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Review Article

An Assessment of the Ethnomedicinal Properties of Endemic Flowering Plants of the Western Ghats, India

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ABSTRACT

Western Ghats is a global biodiversity hotspot in India with 7,402 species of flowering plants, of which 1,426 species are endemic. About 40 indigenous tribal communities live in these hill ranges, and they possess several plant-based traditional knowledge practices. This study is a comprehensive review of the ethnomedicinal uses of the plant species endemic to Western Ghats. The ethnomedicinal data of endemic flowering plants were collected from authentic sources such as journals, books, floras, Google Scholar, Scopus, PubMed, biodiversity portals, institutional reports, and grey literature. These traditional uses were classified into standard disease categories, and their significance as leads towards systematic phyto-pharmacological-nutritional studies is evaluated. The total number of traditional uses documented for 126 endemic plant species under 39 categories is 508. The major categories are Food and Nutraceuticals 8.9%, Traditional, Folk Medicines 8.1%, and General Health 6.5%. Our results infer that the native tribal communities of Western Ghats are prioritizing the use of the endemic species for their primary needs of food, nutrition and medicine. Of these time-tested leads only very few have been scientifically investigated so far, and efforts in these lines could result in new drug precursors, flavours, and nutritional additives.

Keywords: Western Ghats, Endemic plants, Ethnomedicinal uses, Traditional-folk medicines, Food and nutraceuticals, General health.

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INTRODUCTION

The Western Ghats refers to the hill chain running roughly in a north-south direction parallel to the Arabian sea coast, for about 1500 Km (area ~ 1,64,280 Km^2), from the river Tapti down to Kanyakumari at the tip of the Indian peninsula (Figure 1).[1,2] Nayar and co-workers enumerated 7,402 species of flowering plants in Western Ghats, of which 5,588 are indigenous and 1,273 species are endemic.[3] This mountain range is one of the global biodiversity hotspots. UNESCO has declared Western Ghats as a World Heritage Site for its rich biological diversity and endemism.[1] There are over 40 indigenous tribal communities in Western Ghats (Table S1),[1,4] and they hold fine knowledge of the local forests, plants and other natural resources. Most of these tribal communities have limited access or less preference to modern medicine;[5] instead, over centuries they evolved plant-based traditional knowledge practices. The World Health Organization (WHO) has defined traditional medicine as "the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness."[6]

It has been estimated that over 2500 plant species are used in India for the preparation of traditional medicines;[7] the major reason for this high demand is the surge in the use of medicinal plants in *Ayurveda* and other traditional systems.[8,9] Ethnomedicine and traditional knowledge are crucial for the health and nutrition of local people, and is conveyed through generations by customs, oral or written accounts, songs, cultural values, local languages, healing arts and agricultural practices.[10,11] WHO recognizes the benefits of traditional, complementary and alternative medicines, and stimulates an evidence-based approach. Over 80% of the world's population in more than 170 WHO member countries use some form of traditional medicine.[12] Moreover, around 40% of pharmaceutical products have a natural product basis, and

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landmark drugs (examples: quinine, aspirin, artemisinin) have been derived from traditional medicines.[13,14] Further, exploring the particulars of ethnomedicine could unravel the history and co-evolution of nature and humans, and re-emphasize the need for sustainable utilization of nature's resources.[15-17]

In fact, there is a long history of herbal medicine being translated into effective treatments for health conditions; this means that new natural product sources and advanced methodologies are crucial in development of drugs of the future. Ethnomedicinal data, derived from longstanding practices, are reliable indicators prompting systematic studies towards establishing their chemistry and biology as well as evaluating their drug, nutraceutical and flavour prospects.[18] The ethnomedicinal data on the endemic species of Western Ghats in the literature are sporadic, and has not been scrutinized. The objective of this study is the systematic analysis of the ethnomedicinal reports of the endemic flowering plants of Western Ghats.

METHODOLOGY

Study area

Western Ghats, which runs parallel to the Western coastal area of India covering six states *viz.*, Tamil Nadu, Kerala, Karnataka, Maharashtra, Goa, Gujarat, is the study area (Figure 1).

Endemic plants

A preliminary list of 1,273 endemic flowering plants of Western Ghats was made from the books, Flowering Plants of the Western Ghats, India (volumes I, II).[3,19] The list of endemic plants reported since 2014 were gathered through extensive search of literature such as taxonomy journals, books and annual reports (Table S1). Each of these names thus gathered was cross checked with Plants of the World Online (POWO; Kew Science),[20] to note their current names and also to underscore plants falling under the endemic category. Through revisionary studies the geographic distribution of plant species undergoes periodical changes. As a result, many of the taxa previously listed as endemic were later found to have extended distributions. The species listed (Table S1) are mostly endemic to the Western Ghats (Figure 1). In addition, those taxa previously listed as endemic in cited literature, but having extended distribution were also included due to their ethnomedicinal importance (marked @ in Table S1).

Ethnomedicinal data collection

Each endemic species listed was thoroughly searched for ethnomedicinal information in journals, floras, books, institutional reports, online sources such as Google Scholar, Scopus, PubMed, and biodiversity portals. Species names of endemic plants were used as keywords in data searches, and their ethnomedicinal data were gathered.

Classification of ethnomedicinal data

The medicinal uses of plants gathered were classified under standard disease categories (Tables 1, S1) based on the 9th and 11th versions of International Classification of Diseases (ICD). Additional disease classifications which are not coming under the ICD are listed as well.[21-23] Nutritional, flavour, cosmetic and other miscellaneous uses are also categorized (Tables 1, S1).

Data analysis

A chord diagram was used to illustrate the traditional uses of the 126 endemic species listed in Table S1 and the frequency of use of each species. The chord diagram was generated using the R software (Figure 2).

