



ISSN: 2075-6240

Ethnomedicinal plants used by the Malayali tribes of Bodamalai Hills, Eastern Ghats, Tamil Nadu, India

S. Nigesh, K. K. Vijayakumar*, S. Mahendran

Department of Botany, Kandaswami Kandar's College, Namakkal-638182, Tamil Nadu, India

ABSTRACT

Ethnomedicinal plants have played a vital role for human healthcare systems across the world. Ethnomedicinal research is necessary to investigate different biological resources for usage as remedies. Many traditional medicinal herbs have been utilized extensively by indigenous people of India to treat a variety of human and animal-related illnesses. The current ethnobotanical investigation was conducted in the Bodamalai Hills of the Eastern Ghats, Tamil Nadu, India. The study revealed that the Malayali tribes of Bodamalai Hills used 55 plants from 45 genera and 28 families to treat various diseases such as abdominal pain, arthritis, asthma, bone disorders, blood disorders, bronchitis, cancer, cardiovascular diseases, cholera, cold, cough, fever, constipation, cuts, wounds, diabetes, diarrhoea, dysentery, ear problems, elephantiasis, fertility problems, jaundice, malaria, nervous disorders, paralysis, piles, skin diseases, smallpox, stomach disorders, toothaches, tuberculosis, ulcers, and urinary disorders. The tribes still rely on medicinal plants. The research findings showed that the number of traditional medicinal healers is declining since younger tribes have begun to migrate to towns and cities and lack interest in and expertise in this type of medicine. Therefore, documentation is required in order to properly conserve the ethnomedicinal plants.

KEYWORDS: Ethnomedicinal plants, Malayali tribes, Bodamalai Hills, Medicinal uses

Received: December 13, 2024

Revised: March 11, 2025

Accepted: March 12, 2025

Published: March 20, 2025

***Corresponding Author:**

K. K. Vijayakumar

kkvijay4@gmail.com

INTRODUCTION

Medicinal plants have been used as an important source of medicine for human society (Jima & Megersa, 2018). The people from both urban and rural areas have been using plant resources as medicine in many developed and developing countries since ancient times (Jadid *et al.*, 2020). According to the World Health Organization's 1992 census on traditional medicine, almost three-quarters of the world's population are still getting primary healthcare from plant-based traditional medicinal systems. In general, scientific study on therapeutic plants depends extensively on ethnobotanical information about traditional medicine. Scientific studies of therapeutic plants have been started in several nations due to their potential to improve healthcare. Many illnesses, such as infectious disorders and high blood pressure, can be effectively treated using herbal remedies. There is no denying that they have the ability to save countless lives, especially in underdeveloped nations (Erah, 2002). Many rural communities and tribal people in Asia are still dependent on plant-based products they manufacture and market, which depend on their traditional knowledge, to fulfill their fundamental needs. Herbal medicines derived from plants are thought to be considerably safer; that has been proved for the treatment of various diseases (Mitalaya *et al.*, 2003).

India is regarded as one of the world's 12 mega-biodiversity nations with a variety of animals and plants due to its diverse climatic conditions (Myers *et al.*, 2000; Bapat *et al.*, 2008). In the majority of rural and tribal regions of India, an estimated 20,000 medicinal plants have been used in traditional medical practices (Dev, 1997). In ancient medicinal systems like Siddha, Ayurveda, Unani, and Allopathy, herbal remedies are the most commonly used to treat various diseases. There are 705 tribal communities in India, and more than 275 research articles about certain ethnic groups have been published. In terms of geographical distribution, about 55% of tribals live in Central India, 28% in the west, 12% in northeast India, 4% in South India, and 1% elsewhere (Jain, 2001; Kala, 2005).

The exploration of medicinal herbs and how they are traditionally used in various regions of India has increased in popularity in the past few decades. The therapeutic application of herbal remedies in traditional medicine by Indian local communities or tribal people has been documented more frequently in recent times (Savithramma *et al.*, 2007; Pattanaik *et al.*, 2008; Namsa *et al.*, 2009; Upadhyay *et al.*, 2010; Islam *et al.*, 2014; Regalakshmi *et al.*, 2016; Faruque *et al.*, 2019; Ralte & Singh, 2024). The documentation of ethnobotanical knowledge is essential for plant resources to be conserved and used sustainably. The

Copyright: © The authors. This article is open access and licensed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted, use, distribution and reproduction in any medium, or format for any purpose, even commercially provided the work is properly cited. Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

identification of many medicinal plants and their therapeutic treatments for different ailments is the focus of intense research being conducted by several researchers. Therefore, the aim of the present investigation was to document the ethnobotanical knowledge of medicinal plants used by the Malayali tribes of the Bodamalai Hills, the Eastern Ghats, Tamil Nadu, India.

MATERIALS AND METHODS

Study Area

The three villages, namely Melur, Keelur, and Gedamalai, are situated in the Bodamalai Hills of the Namakkal district in Tamil Nadu and are part of the Southern Eastern Ghats (Figure 1). It is regarded as one of the Eastern Ghats' major mountains. The Bodamalai study area is approximately 156 km² in size and ranges in elevation from 300 to 1155 m above mean sea level. 11° 18' 30" North latitude and 78° 38' 45" East longitude are its coordinates. The climate of the Bodamalai Hills is humid subtropical. The study villages are inhabited exclusively by the Hindu Malayali tribe.

Data Collection

An ethnobotanical investigation was carried out in the Bodamalai Hills of the Namakkal district. Ethnobotanical information on medicinal plants was collected from the traditional medicinal healers of Malayali tribes between the ages of 30 and 70 inhabiting three villages of the Bodamalai Hills, such as Keelur,

Melur, and Gedamalai, by conducting personal interviews from May 2023 to April 2024. The traditional medicinal healers were directly interviewed and discussed in their native Tamil language in order to get ethnobotanical information. For each collected ethnomedicinal plant, details were documented regarding the plant's local name, therapeutic applications, part used, preparation method, and administration methods. In order to verify the collected information, interviews with more medical healers were conducted (Jain, 1964).

