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Indigenous Knowledge of Medicinal Plants Used by the Tribes in Muthanga Range of Wayanad Wildlife Sanctuary, Wayanad, Kerala, India

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Abstract
India is having rich vegetation with a wide variety of plants, because of the extreme variations in geographical and climatic conditions prevailing in the country. Plants have been used since ancient times for the treatment of various ailments. Especially, tribal communities of Kerala meet their healthcare needs by using non-timber minor forest products and preparations based on traditional knowledge. The traditional healers are dwindling in number and there is a grave danger of the younger generation is not interested to carry on this tradition. Therefore it becomes the responsibility of the scientific community to unravel the information and to document it for availability to the whole world for the benefit of human beings. The present study was initiated with an aim to identify traditional healers who are practicing herbal medicine among the tribals in Muthanga forest range of Wayanad Wildlife Sanctuary, Kerala, India and quantitatively document their indigenous knowledge on the utilization of medicinal plants, particularly most common ethnomedicinal plants.

Keywords: Ethnomedicinal plants, Muthanga, Traditional healers, Tribals

1. Introduction

Man is dependent on plants from time immemorial. From around 1500 B.C. Rig Veda is one of the important earliest available documents which emphasizes about herbal medicinal knowledge. Later on Indian herbalists such as Maharshi, Charaka and Sushruta worked in search of different herbal plant parts for different aliments of human body. Herbal medicine is the study and use of medicinal properties of plants. Therefore medicinal plants constitute precious resources for mankind. The human life and culture has directly or indirectly been influenced by their surrounding environment [1, 2]. Ethnobotany as an interdisciplinary science is therefore in a position to preserve the wealth of traditional knowledge that indigenous people possess concerning their natural systems and environment in which medicinal plants are included. Traditional management of medicinal plants and practices of herbal medicine are built on the basis of indigenous knowledge. Originally, ethnobotany was based mostly on qualitative and descriptive methods, i.e., inventory of plants and their uses. In the work of Conklin [3] and Ford [4], ethnobotany developed further and began to include an understanding of knowledge systems through the use of anthropological methods. This includes their knowledge on the utilization and maintenance of different types of plant resources on a long-term basis without damaging or destroying their habitats. Hence, maximum efforts should be made to document and integrate indigenous knowledge on land-use, vegetation and forest management, non-timber forest products, medicinal plants, agro-forestry, home-gardens, swidden agriculture, and biodiversity.

India has a vast emporium of ethno medicinal and folklore wealth. The indigenous groups possess their own distinct cultural and religious rites, food habit and a rich knowledge of traditional medicine [5]. In Kerala, the diversified system of traditional practices prevails among the rural communities since ancient time. Even though modern medical systems are available, the majority of the people are still depending on the ethnic tradition for curing various diseases. Further, it has been established that herbal drugs obtained from plants are safe in treating various ailments with no side effects. This dependency led the aboriginal people living in harmony with nature to evolve a unique system of knowledge about plant wealth by trial and error methods [6]. Traditionally this treasure of knowledge has been passed on orally from generation to generation without any written document and is still retained by various indigenous groups around the world. In India, there are about 54 million indigenous people of different ethnic groups inhabiting various terrains. These indigenous groups possess their own distinct culture, religious rites, food habit and a rich knowledge of medicinal plants. But this valuable oral health information is not yet documented systematically.

Wayanad district is with a hilly terrain on the southern Western Ghats and located in the northeast part of Kerala state in India. The district is unique for its rich wealth of flora and diverse ethnic cultures. By following Champion and Seth [7] the natural vegetation in the district is classified into west coast tropical evergreen forests (evergreen), west coast semi-evergreen forests (semi-evergreen), southern moist mixed deciduous forests (moist deciduous forests), southern subtropical hill forests (hill-top evergreen), southern montane wet temperate forests (shola) and southern montane wet temperate grasslands (grasslands). In the content of non-wood forest produce plants, and especially the medicinal plants as dealt with by Nair [8], moist desiduous forests of the state are very rich. Among the forest types of Kerala, it is from the moist deciduous forests 40 per cent of the Non Wood Forest Products (NWFPs) are

extracted [9]. This is the dominant vegetation type in the Wayanad Wildlife Sanctuary also. Wayanad has the largest tribal concentration among the districts of the state and is considered as the 'Holy land of Adivasis' in Kerala [10]. They form 17.1% of the total population of the district. As indigenous cultures are closely maintained by the tribal and other forest dwellers throughout the world, the ethnobotanical investigation is a prerequisite for any developmental planning concerned with the welfare of tribals and their environment. Documenting the indigenous knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources. There are considerable economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of various diseases. Due to less communication means, poverty, ignorance and unavailability of modern health facilities, most people especially rural people are still forced to practice traditional medicines for their common day ailments. A vast knowledge of illnesses may be expected to have accumulated in areas where the use of plants is still of great importance [11, 12]. Traditional medical knowledge of medicinal plants and their use by indigenous cultures are not only useful for conservation of cultural traditions and biodiversity but also for community healthcare and drug development in the present and future [13, 14].

