



Ethnobotanical Survey of Medicinal Plants used by Malayali Tribes in Palamalai Hills Salem District, Tamil Nadu, India

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ABSTRACT: An ethnobotanical survey was carried out among the tribes of Palamalai hills Salem district, Eastern ghats of Tamil Nadu. The traditional healers used native herbal plants for various medicinal purposes with their indigenous knowledge. The information was collected from the people through face-to-face interviews during field trips. The documentation of important medicinal plants used for the treatment of various ailments occurs in their daily life. In this present collection 96 medicinal plant species belonging to 46 families are discussed. The maximum number of medicinal plants belonging to the family Acanthaceae is deserved by 6 species, Andrographis two species, Electraria one species Justicia one species, Ruellia one species and Rungia one species among the 96 species. The plant was mostly used to cure fever, common cold, cough, asthma, rheumatism, etc. In a survey reported of the world health organization, it was found that the 80% population of the world rely on traditional herbal medicine for primary health care need. In this review article discusses the limitation and challenges faced for the production of herbal medicine. There for, this work will also contribute to the search for new drugs and treatments. The documented plants were given in a table that includes respective families along with their botanical name, habit, vernacular name and medicinal uses. Medicinal plants used by local people in Palamalai has been listed along with plant parts used for their ethnomedicinal significance. An exhaustive survey was carried out for one year from 2019 to 2020.

Keywords: Ethnobotanical studies, Tribes, Medicinal plants, Palamalai hills, Traditional Knowledge.

INTRODUCTION

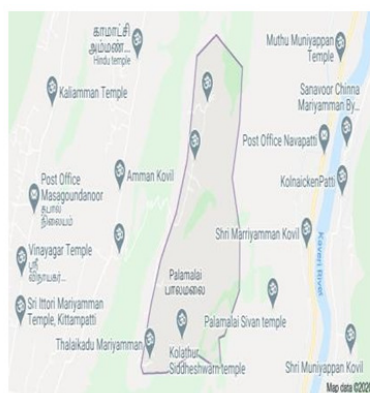
India is having a rich diversity of medicinal plants. The supply base of 90% of herbal plants is used in the mass production of Ayurveda, Siddha, Unani, and Homoeopathy systems of medicines. It was mainly collected from the forest. This wild source is gradually reduced day by day. Therefore, there is a necessity for the conservation and sustainable use of medicinal plants. In the future, ethnobotany may play an important role in sustainable development and biodiversity conservation (Rajasekaran and Warren 1994). Plants and their derivatives are used for the treatment of diseases, such plants are known as herbal medicine, which is considered part of folk or traditional medicine. For many centuries, treatment with medicinal plants was the only resource available for numerous ethnic groups, and nowadays, plants are still used in traditional medicine to treat and prevent many diseases (Gasparetto *et al.*, 2011; Patil *et al.*, 2019; Kumar *et al.*, 2019, Thakur and Waske 2018). These medicinal plants lie in some chemical substances that produce a definite physiological action on the human body (Edeoga *et al.*, 2005). Ethnobotany is defined as the study of the relationship between people and plants and most commonly refers to the study of ancient uses of plants.

By the way of explanations, a study that explores the role of plants as medicine, sustenance, and natural resources is a gateway to God. India is having rich vegetation with a wide variety of plants, because of the furthest variations in geographical and climatic conditions prevailing in the country (Handa, 1998). Medicinal plants have obtained global importance in the alternative healthcare system, for their proven and effective curative properties. Certain plant antidotes used in modern medicine have an ethnobotanical background (Dev, 1997; Fabricant and Farnsworth 2011). Infectious diseases are the most cause of death in developing countries and according to WHOM, as many as 80% of the world population depends on traditional medicines for their primary healthcare needs. But today 25% of medicines are based on plants and their derivatives (Yahaya *et al.*, 2012). India is possibly the most traditional knowledge on the medicinal uses of plants. The country won an ancient system of health care based predominantly on medicinal plants of several natures, ranging from microorganisms to higher plants, from which more than 80% of medicinal products are derived and have been used for thousands of years (Balakrishnan *et al.*, 2009). The tribals have developed their traditional knowledge related to plant

medicine, which has become a valuable and cultural ancestry of our nation (Kamble *et al.*, 2008) Ethnobotany and ethnomedicinal studies are used to easily identify the new medicinal plants and refocusing the earlier reported for bioactive compounds (Kanble *et al.*, 1981a; Goal and Bhattacharya 1981; Yaniv *et al.*, 1987; Katz *et al.*, 2007). Various active compounds have been discovered in plants based on ethnobotanical information and used directly as patented drugs (Leach, 2007). Several ethnobotanical surveys in Panay Island have been conducted on the Ati (Negritos) indigenous groups (Madulid *et al.*, 1989; Ong and Kim 2015; Cordero *et al.*, 2020; Cordero and Alejandro 2021). Of the 17 imperishable development goals adopted by the Member States at the United Nations General Assembly in September 2015 at least seven are related to traditional knowledge (Kumar *et al.*, 2021). Ethnobotanical study in Palamalai hills of Eastern ghats India is bound especially by the traditional knowledge of Malayali tribes. The people who used many plants are unknown to us and it is only known to the tribal residents. Hence understanding the established knowledge through tribal participative research is necessary to carry on the knowledge to the next generations. To objective of the study traditional knowledge of tribes and villagers of palamalai hills, Salem district, and Tamil Nadu through an ethnobotanical survey.

