L. | Rubiaceae | Herb | Whole plant | Medicinal | Fever, liver disorders, and cancer treatment |
| 70. | *Oldenlandia umbellate* L. | Rubiaceae | Herb | Root | Medicinal, edible | Skin disease, menstrual irregularity and anaemia |
| 71. | *Parthenium hysterophorus* L. | Asteraceae | Herb | Leaves | Medicinal, fodder | Antimicrobial and wound healing properties |
| 72. | *Passiflora foetida* L. | Passifloraceae | Climber | Leaves | Medicinal, ornamental | Anxiety, mild epilepsy and nervous disorders. |
| 73. | *Pedalium murex* L. | Pedaliaceae | Herb | Seed | Medicinal | Hormonal balance |
| 74. | *Phyllanthus niruri* L. | Euphorbiaceae | Herb | Leaves | Medicinal | Kidney stone and UTI |
| 75. | *Physalis minima* L. | Solanaceae | Herb | Leaves | Medicinal, fodder | Cold, cough and asthma symptoms |
| 76. | *Pithecellobium dulce* (Roxb.) Benth. | Leguminosae | Tree | Leaves | Medicinal, ornamental, dye | Controlling Blood sugar level and insulin |
| 77. | *Plumbago zeylanica* L. | Plumbaginaceae | Herb | Root | Medicinal, edible, dye | Arthritis, gout and rheumatism |
| 78. | *Polyathia longifolia* L. | Anonaceae | Tree | Bark | Medicinal | Strengthen heart and blood pressure |
| 79. | *Pongamia pinnata* (L.) Pierre | Leguminosae | Tree | seed | Medicinal, edible | Healing wound, ulcers and fungal infections |

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| 80. | *Psidium guajava* L. | Myrtaceae | Tree | Leaves | Medicinal, ornamental | Diarrhoea, dysentery, indigestion and stomach pain |
| 81. | *Ricinus communis* L. | Euphorbiaceae | Shrub | Leaves | Medicinal, edible | Arthritis, rheumatism and muscle pain |
| 82. | *Ruellia tuberosa* L. | Acanthaceae | Herb | Root | Medicinal, edible, timber | UTI and Kidney Stone |
| 83. | *Santalum album* L. | Santalaceae | Tree | Wood | Medicinal | Acne, pimples, sunburn and rashes |
| 84. | *Sida acuta* L. | Malvaceae | Shrub | Leaves and root | Medicinal, edible | Fever and boost immunity |
| 85. | *Sida rhombifolia* L. | Malvaceae | Shrub | Leaves and Root | Medicinal | Strengthen muscle and fatigue |
| 86. | *Solanum melongena* L. | Solanaceae | Herb | Root | Medicinal, edible | Inflammation, strengthen joints |
| 87. | *Solanum nigrum* L. | Solanaceae | Shrub | Leaves | Medicinal | Peptic ulcers and jaundice |
| 88. | *Solanum torvum* Sw | Solanaceae | Shrub | Fruit | Edible | Boost haemoglobin and Iron deficiency |
| 89. | *Solanum trilobatum* L. | Solanaceae | Climber | Leaves | Medicinal | Chronic cough, wheezing and asthma |
| 90. | *Syzygium cumini* (L.) Skeels | Myrtaceae | Tree | Seed | Medicinal | Blood sugar level and insulin production |
| 91. | *Talinum portulacifulium* (Forssk.) Asch. ex Schweinf. | Talinaceae | Herb | Leaves | Medicinal, fodder | Anaemia and digestion |
| 92. | *Tamarindus indica* L. | Leguminosae | Tree | Leaves | Medicinal | Fever and body heat |
| 93. | *Terminalia catappa* L. | Combretaceae | Tree | Bark | Medicinal | Controlling Blood sugar |
| 94. | *Thespesia populnea* (L.) Sol ex Correa | Malvaceae | Tree | Leaves | Medicinal | Eczema and psoriasis |
| 95. | *Tribulus terrestris* L. | Zygophyllaceae | Herb | Root | Medicinal, edible, timber | UTI and kidney stones |
| 96. | *Tridax procumbens* L. | Asteraceae | Herb | Leaves | Medicinal | Infection and wound healing |
| 97. | *Wedelia trilobata* L. | Asteraceae | Herb | Leaves | Medicinal | Skin infection, ulcers |