Identification and Specimen Collection

The right plant materials were found out with the help of medicinal healers, and the herbarium specimens were collected. The voucher specimens were deposited in the Department of Botany, Kandaswami Kandar's College, Namakkal, Tamil Nadu. The flora of the Tamilnadu Carnatic (Matthew, 1983), the handbook of flora of the presidency of Madras (Gamble, 1915-1936), and other flora of other locations (Vasudevan Nair, 1994; Joshi, 2000) were used for the identification of plant species. The plant species were later compared with authentic specimens, and the identification of species was confirmed at the Botanical Survey of India, Southern Circle, Coimbatore (India). The collected data arranged in alphabetical order for each species, including botanical name, voucher specimen number, family, local name, habit, part used, mode of administration, and ethnobotanical uses (Table 1).

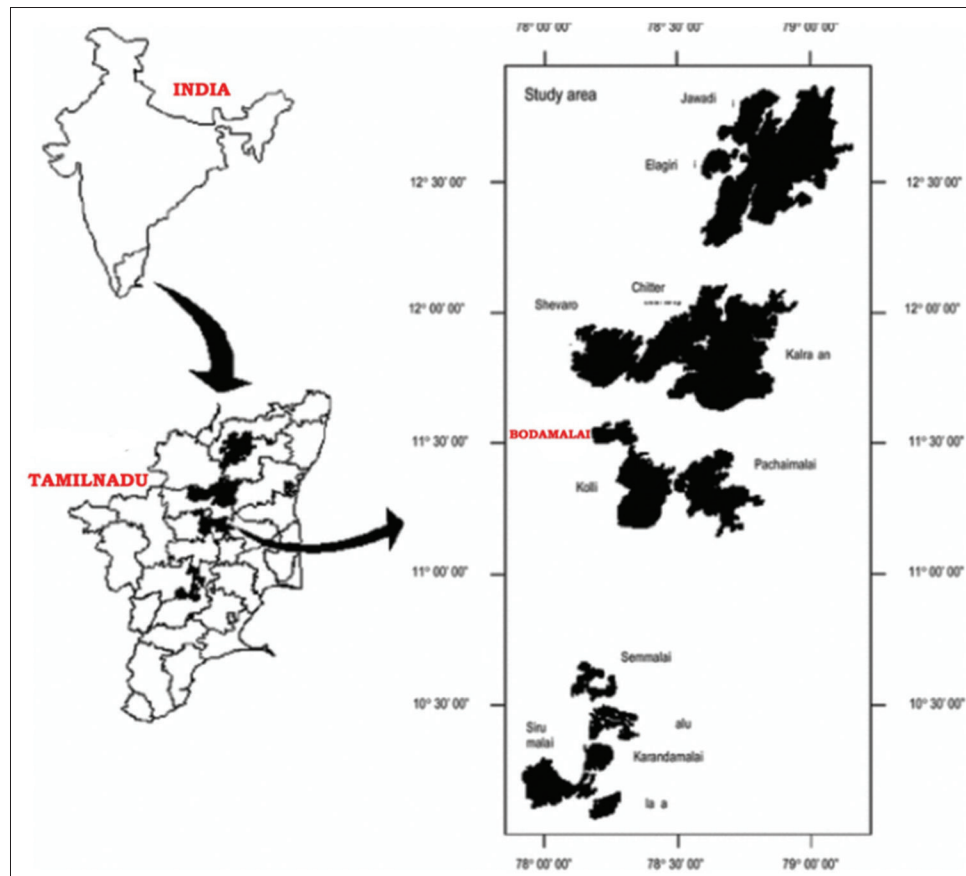


Figure 1: Location map of the study area, the Bodamalai Hills

Table 1: Ethnobotanical plants documented from the study area, Bodamalai Hills, the Eastern Ghats, Tamil Nadu, India

