



## ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS USED BY VILLAGERS IN KOLLI HILLS OF NAMAKKAL DISTRICT OF TAMIL NADU, INDIA

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### ABSTRACT

The present study deals with the medicinal plants used by the people of Kolli Hills for treatment and prevention of various ailments. For the study field visits were organized frequently from March 2009 to May 2010 to Kolli Hills of Namakkal district. The present investigation provides ethnobotanical information of various medicinal plants used by the village peoples, herbal medicine practitioners and other traditional healers of Kolli Hills. A total of 54 plants were enumerated with their medicinal importance and parts of those plants used to treat various ailments. Now there is a need for cultivation and conservation of these medicinal plants for discovering new plant medicines in the future.

**Keywords:** Medicinal plants, Ethnobotany, Kolli Hills, Herbal medicine, Namakkal.

### INTRODUCTION

Plants are important sources of therapeutic drugs and play a significant role in the survival of the tribal and ethnic communities. India is rich in cultural and floristic diversity and also a store house of ethnobotanical knowledge. In the last few years there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects. Many traditional medicines in use are derived from medicinal plants, minerals and organic matter. Medicinal plants, since times immemorial, have been used in virtually all cultures as a source of medicine. The use of traditional medicine and medicinal plants in most developing countries, as a normative basis for the maintenance of good health, has been widely observed<sup>1</sup>. Furthermore, an increasing reliance on the use of medicinal plants in the industrialized societies has been traced to the extraction and development of several drugs and chemotherapeutics from these plants as well as from traditionally used rural herbal remedies<sup>2</sup>.

India officially recognizes over 3000 plants for their medicinal value. It 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<sup>3</sup>. The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal systems such as Ayurveda, Unani and Siddha. In India, it is reported that traditional healers use 2500 plant species and 100 species of plants serve as regular sources of medicine<sup>4</sup>. India is one of the twelve-megabiodiversity centers with two hot-spots of biodiversity in the Northeastern Region and Western Ghats. There are about 400 families in the world of the flowering plants; 315 are represented in India<sup>5</sup>.

Kolli Hills (Kollimalai) lies between 11°10'5" -11°30' 00" N latitude and 78°15' 00" E longitude. It is situated in the Namakkal district of Tamil Nadu above the river Cauvery, covering an area of about 503 km<sup>2</sup>. Physiographically, it is a hilly region with altitude ranging from 180 m at the foothill to 1415 m at the plateau. The slope of this region varies from gentle to very steep. Geologically, the study area occupied by the hill is highly undulating, cut by a network of streams and most of them are semi-perennial and seasonal flowing in all directions, but mostly in the eastern and southeastern directions and ultimately draining into Ayyar river.

The wealth of ethnobotanical knowledge has been documented from various parts of India<sup>6-10</sup>. A perusal of these reports suggests that documentation of this knowledge in Tamil Nadu is incomplete, and particularly, it is so in the Kolli Hills of Namakkal district. In this paper, an attempt has been made to collect and document the traditional medicinal plant knowledge of local herbal healers of different castes and communities in the Kolli Hills.

### MATERIALS AND METHODS

In this present study, field visits were organized frequently from March 2009 to May 2010 to different locations in Kolli Hills of Namakkal district. During field visits, attempts were made to develop good relationship with the villagers by offering gifts, fruits, mementos, etc. The presented information was gathered through questionnaire, personal interviews and discussions among the village elder peoples, the herbal medicine practitioners and other traditional healers in their local language (Tamil). The questionnaire allowed descriptive responses on the plant prescribed, such as documented as to vernacular name (Local name), parts used and medicinal uses. Plant parts that were identified as having



use in ethnobotany were collected and compressed. Plant species collected were identified with the help of flora books<sup>11-14</sup>. Most of the plant materials were preserved by making herbaria and all the specimen vouchers were carefully numbered and deposited in Research Department of Botany, Arignar Anna Government Arts College, Namakkal. The medicinal importance of each plant was enumerated.