MATERIALS AND METHODS

Study area. Tamil Nadu is situated in the Southern end of India, east of Kerala and south of Andhra Pradesh



and Karnataka states. Several folds of the Southern Western Ghats separate the states of Tamil Nadu and Kerala. The area of investigation Palamalai hills (also known as Siddeswaran malai) is located in the North-West of Mettur Taluk, Salem District, Tamil Nadu (Fig. 1). Palamalai hills are located near the Sathyamangalam forest area and fall under the southern Eastern Ghats covering an area of 68 km. Which is covered by thick reserved forest. It comes under Southern Tropical Dry Deciduous forests - Dry Deciduous Dense Scrub. Palamalai hills division consists of five beats Kolathur beat, Mettur beat, Nerunjipetta beat, Ramanpatti beat, and Periyakulam beat. Palamalai hills lie between 11°45' latitude and 77°44' longitude E with an altitude of 1050-1100 M above MSL. The study area of Palamalai hills covers 9464 hectares which consider a small range of hills with steeper and rockier outer slopes. These hills are approximately 200 and 40 km away from well-known cities like Coimbatore and Salem, respectively. The temperature of the hill's during summer is around 34°C and during winter is around 30°C. The annual rainfall of these hills measured between 750 and 848 mm. In the hills, there are several types of soil present, yellowish brown to reddish brown. The general surface of the is loamy sand to loamy clay and it is related to acidity. According to the 2011 census of India, in palalomalai hills' total population is 2895, with a male being 1525, and females being 1370, and households 777 are present.



Fig. 1. Map of the study area (Kolathur Taluk), Salem district Studied tribal people.

Field trips and data collections. The ethnobotanical investigation was carried out from November 2019 - March 2020 (Fig. 2). The information was gathered go along with the informants and collections of plants by visual inspection of their morphological parts like leaf, stem, and flower. Aromatic plants were identified by smelling and tasting. The medicinal plants are collected from the hills and voucher specimens are preserved by herbarium. The data was collected from traditionally knowledgeable persons above the age of 65 to 70 years. These were documented on field notebook.



Fig. 2. Data collections from Malayali tribes in Palamalai hills.

Plant identification. The identification of medicinal plants was used by the Flora of the presidency of Madras, (Gamble and Fischer 1936) and the flora of the Tamil Nadu Carnatic (Matthew, 1981; Matthew, 1982; Matthew, 1983; Matthew, 1988; Matthew, 1991). The identified specimens were used for the preparation of the herbarium and the voucher specimens were deposited in the herbaria of the Department of Botany, Chikkaiah Naicker College, Erode, Tamil Nadu, India for future reference.

RESULT AND DISCUSSION

Life form and parts used. The present survey revealed that the Malayali tribes of the Palamalai hills region were using 96 species belonging to 46 families (Table 1) for medicinal uses. These species belong to 46 families the most representative being Acanthaceae and Fabaceae 6 species followed by Apocynaceae and Euphorbiaceae 5 species and Asclepiadaceae and Asteraceae with 4 species and other families such as Mimosaceae, Caesalpinaceae, Cucurbitaceae and Convolvulaceae have three species each and other families are one or two species are presented (Fig. 3). Among them 41 % were herbs followed by 17% were shrubs, 26% were trees and 12% were climbers (Fig. 4). In most of the cases roots 14% (14 species) are used to prepare various medicinal formulations followed by leaves 30% (30 species), whole plant 16% (16 species), bark 7% (7 species), flower 7% (7 species), rhizome 1% (1 species), shoots 1% (1 species), stem resins 1% (1 species), seed oil 1% (1 species), root bark 1% (1 species), stem 1% (1 species), gel 1% (1 species) (Fig. 5). These were used to treat various ailments such as diabetes, fever, cold, cough, toothache, liver disorders, urinary problems, skin diseases, headaches, and blood purifiers, etc. The observation of the present study at Palamalai hills showed that traditional medicine plays an important role in the life of tribal communities. The medicinal plants are used as a curative agent of predominant importance in direct health problems of traditional communities and third-world countries as well as modern societies (Cano and Valpato 2010). Habit-wise analysis constitutes the dominance of herbs followed by shrubs, trees, and climbers. These varying habits indicate the richness of all habits. One epiphytic plant and four parasitic plants were reported. This is in line with the findings of (Venkataswamy *et al.*, 2011) in Malasar tribals, Coimbatore district, (Arunachalam and Parimelazhgan 2011), in Kadambur hills. This study found that though whole and different parts of the