RESULTS

The number of endemic species in the Western Ghats enumerated up to 2014 is 1,273. Our literature survey from 2014 to 2024 resulted in adding another 153 species totalling 1,426 species. All these species were extensively searched, and only 126 of them recorded ethnomedicinal data. Of these 126 species 107 are endemic, and 19 species are previously recorded as endemic but have an extended distribution. The total number of ethnomedicinal reports for these 126 taxa of endemic flowering plants of Western Ghats under 39 disease categories is 508 (Table S1; Figure 2). The major ethnomedicinal uses (≥ 4%) of the 39 categories are Food and Nutraceuticals (FN) 8.9%, Traditional, Folk Medicines (TFM) 8.1%, General Health (GH) 6.5%, Skeleto-Muscular System Disorders (SMSD) 5.5%, Inflammation (In) 4.7%, Dermatological Infections/Diseases (DID) 4.7%, Digestive Problems (DP) 4.3%, Fever (Fr) 4.1%, and Microbial Infections (MI) 4.1%. The least mentioned ones (≤ 1%) are Kidney Problems (KP) 1.0%, Cancer (Cr) 1.0%, Abortion and Contraceptive (AC) 0.8%, Tumour (Tr) 0.6%, Tuberculosis (Ts) 0.6%, Circulatory System/Cardiovascular Diseases (CSCD) 0.6%, Hair Care (HC) 0.6%, Pregnancy and Postnatal Care (PPC) 0.4%, Mental Disorders (MD) 0.4%, and Gynaecological Disorders (GD) 0.2% (Table 1). Table S1 registered sixteen tribal communities, *viz.*, Kurumba (1), Kattunayaka (1), Kani (12), Paniya (3), Kuruma (1), Irula (1), Malavedan (1), Malappandaram (2), Malasar (2), Muthuvan (1), Palliyar (1), Kadar (1), Pulaiyar (1), Kudumbi (2), Gowli (1), Jenu Kuruba (1), with the Kani tribes (12) being the most frequently listed.

The most traditionally listed plants (≥ 5%) belong to the families *Apocynaceae* (15.8%), *Acanthaceae* (11.0%), *Fabaceae* (6.3%), and *Araceae* (5.5%) (Table S1). *Apocynaceae* is one of the largest families in flowering plants, and they are known for several medicinal activities. They are also consumed as food by tribals, and few species are used as poison. Members of *Apocynaceae* family are rich in terpenoids, steroids, alkaloids, flavonoids, phenols, glycosides, lactones, and hydrocarbons.[24] Similarly, *Acanthaceae* species are traditionally used for various ailments; phytochemical

studies proved the presence of secondary metabolites such as glycosides, flavonoids, alkaloids, triterpenoids, fatty acid methyl esters and fatty acids in them. They also displayed various biological effects.[25,26] *Fabaceae* species have been used for medicinal purposes in Asia, Europe, and North America, and they are rich in proteins and phytochemicals such as saponins, alkaloids, flavonoids, phenolic acids, lectins, and carotenoids. Various *Fabaceae* species are also known to reduce the risk of cancer and other diseases.[27] *Araceae* species are widely used as food sources, mainly their starchy tubers. They also demonstrated medicinal properties against various ailments.[28] The Western Ghats endemics belonging to these four families provide good leads on their uses in traditional medicine (Table S1).

This study found that the tribal communities of Western Ghats are using plants in *Acanthaceae, Anacardiaceae, Apiaceae, Apocynaceae, Araceae, Arecaceae, Cucurbitaceae, Dipterocarpaceae, Fabaceae, Primulaceae, Sapotaceae*, and *Meliaceae* families for food and nutritional purposes. Flavour and fragrance components are reported only in three families, *viz., Apiaceae, Dipterocarpaceae*, and *Zingiberaceae*, whereas *Apiaceae, Apocynaceae* and *Myristicaceae* species are traditionally recorded as spice components. Again, indigenous communities in the forest areas of Western Ghats are using plants in *Acanthaceae, Apocynaceae, Araceae, Aristolochiaceae, Bignoniaceae, Fabaceae, Gentianaceae, Malvaceae* and *Rutaceae* families for treating snake and other poisonous bites.

The ten most listed endemic species in Table S1 are *Vateria indica* L. (*Dipterocarpaceae*), *Piper nigrum* L. (*Piperaceae*), *Symplocos macrophylla* subsp. *rosea* (Bedd.) Noot. (*Symplocaceae*), *Myristica malabarica* Lam. (*Myristicaceae*), *Andrographis stellulata* C. B. Clarke (*Acanthaceae*), *Decalepis nervosa* (Wight and Arn.) Venter (*Apocynaceae*), *Bonnaya veronicifolia* (Retz.) Spreng. (Linderniaceae), *Atalantia racemosa* Wight and Hook. (*Rutaceae*), *Humboldtia sanjappae* Sasidh. and Sujanapal (*Fabaceae*), and *Humboldtia brunonis* Wall. var. *brunonis* (*Fabaceae*). The woody species *V. indica* (common names: White Damar, Indian Copal Tree, Malabar Tallow tree, Piney Varnish-Tree) has proven uses in Ayurvedic drugs and in several other medicinal applications.[29] Its resin has been used as a traditional medicine for chronic bronchitis, sore throat, diarrhoea and rheumatism.[30] Phytochemical studies isolated terpenoids, polyphenols and other biologically active metabolites from *V. indica*.[30,31] *P. nigrum* is 'black pepper' or the 'King of spices'. It is used in traditional medicines in several countries, and its phytochemical composition and biological and spice potentials are well established.[32,33] *S. macrophylla* subsp. *rosea* (*S. racemosa*) is used in *Ayurveda* and Unani. Its phyto-pharmacology has been widely studied.[34]

Most Poaceae plants (commonly known as grasses) are used as green herbage, dried fodder, and cereal crops by animals and humans,[35] and in this study, the only two endemic Poaceae species of Western Ghats (listed in Table S1) *viz., Eriochrysis rangacharii* C.E.C.Fisch., *Ochlandra wightii* (Munro) C.E.C.Fisch., are registered for their use as fodder. Again, *Ardisia sonchifolia* Mez (*Primulaceae*) leaves are used as a food additive for livestock. *Strobilanthes integrifolia* (Dalzel) Kuntze (*Acanthaceae*) is known for its honey at Mahabaleshwar in Maharashtra. *Stereospermum colais* (Buch.-Ham. ex Dillwyn) Mabb. (Bignoniaceae) leaves are traditionally used for treating maniacal cases, and *Elaeocarpus blascoi* Weibel (*Elaeocarpaceae*) is utilized for improving mental stability. Five endemic species, *viz., Andrographis stellulata* C.B. Clarke, *Tetrataenium grande* (Dalzell and A. Gibson) Manden., *Paphiopedilum druryi* (Bedd.) Stein, *Piper nigrum* L., and *Symplocos macrophylla* subsp. *rosea* (Bedd.) Noot. are used as aphrodisiacs by the native tribes. Again, a significant number of endemics are used for treatment of sexually transmitted diseases and as cooling agents (refreshing drink, regulate thirst and body temperature) (Table S1). Endemic plants are used as whole plants or as plant parts (roots, tubers, rhizomes, bark, leaves, flowers, pith, spines, fruits, seeds) or their combinations in a variety of forms (decoctions, powders, tinctures etc.) by the tribal