## RESULTS AND DISCUSSION

The present study reveals that more than 75% of the Kolli Hills peoples depend for their primary healthcare on folk medicine, mainly on nature medicine. The present investigation provides an ethnobotanical information of the medicinal plants used by the village elder peoples, herbal medicine practitioners and other traditional healers of Kolli Hills, totally 54 plants were enumerated with their medicinal importance. All the 54 species have medicinal uses. *Musa paradisiacal*, *Calotropis procera*, *Opuntia dillenii* Haw is used for the treatment of snake bites. Several species are used for jaundice, asthma, gonorrhoea, dyspepsia, diarrhoea and rheumatism. *Cassia auriculate* and *Cyanodon dactylon* Pers are used to treat diabetes, *Carica papaya* used to manage blood pressure. *Abutilon indicum* and *Achyranthes aspera* used as anti-diuretic agents. People also make use of *Ocimum sanctum* and *Calotropis gigantea* to treat leprosy. For treating skin diseases *Orthosiphon diffuses*, *Chloris barbata* *Azadirachta indica*, *Ficus religiosa*, *Cissus quadrangularis*, *Achyranthes aspera*, *Eclipta alba* Hassk. and *Solanum nigrum* are excellent remedies. Accurate knowledge of the plants and their medicinal value are held by only 50% individuals in this population, some of them have a strong tendency of keeping their knowledge secret.

The use of plants in medicine is booming up, now in the developed countries also peoples are returning to plant medicines, Due to increasing demand of ethnomedicinal plants and more profit, local villagers have been motivated for conservation and cultivation of these plant species. The plant species are arranged in alphabetical order, each plant is followed by its family, vernacular name (Tamil). The medicinal uses are described with details such as the part(s) used singly, combination with other ingredients or mixed with other plants. The following is the list of 54 medicinal plants studied.

1. *Abutilon indicum* L. (Malvaceae). Vernacular name: Thuthi. Roots and leaves decoction is given for diuretic and purgative. The leaf paste is used for the treatment of toothache.
2. *Acacia leucophloea* Willd. (Mimosaceae). Vernacular name: Velam. Leaf juice is given to treat fever and stomachache. Leaf juice mixed with milk used to treat bleeding piles.
3. *Acalypha indica* L. (Euphorbiaceae). Vernacular name: Kuppaimeni. The whole plant powder is used to treat toothache. The leaf paste is applied on bed-sores.
4. *Achyranthes aspera* L. (Amaranthaceae). Vernacular name: Nayuruvi. Leaves decoction taken orally with water/milk for stomach problems, diuretic, piles and skin diseases.
5. *Adathoda vasica* Nees (Acanthaceae). Vernacular name: Adathoda. The decoction of the leaves and root are given to treat asthma, dysentery and diarrhoea.
6. *Aegle marmelos* L. (Rutaceae). Vernacular name: Vilvam. Juice of the fruits is used as dysentery and dyspepsia. Juice of the stem and root powder used to cure fever.
7. *Allium cepa* L. (Alliaceae). Vernacular name: Vengayam. Bulb juice used for treatment of headache.
8. *Allium sativum* L. (Alliaceae). Vernacular name: Vellai poondu. Bulb paste used for the treatment of gastric problems.
9. *Aloe vera* L. Burm.f. (Liliaceae). Vernacular name: Sotthu katthalai. Leaf paste and juice used to maintain body cooling.
10. *Andrographis paniculata* Nees. (Acanthaceae). Vernacular name: Nilavembu. Decoction of the leaves is taken to treat dyspepsia and stomach ache.
11. *Asparagus racemosus*. (Litiaceae). Vernacular name: Thanner Vittan Kizhangu. Dried root powder is mixed with freshwater as tonic to cure liver disorders, jaundice, dysentery, chronic fevers and enhance lactation.
12. *Azadirachta indica* A.Juss. (Meliaceae). Vernacular name: Vembu. Decoction of the bark is useful in liver diseases. Paste of leaves is applied on skin diseases.
13. *Basella alba* L. (Basellaceae). Vernacular name: Pasalai keerai. Leaf juice used as drops for eye infections.
14. *Boerhaavia diffusa* L. (Nyctaginaceae). Vernacular name: Mookarattai. Decoction of the whole plant used to treat cough, fever and jaundice.
15. *Bougainvillea spectabilis* Willd. (Nyctaginaceae). Vernacular name: Kaaghithapoo. Leaves juice is given for treatment of jaundice, dysentery and diarrhoea. Roots are used to treat cough and fever.
16. *Calotropis gigantea* (L) R.Br. (Asclepiadaceae). Vernacular name: Erukku. The plant powder mixed with milk it is used for treatment of leprosy, syphilis, ulcer, dysentery, diarrhoea and rheumatism.
17. *Calotropis procera* L. (Asclepiadaceae). Vernacular name: Vellerukku. Roots in the form of paste are applied to toothache. The flowers powder mixed with black pepper and drink to treat snake bite.