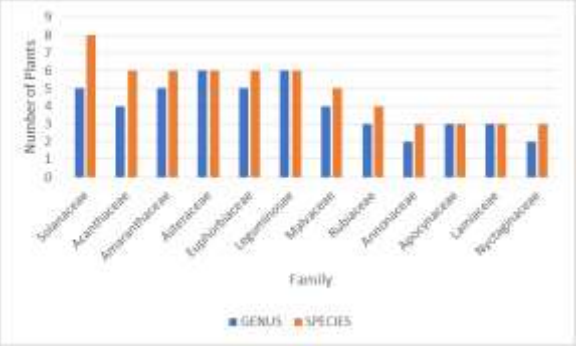


**Fig. 1.** Dominant families including the number of genera and species collected from Rajakkamangalam Beach

Family wise distribution shows that Solanaceae is a dominant family having 8 species under 5 genera. Acanthaceae, Amaranthaceae, Asteraceae, Euphorbiaceae and Leguminosae are the subdominant families which are including 6 species each. It is followed by Malvaceae, it includes 5 species and Rubiaceae which includes 4 species. The families such as Annonaceae, Apocynaceae, Lamiaceae, Nyctaginaceae are include 3 species each. 7 families such as Anacardiaceae, Arecaceae, Convolvulaceae, Cucurbitaceae, Moraceae, Myrtaceae and Poaceae which consist of 2 species each. The remaining 24 families are represented by single species each (Fig. 1).

The most dominant genus is Solanum, it includes 4 species. It is followed by Justicia consists of 3 species. 7 genera consist of 2 species each and the remaining 79 genera are represented by single species each.

**Indigenous uses**

The present study reveals that the 97 plants collected from the study area are used for various purposes by the local people. Among the 97 plants 88 plants are used as medicine and 26 plants are edible. The plants are also used as fodder, ornamental, timber, dye, oil and Fibre as 14, 10, 7, 6, 1 and 1 species respectively (Fig. 2).

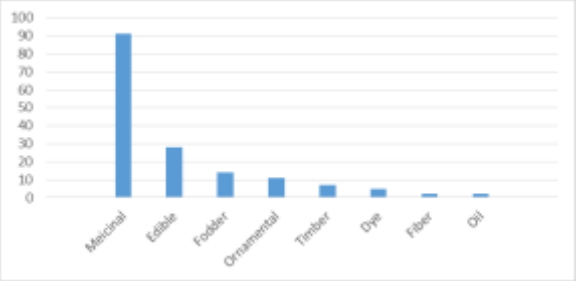


**Fig. 2.** Different indigenous uses of the plants from Periyakadu to Rajakamangalam beach

**Medicinal uses**

The present study recorded 88 plant species used for medicinal purposes by local communities. Various plant parts, including leaves, whole plant, roots, fruits, seeds, flowers, and latex, are employed in traditional remedies. Leaves were the most commonly used part (54 species), followed by Roots (18 species), Whole plant (16) species, Fruits (13 species), Bark (8 species), Flowers and seeds ( 5 species each) and Latex and Stem (2 species) each. The frequent use of leaves may be due to their easy availability and higher therapeutic potential. Overall, the findings indicate selective utilization of different plant parts depending on the ailments treated, with leaves forming the major component of herbal preparations, as shown in Fig. 3.

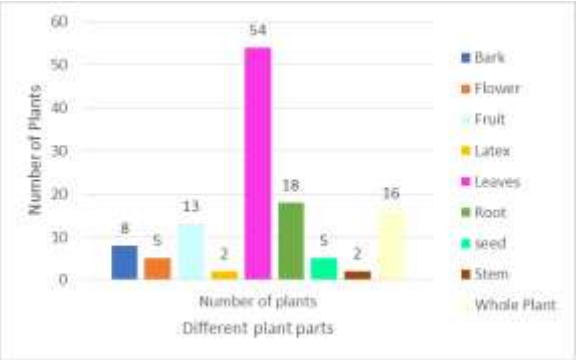


**Fig. 3.** Different useful parts of the medicinal plants from Periyakadu to RajakamangalamThurai beach

The present study reveals that different plant parts of 88 plants are used as medicine for various diseases such as poisonous bites, stomach disorders, fever, cold, cough, cuts, wounds, ulcers, kidney diseases, respiratory problems etc. Based on the information obtained from the indigenous people and the reviews all the ailments in the present study area were grouped into 15 categories.

