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**RESEARCH ARTICLE**

# Survey on the ethnomedicinal plants used by the communities around buliyar, the Nilgiri district, Tamilnadu, India

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## ABSTRACT

An ethno medicinal survey was carried out to gather information about medicinal plants utilized by Irulas and Kurumba tribal people in the Burliyar taluk. About 50 medicinal plants species belonging to 34 families used by the tribal people for the treatment of Asthma, Burns, Diarrhea, Fertility, Fever, Jaundice, Kidney stone, Malaria, Snake bites, Wounds etc. has been identified and collected. The most representative families are Asteraceae and Solanaceae with 5 species each. The plants were found to be used in different forms such as juice, extracts, paste, powder, infusion. These ethno medicinal plants were used to treat ailments like cold, cough, headache, stomach ache, dysentery, skin diseases, poison bites, cuts and wounds and diabetes.

**Keywords:** Burliyar, Irulas, Kurumbas, Medicinal plants.

## 1. INTRODUCTION

India is one of the twelve-mega biodiversity centers with 2 hot-spots of biodiversity in the Northeastern Region and Western Ghats [1]. The Indian subcontinent is endowed with the most diversified and varied soil types and climate conditions that are ideal for the growth of all plant species [2]. There are over 2500 plant species that have documented medicinal value in India, where as the majority of them are growing wild and only a few are being cultivated [3]. Plants have always been the source of medicines and have many uses to mankind. According to some earlier workers [4-6] plants have been used in traditional medicine for several thousand years [7]. It is estimated that 70% of rural Indians use traditional plant based remedies for primary healthcare needs. Ethnomedicinal studies are of significant value to discover contemporary drugs from indigenous medicinal plant resources [8]. The ethnobotanists consider traditional plants and medicines in their efforts to interpret health belief systems [9]. The Nilgiri Biosphere Reserve is the first biosphere reserve in India established under MAB program by UNESCO in 1986 [10]. The Nilgiri Biosphere reserve has a large number of indigenous communities; most of them are forest dwellers and hunter gatherers [11]. The Nilgiris is the moderately populated district of Tamil Nadu that has a rich tribal presence. There are about many tribes living in different parts of the district. The tribal people differ in their social organizations and marital customs rites and rituals, foods and other customs from the people of the rest of the state [13]. Hence the present study was made to list out and identify the medicinal plants used by the indigenous community of Kurumbas and Irulas from Nilgiri hill to conserve those plants for future generation.

## 2. METHODOLOGY

Ethnobotanical survey was conducted in Burliyar located at 11.10 and 11.45 N latitude and 76.14 and 77.2 E longitude. The average rainfall of the district is 1865 mm. Burliyar village is located in Coonoor taluka of the Nilgiris district, Tamil Nadu, India. It is situated 9 km away from sub-district headquarter Coonoor and 26 km away from district headquarter Udhagamandalam. The total geographical area of village is 1674.71 hectares.



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**Table 1. List of Cultivated Plants documented in Southern Coimbatore regions**

| S.No. | Name of the plant | Local name | Family | Parts used | Methods of preparation |
|---|---|---|---|---|---|
| 1. | *Achyranthes aspera* L. | Nayuruvi | Amaranthaceae | Leaves | Leaves are also grinded and the juice is dilutedin water and consumed for ulcer. |
| 2. | *Ageratum conyzoide* L. | Magathi | Asteraceae | Leaves | The leaves are made into paste and they are used for cuts and wounds. |
| 3. | *Aloe vera* (L.) | Kunnakalli | Liliaceae | Whole plant | The gel is mixed with hot water and consumedfor body heat. |
| 4. | *Alternanthera sessils* (L.) | Nilakeerai | Amaranthaceae | Leaves | Leaves are cooked and eaten during Diarrhea. |
| 5. | *Amaranthus paniculata* L. | Mulaikeerai | Amaranthaceae | Leaves and stem | The leaves with stem is cooked and consumed along with the food for Digestion. |
| 6. | *Annona squamosa* L. | Mullseetha | Annonaceae | Leaves | The leaf is boiled with water to treat dysentery. |
| 7. | *Artemisia annua* (L.) | Masipathri | Asteraceae | Stem | The stem is boiled and drunk for malaria. |
| 8. | *Bidens pilosa* L. | Kothi mullu | Asteraceae | Stem and Flower | They are collected and dried and they are made into power and drunk for menstrual problem. |
| 9. | *Brassica junceae* (L.) | Kadugu | Brassicaceae | Leaves | The leaves are cooked and eaten for body weakness. |
| 10. | *Calotropis gigante* (L.) | Erukku | Asclepiadaceae | Leaves | The milky latex is taken from the leaf and applied for snake poison. |
| 11. | *Capsicum frutescens* L. | Sinimilaga | Solanaceae | Leaves | The leaves are cooked as vegetable and consumed for fever. |
| 12. | *Catharanthus roseus* (L.) | Nithyakalyaani | Apocynaceae | Leaves | The leaves are boiled in water and consumed forcancer treatment. |