18. *Carica papaya* L. (Caricaceae). Vernacular name: Pappali. Fruit decoction is used to maintain blood pressure.
19. *Cassia auriculata* L. (Caesalpiniaceae). Vernacular name: Avarai. Juice of seeds used for the treatment of diabetes. Leaves juice used to treat heart diseases and eye infections.
20. *Centella asiatica Urban.* (Apiaceae). Vernacular name: Vallarai. Leaf Juice is given to improve memory power and youth.
21. *Cissus quadrangularis* L. (Vitaceae). Vernacular name: Perandai. The whole plant powder is mixed with milk for the treatment of asthma. Plant extract taken orally to cure skin diseases.
22. *Citrus aurantifolia* (Christ.) Swingle (Rutaceae). Vernacular name: Elumitchai. Leaves taken as decoction for headache, cold and fever.
23. *Citrus medica* L. (Rutaceae). Vernacular name: Naraththankayi. Leaves juice used to treat fever and dyspepsia.
24. *Cleome viscosa* L. (Capparidaceae). Vernacular name: Nayi-velai. Seed paste taken orally with milk/water to treat liver disorders.
25. *Clitoria ternatea* L. (Fabaceae). Vernacular name: Sangupoo. Leaves Juice is taken orally for dropsy and antipyretic.
26. *Cyanodon dactylon Pers.* (Poaceae). Vernacular name: Arugampullu. Decoctions of whole plant extract are given orally to treat diabetes, ulcers and body cooling.
27. *Datura metal* L. (Solanaceae). Vernacular name: Umathai. Juice of leaves is used to treat asthma and chronic ulcers.
28. *Eclipta alba Hassk.* (Asteraceae). Vernacular name: Karishalanganni. Decoction of leaves used as tonic for jaundice and skin diseases.
29. *Emblica officinalis Gaerth.* (Euphorbiaceae). Vernacular name: Nelli. Dried fruit powder is used in diarrhoea, anaemia, jaundice and dyspepsia. The leaf juice mixed with black pepper and drink to treat scorpion sting.
30. *Ficus benghalensis* L. (Moraceae). Vernacular name: Alamaram. Latex is applied on sores, ulcers and rheumatism. Decoction of the bark and seed powder of the plant cures gonorrhoea and dysentery.
31. *Ficus religiosa* L. (Moraceae). Vernacular name: Arashamaram: Leaves in the form of paste are applied in skin diseases. The dried bark powder mixed with honey it is used as an anti-inflammatory agent.
32. *Hibiscus rosa-sinensis* L. (Malvaceae) Vernacular name: Sembarutthi. Dried leaves mixed with water for healthy and black hair.
33. *Leucas aspera* Link. (Lamiaceae). Thumbai. Leafs juice used for treatment of dysentery, headache, fever.
34. *Mirabilis jalapa* L. (Nyctaginaceae). Vernacular name: Andhimalli. The Leaf juice mixed with water which cures jaundice, dysentery, diarrhoea and dyspepsia.
35. *Morinda tinctoria* L. (Rubiaceae). Vernacular name: Nuna. Decoction of the leaves is taken as tonic. A decoction of the fruits mixed with black pepper used for the treatment of diarrhoea and dysentery.
36. *Musa paradisiacal* L. (Musaceae). Vernacular name: Valai. Juice of the skin bark is mixed with milk used as antivenom.
37. *Ocimum basilicum* L. (Lamiaceae). Vernacular name: Thirunetrupachilai. Leaf juice is used for the treatment of urinary problems. The leaf juice when mixed with water used for gonorrhoea.
38. *Ocimum canum Sims.* (Lamiaceae). Vernacular name: Naai thulasi. Leaves juice used to treat cold, cough and fever.
39. *Ocimum sanctum* L. (Lamiaceae). Vernacular name: Tulasi. The juice of the leaves is used to treat fever, leprosy, diabetes and cough.
40. *Ocimum tenuiflorum* L. (Lamiaceae). Vernacular name: Thulasi. Leaves juice taken orally for scorpion sting and chest pain.
41. *Opuntia dillenii Haw.* (Cactaceae). Vernacular name: Sappathikali. The fruits are used to treat gonorrhoea. The fruits paste is applied on snake bite and dog bite.
42. *Orthosiphon diffuses Benth.* (Lamiaceae). Vernacular name: Karpooravalli. Whole plant used as paste for skin diseases.
43. *Phyllanthus amarus* L. (Euphorbiaceae). Vernacular name: Kilanelli. Juice of the whole plant mixed with sugar is taken as excellent remedy for jaundice and liver disorders.
44. *Punica granatum* L. (Punicaceae). Vernacular name: Madulai. The flower buds mixed with salt are used to treat bronchitis, dysentery and diarrhoea. The fruits used to treat stomach problems.
45. *Richardia scabra* L. (Rubiaceae). Vernacular name: Pachai-amman paccharisi. Paste of leaf along with coconut oil is applied externally to cure skin diseases.
46. *Ricinus communis* L. (Euphorbiaceae). Vernacular name: Amanakku. Decoction of the leaves is mixed with salt is applied for eye infections.
47. *Solanum nigrum* L. (Solanaceae). Vernacular name: Manattakkali. The leaf and flowers of juice mixed with salt and black pepper to treat skin diseases, piles and ulcer.



