

## Ethnomedicinal plants survey in Elanji Hill village Sathyamangalam range of reserve forest, Western Ghats Tamil Nadu India

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### Abstract

An ethno medicinal plants survey was carried out in Elanji hill village, Sathyamangalam range of reserve forest, Erode district, Tamil Nadu, India. Plants are the significant source of therapeutic drugs. It plays important role in human's survival. In India above 3000 plants for their medicinal value, is generally estimated that over 6000 plants in India are in use in traditional, folk and herbal medicine, representing about 75% of the medicinal needs of the Third World countries. The present study investigated that 104 plants belonging to 42 families. In these families leguminosae held the dominant position.

**Keywords:** Elanji hill, medicinal plants, traditional uses

### 1. Introduction

Medicinal plants are played an important role, to treating a various diseases throughout the world. India possesses almost 8% of the estimated biodiversity of the world with around 1,26,000 species. This is because of its varied geographical and climatic conditions. A vast knowledge of how to use the plants against different illness may be expected to have accumulated in areas of where the use of the plant is still of great importance. The plants used in ethnomedicine contain a wide range of substances that can be used to treat chronic as well infectious diseases. Ethnomedicinal practices are preferred largely because medicinal plants are less expensive, readily available and reliable and they are considered to have fewer side effects than modern medicines. Medicinal plants are the wealthy bio-resources of drugs of traditional medicinal systems, modern medicines, nutraceuticals, food supplements and folk medicines, pharmaceuticals, intermediate and chemical entitled for synthetic drugs (Abraham, 1981) [9].

### 2. Materials and Methods

#### 2.1 Study Area

Ealanji is a small villages located in Sathyamangalam R.F. is located in the North East of Erode District in Tami Nadu and the hill is about 130 km away from Erode. The latitude is N 11° 38.99'. The longitude is E 077° 15.654' and the altitude is 817 meter above MSL. The temperature of the hill is around 25°C in the winter and in summer it is 33°C, the annual rainfall of this hill ranges between 10 mm and 90 mm. The vegetation is about Dry Deciduous type and scrub at the foot hill. The people of the Ealanji hill and the surrounding areas are Hoorali, Lingayats, Ambadi Naicker, Okulikavudar, Thoraiyar and Solagars. Hoorali and Lingayats are ethnic people inhabiting the hill around 300 years. Nearly 800 peoples are living in this hill. The main occupation of this people are agricultural and cattle rearing. The predominant plants are *Lantana camara*, *Crotalaria pallida*, *Artocarpus integrifolia*, *Artocarpus incisa*, *Cassia auriculata*, *Pterolobium indicum*, *Acacia latronum*,

*Jatropha curcas*, *Santalum album*, *Acacia sundra*, *Cassia tora* and *Atalantia monophylla*. During the survey period, adopting the method of Jain (1967) [6], the qualitative tools such as conversations and open discussions with the informants, the local traditional healers and elders of the area having practical knowledge of plants in medicine either for self-medication or for others were held. A total of 4 informants comprising 3 males and 1 female were identified between the ages of 50 and 75. These informants were approached and requested to share their knowledge about the plants they use against different diseases and plants harvested. The gathered information such as local plant name, parts used, medicinal uses and nature of administration was systematized and analysed to draw a clear and updated picture of the medicinal plants use pattern of hill.

At the same time efforts were made to compare and discuss the use of medicinal plant species recorded with those reported by others. The information collected and examined by consulting important works pertaining to Indian medicinal plants (Chopra *et al.*, 1956; Kirtikar and Basu, 1975; Jain, 1991 and Sivarajan and Balachandran, 2006) [7, 20, 5, 21, 8].

#### 2.2 Collection and Identification of Medicinal Plants

The plants were collected during their flowering period. Voucher specimens usually one twig due to conservation and preservation of biodiversity of all medicinally valuable plants were collected, poisoned, dried and mounted with voucher number following the conventional methods (Jain and Rao, 1977) [4, 10] and deposited at the department of Botany Herbarium, Vellalar College for Women, Erode, Tamil Nadu. Photographs of few plants were also taken to supplement the herbarium.