Though Wayanad district is blessed with lots of natural beauty and vegetation, the studies related to ethical knowledge [15, 16] on medical plants occurred here are very less [17,18]. A perusal of these reports suggested that the ethnobotanical survey in Wayanad is incomplete and traditional herbal healing knowledge of a large number of folk communities need documentation. There is no previous report in the records of ethnobotanical knowledge of medicinal plants used for various ailments exclusively from tribes of Muthanga range under Wayanad Wildlife Sanctuary. An attempt has therefore been made to collect and document the folk knowledge from tribes, local herbal healers and knowledgeable elder people of different castes and communities residing in the forest areas of Muthanga.

2. Materials and Methods

Wayanad Wildlife Sanctuary also is known as the Muthanga Wildlife Sanctuary is contiguous of the protected reserve forest network of Nagarhole and Bandipur of Karnataka and Mudumalai of Tamil Nadu. The sanctuary is rich in biodiversity and an integral part of the Nilgiri Biosphere Reserve, the first of the 14 biospheres in India. The sanctuary is spread over an area of 345 km^2 and in four ranges namely Sulthan Bathery, Muthanga, Kurichiat and Tholpetty. It established as Muthanga Wildlife Sanctuary in 1973 and was brought under the Project Elephant in the year 1991-92. It is considered to be the second largest wildlife sanctuary in Kerala and bio-geographically one of the richest tracts of peninsular India. The present study has been undertaken with the aim of recording the details of various plant species used by the tribes of Muthanga range in Wayanad Wildlife Sanctuary area. The major tribes residing at Muthanga forest area are Kuruma, Kattunaika, Paniya and Uraly. Kattunaika is the dominant ethnic tribe in this area.

A preliminary survey of Muthanga tribal villages in Wayanad district revealed that local communities used wild medicinal plants as medicine for their healthcare extensively. Frequent field surveys were made in forest range. Each area was visited twice in different seasons in 2018-2019. Ethnobotanical data (local name, mode of consumsion and ethnobotanical uses) were collected through interviews and discussion with the tribal practitioners in and around the study area (Table 1). Data were also collected through questionnaires in their local languages (Malayalam and Tamil). Ethnobotanical data were collected according to the methodology suggested by Jain [19]. The plant specimens were collected and identified using Local flora, available field keys and with the help of taxonomists at Kerala Forest Research Institute, Peechi, Thrissur. The claims were compared with available important works on Indian ethnobotany and medicinal plants [20, 21, 22].

3. Results and Discussion

The present study documented 80 medicinal plant species belonging to 37 families used by the Uraly, Kuruma, Kattunaika and Paniya tribes residing at different forest areas of Muthanga range. We observed that most of the tribal medicines in this region are being prepared from the members of Fabaceae (17 species) followed by Combretaceae, Sapindaceae, Euphorbiaceae, Apocynaceae (5 species), Rubiaceae (4 species), Anacardiaceae, Flacourtiaceae, Bignoniaceae, Oleaceae (3 species) and so on (Fig. 2). These are commonly occurring herbal plants used to treat various diseases like snake bits, fever, cold, headache, diarrhea, dysentery, skin diseases, gastric disorders, rheumatic problems and diabetes. This is constant with the other general observation which has been reported earlier in relation to herbal plant studies by the Indian Traditional System of Medicine like Siddha and Ayurvedha [21, 23]. Among these 18 species are used for the treatment of skin problems, followed by 12 species for abdominal problems, 11 species for fever and headache, 8 species for diarrhea, bone fracture and sprains, 6 species for arthritis, 5 species for diabetes and piles, 4 species for cough, cold and venereal diseases, 3 species for snake bite and 2 species for jaundice (Fig. 5). The most prominent disease treated by the tribes in the study area was skin problems like psoriasis, eczema, itching and boils.

Distribution analysis of plants habit revealed that maximum remedies were obtained from trees (53%) followed by climber (28%), shrub (15%) and the herbs (8%) respectively (figure 3). This is in accordance with Rajkumar *et al*. (2010) as the use of tree species as dominant herbal medicine source. Different parts of medicinal plants viz. Leaf (21), fruit (17), bark (16), root (13), seed (10), rhizome and stem (3), flowers and whole plant (1) were used as source of medicines by the tribes and traditional healers. Leaves were found to use heavily for medicinal preparations as compared with other parts. Numerous indigenous communities in another place also utilized mostly leaves for the preparation of herbal medicines [24]. The reason for leaves were used mostly as medicine due to they are collected very easily than underground parts, flowers and fruits etc. and in scientific point of view leaves are active in photosynthesis and synthesis of secondary metabolites [25,26]. Skin diseases, joint pains, wounds are generally treated using leaf parts as a leaf paste but fever, cough, cold and headache were treated using bark and roots. Another interesting to note that the extracts of more than one plant were used for treating single ailments such as *Rubia cordifolia* L. root paste mixed with rhizome paste of *Curcuma longa* L., is applied on the

affected portion in the treatment of skin diseases. Most of the medicinal combinations are in powder or decoction form. Preparation of powder and decoction for the treatment of ailments is a common practice among the other tribal communities in India [27]. *Flacourtia montana* J. Garh, one of the endemic species of Western Ghats with a rich traditional medicinal value is reported to have widely used by the tribal healers. Decoction prepared from its bark is mainly used for liver disorders and the fruits are edible and consumed as food.