48. *Solanum trilobatum* L. (Solanaceae). Vernacular name: Thuthuvalai. Leaves juice is used for the treatment of asthma, cough and lung diseases.
49. *Terminalia arjuna*. (Combretaceae). Vernacular name: Maruthamaram. Stem bark decoction used to reduce blood pressure.
50. *Tribulus terrestris* L. (Zygophyllaceae). Vernacular name: Nerunchi. Whole plant powder used for the treatment of fever, headache, heel cracks.
51. *Vitex nugundo* L. (Verbinaceae). Vernacular name: Notchi. Leaf juice and flowers powdered and mixed with milk are taken orally to treat cholera and liver complaints.
52. *Wedelia chinensis* (Osbeck) Merr. (Asteraceae). Vernacular name: Manjal karesalankanni. Leaves juice taken orally for treatment of jaundice.
53. *Withania somnifera* Dun. (Solanaceae). Vernacular name: Amukramkizhangu. Decoction of the leaves is taken as remedy for anthelmintic. The root powder mixed with black pepper used for rheumatic swellings.
54. *Zingiber officinale* Rosc. (Zingiberaceae) Inji. The rhizome juice is given orally for the treatment of fever, headache and body pain.

### CONCLUSION

The local inhabitants of Kolli Hills of Namakkal have been using numerous plants for therapeutic purpose since time immemorial. Villagers chiefly depend on the herbs for all diseases. They are aware of the plant remedies for common ailments like dysentery, diarrhoea, diabetes, rheumatism, leprosy, skin diseases, dyspepsia, asthma, antipyretic, jaundice and also they are very familiar with the antidotes for snake bites. Therapeutic importance of these plants are beneficial to human beings and this has arouse the need for cultivated and conservation of the plant species. Plants of this area are medicinally valuable and need proper conservative measures in view of their exploitation by local communities of Kolli Hills. 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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