

# Studies on the Medicinal Plants Wealth in Nilgiris

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## Abstract

Nilgiris which forms part of the biodiversity rich Nilgiri Biosphere Reserve, harbours a lot of indigenous flora of excellent medicinal value and provides employment opportunities to the local community. The six tribal communities *viz.*, Thodas, Kotas, Kurumbas, Irulas, Paniyas and Kattunayakas are present in this district and their traditional knowledge towards the use of medicinal plants in their day-to-day life were documented from the present study. A total of 66 medicinal plant species with uses were explored from the present study using pre structured questionnaire and various PRA tools.

## Introduction

Forest is a very important natural resource of a nation, because it contributes enormously to its overall development. Nilgiris, popularly known as “The Blue Mountains” is part of the biodiversity rich Nilgiris Biosphere Reserve. It harbours lot of indigenous flora of excellent medicinal value and provides employment opportunities to the local community. The average annual rain fall ranges from 1600-1800 mm, which favours the growth of native shola forests with rich diversity of medicinal plants and other interesting floristic elements.

The following six tribal communities *viz.*, Thodas, Kotas, Kurumbas, Irulas, Paniyas and Kattunayakas were present in this district and live in harmony with the Mother Nature and the total tribal population of the district were 25,048 (Mugendhiran *et al.*, 2022). The ecological conditions of Nilgiris differ entirely from the other forest types. In the mountain of the Nilgiris above 1800 m, the cool average temperatures of the coldest months, (10-15° C) together with the frost phenomenon during the North East monsoon period imply a strict selection of botanical species. Another important bio-climatic factor is the extremely variable humidity of the air in the non-forest areas; it varies within very short distances between saturation point and 30 per cent or

less. Champion and Seth (1968) considered the plant life of Nilgiri district and Palney sholas to be temperate forests due to the moderately low heat of winter months. The diurnal difference in hotness here during winter months is also very wide. Therefore, these regions were described as the tropical montane forest type.

The lack of information on medicinal usage of various indigenous plants utilized by these tribes requires immediate attention on this aspect. Hence, the present work on exploring the vast knowledge base of these tribes on the medicinal uses of plants available in the eastern slopes of Nilgiri Biosphere Reserve was studied between the year 2021 and 2022.

## Materials and Methods

### Selection of study area

The forest of Tamil Nadu is famous for their wide variation in their floristic composition. Most of the very good forests are found in Western Ghats and Nilgiris is rich in plant diversity which harbours a number of plant species. Because of the highest diversity and different forest types, varieties of medicinal plants are available in this area. The selection of study area was based on the availability of maximum number of medicinal plants including trees. In order to conduct the present work, ten villages in the eastern slopes of Nilgiris were selected for in depth study. In each village, 10 per cent of the population were surveyed and the data on the local / common name, scientific name of the medicinal plants, parts used and the uses were documented.

### Methodology

From the selected sample tribal households, general information on number of households in each village, size of the family, educational status of the family members was collected by interview method using pre-tested structured questionnaire developed for the study. In addition to that, the wealth of medicinal plants utilized by these tribes were documented with the following information *viz.*,

method of harvesting, distance travelled to collect, collection period, method of harvesting and number of days engaged for collection was also elicited. Apart from the interview method, Participatory Rural Appraisal (PRA) Techniques were also used for the

collection of data on medicinal plants to cross check the information obtained through questionnaire method. The PRA tools used in this study were, (i) Resource mapping, (ii) Transacts walk and (iii) Ven Diagram.

**Table 1. General characteristics of the sample households**

Sl. No.	Name of the village	Total Number of households	Size of the family (%)			Nature of the forest
			<5	5-8	>8	
1.	Attadi	25	28.5	14.0	57.1	Dense forest
2.	Baviyur	24	16.6	33.3	50.0	Dense forest
3.	Gudhagur	15	25.0	25.0	50.0	Dense forest
4.	Kambiyur	20	20.0	20.0	60.0	Dense forest
5.	Kolikarai	91	22.7	31.8	45.4	Dense forest adjoining with tea plantation
6.	Melkoep	15	25.0	25.0	50.0	Dense forest
7.	Mettikal	60	26.6	33.3	40.0	Dense forest
8.	Semmanarai	106	29.6	25.9	44.4	Dense forest
9.	Thalamuk	54	42.8	21.4	35.7	Dense forest
10.	Vagapanai	53	30.7	38.4	30.7	Dense forest