The results of our survey showed that ethnomedicinal knowledge and its applications are still alive in the colonies of the sanctuary. However, most of the knowledge acquired by the local people has been passed on to them by word of mouth from one generation to the next. Most of them still consider traditional herbal knowledge as traditional secrets. But, through repeated contacts, and discussions, they shared their traditional herbal knowledge. The present documentation about the traditional knowledge of medicinal plants and their status in Muthanga range of Wayanad Wildlife Sanctuary serves as a valuable information tool for future sustainable use and conservation.

Table 1: Medicinal plants with traditional therapeutic knowledge recorded from the study areas

No	Botanical Name	Family	Vernacular name	Habit	Parts Used	Usage
1	*Anogeissus latifolia* (Roxb. ex Dc.) Wall.	Combretaceae	Kalkanjiram	Tree	Bark	Bark powder is used for the treatment of diarrhea
2	*Cissampelos pareira* L.	Menispermaceae	Malathangi	Climber	Roots	Root extract is applied to wounds till the wound is healed
3	*Butea monosperma* (Lam.) Taub.	Fabaceae	Chamatha	Tree	Seeds	Seed paste is applied for various skin diseases
4	*Toddalia asiatica* (L.) Lam.	Rutaceae	Kanthammullu	Climber	Leaves	Leaf decoction is used against cough and cold in children
5	*Spondias pinnata* (L.f.) Kurz.	Anacardiaceae	Ambazham	Tree	Leaves	Paste of Leaves is used in itches of ring worm
6	*Asparagus racemosus* Willd.	Asparagaceae	Sathavari	Climber	Roots	Root decoction is used as healthy tonic
7	*Centella asiatica* (L.) Urb.	Apiaceae	Kodangal	Herb	Whole plant	Crushed plant is applied against various skin diseases
8	*Schumannianthus virgatus* (Roxb.) Rolfe.	Marantaceae	Malamkoova	Shrub	Rhizome	Rhizome paste is applied for skin diseases.
9	*Rubia cordifolia* L.	Rubiaceae	Ellumbarakki	Climber	Roots	Root paste mixed with rhizome paste of turmeric is applied on the affected portion in the treatment of skin diseases.
10	*Allophylus serratus* (L.) Juss.	Sapindaceae	Mukkannanpezhu	Shrub	Leaves	Leaf paste with turmeric is applied for fracture and sprains.
11	*Caesalpinia bonduc* (L.) Roxb.	Fabaceae	Kazhanchikkuru	Climber	Seeds	Seed paste is applied on forehead in the treatment of headache.
12	*Clematis gouriana* Roxb.	Ranunculaceae	Nikidakodi	Climber	Leaves	Leaf decoction is mixed with water for rheumatism bath.
13	*Casearia wynadensis* Bedd. (Plate 1, b)	Flacourtiaceae	Karikunnan	Tree	Fruit	Used for digestive problems
14	*Salix tetrasperma* Roxb. (Plate 1, a)	Salicaceae	Vanchimaram	Tree	Leaves	Leaf juice used against swelling, Piles, Venereal diseases, Stones in bladder
15	*Radermachera xylocarpa* (Roxb.) K.	Bignoniaceae	Edankorna	Tree	Fruit	Fruit decoction orally given for birth control.
16	*Tamilnadia uliginosa* (Retz.) (Plate 2, k)	Rubiaceae	Pindichakka	Tree	Fruit	The raw fruit extract is used against diarrhea and dysentery. Fruit pulp is applied for curing boils.
17	*Buchanania lanzan* Spreng.	Anacardiaceae	Kalamavu	Tree	Fruit	Fruit juice is used to treat cut wound, blood dysentery, toothache and loose motion
18	*Nothapodytes nimmoniana* (Graham) Mabb.	Icacinaceae	Peenari	Shrub	Leaves	The leaves and Curcuma longa grind together and apply on the affected part and massage properly. It reduces swells.
19	Antidesma ghaesembilla Gaertn. (Plate 1, c)	Euphorbiaceae	Kattupulinchi	Tree	Leaves, Fruit	Young leaves are boiled with water for blood nourishment and as a medicine for headache, ripe fruits are eaten
20	*Flacourtia montana* Graham.	Flacourtiaceae	Charalpazham	Tree	Bark, Leaves	The juice of bark and leaves used to treat diabetes.
21	*Curcuma neilgherrensis* Wight.	Zingiberaceae	Kattumanjal	Shrub	Rhizome	Rhizome paste is used to cure cold, cough, boils, cuts, wounds, bone fractures and skin diseases.
22	*Acacia sinuata* (Lour.) Merr.	Fabaceae	Cheenikka	Climber	Fruit	Fruit powder used for dandruff
23	Dodonaea viscosa L.	Sapindaceae	Aattotta	Leaf	Leaves	Leaves are boiled with water and it is used for swellings
24	*Holorrhena pubescens*	Apocynaceae	Kudagapala	Tree	Bark	Bark powder is mixed with powder of black pepper is