S. No.	Botanical name	Voucher specimen number	Family	Local Name	Habit	Parts used	Medicinal uses	Mode of Administration
1	<i>Achyranthes aspera</i> L.	KKC21/2023	Amaranthaceae	Nayuruvi	Herb	Leaf	Abdominal pain	Juice
2	<i>Achyranthes bidentata</i> Blume.	KKC38/2023	Amaranthaceae	Sigappunayuruvi	Herb	Root	Promote blood circulation	Decoction
3	<i>Aloe vera</i> (L.) Burm.f.	KKC51/2024	Liliaceae	Chottukatthaalai	Herb	Leaf	Sunburns, surgical wounds, skin ulcers, mouth ulcers	Gel
4	<i>Andrographis echioides</i> (L.) Nees	KKC46/2024	Acanthaceae	Gopuram tangi	Herb	Leaf	Diarrhea, common cold, diabetes, malaria	Juice
5	<i>Asparagus racemosus</i> Willd.	KKC49/2024	Liliaceae	Thaneervitaan Kizhangu	Climber	Tuber	Nervous disorders, tumors, inflammation	Decoction
6	<i>Bambusa arundinacea</i> Willd.	KKC19/2023	Poaceae	Periyamungil	Shrub	Leaf	Constipation, inflammation	Decoction
7	<i>Barleria buxifolia</i> L.	KKC10/2023	Acanthaceae	Rosemullippoondur	Herb	Leaf	Bronchitis, cough, diabetes	Decoction
8	<i>Bidens pilosa</i> L.	KKC33/2023	Asteraceae	Mukkuthi	Herb	Whole plant	Wounds, malaria, skin infections	Juice, paste
9	<i>Boerhavia diffusa</i> L.	KKC25/2023	Nyctaginaceae	Mookkaratti	Herb	Root	Jaundice, wounds, ulcers	Paste, powder
10	<i>Bulbostylis densa</i> (Wall.) Hand.-Mazz	KKC54/2024	Cyperaceae	-	Herb	Rhizome	Fever, stomachache	Decoction
11	<i>Cajanus scarabaeoides</i> (L.) Thouars.	KKC14/2023	Fabaceae	Kaattuthuvurai	Climber	Whole plant	Smallpox, dysentery, cholera, indigestion	Powder
12	<i>Cardiospermum halicacabum</i> L.	KKC29/2023	Sapindaceae	Mudakattan	Climber	Leaf	Nervous disorders, cough, urinary tract infections, diarrhea	Decoction
13	<i>Cassia auriculata</i> L.	KKC1/2023	Caesalpiniaceae	Aavarai	Shrub	Whole plant	Constipation, jaundice, ulcers, chronic fever	Decoction
14	<i>Curcuma aromatica</i> Salisb.	KKC7/2023	Zingiberaceae	Kasthuri manjal	Climber	Rhizome	Cough, skin infections	Decoction, Paste
15	<i>Curcuma neilgherrensis</i> Wight	KKC40/2024	Zingiberaceae	Kaattumanjal	Climber	Rhizome	Cuts, wounds, diabetes, ulcers	Decoction, paste
16	<i>Cyperus rotundus</i> L.	KKC48/2024	Cyperaceae	Korai kilangu	Climber	Rhizome	Stomach and bowel disorders, diarrhea	Decoction
17	<i>Dichrostachys cinerea</i> (L.) Wight & Arn.	KKC27/2023	Mimosaceae	Vidathalan	Tree	Bark	Dysentery, toothaches, elephantiasis	Decoction
18	<i>Ficus benghalensis</i> L.	KKC35/2023	Moraceae	Aalamaram	Tree	Leaf	Scabies, ulcers, asthma, toothache	Decoction, Paste
19	<i>Ficus microcarpa</i> L.F.	KKC31/2023	Moraceae	Kal ichi	Tree	Leaf	Ulcers, burning sensation, itching	Latex
20	<i>Ficus mollis</i> Vahl	KKC34/2023	Moraceae	Kattarasu	Tree	Leaf	Dysentery, skin diseases, constipation	Paste, powder
21	<i>Ficus religiosa</i> L.	KKC42/2024	Moraceae	Arasamaram	Tree	Leaf	Asthma, gastric problems, skin diseases	Decoction, paste
22	<i>Givotia rottleriformis</i> Griff. ex Wight	KKC45/2024	Euphorbiaceae	Kottai Thanuku	Tree	Bark	Dandruff, jaundice, urinary infections	Juice
23	<i>Gloriosa superba</i> L.	KKC52/2024	Liliaceae	Kanvalikodi	Climber	Tuber	Inflammation, ulcers, bleeding piles, cancer	Powder
24	<i>Gymnema sylvestre</i> R. Br.	KKC8/2023	Asclepiadaceae	Sirukurinja	Climber	Leaf	Diabetes, asthma, constipation	Powder
25	<i>Gynandropsis gynandra</i> (L.) Briq.	KKC2/2023	Capparidaceae	Nalla velai	Herb	Leaf	Toothaches, neuralgia, stomach pain, piles	Juice
26	<i>Hemidesmus indicus</i> (L.) R. Br.	KKC16/2023	Asclepiadaceae	Nannari	Climber	Root	Skin diseases, fever, asthma, purify blood	Decoction, paste
27	<i>Jatropha gossypifolia</i> L.	KKC24/2023	Euphorbiaceae	Siria amanakku	Shrub	Leaf	Intermittent fevers, itching, stomachache	Decoction
28	<i>Justicia tranquebariensis</i> Roxb.	KKC37/2023	Acanthaceae	Punnakupoodu	Herb	Leaf	Respiratory problems, inflammation, jaundice	Juice, Paste
29	<i>Kirganelia reticulata</i> (Poir.) Baill.	KKC53/2024	Euphorbiaceae	Pula	Shrub	Leaf	Fever, bleeding gums, diarrhea	Juice
30	<i>Lantana camara</i> L.	KKC11/2023	Verbenaceae	Unnichedi	Shrub	Root	Skin itches, ulcers, malaria	Decoction, paste
31	<i>Manihot glaziovii</i> Muell	KKC15/2023	Euphorbiaceae	Katturubber	Shrub	Root	Skin infections	Paste

(Contd...)

Table 1: (Continued)