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| 13. | *Carica papaya* L. | Poppillimara | Caricaceae | Leaves | Leaves paste are used externally to cure beetle bite. |
| 14. | *Cayratica pedate* (Lam.) | Gualilata | Vitaceae | Leaves | Leaves are used as vegetable and used to treat ulcer. |
| 15. | *Cassia occidentalis* L. | Dhagarai | Fabaceae | Flower and Leaves | Leaves are mixed with honey and consumed for cough and asthma. |
| 16. | *Centella asiatia* (L.) | Vallarai | Apiaceae | Whole plant | The leaves are eaten to increase the memory power. |
| 17. | *Commelina bengalensis* (L.) | Kanavazhai | Commelinaceae | Leaves | The leaves are pasted and applied for allergy. |
| 18. | *Conoclinium coelestinum* (L.) | Aapa | Asteraceae | Leaves | The leaves are applied for wounds to stop bleeding. |
| 19 | *Chenopodium* ambrosoides L. | Pani sadi | Chenopodiaceae | Flower and leaves | The juice is extracted from the leaves and they are used for cough and fever externally. |
| 20 | *Chromolaena odarata* (L.) | Gandhuri | Asteraceae | Leaves | The leaves are grained and kept on the wounds. |
| 21 | *Curcuma longa* L. | Manjal | Zingiberaceae | Rhizome | Paste is applied on the skin for itching. |
| 22 | *Datura stramonium* L. | Yumathapoo | Solanaceae | Leaves and Fruit | The leaves and fruits are made into paste andapplies for piles externally. |
| 23 | *Durio zibethinus* (L.) | Durian | Malvaceae | Fruit | The fruits are taken internally to enhance fertility. |
| 24 | *Euphorbia hirta* L. | Amanpacharasi | Euphorbiaceae | Leaves | Leaves are crushed and the juice is mixed with water and then taken for asthma. |
| 25 | *Hibiscus rosa sinensis* L. | Sembarathi | Malvaceae | Flowers | The flowers are boiled along with oil and applied regularly for hair growth. |
| 26 | *Hydrangea macrophylla* (Thunb.) | Nasigidu | Saxifragaceae | Roots | The extracts are taken from roots and consumed for kidney stone. |

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| 27 | *Ipomea obscura* (L.) | Chirutali | Convolvulaceae | Leaves | The juice is extracted from the leaves and drunk for dysentery and ulcer. |
| 28 | *Lantana camera* L. | Unichedi | Verbenaceae | Leaves | Leaves paste is applied to treat wound healing. |
| 29 | *Leucas aspera* (Willd.) | Thumbai | Lamiaceae | Leaves | Leaves paste are crushed leaf is taken both internally and externally to treat snake bite. |
| 30 | *Leucas biflora* (Vahl.) | Kaduthumbai | Lamiaceae | Entire plant | Paste of the whole plant is mixed with coconut oil and applied for skin irritation. |
| 31 | *Mimosa pudica* L. | Thotta sinungi | Mimosaceae | Leaves | Leaf paste is made by grinding with water and applied on wounds. |
| 32 | *Mirabilis jalapa* L. | Anthimandarai | Nyctaginaceae | Roots | Juice are made by grinding the roots and taken orally for diarrhea. |
| 33 | *Momordica charantia* L. | Pavaka | Cucurbitaceae | Leaves | The juice is extracted and used for asthma anddiabetes. |
| 34 | *Myristica fragrans* Houtt. | Jadhikai | Myristicaceae | Fruit | The fruits are used for cancer and heart disease. |
| 35 | *Oxalis corniculata* L. | Pulichai | Oxalidaceae | Leaves | The leaves are eaten as vegetables for milk production. |
| 36 | *Passiflora edulis* Sims. | That boot | Passifloraceae | Fruit | The fruits are eaten internally for cough and asthma. |
| 37 | *Polygonum chinensis* L. | Keegu thandu | Polygonaceae | Leaves and Flower | The leaf and flower are crushed and the smell is inhaled to control vomiting. |
| 38 | *Physalis peruviana* L. | Urechithuvar | Solanaceae | Leaves | Leaf paste is smeared on wounds for quick healing for wounds. |
| 39 | *Piper nigrum* L. | Kurumelagu | Piperaceae | Fruit | The fruits are dried and mixed with milk and consumed for cough and cold. |
| 40 | *Plantago erosa* Wall. | Kadhai | Plantaginaceae | Leaves | The paste is applied directly on wounds. |