medicinal plants were used as medicine, the most commonly used plant part was leaves. This is in agreement with the earlier findings of Ranganathan *et al.* (2012); Bose *et al.* (2014); Alagesabooopathi (2015); Gritto *et al.* (2015); Sathyaraj *et al.* (2015). The information collected from this study is related to previous reports Ignacimuthu *et al.* (2006); (Ayyanar and Ignacimuthu (2005); Sandhya *et al.* (2006). The study of the medicinal plant species used in the indigenous health care practices showed the immeasurable usage of Malayali people ethnobotanical knowledge and indicative importance for their rich cultural heritage. The families of Fabaceae, Lamiaceae, and Poaceae were represented with a highly medicinal valuable plant species. Fabaceae as the most preferred medicinal plant family used by the Malayali tribes is parallel to the other folkloric studies conducted in Western Visayas (Madulid *et al.*, 1989; Tantiado, 2012; Ong and Kim 2014; Cordero and Alejandro 2021). The use of leaves as the most preferred medicinal plant part to address medical conditions is comparable to other ethnobotanical surveys conducted throughout the archipelago (Balangcod and Balangcod 2011; Olowa *et al.*, 2012; Abe and Ohtani 2013; Gruyal *et al.*, 2014; Ong and Kim 2014; Raterta *et al.*, 2014; Balangcod and Balangcod 2015; Pizon *et al.*, 2016; Odchimar *et al.*, 2017; Baddu and Ouano 2018; Tantengco *et al.*, 2018; Agapin, 2019; Pablo, 2019; Cordero *et al.*, 2020; Dapar *et al.*, 2020; Belgica *et al.*, 2021; Cordero and Alejandro 2021; Madjos and Ramos 2021; Montero and Geducos 2021; Nuneza *et al.*, 2021). Majority of the people of the area are illiterate especially in the rural areas of the hills and the earning sources of the locals are only agriculture and livestock. Some of the local inhabitants collect medicinal plants and sell. Local herb sellers in very cheap prices and these species are traded to the pharmaceutical companies in good prices. Over grazing, urbanization, and uprooting of medicinal plants are serious threats in the area. These threats increase the risk of their extinction and calls for a strict control over their protection by the authorities. The sustainable use of wild flora and cultivation of medicinal plants should be promoted in the area, this will strongly improve the socioeconomic condition of the local inhabitants. The medicinal plant species unfortunately due to their over exploitation there is a very danger of their extinction. Hence, effort must be taken to protect these species in this area by involving the local communities in preservation and conservation aspects.

Table 1: Medicinal plants used by Malayali tribes.

Sr. No.	Botanical name	Vernacular name	Family	Parts used	Medicinal uses
1.	<i>Abrus precariosus</i> L.	Kundumani	Fabaceae	Leaves	Leaves are used as a pain killer.
2.	<i>Abutilon indicum</i> G. Don.	Thuthi	Malvaceae	Bark	The bark is astringent and diuretic.
3.	<i>Achyranthus aspera</i> L.	Nayuruvi	Amaranthaceae	Seeds	Bleeding piles.
4.	<i>Aerva lanata</i> L.	Sirupoolai	Amaranthaceae	Root	Headache and diuretic
5.	<i>Alangium salvifolium</i> Wang.	Alinghi	Alangiaceae	Root	Skin diseases.
6.	<i>Albizia lebecke</i> Benth.	Vakai	Mimosaceae	Bark	Cough and diuretic.
7.	<i>Aloe vera</i> (L.) Burn. f.	Katralai	Liliacea	Gel	Antibiotic
8.	<i>Alternanthera sessilis</i> R.Br.	Ponnanganni	Amaranthaceae	Leaves	Digested agent