Identification was done by using Flora of the Presidency of Madras, Gamble and Fischer (1915-1936) [11] and The Flora of the Tamil Nadu Carnatic, Matthew (1981, 1982, 1983, 1988 and 1991) [12, 13, 14, 15, 16]. Flora of Tamil Nadu Series (Nair and Henry, 1983; Henry *et al.*, 1987 & Henry *et al.*, 1989) [17, 19, 18] was used at best for nomenclature. The plants were enumerated following the Natural system of

Classification of Bentham & Hooker with binomial, local name, description of the plant and uses. A survey of literature was made to find out the active principles of drug plants identified (Chopra *et al.*, 1956; Jain, 1991 and Asolkar *et al.*, 1992) [7, 21, 22].

## 2.3 Data Collection

### 2.3.1 Some Important Medicinal Plants in Ealanji Village

1. *Acacia planifrons* W. & A. Odai. The leaves are used to cure skin allergy and cancer.
2. *Acacia latronum* Willd. Karodei. Leaves and barks are used as cardio tonic and diuretic drug.
3. *Actinopterys radiata* Link. Visirichedi. Plant extract is used to control blood pressure, tuberculosis and dried plant is used to cure cough.
4. *Adansonia digitata* L. Papparappuli. The plants possess antimicrobial, antimalarial, antiviral, antioxidant and anti-inflammatory activities. It is used to treat diarrhoea, anaemia and asthma.
5. *Adina cordifolia* Hook.f. ManjaKadambu. The bark cures inflammations, biliousness, and skin disease, root is used as an astringent, in dysentery and plant extracts possess antibacterial properties.
6. *Agave americana* L. Narkathalai. Whole plant has antiseptic, wound healing and anti-inflammatory properties.
7. *Ageratum houstonianum* Mill. Pampilla. The essential oil has antibacterial activity.
8. *Ailanthus malabarica* Dc. Perumaram. Dried stem bark is used in dysentery and diarrhoea. The whole plant is used to treat dyspepsia, bronchitis, ophthalmic and snakebite.
9. *Alangium salvifolium* Wang. Alangi. The roots and fruits are used for the treatment of rheumatism and hemorrhoid.
10. *Albizia amara* Boiv. Oonjapattai. Barks and roots used to cure inflammations of snake bite.
11. *Alternanthera paronychioides* A.St.Hill. Whole plant has antioxidant, anti-glucotoxic and anti-diabetes properties.
12. *Alternanthera pungens* Kunth. Thevidimullu. Leaf extract is used in asthma, strangury, amenorrhoea, dropsy, oedema, antidote to alcohol poisoning, rheumatism and vermifuge, roots are used as cathartic, irritant and abortifacient.
13. *Ammannia baccifera* L. Neermelneruppu. The leaves are used as laxative, stomachic, strangury; cure biliousness (stomach problems), ulcers and rheumatic pain and plant extracts possess antibacterial properties.
14. *Anagallis arvensis* Linn. Anichan. The leaves used to treat toothache, liver problems, snake bites.
15. *Anthrocephalus cadamba* Miq. VellaCadambu. Bark is used as febrifuge, hypoglycaemic, anti-inflammatory, digestive, carminative, diuretic, expectorant, antiemetic and wound healing drug.
16. *Aristolochia indica* L. Nalleswari. Roots and Leaves are used to cure stomach ache, rheumatism, skin diseases, snake bites, diarrhoea and diabetes.