S. No.	Botanical name and	Voucher specimen number	Family	Local Name	Habit	Parts used	Medicinal uses	Mode of Administration
32	<i>Mimosa pudica</i> L.	KKC18/2023	Mimosaceae	Thottasurungi	Herb	Leaf	Urinary tract infection, ulcers, paralysis	Decoction
33	<i>Moringa concanensis</i> L.	KKC23/2023	Moringaceae	Kattumurungai	Tree	Leaf	Fertility problems, skin tumors, jaundice, diabetes	Paste
34	<i>Ocimum basilicum</i> L.	KKC32/2023	Lamiaceae	Tirunittru Pachilai	Herb	Leaf	Diarrhea, constipation, asthma, bronchitis	Decoction
35	<i>Ocimum sanctum</i> L.	KKC3/2023	Lamiaceae	Thulasi	Herb	Whole plant	Asthma, indigestion, skin diseases, fever	Juice, paste
36	<i>Pavonia zeylanica</i> (L.) Cav.	KKC12/2023	Malvaceae	Thengaipoondur	Herb	Root	Diabetes, dysentery	Decoction
37	<i>Pterocarpus marsupium</i> Roxburgh	KKC26/2023	Fabaceae	Vengai	Tree	Bark	Bronchitis, diarrhea, toothache, skin diseases	Paste
38	<i>Randia dumetorum</i> (Retz.) Poir.	KKC36/2023	Rubiaceae	Mathukaarai	Shrub	Root	Asthma, cold, fever, inflammations	Paste
39	<i>Ricinus communis</i> L.	KKC43/2024	Euphorbiaceae	Amanakku	Shrub	Seed	Constipation, stomachache, toothache, skin diseases	Oil
40	<i>Scilla indica</i> Roxb.	KKC17/2023	Liliaceae	Narivenkayam	Herb	Bulb	Skin diseases, cough, tumors	Decoction, paste
41	<i>Semecarpus anacardium</i> L.f.	KKC30/2023	Anacardiaceae	Thembarai	Tree	Nut	Piles, inflammation, arthritis	Decoction, paste
42	<i>Shorea roxburghii</i> Don	KKC41/2024	Dipterocarpaceae	Saal	Tree	Bark	Toothaches, skin diseases, ear troubles, dysentery, diarrhoea	Resin
43	<i>Sida cordifolia</i> L.	KKC47/2024	Malvaceae	Nilatutti	Herb	Leaf	Cold, cough, wheezing	Infusion
44	<i>Smilax zeylanica</i> L.	KKC4/2023	Smilacaceae	Kaattukkodi	Climber	Root	Piles, dysentery, urinary complaints	Decoction
45	<i>Solanum mauritianum</i> Scop.	KKC9/2023	Solanaceae	Aanaisundaikaai	Shrub	Leaf	Diarrhoea, infertility, tuberculosis	Decoction
46	<i>Solanum torvum</i> Sw.	KKC5/2023	Solanaceae	Sundaikkai	Shrub	Leaf	Cardiovascular diseases, blood disorders, fever, tooth decay	Juice
47	<i>Solanum violaceum</i> Ortega	KKC6/2023	Solanaceae	Mulsundai	Shrub	Root	Asthma, cardiac problems, fever	Paste
48	<i>Stachytarpheta indica</i> (L.) Vahl	KKC55/2024	Verbenaceae	Seemainayarooovi	Herb	leaf	Ulcers	Powder
49	<i>Strobilanthes consanguinea</i> (Nees) T.Anderson	KKC39/2024	Acanthaceae	Neelakurinji	Shrub	Whole plant	Fever, headache	Powder
50	<i>Strychnos nux-vomica</i> L.	KKC44/2024	Loganiaceae	Yettimaram	Tree	Seed	Urinary disorders, joint pain, dysentery	Paste
51	<i>Strychnos potatorum</i> L.f.	KKC13/2023	Loganiaceae	Thethankottai	Tree	Seed	Diarrhea, dysentery, conjunctivitis, ulcers	Paste
52	<i>Tephrosia purpurea</i> (L.) Pers.	KKC20/2023	Fabaceae	Avuri	Herb	Root	Impotency, asthma, diarrhea	Decoction
53	<i>Tinospora cordifolia</i> (Thunb.) Miers	KKC22/2023	Menispermaceae	Amirtavalli	Climber	Whole plant	Jaundice, dysentery, bone fracture, skin diseases	Decoction, paste
54	<i>Tridax procumbens</i> L.	KKC28/2023	Asteraceae	Vettukaayapoondur	Herb	Leaf	Dysentery, stomachache, wounds, diarrhea	Paste
55	<i>Wattakaka volubilis</i> (L.f) Stapf.	KKC50/2024	Asclepiadaceae	Kodi palai	Climber	Whole plant	Leucoderma, tumors, urinary tract infections, piles	Decoction

RESULTS AND DISCUSSION

The present ethnobotanical study found that the Malayali tribes of Bodamalai Hills used 55 plants from 45 genera and 28 families to treat various diseases (Table 1). The medicinal plants were grouped by family. Euphorbiaceae had the most species, with five. It was followed by Acanthaceae, Liliaceae, and Moraceae, each with four species; Asclepiadaceae, Fabaceae, and Solanaceae, each with three species; Amaranthaceae,

Asteraceae, Cyperaceae, Lamiaceae, Loganiaceae, Malvaceae, Mimosaceae, Verbenaceae, and Zingiberaceae, each with two species; and the last eleven families (Anacardiaceae, Caesalpiniaceae, Menispermaceae, Moringaceae, Poaceae, Rubiaceae, Sapindaceae, and Smilacaceae) each had one species (Figure 2).

Of the various life forms, herbs (34.55%) were most frequently used for the preparation of medicines, followed by shrubs,