9.	<i>Amaranthus spinosus</i> Nees	Mullukkerai	Amaranthaceae	Leaves	Fever, anaemia and general debility
10.	<i>Andrographis echinoides</i> Nees	Kopuramthangi	Acanthaceae	Root	The Paste is applied externally for scorpion stings.
11.	<i>Andrographis paniculata</i> Nees	Siriyangai	Acanthaceae	Whole Plant	Febrifuge and tonic.
12.	<i>Anisochilus carnosus</i> Wall.	Karpuravalli	Lamiaceae	Leaves	Allergic problems.
13.	<i>Anisomeles indica</i> (L.) O. Kuntze.	Peimiratti	Lamiaceae	Whole Plant	Gastric problems and to treat fevers.
14.	<i>Annona squamosa</i> L.	Seetha	Annonaceae	Root	Asthma and fever.
15.	<i>Bambusa arundinaceae</i> Willd.	Mulmunkil	Poaceae	Root	Astringent, laxative
16.	<i>Carrisa carandas</i> Linn.	Kalaka	Apocynaceae	Flowers	Extract of flower to treat eye-related diseases.
17.	<i>Calotrophis gigantea</i> R. Br.	Erukku	Asclepiadaceae	Latex	Scorpion bite.
18.	<i>Cardiospermum helicacabum</i> Linn.	Mudakkathan	Sapindaceae	Leaves	Nervous disorders and as a blood purifier.
19.	<i>Cassia alata</i> Linn.	Seemai agathi	Caesalpinaceae	Leaves	Skin diseases and insect bites.
20.	<i>Cassia auriculata</i> Linn.	Avaram	Caesalpinaceae	Flowers	Diabetics.
21.	<i>Catharanthus roseus</i> (L.) G. Don.	Nithyakalyani	Apocynaceae	Leaves	Epistaxis, diarrhea, leucorrhoea, and urinary tract infection.
22.	<i>Celosia cristata</i> L.	Kozhi kondai	Amaranthaceae	Leaves	Epistaxis, diarrhea, leucorrhoea, and urinary tract infection.
23.	<i>Centella asiatica</i> Linn.	Vallarai	Apiaceae	Leaves	Refresher of brain.
24.	<i>Cleome viscosa</i> L.	Naiveli	Capparidaceae	Leaves	Digestive purposes.
25.	<i>Coccinia indica</i> W. & A.	Kovaikai	Cucurbitaceae	Whole plant	Induces sweet glands and urinary secretion.
26.	<i>Coleus amboinicus</i> Lourr.	Omavalli	Lamiaceae	Leaves	Chest cold and digestion for babies.
27.	<i>Commelina benghalensis</i> L.	Adutennathalai	Commelinaceae	Whole plant	All the plant parts are used as emollients.
28.	<i>Crotalaria verrucosa</i> Linn.	Gilugiluppai	Fabaceae	Leaves	Leaves mixed with forages are used as a remedy for veterinary purposes.
29.	<i>Croton bonplandianum</i> Baill.	Aathupoandu	Euphorbiaceae	Whole plant	Asthma, Pneumonia, Rheumatism, and as a laxative.
30.	<i>Curcuma longa</i> L.	Manjal	Zingiberaceae	Rhizome	Anthelmintic and antiparasitic.
31.	<i>Dichrostachys cinerea</i> (L.) W. & A.	Vidathalai	Mimosaceae	Shoots	Tender shoots are useful in ophthalmia.
32.	<i>Decalepis hamiltonii</i> Wight & Arn.	Magali kizhangu	Apocynaceae	Root	Antimicrobial, antidiabetic, antioxidant
33.	<i>Eclipta prostrata</i> L.	Manjal karislanganni	Asteraceae	Leaves	Blood purifier.
34.	<i>Elytraria acaulis</i> Lind.	Nilakadambu	Acanthaceae	Flowers	A Stomach problem controls body heat.
35.	<i>Euphorbia hirta</i> L.	Amman pacharusi	Euphorbiaceae	Leaves	Worms and gonorrhoea.
36.	<i>Evolvulus alsinoides</i> L.	Vishnukaranati	Convolvulaceae	Whole plant	Brain tonic and sedative.
37.	<i>Ficus racemosa</i> L.	Aththi	Moraceae	Fruits	It assists to cure diabetes and diarrhoea.
38.	<i>Ficus benghalensis</i> L.	Alamaram	Moraceae	Bark	Burning sensation and skin diseases.
39.	<i>Gloriosa superba</i> L.	Senganthal malar	Colchicaceae	Tubers	The tubers are regarded as tonic, Stomachic, And anthelmintic.
40.	<i>Gymnema sylvestre</i> R. Br.	Sirukurinjan	Asclepiadaceae	Leaves, Flowers	Diabetes, paralysis and to remove poison.
41.	<i>Gyrocarpus americanus</i> Jacq.	Tanukku	Gyrocarpaceae	Bark	Powder of bark is used to treat filariasis.
42.	<i>Hedyotis herbacea</i> L.	Nonnam pullu	Rubiaceae	Whole plant	Febrifuge, anthelmintic, expectorant, stomachic.
43.	<i>Heliotropium indicum</i> Linn.	Siruthel kodukku	Boraginaceae	Leaves	Anticancer agent.
44.	<i>Holoptelea integrifolia</i> Pl.ss	Ayamaram	Ulmaceae	Bark	Urinary diseases, vomiting, leprosy, diabetes.
45.	<i>Holoptelea integrifolia</i> Pl.ss	Ayamaram	Ulmaceae	Bark	Urinary diseases, vomiting, leprosy, diabetes.
46.	<i>Ionidium suffruticosum</i> (L.)	Orithal thamarai	Violaceae	Whole plant	Tuberculosis, asthma, fever, leprosy, and eye diseases.
47.	<i>Ipomoea obscura</i> (L.) Ker. gawl	Chirutali	Convolvulaceae	Fruits	Swelling and tuberculosis.