17. *Artocarpus integrifolia* L. L.N: Palamaram. Seeds are used to relieve biliousness, aphrodisiac, leaves used to cure ulcers, latex promotes healing of abscesses, snake bites and glandular swelling, root is a remedy for skin diseases and the woods have sedative property.
18. *Asclepias curasavica* L. Neerpoo. Plant is used as an abortifacient drug.
19. *Atalantia monophylla* Correa. Kattunaragam. Oil from the fruit is used to treat rheumatism.
20. *Barleria acuminata* W. Vellaikurinji. Antiseptic, fever, respiratory diseases, tooth ache and joint pain.
21. *Bauhinia racemosa* Lam. Tataki. Skin ailments like rashes, pimples, acne, fever, piles, cough and asthma.
22. *Bidens pilosa* L. MukkuthiPoo. The whole plant is used to cure cold, flu, hepatitis, general bacterial infections, inflammation and urinary tract infections.
23. *Biophytum sensitivum* DC. Nilakurunji. The whole plant is used as antibacterial, anti-inflammatory, antioxidant, antitumor, chemo protective, radio protective, anti-angiogenesis, wound healing, immunomodulation, antidiabetic and cardio protective drug.
24. *Blainvillea latifolia* D.C. Vanga- Mugali. Leaves and flowers are used to treat leucorrhoea in females.
25. *Blepharis boerhaaviaefolia* Pers. Wound healing, ulcers, nasal haemorrhage, asthma, throat inflammation, ascetics, liver and spleen disorders, dysmenorrhoea, urinary disorder, kidney stone used for diseases of nervous system and aphrodisiac.
26. *Blepharis boerhaaviaefolia* Pers. The whole plant cure wound healing, ulcers, nasal haemorrhage, asthma, throat inflammation, ascetic, liver and spleen disorders, dysmenorrhoea.
27. *Bryonia laciniosa* L. Sivalingi. Plant is used as an antibacterial and antifungal, anti-inflammatory, cytotoxic, analgesic and antipyretic agent.
28. *Caesalpinia coriaria* Willd. Kotivelamaram. The plant extracts used as antimicrobial agent.
29. *Caesalpinia sappan* L. Pathangam. Decoction of the wood is a powerful emmenagogue, cures dysentery, diarrhoea and skin ailments.
30. *Cannabis sativa* L. Ganja. The whole plant is used to treat asthma, inflammation, anorexia, rheumatism, joint pain, cardiovascular disease, blood pressure and skin allergies.
31. *Capparis sepiaria* Linn. Surai. The root cures Antiseptic, antipyretic and scabies eczema.
32. *Capparis zeylanica* L. Adanday. The whole plant is used as antioxidant, antipyretic, analgesic, anti-inflammatory, antimicrobial and immune-stimulant agent.
33. *Caralluma adscendens* R.Br. Kallimulayan. The latex is applied to warts, bites and stings of venomous animals including spiders, ants, scorpions and snakes, stem used in chest, cardiac and obesity problems.
34. *Cardiospermum canescens* Wall. Kattumudakathan. The drug is remedy to dysentery and rheumatoid arthritis.
35. *Careya arborea* Roxb. Karekku. The plant is used as astringent and to treat cough and cold.
36. *Caryota urens* L. Konda- panei. Whole plant is used to treat gastric ulcers, headache, rheumatic swellings, root is used for tooth ailments, bark and seeds are used to treat boils and tender flowers for promoting hair growth.
37. *Cassia auriculata* L. Avaram. Root decoctions used against fever, diabetes, disease of urinary system and constipation, the leaves are laxative, dried flowers and