**Table 2. List of medicinal plants explored from the study area**

S. No.	Local Name	Botanical Name	Parts used	Uses
1	White babul	<i>Acacia leucophloea</i>	Bark	Constipation
2	Agave	<i>Aloe vera</i>	Leaves	Coolant
3	Vellanagam	<i>Anogeissus latifolia</i>	Bark	Fever
4	Aravadanthalai	<i>Ruta graveolens</i>	Leaves	Fever
5	Vasambu	<i>Acorus calamus</i>	Root	Snake bite
6	Athi tree	<i>Ficus sp.</i>	Fruit	Reduce swelling
7	Banana flower	<i>Musa paradisiaca</i>	Flower	Food
8	Chavali kodi	<i>Rubia cordifolia</i>	Leaves	Fever
9	Chedichi	<i>Murraya paniculata</i>	Leaves	Stomach pain
10	Chinnapudha	<i>Sterculia guttata</i>	Leaves	Reduce heat
11	Coffee bark	<i>Coffea arabica</i>	Bark	Fever
12	Etti	<i>Dalbergia latifolia</i>	Bark	Tire ness, bath
13	Eecham bark	<i>Cycus circinalis</i>	Bark	Edible
14	Gilgirinji	<i>Crotalaria spp.</i>	Leaves	Fever
15	Kumil	<i>Gmelina arborea</i>	Bark	Stomach bain
16	Gurkathi kodi	<i>Hiptag bengalensis</i>	Leaves	Cough
17	Honey	Honey	Honey, wax	Blood purifier
18	Ilaikalli tree	<i>Euphorbia nivulia</i>	Bark	Head ache
19	Jack bark	<i>Artocarpus heterophyllus</i>	Bark	Psoriasis
20	Kaalaan kodi	<i>Cyclea peltata</i>	Leaves	Juice to drink
21	Kadambai kodi bark	<i>Ichnocarpus frutescens</i>	Leaves	Back pain
22	Kadukai fruit	<i>Terminalia chebula</i>	Fruit	Cough
23	Kalakundri mani	<i>Abrus precatorius</i>	Fruit	Insect killer
24	Karu oomathai	<i>Datura metal</i>	Fruit	Fever
25	Keelanelli	<i>Phyllanthus amarus</i>	Leaves	Jaundice
26	Kolikokkai chedi	<i>Thunbergia fragrans</i>	Leaves	Food
27	Konderikkai kodi	<i>Aristolochia indica</i>	Leaves	Pain relief

28	Konnai tree bark	<i>Cassia fistula</i>	Leaves	Fever
29	Koonjai	<i>Bridelia retusa</i>	Leaves	Headache
30	Kottai tree	<i>Zizyphus xylopyrus</i>	Fruit	Hip pain
31	Kundhi cheddi	<i>Atylosia spp.</i>	Leaves	Pain relief
32	Kurkathi kodi	<i>Hiptag bengalensis</i>	Leaves	Religious
33	Lantana	<i>Lantana camara</i>	Leaves	Pain relief
34	Maligai chedi	<i>Jasminum spp.</i>	Leaves	Strength
35	Mango bark	<i>Mangifera indica</i>	Bark	Warm killer
36	Maratti tree root	<i>Senna auriculata</i>	Root	Fever
37	Mavali kilangu	<i>Decalypis hamiltonii</i>	Rhizome	Food
38	Mottori	<i>Passiflora subpeltata</i>	Leaves	Fever
39	Naval	<i>Syzygium cumini</i>	Bark, fruit	To cure burns
40	Onnai bark	<i>Calophyllum inophyllum</i>	Bark	Cure insects bite
41	Oppai tree	<i>Canthium dicoccum</i>	Bark	Cooling
42	Orange leaves	<i>Citrus reticulata</i>	Leaves	Headache
43	Ottai plant root	<i>Triumfetta rhomboida</i>	Root	Food
44	Paanduva tree	<i>Jatropha curcas</i>	Fruit	Oil
45	Paathi sundai root	<i>Solanum torvum</i>	Root	Strength
46	Pacilkidam	<i>Euphobia hirta</i>	Flower	Stomach pain
47	Palagai chedi root	<i>Strobilanthes spp.</i>	Root	Food
48	Pappirattai chedi	<i>Cassia tora</i>	Leaves	Cooling agent
49	Pathi chedi	<i>Ageratina adenofora</i>	Leaves	Food
50	Poochakai root	<i>Sapindus emarginatus</i>	Root	Pain
51	Puda tree root	<i>Sterculia guttata</i>	Root	Fever
52	Pungam bark	<i>Pongamia pinnata</i>	Bark	Snake bite
53	Puruvai tree bark	<i>Dalbergia sp.</i>	Bark	Stomach pain
54	Seengai bark	<i>Acacia intsia</i>	Bark	Cooling
55	Shikakai	<i>Acacia coincina</i>	Fruit	Dandruff
56	Silai thatthiri kodi	<i>Canavalia sp.</i>	Leaves	Food
57	Kolanji fruit	<i>Citrus sinensis</i>	Fruit, leaves	Fruit edible
58	Sirumushttai kilangu	<i>Argyrea pilosa</i>	Rhizome	Food
59	Thadasu bark	<i>Grewia tiliifolia</i>	Bark	Astringent
60	Thagarai	<i>Rhynchosia sp.</i>	Fruit	Edible
61	Thulsi leaves	<i>Ocimum sanctum</i>	Leaves	Cooling
62	Thumbai chedi	<i>Leucas aspera</i>	Leaves	Fruit
63	Thumbikkai	<i>Leucas aspera</i>	Leaves	Fruit
64	Ulluku chedi	<i>Cynoglossum zeylanicum</i>	Leaves	Edible
65	Vengai bark	<i>Pterocarpus marsupium</i>	Bark	Stomach pain
66	Wrong seengai root	<i>Acacia pennata</i>	Rhizome	Food