48.	<i>Jatropha curcas</i> L.	Kattamanakku	Euphorbiaceae	Leaves	Febrifuge and mouthwash for strengthening gums.
49.	<i>Jatropha gossypifolia</i> L.	Siriya amanakku	Euphorbiaceae	Root	Leprosy.
50.	<i>Justicia tranquebariensis</i> L.	Sivanervenbu	Acanthaceae	Leaves	Eye complaints and jaundice.
51.	<i>Lantana camara</i> L.	Unnichedi	Verbenaceae	Roots	Dysentery.
52.	<i>Leucas aspera</i> Spreng.	Thumbai	Lamiaceae	Leaves	Fever and vomiting.
53.	<i>Merremia tridentata</i> Hall. F.	Savurikodi	Convolvulaceae	Whole plant	Inflammations and general debility.
54.	<i>Mimosa pudica</i> L.	Thottalsinungi	Mimosaceae	Leaves	Scorpion sting.
55.	<i>Mollugo nudicaulis</i> Lam.	Parpadagam	Aizoaceae	Whole plant	Cloudy vision and whooping.
56.	<i>Momordica charantia</i> L.	Pahal	Cucurbitaceae	Fruits	Antidiabetic, antitumor
57.	<i>Myristica fragrans</i> Houtt.	Jathikai	Myristicaceae	Seeds	Fever, Headache
58.	<i>Ocimum basilicum</i> L.	Thirunitru pachai	Lamiaceae	Whole plant	Ringworm, leukoderma, and other skin diseases
59.	<i>Oligochaeta ramose</i> (Roxb.) Wagenitz.	Peikumatti	Astraceae	Leaves	Cuts and injuries.
60.	<i>Opuntia dillenii</i> Haw.	Chapathikalli	Cactaceae	Leaves	To reduce inflammation.
61.	<i>Passiflora foetida</i> L.	Mupparisavalli	Passifloraceae	Whole plant	decoction is used for hypertension.
62.	<i>Percularia extensa</i> (Jacq.) N. E. Br.	Veliparuthi	Asclepiadaceae	Leaves	Catarrhal affection and infantile diarrhea.
63.	<i>Phyllanthus emblica</i> Linn.	Nelli	Euphorbiaceae	Fruits	Jaundice, diabetes, and used as anticancer agent.
64.	<i>Plumbago zeylanica</i> L.	Velikodi	Plumbaginaceae	Roots	Paralytic affections, ulcers, leprosy, enlarged spleen, piles, skin diseases, and influenza.
65.	<i>Pongamia glabra</i> Vent.	Pungam	Fabaceae	Seeds	Oils is used as antiseptic, scabies, herpes.
66.	<i>Psidium guajava</i> L.	Koyya	Myrtaceae	Leaves	Leaves are used as an astringent for bowel trouble.
67.	<i>Pseudarthria vicida</i> (L.) W. & A.	Nirmalli	Fabaceae	Whole plant	Asthma and insect bites are used against inflammations and vomiting.
68.	<i>Pterocarpus marsupium</i> Roxb.	Vengai	Fabaceae	Leaves	Diabetes and whooping cough.
69.	<i>Pterolobium hexapetalum</i> (Roth.) Sant. & Wagh.	Karuidumul	Caesalpinaceae	Leaves, Seeds	Diarrhea, constipation, and piles.
70.	<i>Rauwolfia serpentina</i> Benth.	Sarpagandha	Apocynaceae	Root bark	Blood pressure and nervous disorder.
71.	<i>Rhynchosia minima</i> DC.	Kaliyan thuvurai	Fabaceae	Leaves	Healing wounds.
72.	<i>Ruellia prostrata</i> Poir	Pottakanchi	Acanthaceae	Fruits	Cloudy vision, congestion, neuralgic pain, and silent glaucoma.
73.	<i>Rungia repens</i> Nees.	Paarpaatha	Acanthaceae	Flowers	Diuretic, vermifuge and is given in snakebite.
74.	<i>Sapindus emarginatus</i> Vahl.	Pochakottai	Sapindaceae	Fruits	Emetic, blood purifier
75.	<i>Secamone emetica</i> R. Br.	Ankaravalli	Asclepiadaceae	Stem bark	Inflammation and ulcer.
76.	<i>Sida acuta</i> L.	Kattu karunthakaikai	Malvaceae	Leaves and Roots	Emollient and tonic
77.	<i>Solanum nigrum</i> L.	Milagutakkali	Solanaceae	Whole plant	A decoction of the plant depresses the central nervous system.
78.	<i>Solanum torvum</i> SW.	Sundaikkai	Solanaceae	Fruits	Carminative, diuretic, antidiabetic and vermifuge.
79.	<i>Stephania wightii</i> Dunn.	Karudan kilangu	Menispermaceae	Seeds	Snakebite, tumours
80.	<i>Strychnos nuxvomica</i> L.	Ettikottai	Loganiaceae	Root	Cholera
81.	<i>Strychnos potatorum</i> Linn.	Thetran kottai	Loganiaceae	Seeds	Nutritious food for babies
82.	<i>Tamarindus indica</i> L.	Puli	Caesalpinaceae	Leaves, Fruits	Inflammatory swelling and ringworm. Fruits are used in inflammatory illnesses.
83.	<i>Terminalia chebula</i> Retz.	Kadukai	Combretaceae	Fruit	Pain, constipation, and diarrhoea
84.	<i>Toddalia asiatica</i> Lam.	Kattumilagu	Rutaceae	Roots, Flowers	Paralysis, malarial and intermittent fevers, cough, and general debility.
85.	<i>Tribulus terrestris</i> L.	Nerunji	Zygophyllaceae	Leaves, flowers	Stop bleeding, and eye burning and stops the