- flower buds are used as substitute tea for diabetic patients.
38. *Cassia italica* Subsp. Nilaavari. Leaves are used as antimicrobial, antitumor, purgative, antipyretic, analgesic and antiviral drug.
  39. *Cassia obtuse* Roxb. Nilavagai. Leaves stem and fruits are Cure various ailments.
  40. *Cassia tora* L. Tagerai. Leaves are used to treat ringworm, itching, psoriasis, eczema and dermatomycosis. Fruit is used for fever and liver stimulant, mild laxative and heart tonic. Seeds are used in leprosy, flatulence, colic, dyspepsia, constipation, cough, bronchitis and cardiac disorders.
  41. *Cayratia carnosa* Gagnep. Kattupirandai. Whole plant is used as diuretic and also useful in tumours, neuralginsplenopathy, leucorrhoea, astringent. Leaves, roots and seeds are used in ulcers, boils and high fever. Sap of stem and juice of leaves are used as aphrodisiac drug, root reduces anaemic condition and stomach ache. Root bark reduces the muscular pain.
  42. *Chenopodium ambrosioides* L. Chakravarthykeerai. Decoction is used in stomach pain, cough, asthma, fever and headache.
  43. *Chromolaena odorata* L. Communistalai. Leaves are used to treat skin wounds, rashes and the whole plant is used to treat diabetes.
  44. *Clematis gouriana* Roxb. MalaiThangivaer. The roots and leaves cure fever and muscular skeletal disorder.
  45. *Cleome monophylla* L. Naikadugu. The whole plant is used to treat swelling and to prevent the formation of pus, fruit is used in cough, and seeds are used as carminative and rubefacient.
  46. *Colacasia antiquorum* Schott. Shana-dumpa. The whole plant is used to treat asthma, arthritis, diarrhoea, internal haemorrhage, neurological disorders and skin diseases; the rhizome has analgesic, anti-inflammatory, anti-cancer and hypolipidemic effects.
  47. *Commiphora caudate* Engl. Mangiluvai. The stem and leaves used as Anti-viral, anti-inflammatory and analgesic.
  48. *Cordia oblique* Willd. Narivizhi. Fruit is used to treat cough, the disease of chest and chronic fever.
  49. *Cordia gharaf* Ehre nb.ex Asch. Narwillimaram. The bark is used to treat Diabetes, ulcers, wounds and tuberculosis.
  50. *Crotalaria pallida* Aiton. L.N: Kilikilikkichedi. The extract of plant is used to treat urinary problem, fever, prevent skin infections and eczema, roots are used to cure painful swelling of joint, leaf extracts act as vermifuge.
  51. *Curculigo orchioides* Gaertn. Nilapanaikilangu. Root stocks are used in skin diseases, asthma, bronchitis, jaundice, diarrhoea, dyspepsia, colic, vomiting, the dried rhizome used as a tonic in the treatment of decline in physical strength, sexual weakness, leucorrhoea and menstrual disorders.
  52. *Cuscuta hyaline* Roth. Cadadari. The Decoction of the plant is taken against pain in the chest, eye diseases, anti-bacterial and anti-cancer.
  53. *Cymbopogon flexuosus* Wats. Chukkunaripullu. Leaves are used as an antiseptic, antifungal and antipyretic agent.
  54. *Dalbergia sissoo* Roxb. The leaves, roots and wood cures diabetic, gonorrhoea.
  55. *Datura Stramonium* L. All parts of the leaves to treat Muscle spasm, bronchial constriction, menstrual problems, strong analgesic, also used to cure throbbing head ache softening the boils.
  56. *Digera muricata* L. Kattuthoiyal. Plants used as hepatoprotective, antimicrobial, antioxidant, antidiabetic, anthelminticagent.
  57. *Diospyros melanoxylon* Roxb. Karai, Karundumbi. Plant is used to cure fever, diabetes, snake bites, diarrhoea, biliousness and ulcer.
  58. *Diospyros ebenum* Keen. Karaikarutumbi. The whole plants cure anaemia, diarrhoea, ulcers, dysentery, diabetes, fever and Snake bite.
  59. *Eclipta alba* Hassk. Karisalangani. This plant is used as rejuvenating, liver tonic herb and cures anaemia, diphtheria, eczema and dermatitis.
  60. *Enterolobium saman* Prain. Rain tree Stomach cancer, diarrhoea, intestinal, laxative and chewed for sore throat.
  61. *Eugenia jambolana* Lam. Nava. The Whole plant is used to Air fresheners, and cure bronchitis, cramps, dental/oral care and diarrhoea.
  62. *Euphorbia cyathophora* Murray. Palapudu. The whole plants possess antimicrobial and wound healing activities.
  63. *Evolvulus nummularius* L. Elikkathuilai. Leaves purify blood and improve memory power.
  64. *Exacum pedunculatum* L. Kanapoondu. The plants have antimicrobial activities and used to treat stomach ache and fever.
  65. *Ficus glomerata* Roxb. Athi. Root, leaves and fruit have antidiabetic, antioxidant, antidiarrhoeal, memory enhancing, anticholinesterase, antiinflammatory, antibacterial, antidiuretic, antipyretic, antifilarial, hepato protective, cardio protective, gastroprotective, antitussive, wound healing and antiulcer properties.
  66. *Gomphrena serrata* L. Vatanakappuceti. Leaves and flowers are a folk remedy for oliguria, hypertension, kidney problems, hoarseness and jaundice.
  67. *Grewia aspera* Roxb. Palisamaram. The leaves are used to treat nose and eye diseases, piles and rheumatism and the fruit is used to cure indigestion.
  68. *Grewia flavescens* Juss. Semparandai. The leaves cure stomach pain and skin diseases.
  69. *Grewia tiliifolia* Vahl. Lumma. The Fruit cures Diarrhoea, ulcerative and colitis.
  70. *Hibiscus vitifolius* L. Perunthuthi. The seeds, fruits and barks are used to treat Diarrhoea, dysentery, cold, coughs, venereal diseases, bronchitis, elephantiasis and leprosy.
  71. *Hygrophila angustifolia* R.Br. Neermulli. The plant extracts possess antimicrobial activities.
  72. *Justicia betonica* L. Velimunkil. The whole plant is used in the treatment of gastrointestinal complaints such as diarrhoea, vomiting and constipation.
  73. *Kyllinga nemoralis* J.R. Forst & G. Forst. Velluthaneerbasi. The whole plant has antioxidant and antibacterial activities.
  74. *Leonotis nepetaefolia* R.Br. Iranaberi. Plant extract has anti-inflammatory, antidiabetes and antinociceptive properties.