	(Buch.Ham.) Wall.					taken orally against malarial fever
25	*Spilanthes calva* DC.	Asteraceae	Akravu	Herb	Flower	Chewing of flower buds during toothache
26	*Clitoria ternatea* L.	Fabaceae	Sankupushpum	Climber	Roots	Root paste is used as antidote for poisonous bites
27	*Achyranthes aspera* L.	Amaranthaceae	Kadaladi	Herb	Roots	Root powder used for cholera
28	*Adenia hondala* (Gaertn.) de Wilde.	Passifloraceae	Karimuthukku	Climber	Tuber	Tuber paste or powder is taken with milk in empty stomach to promote lactation.
29	*Pterospermum rubiginosum* Heyne ex Wight & Arn.	Sterculiaceae	Ellooti	Tree	Bark	The bark of the tree after removing the outer dead layer is crushed to paste with lukewarm water and applied to treat bone fracture.
30	*Spatholobus parviflorus* (Roxb. Ex DC.)	Fabaceae	Adambuvalli	Climber	Leaves	Leaf paste is applied over head half an hour before bath for conjunctivitis
31	*Baliospermum montanum* (Willd.)	Euphorbiaceae	Nagadanthi	Shrub	Bark, Leaves	Stem bark and leaf extract along with rice water administered orally against ulcer
32	*Cassia fistula* L.	Fabaceae	Kanikonna	Tree	Fruit	Fruit yielding dark gum apply externally on sex organs for venereal diseases.
33	*Cipadessa baccifera* (Roth) Miq.	Meliaceae	Pulippanchedi	Shrub	Fruit	Fruit juice used as gargle for bleeding and swelling gum.
34	*Bridelia retusa* (L.) A.Juss.	Euphorbiaceae	Mullankkayini	Tree	Fruit	Fruits eaten as raw for anaemia and improve blood counting.
35	*Entada scandens* Benth.	Fabaceae	Kukkumkai	Climber	Seed	Seed powder orally given with milk for sexual disorders.
36	*Careya arborea* Roxb.	Lecythidaceae	Pezhu	Tree	Fruit	Fruit powder made into decoction orally given for Stomach ulcers.
37	*Terminalia bellirica* (Gaertn.) Roxb.	Combretaceae	Thannikka	Tree	Seed	Seed paste with neem oil apply externally for venereal diseases
38	*Trema orientalis* (L.) Blume.	Ulmaceae	Aamathali	Tree	Fruit	Fruit decoction orally given daily for Jaundice.
39	*Helicterus isora* L.	Sterculiaceae	Valampiri	Shrub	Fruit	Fruit soaked in coconut oil and apply hair for reduce hair fall.
40	*Oroxylum indicum* (L.) Benth.	Bignoniaceae	Palakapayyani	Tree	Fruit	Fruit decoction orally given for mouth ulcers.
41	*Schrebera swietenioides* Roxb. (Plate 2, j)	Oleaceae	Manimaram	Tree	Bark	The bark is used to treat diseases of the throat, anaemia, bleeding piles and diabetes
42	*Persea macrantha* (Nees) Kosterm.	Lauraceae	Kulamavu	Tree	Fruit	Fruit smoke inhaled for relief Asthma pain. Fruit paste apply externally for Rheumatic pain
43	*Terminalia chebula* Retz.	Combretaceae	Kadukka	Tree	Seed	Seed decoction orally given for stomach ulcers and constipation.
44	*Strychnos nux-vomica* L.	Loganiaceae	Kanjiram	Tree	Seed	Seed powder mixed with hot water orally given for jaundice
45	*Smilax zeylanica* L.	Smilacaceae	Karilanchi	Climber	Tuber	Tuber paste mixed with coconut milk is consumed for piles.
46	*Calycopteris floribunda* Lam.	Combretaceae	Pullanni	Climber	Stem	Water exuding from cut portion of stems given twice a day for urinary problem
47	*Tinospora cordifoli*a (Willd.) Miers.	Menispermaceae	Chitamruthu	Climber	Stem	The stem paste applies on the forehead if somebody suddenly faints.
48	*Chonemorpha fragrans* (Moon) Alston.	Apocynaceae	Mutthappanthadi	Climber	Root	The rubbed root paste is applied on the skin cures skin diseases. The rubbed root paste is taken internally to purify blood
49	*Pseudarthria viscida* (L.) Wight & Arn.	Fabaceae	Moovila	Shrub	Root	Root juice is taken in to treat fever, diarrhea, asthma, worms & piles.
50	*Rauvolfia serpentina* (L.) Benth. ex Kurz.	Apocynaceae	Sarpagandhi	Shrub	Leaves	A leaf juice of sarpagandhi is a good medicine for snake poisons.
51	*Phyllanthus emblic*a L.	Euphorbiaceae	Nelli	Tree	Fruits	Fruits are used as cooling agent
52	*Vitex altiss*ima L. f.	Verbenaceae	Mylellu	Tree	Bark	Bark juice is used externally to relieve rheumatic swellings and chest pains.
53	*Terminalia paniculata* Roth.	Combretaceae	Maruthu	Tree	Bark	Bark juice with clarified butter and rock salt is applied for the treatment of parotitis
54	*Pterocarpus marsupium* Roxb.	Fabaceae	Venga	Tree	Stem	Heart wood paste is used for body pain and diabetes.
55	*Abrus precatorius* L.	Fabaceae	Kunnikuru	Climber	Leaves	Pounded leaves are used to relieve cough, cold and colic.
56	*Desmodium gangeticum*	Fabaceae	Orila	Herb	Root	Root juice is used to check vomiting.