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| 41 | *Plectranthes malabaricus* (Benth.) | Periyathulasi | Laminaceae | Leaves | Leaf paste is applied on chest or vapor of the leaves are boiled and inhaled. |
| 42 | *Plumbago zeylanica* L. | Ottuchedi | Plumbaginaceae | Root | Root with boiled milk is swallowed for mouth inflammation. |
| 43 | *Rhodomyrthus tomentosa* (Ait.) | Thavitu palam | Myrtaceae | Fruit | The fruits are eaten directly to control thirst. |
| 44 | *Ricinus communis* (L.) | Arula gidu | Euphorbiaceae | Seeds | The oil is extracted from the leaf and they areused to reduce heat. |
| 45 | *Rubia cordifolia* L. | Chawli kosh | Rubiaceae | Root | The roots are made into powder and mixed with milk and drunk orally to cure jaundice. |
| 46 | *Rubus moluccanus* Hook. | Penmullvan | Rosaceae | Root | The juice is extracted from the root and drunk for dysentery. |
| 47 | *Ruta graveolens* (L.) | Aaruvadhathalai | Cucurbitaceae | Leaves | The leaves are used to cure bone fracture. |
| 48 | *Scutia myrtina* (Burm. f.) | Selvam | Rhamnaceae | Fruit | The fruits are consumed for thirst. |
| 49 | *Sida acuta* (Burm.f.) | Kala karandai | Malvaceae | Leaves | The leaves are boiled and the paste is applied for skin allergy. |
| 50 | *Solanum nigrum* L. | Ikkisoppu | Solanaceae | Leaves | The leaves are eaten as vegetables for mouth inflammation. |

The field survey was conducted during the period of December to March, 2023. Standard protocols were used for acquiring the locals' ethnomedical plant knowledge. Through questionnaire, discussion and interview the information were collected from the tribes by interacting with them in their local language. The mode of preparation of medicine i.e paste, decoction, juice, crushed, extract, powder and the parts that the used was also gathered.

The identified plant specimens were confirmed with the herbaria of Botanical Survey of India (BSI), Southern circle, Coimbatore and the specimens were deposited in the herbarium of Kongunadu College, Coimbatore.

## 3. RESULTS AND DISCUSSION

The present study has identified 50 plant species belonging to 34 families used by Kurumbas and Irulas the tribal community of Burliyar in Niligiri district. Among the total number of 50 ethnomedicinal plants 49% are herb, 36% are shrub, 12% are climber 10% are trees and 2% are twinner.

These medicinal plants were used for the treatment of various ailments such as asthma, burns, cold, cough, diarrhea, dysentery, fertility, fever, head ache, inflammation, jaundice, kidney stone, malaria, pain relief, piles, ring worm, skin disease, snake bite, stomach problems, tooth problems and wounds. The present study observed that, the plant species viz., *Leucas aspera, Achyranthes aspera, Solanum nigrum, Physalis peruviana, Cassia occidentalis and Datura stramonium* has been scientifically proved to cure various ailments. From the study it is observed that, the tribal peoples in the study region cultivate some of the common medicinal plants in their home gardens for medicinal uses. Some of them are *Annona squamosa, Piper nigrum, Capsicum frutescens, Aloe vera, Centella asiatica* and *Carica papaya*. Among them most commonly used medicinal plants such as *Alternanthera sessils, Aloe vera, Bidens pilosa, Chenopodium ambrosoides, Curcuma longa, Durio zibethinus* and *Leucas biflora* which play an important role in the primary healthcare system of tribal community. This indicates that, the study area has a wide spectrum of medicinal plants to treat various human ailments.

## 4. CONCLUSION

The information was gathered directly from the tribal people of the study area. Since several plants are potential for modern drug development, further studies on the biomedical experimentation of these plants are suggested. Nowadays large numbers of medicinal plants are being threatened due to deforestation and urbanization. In this circumstance, ethnobotanical and ethnomedicinal studies have great significance in the collection of traditional knowledge, preparation of recorded data and in the conservation of endangered medicinal plant species. Thus it becomes necessary to acquire and preserve this traditional system of medicine by proper documentation and identification of specimens.

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