Based on the information obtained from the traditional healers in the study area, all the reported ailments were categorized into 14 categories (Table 2) viz. gastro-intestinal ailments (GIA), dermatological infections/diseases (DID), respiratory systems diseases (RSD), genito-urinary ailments (GUA), fever (Fvr), skeleto-muscular system disorders (SMSD), poisonous bites (PB), circulatory system/ cardiovascular diseases (CSCD), endocrinal disorders (ED), liver problems (LP), Neurological Problems (NP), hair care (HC), cooling agents (CA) and general health (GH).

Several diseases were placed in one ailment category based on the body systems treated (Ayyanar and Ignacimuthu, 2011; Sukumaran *et al.*, 2021).

Most of the plants are used for treating Dermatological Infections/ Diseases (36 species), it is followed by Gastro-intestinal Ailments (25 species), Respiratory systems Diseases (28 species), Poisonous Bites (3 species), Genito-Urinary Ailments (16 species), Hair Care (6 species), Skeleto-Muscular System Disorders (21species), Fever (14 species), Liver problem (10) and Circulatory system/ Cardio vascular diseases (2 species each), Dental care (5 species), Endocrinal disorders (9 species), Neurological Problems (3), Cooling agent (1 species) and General health (8 species) (Table 2).

Most of the collected medicinal plants have efficiency to fight against more than one disease. For example *Psidium guajava, Pongamia pinnata, Leucas aspera and Ocimum sanctum* etc., are used to treat 4 diseases.

According to Trotter and Logan (1986), plants which are used in repetitive fashion in any ailment could be more likely to have biologically active component or pharmacologically active. Most of the plants reported in this study has good evidence of effectiveness and were scientifically validated as significant pharmacological agents. For example, A. vasica is one of the most frequently used medicinal plants among various indigenous communities all over the World for respiratory problems, especially cold, cough and

asthma and drugs with this plant has been used for a long period of time which does not has serious adverse effects (Claeson *et al*., 2000), In support of our study, *P. amarus* has been scientifically proved to control hepatitis B and C viruses and possess hepatoprotective, immunomodulating and anti-inflammatory activity (Thyagarajan *et al*., 2002). *A. indica*, *Anacardium occidentale*, *C. viscosa*, *E. hirta*, *O. dillenii* and *M. pinnata* were used in the treatment of wound and related injuries by the Kani traditional healers and these plants showed significant wound healing and anti-inflammatory activity in experimental animals (Ayyanar and Ignacimuthu, 2009a).