CONCLUSION

Medicinal plants in Palamalai hills play an important role in the primary health care of the tribal people. Herbal medicines are comparably secure to synthetic drugs. The tribal people are more knowledgeable and experienced in conventional medicinal practices because it comes from thousands of years of trial and error. In the present study, 96 plants were documented, and among these 41 plants were herbs, 17 were shrubs, 12 were climbers and 26 were trees. They are using the plants for diuretics, snake bites, skin diseases, diabetics, cough & cold, body pain, and diarrhea as anti-inflammatory and anti-cancerous diseases. Besides, the plants need to be evaluated through phytochemical analysis to discover the possibility of drugs.

FUTURE SCOPE

This study provides knowledge about herbal treatment of the ethnic people and subsequent pharmacognostical and pharmacological investigations should be made to confirm their mode of preparations.

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Conflict of Interest. None.

REFERENCES

- Abe, R. and Ohtani, K. (2013). An Ethnobotanical Study of Medicinal Plants and Traditional Therapies on Batan Island, the Philippines. *J. Ethnopharmacol*, 145, 554–565.
- Agapin, J. S. F. (2019). Medicinal Plants Used by Traditional Healers in Pagadian City, Zamboanga del Sur, Philippines. *Philipp. J. Sci*, 149, 83–89.
- Alagesabooopathi, C. (2015). Medicinal plants used for the treatment of liver diseases by Malayali tribes in Shervaroy hills, Salem District, Tamil Nadu, India. *World J Pharm Res*, 4, 816.
- Arunachalam, K., Parimelazhagan, T. (2011). Ethnomedicinal observations among Hooralis tribes in Kadambur hills (Kal Kadambur) Erode District, Tamil Nadu. *Glo J Pharma*, 5, 11721.
- Ayyanar, M. and Ignacimuthu, S. (2005). Ethnomedicinal plants used by the tribals of Tirunelveli hills to treat poisonous bites and skin diseases. *IJTK*, 4, 229-236.
- Baddu, V. and Ouano, N. (2018). Ethnobotanical Survey of Medicinal Plants Used by the Y'Apayaos of Sta. Praxedes in the Province of Cagayan, Philippines. *Mindanao J. Sci. Technol*, 16, 128–153.
- Balakrishnan, V., Prema, P, Ravindran, K C. and Philip Robinson, J. (2009). Ethnobotanical studies among villages from Dharapuram Taluk, Tamil Nadu, India. *Global J Pharmacol*, 3(1), 8–14.
- Balangcod, T. and Balangcod, A. K. (2011). Ethnomedicinal Knowledge of Plants and Healthcare Practices Among the Kalanguya Tribe in Tinoc, Ifugao, Luzon, Philippines. *Indian J. Tradit Knowl*, 10, 227–238.
- Balangcod, T., and Balangcod, A. K. (2015). Ethnomedicinal Plants in Bayabas, Sablan, Benguet Province, Luzon, Philippines. *E J. Biol.*, 11, 63–73.
- Belgica, T. H., Suba, M. and Alejandro, G. J. (2021). Quantitative Ethnobotanical Study of Medicinal flora Used by Local Inhabitants in Selected Barangay of