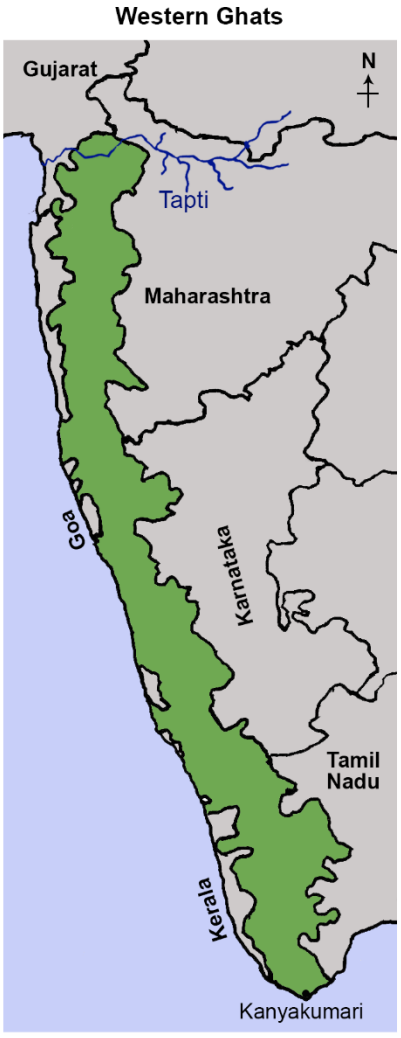

Figure 1: Study area of Western Ghats in India.

communities of Western Ghats. A few of these ethnomedical claims of Western Ghats endemics listed in Table S1 were subjected to phyto-pharmacological and nutritional studies, but most remain uninvestigated.

DISCUSSION

The number of endemic species in the Western Ghats is enumerated as 1,426. Of these, a total of 508 traditional uses of only 126 species (9.9%) are documented (Table S1, Figure 2). The most traditionally used categories are Food and Nutraceuticals (FN) 8.9%, Traditional, Folk Medicines (TFM) 8.1%, and General Health (GH) 6.5% (Table S1). This is a strong indication that the native tribal communities are using these endemic plant species for their primary needs of food, nutrition, and medicine. Our data further confirm the prevalence of major traditional systems, *viz.*, *Ayurveda*, Unani, Siddha, folk medicine, among the native tribals of Westen Ghats (Table S1).

Of the 7,402 species of flowering plants in Western Ghats only 19.3% are endemic, and only 126 (1.7%) are listed for their traditional uses. These limited number of plants used in traditional medicine are the outcome of the careful choices made by the native tribes based on their healing properties, availability (of the species or its useful parts), taste, smell and other parameters. For example, the Kani tribes of the southern Western Ghats are an ancient community living in the Agasthya Hills, where they coexist harmoniously with nature while preserving their indigenous wisdom and sustainable practices.[23,36] They have chosen these locally distributed endemic species for diverse purposes in their daily lives, *viz.*, for treatment of skin diseases, syphilis, peptic ulcer, cancer-like afflictions, nervous disorders, rheumatism, diabetes, headache, chickenpox, toothache, asthma, gastric complaints, digestive problems, giddiness, body pain, skin diseases, purification of blood, rejuvenating tonic, poisonous bites, and as mouth freshener and food. Traditional leads also provide insights on their toxicity, efficacy and safety.[37] Various plant parts of these promising species are used for preparing tinctures, powders, macerations, decoctions, teas, percolation products, infusions, inhalations and other medicinal preparations.[38]

These traditional medicines function through synergism of various constituents within their plant source(s).[39] It is crucial to isolate and characterize the active entities from the mix, and towards this recent advances in chromatography, spectroscopy and metabolomics are being used.[14,37,40] This approach could unravel biologically active entities, which could be used for drug development with improved pharmacological effects. Otherwise,

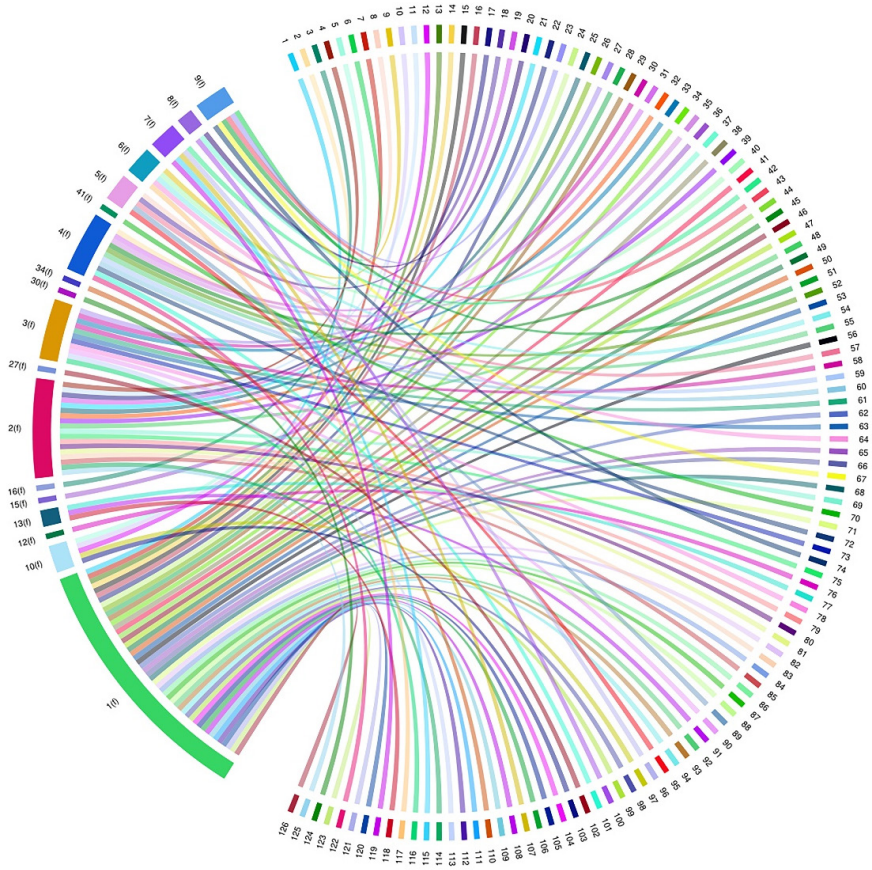

Figure 2: Chord diagram showing the ethnomedicinal uses of endemic plants of Western Ghats. Numbers 1-126 denote the plant species in the same sequence as listed in Table S1, and number(f) indicates the number of traditional uses of each of them.