**Table 2.** Ailments grouped by different categories in the present study area

| Sl | Ailments categories | Biomedical terms | Tamil terms | No. of plants used | Total no. of plants |
|---|---|---|---|---|---|
| 1 | Gastro-intestinal ailments (GIA) | Acidity | Amilathanmai | 1 | 25 |
| | | Indigestion | Cherimanaminmai | 8 | |
| | | Bloating | Uppusam | 2 | |
| | | Constipation | Malachickal | 2 | |
| | | Diarrhoea | vayittuppokku | 4 | |
| | | Dysentery, | Seethapethi | 3 | |
| | | Stomach pain | Vayiru vali | 1 | |
| | | Ulcer | Kudal punn | 4 | |
| 2 | Dermatological infections/ Diseases (DID) | Acne | Paru | 1 | 36 |
| | | Pimples | Mugapparu | 3 | |
| | | Sunburn | Venkuru | 1 | |
| | | Rashes | Thadippukal | 1 | |
| | | Wounds | Punn | 13 | |
| | | Cuts | Vettukayankal | 1 | |
| | | Skin infection | Charuma thottu | 2 | |
| | | Eczema | Karappan | 3 | |
| | | Scabies | Chirangu | 2 | |
| | | Fungal infection | Poonchai thottu | 2 | |
| | | Leprosy and ringworm | Thozhu noi and padar thamarai | 1 | |
| | | Skin diseases | Charuma viyathikal | 5 | |
| | | Warts, Ringworm | Marukkal and Padar thamarai | 1 | |
| 3 | Respiratory systems diseases (RSD) | Asthma | Ellupunooi | 8 | 28 |
| | | Cold | Salli | 4 | |
| | | Cough | Irumal | 11 | |
| | | Bronchitis | Moochukulalalarchi | 4 | |
| | | Wheezing | Iluppu | 1 | |
| 4. | Genito-urinary ailments (GUA) | Kidney disorders | Cirunirakakolaru | 8 | 16 |
| | | Menstrual problems/Menorrhagia | Matavidaimikaippu | 1 | |
| | | Piles/Hemorrhoides | Moola nooi | 2 | |
| | | Urinary disorders | Cirunirakakolaru | 5 | |
| 5 | Fever (FVR) | Fever | Kayccal | 11 | 14 |
| | | Malaria | Muraikayccal | 1 | |
| | | Dengue fever | Dengue kaichal | 1 | |
| | | Viral fever | Virus kaichal | 1 | |
| 6 | Skeleto-muscular system disorders (SMSD) | Body pain | Udal vali | 3 | 21 |
| | | Headache | Thalaivalli | 1 | |
| | | Rheumatism | Vathanooi | 1 | |
| | | Swellings | Veekam | 2 | |
| | | Inflammation | Veekkam | 4 | |
| | | Muscle cramps | Thasai pidippu | 1 | |
| | | Arthritis | Mudakku vatham | 5 | |
| | | Joint pain | Moottu vali | 4 | |
| 7 | Poisonous bites (PB) | Scorpion sting | Thelkoduku | 1 | 3 |
| | | Insect bite | Poochikadi | 2 | |
| 8 | Circulatory system/ Cardio vascular diseases (CSCD) | Heart diseases | Ithayanoykal | 2 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| 9 | Endocrinal disorders (ED) | Diabetes | Neerilivu nooi | 8 | 9 |
| | | Hormonal balance | Utchurappu neer samanilaiyinmai | 1 | |
| 10 | Hair care (HC) | Anti-dandruff | Thalaipoduku ethirpu | 3 | 6 |
| | | Hair fall, premature graying | Mudi uthirthal and Naraithal | 3 | |
| 11 | Cooling agent (CA) | Body cooling | Udalkulichii | 1 | 1 |
| 12 | Liver problems (LP) | Jaundice | Mancal kamalai | 2 | 10 |
| | | Liver disorders | Kalliralkolarukal | 4 | |
| | | Detoxification | Nacchu veliyettuthal | 4 | |
| 13 | Neurological problem (NP) | Anxiety | Pathattam | 1 | 3 |
| | | Deep sleep and reduce stress | Aazhntha urakkam and mana azhutham | 2 | |
| 14 | General health (GH) | Anaemia | Eratha sokai | 5 | 8 |
| | | Antiseptic | Kirumi Nasini | 1 | |
| | | Fatigue | Sorvu | 2 | |

The ethnomedicinal studies evidently pointed out that, instead of trying to identify the active components and pharmacological actions of plants through massive collection of plants from natural sources, it is better to start investigating the efficacy of the plant based on their use in folk medicine, since most of the commercially proven drugs used in modern medicine were initially tried in crude form in traditional or folk healing practices (Fabricant and Farnsworth, 2001).

## CONCLUSION

Biodiversity is a part of our daily lives and livelihoods and constitutes the resources upon which families, communities, Nations and future generations depend. Human society from the very beginning of its appearance on this earth has been indispensably associated with the plant kingdom for its Survival. Plants provide our basic food crops, building Materials and medicines.

So far only about ten percent of Plants have ever been evaluated for their medicinal or Agricultural potential and so there are certainly many new Drugs and new crops yet to be discovered.

The noteworthy findings stand out from this work, data suggests that people in the more isolated village know and consume more plants than people in the more accessible village. Conservation and judicious utilization of this coastal plant wealth is important because they have become threatened by over-exploitation. The findings of this study reveal that common plant species seen around us also play an important role in the treatment of various ailments. Due to the impact of urbanization, partial Modernization and over exploitation of plant species for medicinal purposes there is chance for disappearance of some plant species in near future. Therefore, appropriate measures should be taken to conserve these plants for healthy and disease-free life.

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