- Malinao, Albay, Philippines. *Biodiversitas*, 22, 2711–2721.
- Bose, N. M., Aron, S. and Mehalingam, P. (2014). An ethnobotanical study of medicinal plants used by Paliyars aboriginal community in Virudhunagar District, Tamil Nadu, India. *I. J Trad Know*, 13, 613-618.
- Cano, J. H. and Volpato, G. J. (2004). Herbal mixtures in the traditional medicine of eastern Cuba. *J Ethnopharmacol*, 90, 293-316.
- Cordero, C. and Alejandro, G. J. D. (2021). Medicinal Plants Used by the Indigenous Ati Tribe in Tobias Fornier, Antique, Philippines. *Biodiversitas*, 22, 521–536.
- Cordero, C., Ligsay, A. and Alejandro, G. (2020). Ethnobotanical Documentation of Medicinal Plants Used by the Ati Tribe in Malay, Aklan, Philippines. *J. Complement. Med. Res*, 11, 170–198.
- Dapar, M. L. G., Alejandro, G. J. D., Meve, U. and Liede-Schumann, S. (2020). Quantitative ethnopharmacological documentation and molecular confirmation of medicinal plants used by the Manobo tribe of Agusan del Sur, Philippines. *J. Ethnobiol. Ethnomed*, 16, 14.
- Dev, S. (1997). Ethnotherapeutics and modern drug development: the potential of Ayurveda. *Current Science*, 73, 909-928.
- Edeoga, H. O., Okwu, D. E. and Mbaebie, B. O. (2005). Phytochemical constituents of some Nigeria medicinal plants. *African Journal of Biotechnology*, 4(7), 685-688.
- Fabricant, D. S. and Farnsworth, N. R. (2001). The value of plants used in traditional medicine for drug discovery. *Environ Health Perspect*, 109, 69-75.
- Gamble, J. S. and Fischer, C. E. (1915-1936). *The Flora of the Presidency of Madras*. Vol. I, II and III. London. Adlard and Son Ltd.
- Gasparetto, J. C., Martinsa, C. A. F., Hayashia, S. S., Otuky, M. F. and Pontaroloa, R. (2011). Ethnobotanical and scientific aspects of *Malva sylvestris* L. a millennial herbal medicine. *Journal of Pharmacy and Pharmacology*, 64, 172–189.
- Goel, A. K. and Bhattacharya, U. C. (1981). A note on some plants found effective in treatment of jaundice (Hepatitis). *J Econ Tax Bot.*, 2, 157-159.
- Gritto, M. J., Nanadagopalan, V. and Doss, V. (2015). Ethnobotanical survey of medicinal plants used by Traditional healers in Shobanapuram Village of Pachamalahill, Tamil Nadu. *Adv Appl Sci Res*, 6, 157-64.
- Gruyal, G., del Rosario, R. and Palmes, N. (2014). Ethnomedicinal Plants Used by Residents in Northern Surigao del Sur, Philippines. *Nat. Prod. Chem. Res*, 2, 1–5.
- Handa, S. S. (1998). Indian efforts on standardization and quality control of medicinal plants using scientific parameters. *Amruth (The Traditional Healthcare Magazine)*, 2, 10.
- Ignacimuthu, S., Ayyanar, M. and Sankara Sivaraman, K. (2006). Ethnobotanical investigations among tribes in Madurai District of Tamil Nadu (India). *J. Ethnobiol. Ethnomed.*, 2, 25-30.
- Kamble, S. Y., More, T. N., Patil, S. R., Pawar, S. G., Bindurani, R. and Bodhankar, S. L. (2008). Plants used by the tribes of Northwest Maharashtra for the treatment of gastrointestinal disorders. *Ind. J. Trad. Knowl.*, 7(2), 321-325.
- Katz, S. R., Newman, R. A. and Lansky, E. P. (2007). *Punica granatum*: heuristic treatment for diabetes mellitus. *J. Med. Food*, 10, 213-217.