	(L.) DC.					
57	*Hemidesmus indicus* (L.) R. Br.	Periplocaceae	Nannari	Herb	Root	Root paste is applied on the forehead to reduce fever; root paste with sugar is given to children for cough and diarrhoea.
58	*Ichnocarpus frutescens* (L.) R.Br.	Apocynaceae	Palvalli	Climber	Leaves	Leaves boiled in oil are applied for relief from headache, fever and wounds between fingers.
59	*Cardiospermum halicacabum* L.	Sapindaceae	Uzhinja	Climber	Leaves	Leaf extract is used as antiseptic.
60	*Aristolochia indica* L.	Aristolochiaceae	Garudakodi	Climber	Root	The fresh juice of the root is used as antidote to snake poison.
61	*Glycosmis pentaphylla* (Retz.) DC.	Rutaceae	Kuttippannel	Shrub	Leaves	Paste of leaves is used externally in eczema and other skin affections.
62	*Costus speciosus (Koenig)* J.E.	Costaceae	Channakoova	Herb	Rhizome	Juice of the rhizome is applied to head for cooling and relief from headache
63	*Melia dubia* Cav.	Meliaceae	Malavemppu	Tree	Bark	The bark juice is taken internally once against stomachaches caused by intestinal worms
64	*Ipomoea mauritiana* Jacq.	Convolvulaceae	Palmuthukku	Climber	Root	Root powder is taken orally to control diabetes, hyperlipidemia.
65	*Sapindus trifoliatus* L.	Sapindaceae	Urunjikai	Tree	Fruit	Fruit paste is applied externally to treat boils, scorpion bite and itching lesions
66	*Aporosa cardiosperma* (Gaertn.) Merr.	Euphorbiaceae	Ponvetti	Tree	Root	Fresh root decoction is given to drink with a piece of juggery to cure headaches.
67	*Sarcostigma kleinii* Wight & Arn.	Icacinaceae	Odappzham	Climber	Seed	Seed oil is used to treat helminthiasis, leprosy, skin diseases, epilepsy and indolent ulcers.
68	*Ficus racemosa* L.	Moraceae	Atthi	Tree	Fruit, Bark	Fruits are used as a remedy for visceral obstruction, diarrhea and constipation. An infusion of bark is employed as mouth wash in spongy gum condition, dysentery and menorrhea,
69	*Wrightia tinctoria* (Roxb.) R. Br.	Apocynaceae	Dhanthappala	Tree	Leaves	The extract of the leaves is mixed with coconut oil and apply for various skin diseases like, psoriasis.
70	*Syzygium caryophyllatum* (L.)	Myrtaceae	Njara	Tree	Bark, Seeds	The seeds and bark are dried and its decoction is used in the ailment of diabetes mellitus
71	*Olea dioica* Roxb. (Plate 2, g)	Oleaceae	Karivetti	Tree	Leaves, Bark	The parts such as leaves and bark juice are used to cure skin diseases, rheumatism, fever, and cancer.
72	*Ardisia solanacea* Roxb. (Plate 1, e)	Myrsinaceae	Kuzhimundan	Shrub	Leaves	The leaf juice is applied in the treatment of diarrhea, dysmenorrhea, gout, mental disorder, rheumatic arthritis, skin sore and vertigo.
73	*Premna coriacea* var. villosa (Clarke) (Plate 2, h)	Verbenaceae	Wild berry	Climber	Leaves	The leaf juice is used to treat stomach disorders, oedema, constipation, piles, and cardiac diseases
74	*Mitragyna parvifolia* (Roxb.) (Plate 2, i)	Rubiaceae	Kadambu	Tree	Bark, Root	The bark and roots are used in the treatment of fevers and colic
75	*Benkara malabarica* (Lam.) (Plate 1, d)	Rubiaceae	Cholakara	Shrub	Bark	The bark juice is used against Diarrhea, dysentery and boils.
76	*Lannea coromandelica* (Houtt.) (Plate 2, l)	Anacardiaceae	Karasu	Tree	Leaves	Leaf juice is used in swellings, sprains & Pain of the body.
77	*Schleichera oleosa* (Lour.) Oken.	Sapindaceae	Poovam	Tree	Seed	Seed oil used for the cure of itch, acne, burns, other skin troubles, rheumatism (external massage), hair dressing and promoting hair growth.
78	*Chionanthus mala-elengi* (Dennst.) (Plate 1, f)	Oleaceae	Mala-elengi	Tree	Bark	Bark is used for skin diseases. Fruits are edible.
79	*Stereospermum colais* (Buch.-Ham. ex Dillw.) Mabb.	Bignoniaceae	Poopathiri	Tree	Bark	Bark is used to cure stomach diseases and dysentery.
80	*Hydnocarpus pentandra* (Buch.-Ham.)	Flacourtiaceae	Marotti	Tree	Seed	Oil extracted from seeds used to cure skin diseases