Table 1: Disease categories and number of reports of traditional uses of endemic species of Western Ghats.

Sl. No.	Disease categories (Codes)	Number of reports	% reports
1	Abortion and Contraceptive (AC)	4	0.8
2	Aphrodisiacs (As)	6	1.2
3	Burns and Ulcers (BU)	16	3.1
4	Cancer (Cr)	5	1.0
5	Circulatory System/Cardiovascular Diseases (CSCD)	3	0.6
6	Cooling Agents (CA)	12	2.4
7	Dental Care (DC)	6	1.2
8	Dermatological Infections/Diseases (DID)	24	4.7
9	Digestive Problems (DP)	22	4.3
10	Diseases of Blood and Blood-forming Organs (DBBO)	17	3.3
11	Ear, Nose and Throat problems (ENT)	8	1.6
12	Eye Diseases (ED)	6	1.2
13	Flavours, Fragrances and Cosmetics (FFC)	7	1.4
14	Fever (Fr)	21	4.1
15	Food and Nutraceuticals (FN)	45	8.9
16	Gastro-Intestinal Ailments (GIA)	15	3.0
17	General Health (GH)	33	6.5
18	Genito-Urinary Ailments (GUA)	15	3.0
19	Gynaecological Disorders (GD)	1	0.2
20	Hair Care (HC)	3	0.6
21	Inflammation (In)	24	4.7
22	Kidney Problems (KP)	5	1.0
23	Liver Problems (LP)	11	2.2
24	Mental Disorders (MD)	2	0.4
25	Metabolic Disorders (MDs)	12	2.4
26	Microbial Infections (MI)	21	4.1
27	Miscellaneous (Ms)	8	1.6
28	Miscellaneous (unclassified) (Misc)	10	2.0
29	Neurological Disorders (ND)	6	1.2
30	Open Wounds and Injury (OWI)	11	2.2
31	Parasites (PS)	12	2.4
32	Poisonous Bites (PB)	16	3.1
33	Pregnancy and Postnatal Care (PPC)	2	0.4
34	Respiratory System Diseases (RSD)	16	3.1
35	Sexually Transmitted Diseases (STD)	8	1.6
36	Skeleto-Muscular System Disorders (SMSD)	28	5.5
37	Traditional, Folk Medicines (TFM)	41	8.1
38	Tuberculosis (Ts)	3	0.6
39	Tumour (Tr)	3	0.6
Total		508	100.0

the synergistic traditional drugs could be used as 'multi-target drugs' with proper profiling and toxicity evaluations.[9,39] Similarly, systematic studies on the edible tubers, roots, rhizomes, and fruits of endemic species in the Western Ghats could uncover new sources of food and nutritional additives.[5,41]

In our literature survey, we found only less than 20% of the ethnomedicinal attributes on endemic species in Western Ghats are subjected to systematic studies so far. In one such study, the stem extracts of *Jatropha maheshwarii* Subram. and M.P. Nayar demonstrated activity against human pathogenic bacteria and fungal strains, and this provided scientific basis for its ethnomedicinal use against skin diseases and oral infections.[42] Similarly, *Lindernia ciliata* subsp. *sivarajanii* Tandyekk. and N. Mohanan, which is traditionally used for jaundice and liver complaints, has been studied for its hepatoprotective activity.[43] *Mucuna* spp. are used for the treatment of Parkinson's disease and for its nutritional components.[44] Patil and co-workers (2015) found high content of the drug L-dopa in *Mucuna sanjappae* Aitawade and S.R. Yadav, and validated its ethnomedicinal traits.[45]

We conducted phytochemical studies on species such as *Alpinia smithiae* M. Sabu and Mangaly, *Humboldtia unijuga* Bedd. var. *unijuga*, and *Ophiorrhiza shendurunii* A.E.S. Khan, E.S.S. Kumar and Pusp., which led to the discovery of new bioactive molecules and essential oil sources.[46-48] Again, we found endemic *Ophiorrhiza* species as sources of the anticancer drug, camptothecin.[49,50] But most of the ethnomedicinal leads on endemics of Western Ghats are unverified by modern phytochemical-pharmacological means.

CONCLUSION

The ethnomedicinal assessment of endemics of Western Ghats highlights the interconnection between plants and human life. Crucially, so far only a very low percent of the endemic species of Western Ghats are documented for their ethnomedicinal uses. Again, most of these recorded traditional uses are not validated by systematic scientific studies. Recent advances in phytochemistry, pharmacology and metabolomics allow us to isolate and characterize plant-based metabolites, even in traces, and study their drug prospects. These time-tested leads could lead us towards the discovery of new drugs and food/nutritional additives. Moreover, this study brings the rest of the endemic species, with no reported traditional uses, into the limelight, and they are also possible repositories of drug precursors, nutritional additives, and cosmetics. This study urges systematic studies on the leads presented in the ethnomedicinal data on the endemics of Western Ghats. These traditional records also reiterate the need to conserve these endemic species and preserve the indigenous wisdom.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

GRS: Concept, investigation, design, methodology, literature search, data acquisition, data analysis, manuscript preparation, manuscript editing. **RKSR:** Design, methodology, literature search, data acquisition. **KCK:** Concept, design, methodology, manuscript preparation, manuscript editing. **SB:** Concept, investigation, design, methodology, data analysis, manuscript preparation, manuscript editing.

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Table S1: Ethnomedicinal data of endemic flowering plants of the Western Ghats in India.