- Kumar, A., Kumar, S. and Komal (2021). Role of traditional ethnobotanical knowledge and indigenous communities in achieving sustainable development goals. *Sustainability*, 13, 3062.
- Kumar, Gulshan and Duggal, Sampy (2019). Ethnobotanical Wisdom among the Kiratas and Hindu-Gujjar Tribes in Dharampur Region of Mandi District, Himachal Pradesh, (India). *Biological Forum – An International Journal*, 11(1), 156-171.
- Leach, M. J. (2007). *Gymnema sylvestre* for Diabetes Mellitus: A Systematic Review. *J Altern Complement Med*, 13, 977-983.
- Madjos, G. and Ramos, K. (2021). Ethnobotany, Systematic Review and Field Mapping on Folkloric Medicinal Plants in the Zamboanga Peninsula, Mindanao, Philippines. *J. Complement. Med. Res*, 12.
- Madulid, D. A., Gaerlan, F. J. M., Romero, E. M. and Agoo, E. M. G. (1989). Ethnopharmacological Study of the Ati Tribe in Nagpana, Barotac Viejo, Iloilo. *Acta Manil*, 38, 25–40.
- Matthew, K. M. (1981). *Materials for a Flora of the Tamil Nadu Carnatic*. Vol. I. Tamil Nadu: Diocesan Press.
- Matthew, K. M. (1982). *Illustrations on the Flora of the Tamil Nadu Carnatic*. Vol. II. Tamil Nadu: Diocesan Press.
- Matthew, K. M. (1983). *The Flora of the Tamil Nadu Carnatic*. Vol- III. Part- I, II & III. Thiruchirapalli, India: The Rapinet herbarium, ST.Joseph's College.
- Matthew, K. M. (1988). *Further Illustrations on The Flora of the Tamil Nadu Carnatic*. Vol. IV. New Delhi: Oxford and IBH Publishing Co.Pvt.Ltd.
- Matthew, K. M. (1991). *An Excursion Flora of Central Tamil Nadu, India*. New Delhi: Oxford and IBH Publishing Co.Pvt.Ltd.
- Montero, J. C. and Geducos, D. T. (2021). Ethnomedicinal plants used by the local folks in two selected villages of San Miguel and Surigao del Sur, villages of San Miguel, Surigao del Sur, Mindanao, Philippines. *Int. J. Agric. Technol*, 17, 193–212.
- Nuneza, O., Rodriguez, B. and Nasiad, J. G. (2021). Ethnobotanical survey of medicinal plants used by the Mamanwa tribe of Surigao del Norte and Agusan del Norte, Mindanao, Philippines. *Biodiversitas*, 22, 3284–3296.
- Odchimar, N. M., Nuñez, O., Uy, M. and Senarath, W. T. P. S. (2017). Ethnobotany of Medicinal Plants Used by the Talaandig Tribe in Brgy. Lilingayon, Valencia City, Bukidnon, Philippines. *Asian J. Biol. Life Sci.*, 6, 358–364.
- Olowa, L., Torres, M. A., Aranico, E. and Demayo, C. (2012). Medicinal Plants Used by the Higaonon Tribe of Rogongon, Iligan City, Mindanao, Philippines. *Adv. Environ. Biol*, 6, 1442–1449.
- Ong, H. G. and Kim, Y. D. (2014). Quantitative Ethnobotanical Study of the Medicinal Plants Used by the Ati Negrito Indigenous Group in Guimaras Island, Philippines. *J. Ethnopharmacol*, 157, 228–242.
- Ong, H. G. and Kim, Y. D. (2015). Herbal Therapies and Social-Health Policies: Indigenous Ati Negrito Women's Dilemma and Reproductive Healthcare Transitions in the Philippines. Evidence-Based Complement. *Altern. Med*, 1-13.
- Pablo, C. G. (2019). Botika Sa Kalikasan: Medicinal Plants Used by Aetas of Sitio Parapal Hermosa Bataan, Philippines. *J. Soc. Health*, 2, 101–127.
- Patil, Vijaykumar P. and Rathod, Mayuri C. (2019). An Ethno-botanical Survey of Dadra and Nagar- Haveli (UT), India for Medicinal Plants in use by Traditional Healers. *Biological Forum – An International Journal*, 11(1), 187-193.
- Pizon, J. R. L., Nuneza, O. M., Uy, M. M. and Senarath, W. T. P. S. K. (2016). Ethnobotany of Medicinal Plants Used by the Subanen Tribe of Lapuyan, Zamboanga del Sur. *Bull. Env. Pharmacol. Life Sci*, 5, 53–67.
- Rajasekaran, B. and Warren, D. M. (1994). Indigenous knowledge for socio – economic biodiversity conservation: the kolli hills. *Indigenous Knowledge & Development Monitor*, 2, 13-17.
- Ranganathan, R., Vijayalakshmi, R. and Parameswari, P. (2012). Ethnomedicinal survey of Jawadhu hills in Tamil Nadu. *Asian J Pharm Clin Res*, 5, 45-9.
- Raterta, R., de Guzman, G. Q. and Alejandro, G. J. D. (2014). Assessment, Inventory and Ethnobotanical Survey of Medicinal Plants in Batan and Sabtang Island (Batanes Group of Islands, Philippines). *Int. J. Pure App. Biosci.* 2, 147–154.
- Sandhya, B., Thomas, S., Isabel, W. and Shenbagarathai, R. (2006). Ethnomedicinal plants used by the valaiyan community of Piranmalai hills, Tamil Nadu, India - A pilot study. *African Journal of Traditional, Complementary and Alternative Medicines*, 3, 101-114.
- Sathyaraj, R., Sarvalingam, AA., Balachandran, A. and Reddy, R. K. (2015). Diversity of ethnomedicinal plants in Bodamalai hills, Eastern Ghats, Namakkal District, Tamil Nadu. *J Plant Sc.*, 3, 77-84.
- Tantengco, O. A. G., Condes, M. L. C., Estadilla, H. H. T. and Ragraio, E. M. (2018). Ethnobotanical Survey of Medicinal Plants Used by Ayta Communities in Dinalupihan, Bataan, Philippines. *Pharmacog, J.*, 10, 859–870.
- Tantiado, R. (2012). Survey on Ethnopharmacology of Medicinal Plants in Iloilo, Philippines. *Inter. J. Bio-sci. Bio-tech*, 4, 11–26.
- Thakur, M.K. and Waske, Shubhangee (2018). Study of Medicinal Plants used by Local Herbal Healers in South Block of Seoni District (M.P.). *International Journal of Theoretical & Applied Sciences*, 10(1), 95-99.
- Venkataswamy, R., Mubarak, H. M., Doss, A., Ravi, T. K. and Sukumar, M. (2010). Ethnobotanical study of medicinal plants used by Malasar tribals in Coimbatore district of Tamil Nadu (South India). *Asian J Exp Biol Sci.*, 1, 387-92.
- Yahaya, O., Yabefa, J. A. and Usman, B. (2012). Phytochemical screening and antibacterial activity of *Combretum glutinosum* extracts against some human pathogens. *British Journal of Pharmacology and Toxicology*, 3(5), 233-236.
- Yaniv, Z., Dafni, A., Friedman, J. and Palevitch, D. (1987). Plants used for the treatment of diabetes in Israel. *J Ethnopharmacol*, 19-145.

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