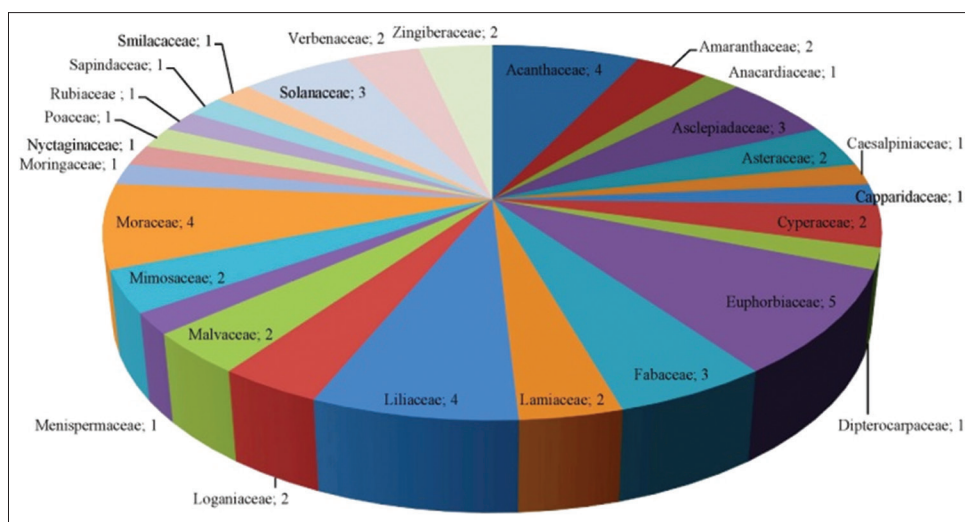


Figure 2: Family-wise distribution of ethnomedicinal plants

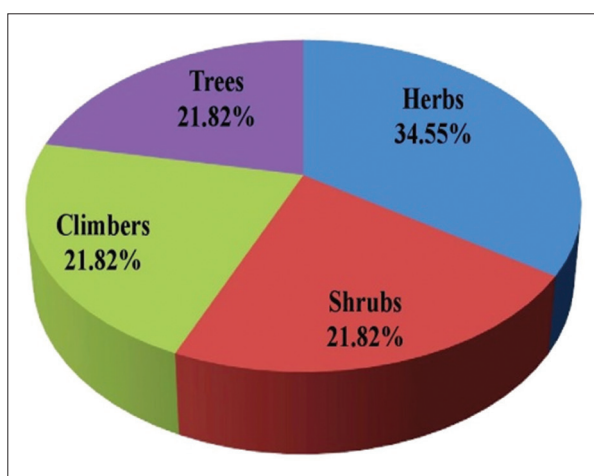


Figure 3: Percentage of life forms of reported ethnomedicinal plants

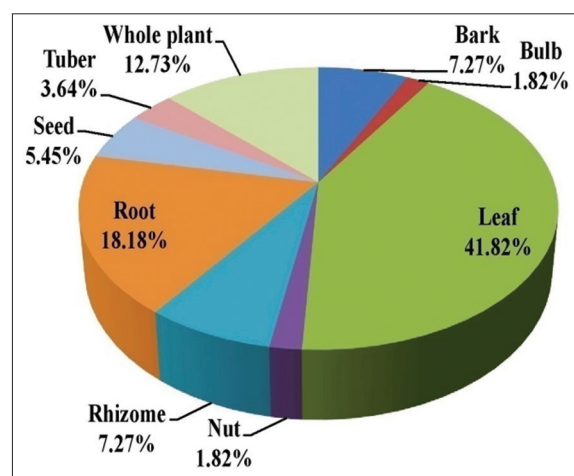


Figure 4: Percentage of plant parts used for medicine

climbers, and trees (21.82% each life form) (Figure 3). The frequent use of herbs indicates the wealth of the herbaceous species in the study area. Already similar observations were reported in several ethnobotanical studies of India (Ayyanar & Ignacimuthu, 2005; Ragupathy *et al.*, 2008; Prabu *et al.*, 2014). Among the different parts of the plant utilised for the preparation of ethnomedicine, leaves (41.82%) were most frequently used in the preparation of medicine, followed by root (18.18%), whole plant (12.73%), bark and rhizome (7.27% for each), seed (5.45%), tuber (3.64%), bulb, and nut (1.82% for each) (Figure 4). The most recommended part of the plant for the preparation of ethnomedicine is the leaf, and it was mentioned earlier by Xavier *et al.* (2014). Among the various modes of administration, the most commonly used method of preparation was decoction (30.91%), followed by decoction and paste (16.36%), paste (14.55%), juice (10.91%), powder (9.09%), juice and paste (5.45%), paste and powder (3.64%), and gel, infusion, latex, oil, and resin (1.82% each category) (Figure 5). According to earlier research by Bouasla and Bouasla (2017), decoction was the most popular

It was observed in the present investigation that the tribes of Bodamalai Hills used a single plant for the treatment of some diseases. They are including the leaf juice of *Achyranthes aspera*, which was used to treat pain in the abdomen; arthritis was effectively treated by using the nuts of *Semecarpus anacardium*; ear problems were treated with the resin that was extracted from the stem of *Shorea roxburghii*; the extract of the whole plant of *Cajanus scarabaeoides* was used for the treatment of cholera; the bark of *Dichrostachys cinerea* was used in the treatment of elephantiasis; leaves of *Mimosa pudica* were used to treat paralysis; the leaf extract of *Cajanus scarabaeoides* was used for the treatment of smallpox; and the leaf decoction of *Solanum mauritianum* was used to cure tuberculosis.

For the treatment of same disease, more than one plant was used by the tribes of Bodamalai Hills. For example, nine of the fifty-five plants were used to treat asthma. They included *Randia dumetorum*, *Ocimum basilicum*, *Ocimum sanctum*, *Gymnema sylvestre*, *Hemidesmus indicus*, *Ficus benghalensis*, *Ficus religiosa*, and *Tephrosia purpurea*. *Randia*