Sl. No.	Species	Family	Traditional uses	References
1	***Andrographis lawsonii*** Gamble	Acanthaceae	Treatment of various ailments (Misc)	[1]
2	***Andrographis lineata*** Nees *Andrographis lineata* var. *lawii* C.B.Clarke	Acanthaceae	Skin diseases (DID), fever (Fr), constipation (SMSD), bronchitis (RSD)	[2]
3	***Andrographis stellulata*** C.B.Clarke *Andrographis neesiana* Benth. ex C.B.Clarke	Acanthaceae	Burning sensation (BU), breathing difficulty (RSD), edema (In), thirst (CA), skin diseases (DID), syphilitic ulcers (STD), worms (Ps), acidity (GIA), liver complaints (LP), fever (Fr), cough (GH), cold (GH) Antifungal (MI), aphrodisiac (As); used in Siddha, Ayurveda and Unani medicines (TFM) *Kurumba, Kattunayaka tribes use leaf to treat jaundice (LP), skin allergy (DID), fever (Fr) and as an aphrodisiac (As)	[3] [4] [1]
4	***Andrographis rothii*** C.B.Clarke	Acanthaceae	Folk medicine (TFM) *Kani tribes use the epidermal peel to treat skin diseases (DID)	[5] [6]
5	***Andrographis stenophylla*** C.B.Clarke	Acanthaceae	Chronic fever (Fr), diabetes (MDs), wounds (OWI), ulcers (BU), inflammation (In), cough (GH), skin diseases (DID), leprosy (MI) Leaves are used as folklore medicine for the treatment of snake venom poisoning (PB), diabetes (MDs) Tribes in South India use leaves as food (FN); leaves are traditionally used as anti-inflammatory (In), anti-diabetic (MDs)	[7] [8] [9]
6	***Barleria terminalis*** Nees	Acanthaceae	Anaemia (DBBO), toothache (DC), cough (GH), fever (Fr), asthma (RSD), bronchitis (RSD), diabetes (MDs), insect bite (PB), inflammation (In)	[10]
7	***Calacanthus grandiflorus*** (Dalzell) Radlk	Acanthaceae	Leaves used to treat alopecia (HC)	[11]
8	***Cynarospermum asperrimum*** (Nees) Vollesen	Acanthaceae	Fever (Fr), malaria (MI), inflammation (In) Antibacterial (MI), used for bone fracture (SMSD)	[12] [13]
9	[@]***Gymnostachyum febrifugum*** Benth. *Gymnostachyum febrifugum* var. *bracteatum* V.S.Ramach.	Acanthaceae	Fever (Fr), ulcers (BU), cough (GH) and metrorrhagia (GUA), indigestion (DP), headache (GH), purpureal fever (Fr)	[14]

10	***Justicia wynaadensis*** B.Heyne	Acanthaceae	External application over rheumatic swellings (SMSD); leaves and stem are traditionally consumed by the natives of Karnataka and Kerala in the monsoon season (FN)	[15]
11	***Lepidagathis keralensis*** Madhus. & N.P.Singh	Acanthaceae	Bronchial asthma in children (RSD), kidney stone (KP), chest pain (GH); blood purifier (DBBO); spines are used for digestive disorders (DP) by Paniya tribes*	[16]
12	***Nicoteba trinervia*** (Vahl) Lindau *Justicia betonica* L. *Justicia trinervia* Vahl *Nicoteba betonica* (L.) Lindau	Acanthaceae	Traditional medicine (TFM); animal and invertebrate food (FN) *J. betonica* is used to cure constipation (SMSD), diarrhoea (DP), malaria (MI), orchitis (STD), pain (GH), snake bite (PB), stomach ache (GH), vomiting (DP)	[17] [18]
13	***Strobilanthes barbata*** Nees *Strobilanthes barbata* var. *bonaccordensis* E.S.S.Kumar & Raj Vikr.	Acanthaceae	Medicinal properties (Misc)	[19]
14	***Strobilanthes integrifolia*** (Dalzel) Kuntze	Acanthaceae	Known for its honey (FN) at Mahabaleshwar	[20]
15	***Aerva wightii*** Hook.f.	Amaranthaceae	Folk medicine (TFM)	[21]
16	***Crinum brachynema*** Herb.	Amaryllidaceae	Used as medicinal plant in Northern Western Ghats (Misc)	[22]
17	***Gluta travancorica*** Bedd.	Anacardiaceae	Siddha medicine (TFM) Fruit kernel is used as human food (FN)	[23] [24]
18	***Holigarna nigra*** Bourd.	Anacardiaceae	Folk medicine (TFM) Young leaves and seeds are used against haemorrhoids (In) & (SMSD), obesity (GH), cancer (Cr) and skin diseases (DID)	[25] [26]
19	***Goniothalamus wightii*** Hook.f. & Thomson	Annonaceae	Rheumatic pain (SMSD) Folk medicine (TFM)	[27] [28]
20	***Goniothalamus wynadensis*** (Bedd.) Bedd.	Annonaceae	Bark juice is used by tribes of Mananthavady* region in Kerala for joint-related ailments like arthritis (SMSD); skin diseases (DID), leukaemia (Cr), lung cancer (Cr), breast cancer (Cr), prostate cancer (Cr), diabetes (MDs), gynaecological disorders (GD)	[29]
21	***Pinda concanensis*** (Dalzell) P.K. Mukh. & Constance	Apiaceae	Tuberous roots are eaten raw (FN) Seeds used to enhance fragrances of spices and food material (FFC) and root were eaten raw as source of energy (FN)	[30] [31]
22	***Tetrataenium aquilegifolium*** (C.B.Clarke) Manden. *Heracleum aquilegifolium* C.B.Clarke	Apiaceae	Precursor for flavours, fragrances (FFC)	[32]

23	***Tetrataenium grande*** (Dalzell & A.Gibson) Manden. *Heracleum grande* (Dalzell & A. Gibson) P.K.Mukh *Peucedanum grande* (Dalzell & A.Gibson) C.B.Clarke	Apiaceae	Unani medicine (TFM); seeds, leaves and roots are used for stomach ache (GH); fruit is used as carminative (GIA), stimulant in flatulency (GIA), gastric and intestinal disorders (GIA), diuretic (GUA) & (KP) Fruits are used as deobstruent (GH), carminative (GIA), anthelmintic (Ps), aphrodisiac (As); in Unani medicine, fruits are used for various ailments (TFM); fruits are used as flavouring agent (FN)	[33] [34]
24	***Caralluma adscendens*** var. ***bicolor*** (V.S.Ramach., S.Joseph, H.A.John & Sofiya) Karupp., Ugraiah & Pull. *Caralluma bicolor* V. S. Ramach., S. Joseph, H.A. John & Sofiya	Apocynaceae	Used as vegetable (FN) by tribal natives of Attappady*	[35]
25	***Caralluma geniculata*** (Gravely & Mayur.) Meve & Liede	Apocynaceae	Edible (FN); traditional medicine (TFM)	[36]
26	***Ceropegia anjanerica*** Malpure, M.Y.Kamble & S.R.Yadav	Apocynaceae	Edible tubers (FN)	[37]
27	***Ceropegia attenuata*** Hook. *Ceropegia attenuata* var. *mookambikae* Diwakar & R.Kr.Singh *Ceropegia spiralis* Hook.f. & Thomson	Apocynaceae	Treatment of indigestion (DP) *Kani tribes use *C. spirallis* corm extract for purification of blood (DBBO), treating syphilis (STD)	[38] [39]
28	***Ceropegia beddomei*** Hook.f.	Apocynaceae	Folk medicine (TFM)	[40]
29	***Ceropegia concanensis*** Kambale, Chandore & S.R.Yadav	Apocynaceae	Edible tubers (FN)	[41]
30	***Ceropegia evansii*** McCann	Apocynaceae	Constituent in Ayurvedic drugs for treating diarrhoea (DP), dysentery (DP) Edible tubers (FN)	[42] [41]
31	***Ceropegia malwanensis*** (S.R.Yadav & N.P.Singh) Bruyns *Brachystelma malwanense* S.R.Yadav & N.P.Singh	Apocynaceae	Tubers are utilized to cure cough (GH), cold (GH), stomach ache in children (DP) & (GH); tubers are edible (FN), nutritious (FN)	[43]
32	***Ceropegia noorjahaniae*** M. A. Ansari	Apocynaceae	Tubers are edible (FN); starchy tubers are a source of nutritive tonic (FN)	[44]
33	***Ceropegia sahyadrica*** Ansari & B.G.P.Kulk.	Apocynaceae	Diarrhoea (DP), dysentery (DP); tubers and leaves are edible (FN)	[45]