75. *Leucas urticaefolia* R.Br. Chinnapoolathumbi. Root and leaves used to Anti-bacterial, anti-microbial, aphrodisiac, anti-depressant, dysentery and skin diseases.
76. *Linnophila roxburghii* G.Don. Manganari. Plant has antimicrobial, antioxidant and vascular protective properties.
77. *Mallotus philippinensis* Muell.Arg. Kapli or Kalupatti. The whole plant has antifilarial, antiinflammatory and immunoregulatory, antioxidant, antiradical, hepatoprotective and purgative activities.
78. *Micrococca mercurialis* Benth. Pulladi. Plant-sap is to cure Fever, instilled into the nose, eyes or ears and flariasis of the eye.
79. *Mundulea sericea* Subsp. Karumporasu. Plants possess Antimicrobial activities.
80. *Notonia grandiflora* DC. Masakathuthalai. The whole plant possesses antimicrobial activities.
81. *Ocimum gratissimum* L. Ram tulasi. Whole plant is used to treat rheumatism and cough.
82. *Phoenix humilis* Royle. Malai-icham. Fruit is used in the treatment of memory disturbances, fever, loss of consciousness and nervous disorders.
83. *Physalis angulata* L. Munnuthakalee. The whole plant is used as a remedy for abscesses, cough, fever and sore throats.
84. *Physalis pruinosa* L. Milaguthakkali. The plant is used to treat asthma, microbial infections and liver diseases.
85. *Plumbago zeylanica* L. Chitrak. Plant is used as digestive and carminative drug.
86. *Polygala elongata* Klein. Periyanka. The whole plant acts as an antimicrobial agent.
87. *Mesua ferrea* L. Karunangu. The whole plant cures piles, menorrhagia and epistaxis.
88. *Polygonum glabrum*, Willd. Pargudi. The root and young shoots to cure Piles, Jaundice and constipation.
89. *Premna serratifolia* L. Payminnay. The root and leaves used to treat nerve pain, arthritis, indigestion, constipation, rhinitis, fever, hemorrhoids and tumors
90. *Psyrax umbellata* (wight) Bridson. Nallamandaram. The leaves are used Kidney and bladder ailments.
91. *Pterocarpus santalinus* L. Sivapusantham or Semmaram. Oil is used to treat spider bite, wood paste removes warts.
92. *Pterolobium indicum* R.Rich. Indumullu. Young leaves are used in diarrhoea.
93. *Rubia cordifolia* L. Manditti. The root cures urinary infections, diarrhoea, dysentery and chronic fever.
94. *Santalum album* L. Santhanamaram. Sandal wood oil is used to treat skin disorder, facial warts and pimples, used as refrigerant.
95. *Saraca indica* L. Asoka. Whole plant is used as oxytocic, anticancer and antimenorrhage.
96. *Solanum pimpinellifolium* L. Siruthakkali. The pulped fruit is a beneficial skin wash for people with oily skin, sliced fruits are used to treat sunburn, tooth ache, heart attacks and the whole plant is used to treat rheumatism and severe headache.
97. *Soymida febrifuga* A.Dr.Juss. Shem. Bark is used in the treatment of diarrhoea, dysentery, fever, and general tonic, decoction used in gargles, vaginal infections, rheumatism and swellings.
98. *Stachytarpheta indica* Vahl. Seemainayuruvi. Whole plant is used for treating intestinal worms, venereal disease, ulcers, dropsy, purulent, fever, rheumatic inflammation, cataract and open sores, infusion of the bark is used against diarrhoea and dysentery and leaves are used to treat cardiac troubles and bruises.
99. *Strychnos nux-vomica* L. Yettikottai. Plant is used as a stimulant and highly poisonous.
100. *Synedrella nodiflora* Gaertn. Whole plant acts as anti-inflammatory, antioxidant, antimicrobial, analgesic, antipyretic agents, leaves are laxative.
101. *Thevetia nerifolia* Juss. Manjalalali. Bark is used as a tonic and cardiac stimulant.
102. *Vateria indica* L. Velleikuntrikam. Bark used as an alexipharmic, leaf cure burns and disease of blood, resin is used to treat throat disorders, cough, chronic bronchitis, piles, diarrhoea and rheumatism.
103. *Vitex altissima* L.f. Mayilaadi. Leaves and seeds are used externally for rheumatism and inflammations of joints.
104. *Xylixyclocarpa* Taub. Irul. Bark and seeds are used to treat diarrhoea, leucoderma, vomiting, diabetes, fever, allergic rhinitis, hiccup, oedema and obesity, bark is used as anthelmintic and antidiarrhoeal drug.