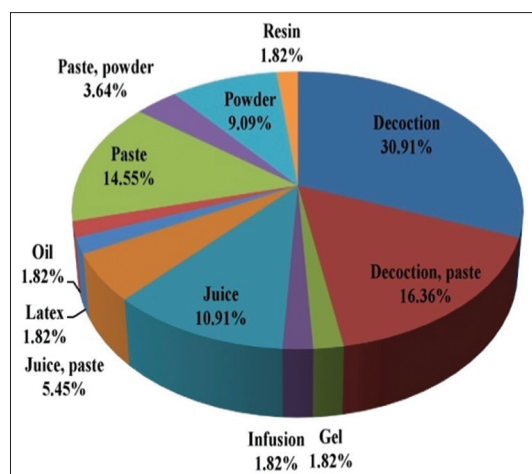


Figure 5: Percentage of mode of administration

dumetorum, *Semecarpus anacardium*, *Gloriosa superba*, *Bambusa arundinacea*, *Asparagus racemosus*, and *Tinospora cordifolia* were used to treat bone disorders. Blood disorders were treated by using *Achyranthes bidentata* and *Solanum torvum*. Three species, such as *Barleria buxifolia*, *Ocimum basilicum*, and *Pterocarpus marsupium* were used for bronchitis. Certain plants, such as *Asparagus racemosus*, *Gloriosa superba*, *Scilla indica*, and *Wattakaka volubilis* were used to treat cancer. Cardiovascular disorders were treated with *Solanum torvum* and *Solanum violaceum*. Of the fifty-five plants, seventeen were used to cure cold, cough, and fever. They were included: *Andrographis echinoides*, *Barleria buxifolia*, *Bulbostylis densa*, *Cardiospermum halicacabum*, *Cassia auriculata*, *Curcuma aromatica*, *Hemidesmus indicus*, *Jatropha gossypifolia*, *Kirganelia reticulata*, *Randia dumetorum*, *Ocimum sanctum*, *Scilla indica*, *Sida cordifolia*, *Solanum torvum*, *Solanum violaceum*, and *Strobilanthes consanguinea*. Similar results reported from the medicinal plant, *Ocimum sanctum*, for the treatment of cold, cough, and fever (Ayyanar & Ignacimuthu, 2005; Regalakshmi et al., 2016)

The same disease was treated by several plants. For example, cuts and wounds were treated with plants such as *Tridax procumbens*, *Boerhavia diffusa*, *Curcuma neilgherrensis*, *Bidens pilosa*, and *Aloe vera*. Certain plants were used to treat diabetes. They were *Andrographis echinoides*, *Barleria buxifolia*, *Curcuma neilgherrensis*, *Gymnema sylvestre*, *Moringa concanensis*, and *Pavonia zeylanica*. Similar information about the use of *Gymnema sylvestre* for the treatment of diabetes was also reported by Mukherjee et al. (2006). Eleven plants have been used to cure diarrhea. These included *Andrographis echinoides*, *Cardiospermum halicacabum*, *Cyperus rotundus*, *Kirganelia reticulata*, *Ocimum basilicum*, *Pterocarpus marsupium*, *Shorea roxburghii*, *Solanum mauritianum*, *Strychnos potatorum*, *Tephrosia purpurea*, and *Tridax procumbens*. Plants like *Cajanus scarabaeoides*, *Dichrostachys cinerea*, *Ficus mollis*, *Parthenium hysterophorus*, *Pavonia zeylanica*, *Shorea roxburghii*, *Smilax zeylanica*, *Strychnos nux-vomica*, *Strychnos potatorum*, *Tinospora cordifolia*, and *Tridax procumbens* were found to be effective in treating dysentery. The plants, including *Bambusa arundinacea*, *Cassia auriculata*, *Ficus mollis*, *Gymnema sylvestre*, *Ocimum*

basilicum, and *Ricinus communis* were used in the treatment of constipation.

Most of the diseases were treated with several plants, such as stomach disorders, which were treated using certain plants, namely *Bulbostylis densa*, *Cajanus scarabaeoides*, *Cyperus rotundus*, *Ficus religiosa*, *Gynandropsis gynandra*, *Jatropha gossypifolia*, *Ocimum sanctum*, *Ricinus communis*, and *Tridax procumbens*. Certain plants, including *Dichrostachys cinerea*, *Ficus benghalensis*, *Gynandropsis gynandra*, *Pterocarpus marsupium*, *Ricinus communis*, and *Shorea roxburghii* were used to cure toothaches. The plants, including *Aloe vera*, *Boerhavia diffusa*, *Cassia auriculata*, *Curcuma neilgherrensis*, *Ficus benghalensis*, *Ficus microcarpa*, *Gloriosa superba*, *Lantana camara*, *Mimosa pudica*, *Stachytarpheta indica*, and *Strychnos potatorum* were used to treat ulcers. Urinary disorders were treated using certain plants, namely *Cardiospermum halicacabum*, *Givotia rottleriformis*, *Mimosa pudica*, *Smilax zeylanica*, *Strychnos nux-vomica*, and *Wattakaka volubilis*. The plants, including *Boerhavia diffusa*, *Cassia auriculata*, *Givotia rottleriformis*, *Justicia tranquebariensis*, *Moringa concanensis*, and *Tinospora cordifolia* were used to treat jaundice. *Andrographis echinoides*, *Bidens pilosa*, and *Lantana camara* were used for the treatment of malaria. Three species, such as *Asparagus racemosus*, *Cardiospermum halicacabum*, and *Gynandropsis gynandra* were used for nervous disorders. Piles were treated with plants such as *Gloriosa superba*, *Gynandropsis gynandra*, *Semecarpus anacardium*, *Smilax zeylanica*, and *Wattakaka volubilis*. Fifteen of the fifty-five plants were used to treat skin diseases. They included *Aloe vera*, *Bidens pilosa*, *Ficus benghalensis*, *Ficus microcarpa*, *Ficus mollis*, *Ficus religiosa*, *Hemidesmus indicus*, *Jatropha gossypifolia*, *Lantana camara*, *Manihot glaziovii*, *Ocimum sanctum*, *Pterocarpus marsupium*, *Ricinus communis*, *Scilla indica*, and *Tinospora cordifolia*. *Moringa concanensis*, *Solanum mauritianum*, and *Tephrosia purpurea* were used to increase the fertility.