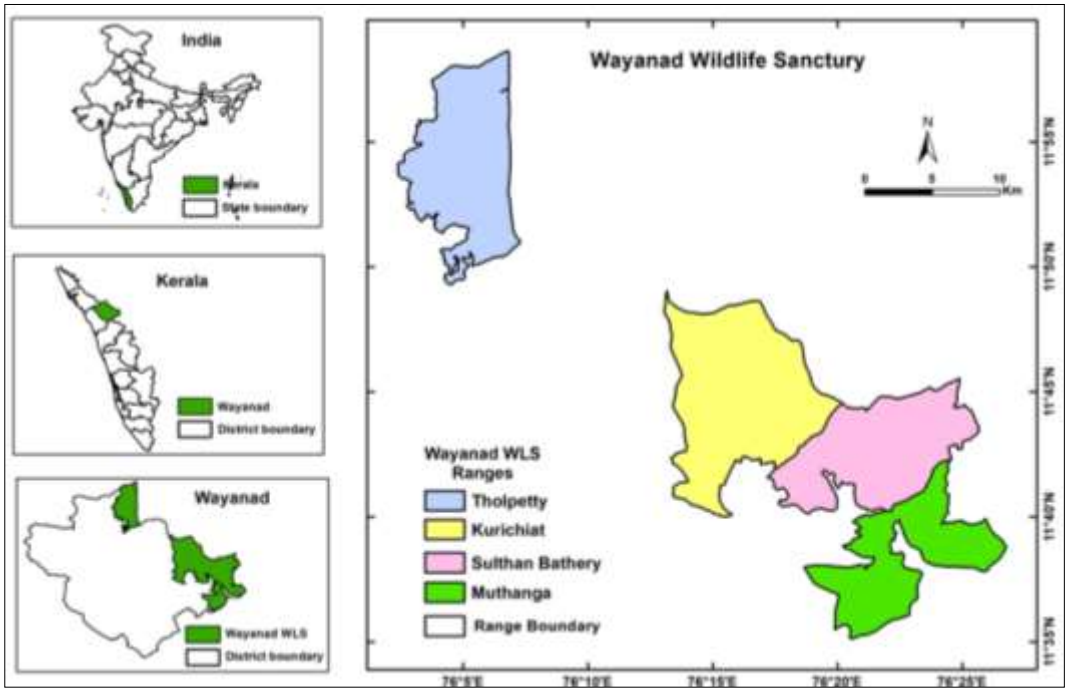

Fig 1: Location map of the study area

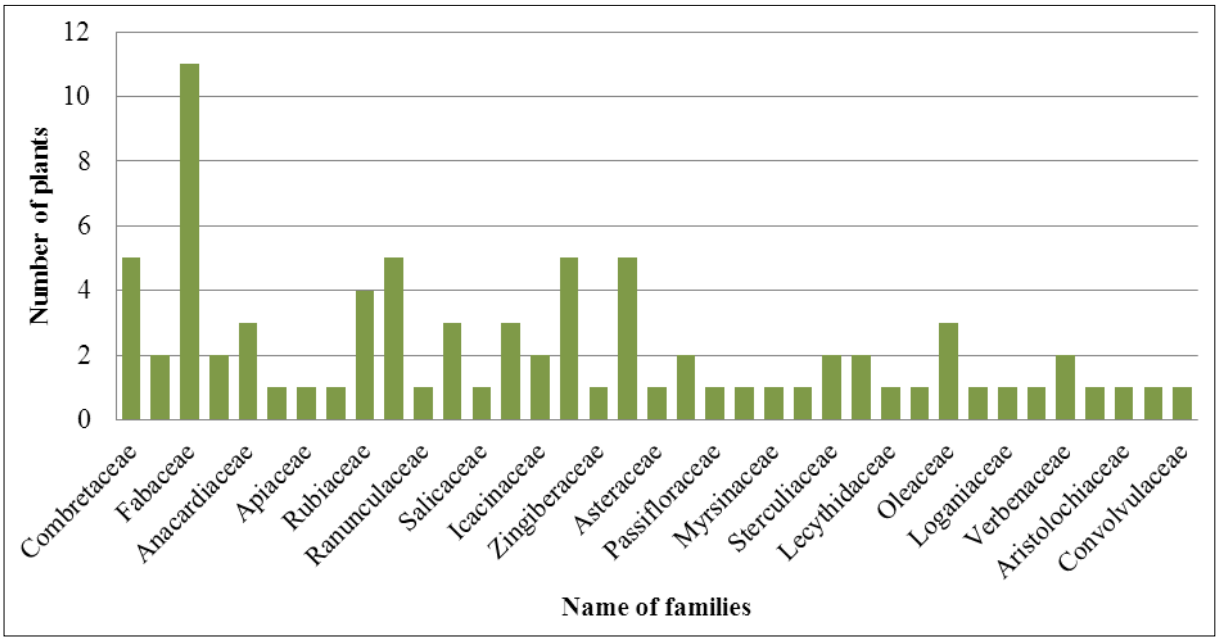

Fig 2: Representation of families of medicinal plants

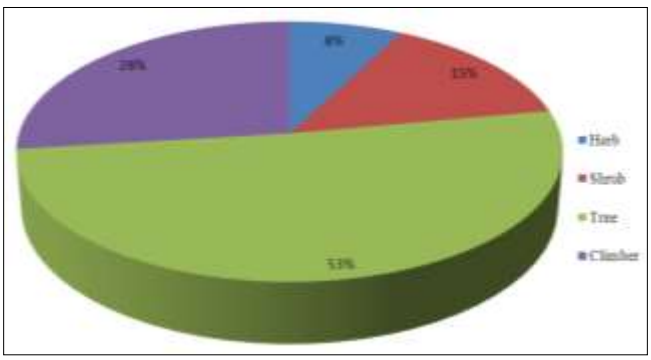

Fig 3: Percentage of plant habits

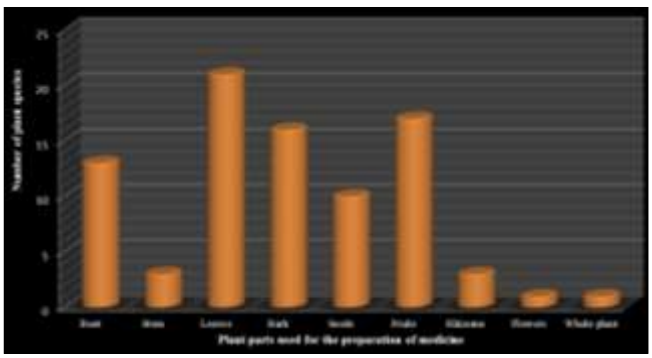

Fig 4: Dominance of plant parts used for the preparation of various medicines

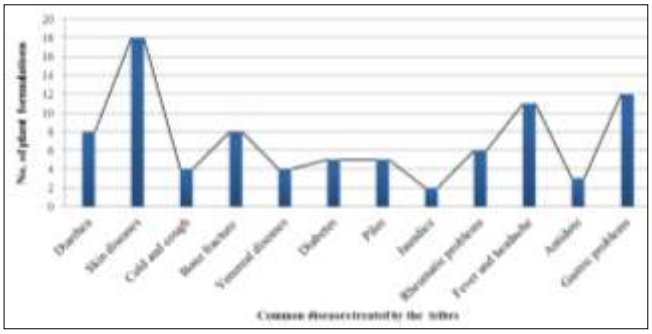

Fig 5: Number of plants curing various diseases

Plate 1

Plate 2

4. Conclusion

Ethnobotanical investigations related to the tribal communities of Kerala have been made by earlier workers with different perspectives [28, 29]. The traditional knowledge about utilization of local plant species is vital in alternate health care system as well as for the self-sustenance of local population. High costs coupled with numerous side effects of synthetic drugs are forcing people to depend on the locally available herbal medicine for their health care needs. Preparation of a digital online inventory regarding the data collected can be made as future work. The data presented here was an attempt to document the fast eroding indigenous knowledge which has an evolutionary history of several generations through trial and error methods and has been traditionally transferred orally. In this age of modernization where these traditional communities are put in pressure to adapt modern systems of medicine it is high time to preserve them before it is lost forever. Due to high demand and less access and availability of forest resources, these people are forced to go for unsustainable harvest of resources. Therefore, concerted actions are needed to sensitize the community for the judicious exploitation and conservation of these vital resources, and preservation of traditional knowledge on the uses of plants. Therefore, it

was very essential to gather ethnobotanical information in detail so as to understand the plant-people interaction and to document such valuable information with a comprehensive and multidisciplinary approach for the prosperity.