34	***Ceropegia swarupa*** (Kishore & Goyder) Bruyns *Brachystelma swarupa* Kishore & Goyder	Apocynaceae	Raw or cooked stem-tubers are used as food (FN)	[46]
35	***Decalepis arayalpathra*** (J.Joseph & V.Chandras.) Venter *Janakia arayalpathra* J.Joseph & V.Chandras.	Apocynaceae	*Kani tribes use as an effective remedy for peptic ulcer (GIA), cancer-like afflictions (Cr), as a rejuvenating tonic (FN) Roots are used as a blood purifier (DBBO)	[47] [48]
36	***Decalepis nervosa*** (Wight & Arn.) Venter *Baeolepis nervosa* (Wight & Arn.) Decne. ex Moq.	Apocynaceae	Stem is used by *Irula tribes of Nilgiri Hills to cure rheumatism (SMSD), arthritis (SMSD); fresh latex is applied over boils and wart for ripening and quick healing (BU) Roots are used as blood purifier (DBBO), diuretic (GUA) & (KP), demulcent (In), diaphoretic (CA) & (DID) and tonic (FN), and for treatment of various physiological disorders (GH) and indigestion (DP); root extract used orally to rejuvenate the body (FN); fever (Fr), skin diseases (DID), diarrhoea (DP), nutritional disorders (FN); in Ayurvedic medicine, rhizomes are used to stimulate appetite (DP), relieve flatulence (GIA), general tonic (FN) Roots are used as pickles and health drink (FN) & (CA); used for indigestion (DP)	[49] [50] [51]
37	[@]***Decalepis salicifolia*** (Bedd. ex Hook.f.) Bruyns	Apocynaceae	Intestinal disorders (GIA), tuberculosis (Ts), asthma (RSD), skin disorders (DID) Used to treat asthma (RSD); rhizomes are used by Malasar* tribal community to treat debility due to tuberculosis (Ts); rhizomes are consumed orally by the *Muthuvan tribe for treating skin diseases (DID); rhizomes are used for making pickles (FN) which are beneficial in intestinal ailments (GIA), bleeding due to ulcers (BU); fresh tubers are consumed as a refreshing drink (CA); used as a taste modifier (FN)	[52] [53]
38	***Gymnema montanum*** (Roxb.) Hook.f.	Apocynaceae	Traditional medicine for various ailments, especially for diabetes (MDs)	[54]
39	***Heterostemma deccanense*** (Talbot) Swarupan.& Mangaly	Apocynaceae	Kidney troubles (KP), stomach ache (GH)	[55]
40	***Kamettia caryophyllata*** (Roxb.) Nicolson & Suresh *Ellertonia rheedei* Wight	Apocynaceae	Leprosy (MI), arthritis (SMSD); leaf is used to get relief from itches (DID), scabies (DID) & (Ps) Venous diseases (DBBO); leaves are used in making salads, as spice (FN)	[56] [57]
41	***Marsdenia tirunelvelica*** A.N.Henry & Subr.	Apocynaceae	Folk medicine (TFM)	[58]

42	***Tabernaemontana alternifolia*** L.	Apocynaceae	Ayurveda, folk medicine (TFM) Leaves and stem bark are used as remedy for skin diseases (DID); latex is use to induce abortion (AC) Skin infections (DID) Skin (DID), venereal diseases (STD), respiratory problems (RSD), nervous disorders (ND) Antidote for snakebites (PB)	[59] [60] [61] [62] [63]
43	***Vincetoxicum subramanii*** (A.N.Henry) Meve & Liede *Tylophora subramanii* A.N.Henry	Apocynaceae	Used for treating fever (Fr), cold (GH), cough (GH), diarrhoea (DP), ulcer (BU), external tumor (Tr), cut wounds (OWI), headache (GH) among the tribals of southern Western Ghats; used to cure nervous disorders (ND) among Kani tribes* of Agasthyamalai Hills in Tamil Nadu	[64]
44	@***Anaphyllum beddomei*** Engl.	Araceae	Leaves form a part of tribal diet (FN)	[65]
45	@***Anaphyllum wightii*** Schott	Araceae	Tubers are used for curing various diseases including diabetes (MDs); tribal communities (Kani tribes, Malasars, Kadars, Pulaiyars, Madhuvars*) use as an antidote to snake bite (PB), as food (FN) Traditional medicinal values (TFM)	[65] [66]
46	@***Arisaema jacquemontii*** Blume *Arisaema wightii* Schott	Araceae	Folk medicine (TFM)	[67]
47	***Arisaema murrayi*** var. ***sonubeniae*** P.Tetali, Punekar & Lakshmin.	Araceae	Folk medicine (TFM)	[68]
48	***Arisaema tortuosum*** subsp. ***sivadasanii*** (S.R.Yadav, K.S.Patil & Janarth.) Punekar & Kumaran	Araceae	Folk medicine (TFM); tuber, rhizome, whole herb, roots and fruits have medicinal uses (Misc)	[69]
49	***Arisaema translucens*** C.E.C.Fisch.	Araceae	Folk medicine (TFM)	[70]
50	***Arisaema tuberculatum*** C.E.C.Fisch.	Araceae	Folk medicine (TFM)	[71]
51	***Arenga wightii*** Griff.	Arecaceae	Stem used to treat jaundice (LP), control body temperature (CA) Pith is used by various tribal communities residing in Kerala for the treatment of jaundice (LP), body aches (GH), general weakness (GH), painful urination (GUA), leucorrhoea (GUA), venereal diseases (STD); food source (FN) Food (FN), pharmaceutical industries (Ms)	[72] [73] [74]