Furthermore, a single plant is used to treat more than one disease. For example, *Aloe vera* (Sunburns, surgical wounds, skin ulcers, mouth ulcers), *Andrographis echinoides* (Diarrhea, common cold, diabetes, malaria), *Asparagus racemosus* (Nervous disorders, tumors, inflammation), *Barleria buxifolia* (Bronchitis, cough, diabetes), *Bidens pilosa* (Wounds, malaria, skin infections), *Boerhavia diffusa* (Jaundice, wounds, ulcers), *Cajanus scarabaeoides* (Smallpox, dysentery, cholera, indigestion), *Cardiospermum halicacabum* (Nervous disorders, cough, urinary tract infections, diarrhea), *Cassia auriculata* (Constipation, jaundice, ulcers, chronic fever), *Ficus microcarpa* (Ulcers, burning sensation, itching), *Ficus mollis* (Dysentery, skin diseases, constipation), *Gymnema sylvestre* (Diabetes, asthma, constipation), *Hemidesmus indicus* (Skin diseases, fever, asthma, purify blood), *Moringa concanensis* (Fertility problems, skin tumors, jaundice, diabetes), *Ocimum sanctum* (Asthma, indigestion, skin diseases, fever), *Pterocarpus marsupium* (Bronchitis, diarrhea, toothache, skin diseases), *Ricinus communis* (Constipation, stomachache, toothache, skin diseases), *Shorea roxburghii* (Toothaches, skin diseases, ear troubles), *Solanum violaceum* (Asthma, cardiac problems, fever), *Strychnos potatorum* (Diarrhea, dysentery, conjunctivitis,

ulcers), *Tinospora cordifolia* (Jaundice, dysentery, bone fracture, skin diseases), *Tridax procumbens* (Dysentery, stomachache, wounds, diarrhea) and *Wattakaka volubilis* (Leucoderma, tumors, urinary tract infections, piles). According to Chellaiah Muthu *et al.* (2006), it was revealed that several medicinally significant plants, including *Boerhavia diffusa*, *Gymnema sylvestre*, *Tridax procumbens*, and *Ricinus communis*, were used as significant medicinal plants in the Kancheepuram district to treat a variety of ailments, including diabetes, wounds, stomachaches, and cuts and wounds. In different parts of India, ethnobotanical studies have documented the use of plants to treat a variety of diseases, including asthma, cold, cough, fever, headache, wounds, stomach issues, skin diseases, jaundice, diarrhea, dysentery, diabetes, and urinary disorders (Manickam *et al.*, 2004; Ayyanar & Ignacimuthu, 2005; Muthu *et al.*, 2006; Mukherjee *et al.*, 2006; Ragupathy *et al.*, 2008; Singh & Bharti, 2015; Regalakshmi *et al.*, 2016; Singh *et al.*, 2017; Raghuvanshi *et al.*, 2021; Ralte & Singh, 2024).

The present study revealed that medicinal plants remain essential to the tribes of primary healthcare. The study area has a number of highly valuable ethnomedicinal plants. The Malayali tribes of Bodamalai Hills have extensive knowledge in the use of several plants for medicinal purposes. Furthermore, it was observed that several medicinal plants have been found to be destroyed. Therefore, it is urgent to conserve these plants and increase their population through cultivation in order to prevent their extinction and provide tribal people with affordable medicine to treat their illnesses.

ACKNOWLEDGEMENTS

We are grateful to the Malayali tribes of the Bodamalai Hills in the research area for sharing their traditional knowledge.