5. Acknowledgement

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6. References

1. Radhakrishnan K, Pandurangan AG, Pushpangadanand P, Sasidharan A. Less known ethnomedicinal plants of Kerala state and their conservation, Ethnobot. 1996; 8:82-84.
2. Ignacimuthu S, Sankaranarayanan K, Kesavan L. Medico-ethnobotanical survey among Kanikar tribals of Mundanthurai Sanctuary, Fitoteropia. 1998; 69:409-414.
3. Conklin HC. Ethnographica Atlas of Ifugao: A Study of Environment, Culture and Society in Northern Luzon, New Haven, Conn, With the special assistance of Pugguwon Lupaih and Miklos Pinter, 1980, 39p.
4. Ford RL. The nature and status of ethnobotany, Anthropological Papers, Museum of Anthropology, University of Michigan. In: Ford RI, ed, 1978, 67.
5. Anuradha U, Kumbhojkar MS, Vartak VD. Observations in wild plants used in folk medicine in the rural areas of the Kolhapur district. Ancient Science Life. 1986; 6:119-121.
6. Perumal Samy R, Ignacimuthu S. Antibacterial activity of some folklore medicinal plants used by tribals in Western Ghats of India. Journal of Ethnopharmacology. 2000; 69:63-71.
7. Champion HG, Seth SK. A Revised Survey of the Forest Type of India. Govt. of India Publications, Delhi, 1968.
8. Nair KKN. A contribution to the bibliography on the angiosperm flora of Kerala State, India. J. Econ. Tax. Bot. 1997; 21(2):441-462.
9. Basha SC. Medicinal Plants in the Forest of Kerala; Past, Present and Future, Proc. Seminar on Medicinal and Aromatic Plants, State Forest Research Institute, Jabalpur, 1990.
10. Nettur Damodaran. Adivasikalude Keralam, Kottayam, 1974, p28.
11. Diallo D, Hveem B, Mahmoud MA, Berge G, Paulsen BS. An ethnobotanical survey of herbal drugs of Gourma District, Mali, Drissa. Pharmaceutical Biology. 1999; 37:80-91.
12. Arunachalam G, Karunanithi M, Subramanian N, Ravichandran V, Selvamuthukumar S. Ethno medicines of Kolli hills at Namakkal district in Tamilnadu and its significance in Indian systems of medicine. J Pharm Sci Res. 2009; 1(1):1-15.
13. Chah KF, Eze CA, Emuelosi CE, Esimone CO. Antibactorial and wound healing properties of methanolic extracts of some Nigeria medicinal plants. Journal of Ethnopharmacology. 2006; 104:164-7.
14. Pei SJ. Ethnobotanical approaches of traditional medicine studies: some experiences from Asia. Pharmaceutical Biology. 2001; 39:74-79.
15. Hema ES, Sivadasan M, Anilkumar N. Studies on edible species of Amaranthaceae and Araceae used by Kuruma and Paniya tribes in Wayanad district, Kerala, India. Journal of Ethnobotany. 2006; 18(1&2):122-126.
16. Silja VP, Smitha VK, Mohanan KV. Ethnomedicinal plant knowledge of the Mullukuruma tribe of Wayanad district, Kerala. Indian Journal of Traditional Knowledge. 2007; 7(4):604-612.
17. Devi Prasad AG, Shyma TB. Traditional use of Medicinal Plants and its status among the tribes in Mananthavady of Wayanad district, Kerala. World Research Journal of Medicinal & Aromatic Plants. 2012; 1(2):22-26.
18. Binu TA, Rajendran A. Less known ethnomedicinal plants used by Kurichar tribe of Wayanad district, Southern Western Ghats, Kerala, India. Botany Research International. 2013; 6(2):32-35.
19. Jain SK. Plant resources in tribal areas of Bastar. Khadi Gramodyog. 1964; 10:557-561.
20. Jain SK. Dictionary of Indian folk medicine and ethnobotany. Deep publications, New Delhi, 1991.
21. Kirtikar KR, Basu BD. Indian Medicinal Plants, Vol 1. Lalit Mohan Basu, Allahabad, India, 2001, p35-45.
22. Nandkarni KM. Indian Materia Medica with Ayruvedic, Unani- Tibetan, Siddha, Allopathic, Homeopathic, Naturopathic & Home Remedies, Volume 1, 3rd edition, Popular Book Depot. Bombay, 1954.
23. Anonymous. The Wealth of India. The Dictionary of Indian Raw Materials and Industrial Products, Raw Material, revised ed., Publication and Information directorate, CSIR, New Delhi. 1992; 5:84-94.
24. Gonzalez JA, Garcia-Barriuso M, Amich F. Ethnobotanical study of medicinal plants traditionally used in the Arribes del Duero, western Spain. Journal of Ethnopharmacology. 2010; 131:343–355.
25. Ghorbani A. Studies on pharmaceutical ethnobotany in the region of Turkmen Sahra, north of Iran (Part 1):

general results. Journal of Ethnopharmacology. 2005; 102:58-68.
26. Giday M, Asfaw Z, Woldu Z. Medicinal plants of the Meinit ethnic group of Ethiopia: an ethnobotanical study. Journal of Ethnopharmacology. 2009; 124:513-521.
27. Sankaranarayanan S, Bama P, Ramachandran J, Kalaichelvan PT, Deccaraman M. Ethnobotanical study of medicinal plants used by traditional users in Villupuram district of Tamil Nadu, India. J. Med. Plants Res. 2010; 4(12):1089-1101.
28. Pushpangadan P, Atal CK. Ethno-medico-botanical investigations in Kerala- some primitive tribes of Western Ghats and their herbal medicines. J. Ethnopharmacol. 1984; 2:59-78.
29. Ramachandran VS, Nair VJ. Ethnobotanical studies in Cannanore district, Kerala State (India). J. Econ. Taxon. Bot. 1981; 2:65-72.