## Results and Discussion

The results obtained from the study area viz., total number of households in each village, family size and the nature of the forest are presented and discussed hereunder to understand the circumstances under which they live.

### Exploring the Medicinal Plants

Medicinal plant species represent a variety of life form ranging from lichen, algae, herbs, shrubs,

climbers and trees, which were annuals to perennials. Moreover, these species are distributed all over the forest area and are characterised by seasonally. It is essential to have precise information on frequency of occurrence, distribution and the number of medicinal plants available in the natural forests for its sustainable management. From the present study it was clearly observed that, 90-95 per cent of the medicinal plants collected from the natural forests

were utilized for their local use and only limited quantity was traded both in national and international level. Unfortunately, most of the plants were being collected by these tribes and sold to the traders for a meagre amount as raw form without any value addition. They even unaware of the high value of the end products obtained from these medicinal plants.

Out of the 66 medicinal plant species explored from the present study, the maximum share was for trees with 30 species which recorded for various medicinal usages by these tribal communities and was followed by herbs (18 species), shrubs (12 species) and climbers (6 species) which were also assessed for various medicinal usages (Table 2). The plant species found most frequently were collected by these tribes from the forest for their regular day to day consumption use and some of the rare medicinal plants were also collected only during certain season and occasionally from the adjoining forest areas. There is a need to document the threats which increase biotic interference and climatic change and that requires an urgent need to create awareness among the local people for the sustainable utilization as well as conservation of these medicinal plants in their original habitat (Vishnu Kumar *et al.*, 2022).

The observation of the present study revealed that traditional medicine plays an important role in the life of the common public. Nilgiris district, the ecologically rich and diverse area comes under the Western Ghats range of mountains, which is known to have

a flora for its fortune and variety has only a few parallels in the world. Unfortunately, such a rich tropical forest is deteriorating due to various forces both by natural and human being. The use of medicinal plants for curing diseases in human culture is almost as old as man himself. In India, the most primitive mentioned use of medicinal plant is found in Rig veda. It is remarkable to note that, most of the drugs derived or initially isolated from higher plants were exposed in an ethno botanical context.

Overall availability is limited not only by its quantity but also seasonal requirements of demand. However, the oldest, richest and most diverse cultural

trading associated with the use of medicinal plants by the villagers make its sustainability. As for as medicinal plants were concerned, all the people in these villages never involved in harvesting these plants from the forest areas and the same was confirmed by these villagers by themselves during the data collection. Only limited people having the knowledge on the use of medicinal plants were collected and used for treating others.

## Conclusion

The present study concluded that, the tribal community depend on the medicinal plants available in the nearby forest areas to use in their day-to-day life, even if they have the accessibility of Western medicines through primary health care centres. The joint family system of living which was observed in the study area could help in transferring the vast traditional knowledge base of the elders in using the medicinal plants to the next generation people. In the current situation, resource evaluation has to be taken up on priority basis and proper documentation of the traditional knowledge base of the tribal community is very much required for the benefit of the future generation and to develop local industries. Also, indigenous research and development efforts are also necessary to generate rural employment.

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