52	***Calamus rheedei*** Griff. *Calamus travancoricus* Bedd. ex Becc.	Arecaceae	Dyspepsia (DP), biliousness (DP), ear trouble (ENT); considered as anthelmintic (Ps)	[75]
53	***Pinanga dicksonii*** (Roxb.) Blume	Arecaceae	Folk medicine (TFM)	[76]
54	***Aristolochia krisagathra*** Sivar. & Pradeep	Aristolochiaceae	Leaves and rhizomes are used for the treatment of snake bite (PB) by the Kani tribes* Curing of wounds (OWI), delivery (PPC) in folk medicine; anti-venom (PB), antipyretic (Fr) *Kani tribes use fresh roots and leaves for the treatment of rheumatism by reducing excessive heat of the body (SMSD) & (CA)	[77] [78] [79]
55	***Thottea barberi*** (Gamble) Ding Hou	Aristolochiaceae	Used for snake bite (PB) and stomach ache (GH) by tribals Gastro intestinal ailments (GIA) and inflammation (In)	[80] [81]
56	***Thottea dinghoui*** Swarupan.	Aristolochiaceae	*Tribal communities in Pathanamthitta district, Kerala are using fresh roots for treatment of dysentery (DP)	[82]
57	***Thottea duchartrei*** Sivar., A.Babu & Balach.	Aristolochiaceae	Roots are used for abscess (GH), inflammation (In), swellings (In), poisonous bites (PB) by the *Kani and Malappandaram tribes of Kerala; Malappandaram tribes use roots against malaria (MI)	[82]
58	***Thottea ponmudiana*** Sivar.	Aristolochiaceae	Leaves are used for snake bite (PB)and stomach ache (GH). antimicrobial properties (MI)	[78]
59	***Adenoon indicum*** Dalzell	Asteraceae	Ulcer (BU), insect bites (PB), as anti-migraine (GH); tender leaves as vegetable (FN)	[83]
60	***@Stereospermum colais*** (Buch.-Ham. ex Dillwyn) Mabb. *Stereospermum tetragonum* DC.	Bignoniaceae	Roots, leaves and flowers of *S. tetragonum* are used in decoction as febrifuge (Fr); leaves are used in maniacal cases (MD); every part of *S. tetragonum* is used for snake remedies (PB); flower and fruit are recommended for scorpion-sting (PB)	[84]
61	***Poeciloneuron indicum*** Bedd.	Calophyllaceae	Roots are used in folk medicine (TFM) Folk medicine (TFM); roots are used as oral contraceptive (AC) Infectious diseases (MI)	[85] [86]
62	***Valeriana leschenaultii*** DC.	Caprifoliaceae	Traditional medicine (TFM)	[87]
63	***Salacia beddomei*** Gamble	Celastraceae	Traditional medicine (TFM); roots are used to treat diabetes (MDs) by Kani tribes*; fruits are edible (FN)	[88]
64	***@Salacia macrosperma*** Wight	Celastraceae	Root, stem, and leaves are used to cure piles (In) & (SMSD), congestion (DBBO), liver disorders (LP); roots and leaves are used in treatment of diabetes (MDs), as tonic (FN) and blood purifier (DBBO), as remedy for enlargement with congestion of liver (LP) and piles (In) & (SMSD)	[89]
65	***Garcinia talbotii*** Raizada ex Santapau	Clusiaceae	Dried fruits are edible, used like tamarind in curries (FN)	[90]

66	***Cyanotis beddomei*** (Hook.f.) Erhardt, Götz & Seybold *Belosynapsis kewensis* Hassk.	Commelinaceae	Medicinal properties (Misc)	[91]
67	***Momordica sahyadrica*** Kattuk. & V.T.Antony	Cucurbitaceae	Kudumbis (Konkan)* use its fruits against bronchial asthma (RSD); tender fruits are used against intestinal ulcer (GIA); tuber paste used as anti-inflammatory medicine (In) and also for painful eruptions (DID) , swellings and breast inflammations in humans (In); tuber juice used as abortifacient (AC); *Malayarayar, Gowli and Jenu Kuruba, all forest dwelling, and grazier tribes, use as food (FN) or medicine (Misc) and cosmetic (FFC); *Kudumbis (Konkan) consider its fruits as a health food (FN); *Paniyas of Manathavady use as leafy vegetable (FN); used for culinary preparations and as vegetables (FN)	[92]
68	***@Zehneria maysorensis*** Arn. *Bryonia maysorensis* Wight & Arn.	Cucurbitaceae	Leaves are consumed to kill stomach worms (GIA)	[60]
69	***Acrotrema arnottianum*** Wight	Dilleniaceae	*Malavedan tribes of Pathanamthitta, Kerala use to prevent excessive hair fall and baldness (HC); village healers of Pathanamthitta use fresh leaf paste to relieve headache (GH)	[93]
70	***Vateria indica*** L.	Dipterocarpaceae	Ayurveda, folk, Unani, Siddha medicine (TFM)	[94]
			Seed oil obtained is externally used to relieve rheumatism (SMSD)	[95]
			Bark, seeds and resin are used in medicine; resin is credited with tonic (FN), carminative (GIA) and expectorant (ENT) properties and used for the treatment of throat troubles (ENT), chronic bronchitis (RSD), piles (In) & (SMSD), diarrhoea (DP), rheumatism (SMSD), tubercular glands (Tr) and boils (BU)	[96]
			Used in Unani medicine, used for the treatment of chronic bronchitis (RSD), anaemic disorder (DBBO), ear disorder (ENT), skin disorder (DID), gonorrhoea (STD), syphilis (STD), urinary discharges (GUA), amenorrhoea (GUA), piles (In) & (SMSD), ringworm (Ps), scrofula, tubercular glands (Ts), ulcers (BU), wounds (OWI), boils (BU), fevers (Fr), abdominal disorders (GIA), diabetes mellitus (MDs); resin is used as an astringent (DID), antibacterial (MI), antidiarrhoeal (DP), antiseptic (MI), anti-inflammatory (In) and emmenagogue (GUA) in Unani medicine; bark is used as anti-dysenteric (DP); oil and resin are used as antirheumatic (SMSD); leaves are applied externally to cure burns (BU) and orally administered to prevent vomiting (DP)	[97]
			Resin is valued for tonic (FN), carminative (GIA) and expectorant properties (ENT); it is used for throat troubles (ENT), chronic bronchitis (RSD), diarrhoea (DP), rheumatism (SMSD), tubercular glands (Ts), boils (BU)	[98]
			Used in Siddha medicine as an effective remedy for urinary tract disorders (GUA)	[99]