REFERENCES

- Ayyanar, M., & Ignacimuthu, S. (2005). Traditional knowledge of Kani tribals in Kouthalai of Tirunelveli hills, Tamil Nadu, India. *Journal of Ethnopharmacology*, 102(2), 246-255. <https://doi.org/10.1016/j.jep.2005.06.020>
- Bapat, V. A., Yadav, S. R., & Dixit, G. B. (2008). Rescue of endangered plants through biotechnological applications. *National Academy Science Letters*, 31(7), 201-210.
- Bouasla, A., & Bouasla, I. (2017). Ethnobotanical Survey of Medicinal Plants in Northeastern of Algeria. *Phytomedicine*, 36, 68-81. <https://doi.org/10.1016/j.phymed.2017.09.007>
- Dev, S. (1997). Ethnotherapeutic and modern drug development: The potential of *Ayurveda*. *Current Science*, 73(11), 909-928.
- Erah, P. O. (2002). Herbal Medicines: Challenges. *Tropical Journal of Pharmaceutical Research*, 1(2), 53-54.
- Faruque, M. O., Feng, G., Khan, M. N. A., Barlow, J. W., Ankhil, U. R., Hu, S., Kamaruzzaman, M., Uddin, S. B., & Hu, X. (2019). Qualitative and quantitative ethnobotanical study of the Pangkhua community in Bilaichari Upazilla, Rangamati District, Bangladesh. *Journal of Ethnobiology and Ethnomedicine*, 15, 8. <https://doi.org/10.1186/s13002-019-0287-2>
- Gamble, J. S. (1915-1936). *The Flora of the presidency of Madras* (Vol. 1-3) London, UK: Adlard and Son Ltd.
- Islam, M. K., Saha, S., Mahmud, I., Mohamad, K., Awang, K., Uddin, S. J., Rahman, M. M., & Shilpi, J. A. (2014). An ethnobotanical study of medicinal plants used by tribal and native people of Madhupur forest area, Bangladesh. *Journal of Ethnopharmacology*, 151(2), 921-930. <https://doi.org/10.1016/j.jep.2013.11.056>
- Jadid, N., Kurniawan, E., Himayani, C. E. S., Andriyani, Prasetyowati, I., Purwani, K. I., Muslihatin, W., Hidayati, D., & Tjahjaningrum, I. T. D. (2020). An ethnobotanical study of medicinal plants used by the tenner tribe in ngadisari village, Indonesia. *Plos One*, 15(7), e0235886. <https://doi.org/10.1371/journal.pone.0235886>
- Jain, S. K. (1964). The role of botanist in folklore research. *Folklore*, 5(4), 145-150.
- Jain, S. K. (2001). Ethnobotany in Modern India. *Phytomorphology*, 51, 39-54.
- Jima, T. T., & Megersa, M. (2018). Ethnobotanical study of medicinal plants used to treat human diseases in Berbere District, Bale Zone of Oromia Regional State, South East Ethiopia. *Evidence-Based Complementary and Alternative Medicine*, 2018, 8602945. <https://doi.org/10.1155/2018/8602945>
- Joshi, S. G. (2000). *Medicinal Plants*. New Delhi, India: Oxford & IBH Publishing Co. Pvt. Ltd.
- Kala, C. P. (2005). Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of India. *Journal of Ethnobiology and Ethnomedicine*, 1, 11. <https://doi.org/10.1186/1746-4269-1-11>
- Manickam, V. S., Jothi, G. J., Murugan, C., & Sundaresan, V. (2004). *Check-list of the Flora of Tirunelveli Hills, Southern Western Ghats, India*. St. Xavier's College, India: Centre for Biodiversity and Biotechnology.
- Matthew, K. M. (1983). *The Flora of the Tamil Nadu Carnatic*. Tiruchirappalli, India: The Rapinat Herbarium.
- Mitalaya, K. D., Bhatt, D. C., Patel, N. K., & Didia, S. K. (2003). Herbal remedies used for hair disorders by tribals and rural folk in Gujarat. *Indian Journal of Traditional Knowledge*, 2(4), 389-392.
- Mukherjee, P. K., Maiti, K., Mukherjee, K., & Houghton, V. J. (2006). Leads from Indian medicinal plants with hypoglycemic potentials. *Journal of Ethnopharmacology*, 106(1), 1-28. <https://doi.org/10.1016/j.jep.2006.03.021>
- Muthu, C., Ayyanar, M., Raja, N., & Ignacimuthu, S. (2006). Medicinal plants used by traditional healers in Kancheepuram District of Tamil Nadu, India. *Journal of Ethnobiology and Ethnomedicine*, 2, 43. <https://doi.org/10.1186/1746-4269-2-43>
- Myers, N., Mittermeier, R. A., Mittermeier, C. G., da Fonseca, G. A. B., & Kent, J. (2000) Biodiversity hotspots for conservation priorities. *Nature*, 403, 853-858. <https://doi.org/10.1038/35002501>
- Namsa, N. D., Tag, H., Mandal, M., Kalita, P., & Das, A. K. (2009). An ethnobotanical study of traditional anti-inflammatory plants used by the Lohit community of Arunachal Pradesh, India. *Journal of Ethnopharmacology*, 125(2), 234-245. <https://doi.org/10.1016/j.jep.2009.07.004>
- Pattanaik, C., Reddy, C. S., & Murthy, M. S. R. (2008). An ethnobotanical survey of medicinal plants used by the Didayi tribe of Malkangiri district of Orissa, India. *Fitoterapia*, 79(1), 67-71. <https://doi.org/10.1016/j.fitote.2007.07.015>
- Prabu, T., Madhavan, S., & Pachaiyappan, P. (2014). Ethnobotanical knowledge of Malayali tribes in Jawadhu Hills-an analysis. *IQR Journal of Pharmacy and Biological Science*, 9(2), 21-25.
- Raghuvanshi, D., Dhalaria, R., Sharma, A., Kumar, D., Kumar, H., Valis, M., Kuča, K., Verma, R., & Puri, S. (2021). Ethnomedicinal Plants Traditionally Used for the Treatment of Jaundice (Icterus) in Himachal Pradesh in Western Himalaya-A Review. *Plants*, 10(2), 232. <https://doi.org/10.3390/plants10020232>
- Ragupathy, S., Steven, N. G., Maruthakkutti, M., Velusamy, B., & Ul-Huda, M. M. (2008). Consensus of the 'Malasars' traditional aboriginal knowledge of medicinal plants in the Velliangiri holy hills, India. *Journal of Ethnobiology and Ethnomedicine*, 4, 8. <https://doi.org/10.1186/1746-4269-4-8>
- Ralte, L., & Singh, Y. T. (2024). Ethnobotanical survey of medicinal plants used by various ethnic tribes of Mizoram, India. *Plos One*, 19(5), e0302792. <https://doi.org/10.1371/journal.pone.0302792>
- Regalakshmi, T., Rekha, D., Vasanth, S., & Panneerselvam, A. (2016). Ethnobotanical study of medicinal plants used by villagers in Avidanallavijayapuram (Pappanadu) village of Orathanadu (Tk), Thanjavur (Dt), Tamilnadu, India. *International Journal of Current Research*, 8(5), 30287-30292.
- Savithramma, N., Sulochana, C., & Rao, K. N. (2007). Ethnobotanical survey of plants used to treat asthma in Andhra Pradesh, India. *Journal of Ethnopharmacology*, 113(1), 54-61. <https://doi.org/10.1016/j.jep.2007.04.004>
- Singh, A., Nautiyal, M. C., Kunwar, R. M., & Bussmann, R. W. (2017). Ethnomedicinal plants used by local inhabitants of Jakholi block,

- Rudraprayag district, western Himalaya, India. *Journal of Ethnobiology and Ethnomedicine*, 13(1), 49. <https://doi.org/10.1186/s13002-017-0178-3>
- Singh, U., & Bharti, A. K. (2015). Ethnobotanical study of plants of Raigarharea, Chhattisgarh, India. *International Research Journal of Biological Sciences*, 4(6), 36-43.
- Upadhyay, B., Parveen, Dhaker, A. K., & Kumar, A. (2010). Ethnomedicinal and ethnopharmaco-statistical studies of Eastern Rajasthan, India. *Journal of Ethnopharmacology*, 129(1), 64-86. <https://doi.org/10.1016/j.jep.2010.02.026>
- Vasudevan Nair, R., (1994). *Indian Medicinal Plants: a compendium of 500 species* (Volume 1,2,3,4,5) Himayatnagar, Hyderabad: Orient Longman Private Limited.
- Xavier, T. F., Kannan, M., Lija, L., Auxillia, A., Rose, A. K. F., & Kumar, S. S. (2014). Ethnobotanical study of Kani tribes in Thoduhills of Kerala, South India. *Journal of Ethnopharmacology*, 152(1), 78-90. <https://doi.org/10.1016/j.jep.2013.12.016>