### 3. Result and Discussion

The variability in altitude, climate, and rainfall has contributed to the rich floristic diversity of this region which can rightly be called a treasure house of medicinal plants. The soil is of sandy loam type with approximately neutral PH. The soil is in fact the very hearts of the life layer known as the biosphere because it represents a zone, where in plant materials are produced, held, maintained and are available to plants through their roots and the soil is a natural body of vegetation, mineral and organic constituents as reported by Joffe (1949) [23].

In the Present survey reported that a total of 104 plants belonging to 42 families, from those families Leguminosae held the dominant position. Almost all parts of the plant from subterranean roots to flowers at top are used to treat various human ailments. Part wise analysis of the drug indicates the dominance of leaf as a source of drug followed by stems and stem barks, roots and root barks, fruits, seeds, flowers and bulbs. Survey of active principles of plants through the literature confirmed the medicinal uses of plants were used to treat different diseases such as diarrhoea, dysentery, headache, inflammation, fever, cold, cough, diabetes, oedema, allergic, rheumatism, chronic bronchitis, piles, Urinary infections, oliguria, hypertension, kidney problems, hoarseness and jaundice, ulcers, wounds tuberculosis, menorrhagia, epistaxis, Kidney and bladder ailments.

Habit wise analysis indicates the dominance of herbs followed by trees, shrubs and under shrubs and climbers and twinnings. These diverse habits indicate the richness of all habits. Parasites are totally absent. This is in line with the findings of Venkataswamy *et al.* (2010) [24] and Arunachalam and Parimelazhagan (2011) [25]. This study found that the whole plants and different parts of the medicinal plants are used as medicine, but the most commonly used plant part was leaves. This is in agreement with the earlier findings (Ranganathan *et al.*, 2012) [26].

#### 4. Conclusion

The present investigation revealed that the Hoorali and Lingayat tribes and Thoraiyar and other communities of the study area possess knowledge of the medicinal plants and their cultivation. During the survey, it was also learned that the traditional knowledge regarding medicinal plants is declining as there is no proper documentation. The knowledge is passed down from generation to generation only by means of verbal communication.

A notable feature of Hoorali and Lingayat tribes is that they follow exceptionally simplistic form of treatment. They did not use any combination of plants or elaborate formulations. The aboriginal community is familiar with the very intricate rules for collecting plants for use as medicine, such as the time of collection, parts to be collected and care in the conservation and management aspects of medicinal plants. Most of the species used in the preparation of herbal medicine are collected fresh, very rarely dried and stored materials were used. The cognitive angle clearly demonstrated the linkage of their life to their environment. *Vateria indica*, *Atalantia monophylla* and *Crotalaria pallida* are the new reports as the plants of ceremonial value. Their artistic values and interest for festivities and entertainment is remarkable. Like any other people they also have many myths, beliefs and totems. A twig of *Mangifera indica* tied in a corner of a house is believed to bring prosperity.

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