			Bark is used for dysentery (DP), leprosy (MI), hemicrania (GH), tuberculous glands (Ts), boils (BU), ringworm (Ps), anaemia (DBBO), ear diseases (ENT), urinary discharges (GUA), skin eruptions (DID), ulcers (BU), wounds (OWI); fruit and resin are used in rheumatism (SMSD); resin, known as "Dammar resin", is considered as tonic (FN), carminative (GIA), expectorant (ENT), used in chronic bronchitis (RSD) and throat troubles (ENT), diarrhoea (DP), piles (In) & (SMSD) and amenorrhoea (GUA)	[100]
			Seeds contain up to 50% of a solid oil known as 'piney tallow' which can be used for flavouring food (FN) and as a substitute or adulterant for ghee (FN); bark is used to control fermentation of alcoholic beverages such as arrack and toddy (FN)	[95]
			Semisolid fat obtained from the dried kernels of seeds used for edible purposes (FN) after refining, it is used in confectionary and as an adulterant of ghee (FN)	[100]
71	***Vateria macrocarpa*** K.M.Gupta	Dipterocarpaceae	Traditionally used as medicinal plant; folk medicine (TFM)	[101]
72	***Elaeocarpus blascoi*** Weibel	Elaeocarpaceae	Seeds are used in various ailments and healing systems like acupuncture and magnetic therapies (Ms); seeds are considered as natural tranquilizer due to its magnetic properties which control blood pressure and subsequent heart rate (CSCD); seeds are considered as potential substance to regulate blood pressure (DBBO), mental stability and boost self-confidence (MD)	[102]
73	***Rhododendron arboreum*** subsp. ***nilagiricum*** (Zenker) Tagg	Ericaceae	Dried flowers used against diarrhoea and blood dysentery (DP); used when fish bones get struck in the gullet (GH); young leaves for headache (GH)	[103]
74	***Jatropha maheshwarii*** Subram. & M.P.Nayar	Euphorbiaceae	Rheumatism (SMSD), eczema (DID), ringworms (Ps) and as insecticide (Ms); latex has potential to arrest haemorrhage from eczema (DID); fresh leaf extract is used to treat inflammation (In) and possess anti-inflammatory activity (In); fresh latex is applied directly to treat mouth ulcers (BU); fresh tender stems are utilized as tooth brush (DC) by the local community	[104]
			Skin diseases (DID), as mouthwash to treat toothache (DC)	[105]
75	[@]***Clitoria annua*** J.Graham	Fabaceae	Food (FN), drink (CA)	[106]
76	***Humboldtia brunonis*** Wall.var. ***brunonis***	Fabaceae	*H. brunonis* used as styptic (DID), demulcent (In), anthelmintic (Ps), ulcer (BU), stomachic (DP), astringent (DID), menstrual disorders (GUA), urinary troubles (GUA); used to cure arthritis (SMSD) and diabetes (MDs) by villagers of Shiradi and Bisle Ghats of Karnataka; bark and leaves are used in treating wounds (OWI), menstrual problems and over bleeding during menstruation (GUA)	[107]
77	***Humboldtia sanjappae*** Sasidh. & Sujanapal	Fabaceae	Diabetes (MDs), biliousness (DP), leprosy (MI), ulcers (BU), epilepsy (ND), impure blood (DBBO), demulcent (In), anthelmintic (Ps), stomachic (DP), astringent (DID), menstrual disorders (GUA), wounds (OWI), urinary troubles (GUA)	[107]

78	***Humboldtia unijuga*** Bedd.var. ***unijuga***	Fabaceae	Kani tribes* in Agasthyamalai use *H. unijuga* for treating headaches (GH), chickenpox (MI), snake bite (PB)	[108]
79	***Mucuna sanjappae*** Aitawade & S.R.Yadav	Fabaceae	Medicinal and food plant, good nutritional value (FN); used in treatment of Parkinson's disease (ND)	[109]
80	***Nesphostylis bracteata*** (Baker) D.Potter & J.J.Doyle	Fabaceae	Food (FN), drink (CA) Leaves, seeds and pod peel are nutritional (FN)	[110] [111]
81	***Smithia setulosa*** Dalzell	Fabaceae	Food and forage (FN), drink (CA)	[112]
82	***Vigna bourneae*** Gamble	Fabaceae	Tender pod and seed are edible (FN)	[113]
83	***Canscora perfoliata*** Lam.	Gentianaceae	Palliyar tribals* use to treat poisonous bites (PB); preventive and therapeutic action against arthritis (SMSD)	[114]
84	***Swertia lawii*** (C.B.Clarke) Burkill	Gentianaceae	Ayurveda (TFM)	[115]
85	***@Platostoma menthoides*** (L.) A.J.Paton *Geniosporum prostratum* var. *longiracemosum* Ramam. & Sebastine *Geniosporum prostratum* (L.) Benth.	Lamiaceae	Febrifuge (Fr) Common cold (GH) and fever (Fr) in children	[84] [116]
86	***Leucas sivadasaniana*** Sunojk.	Lamiaceae	Used to develop resistance to fight diseases (Misc)	[117]
87	***Pogostemon rugosus*** (Hook.f.) El Gazzar & L.Watson	Lamiaceae	Folk medicine (TFM)	[118]
88	***Actinodaphne lanata*** Meisn.	Lauraceae	Traditional medicine (TFM)	[119]
89	***Cinnamomum riparium*** Gamble	Lauraceae	Treating wounds (OWI), fevers (Fr), intestinal worms (GIA), headaches (GH), menstrual problems (GUA)	[120]
90	***@ Litsea stocksii*** (Meisn.) Hook.f.	Lauraceae	Leaves used against irritation of the bladder and urethra (GUA) The oil from the seeds is used as an application to sprains (SMSD) and itch (DID)	[84]
91	***@Bonnaya veronicifolia*** (Retz.) Spreng. *Lindernia ciliata* subsp. *sivarajanii* Tandyekk. & N.Mohanan	Linderniaceae	Gonorrhoea (STD), jaundice (LP), urinary disturbances (GUA), bronchitis (RSD), headache (GH), liver complaints (LP), spleen diseases (DBBO), constipation (SMSD), fever (Fr), loss of appetite (DP), asthma (RSD), cough (GH), skin diseases (DID)	[121]
92	***@Torenia thouarsii*** (Cham. & Schltdl.) Kuntze	Linderniaceae	Folk medicine (TFM)	[122]
93	***Abutilon ranadei*** Woodrow & Stapf	Malvaceae	Seeds and leaves are used to increase milk production in cattle (FN)	[123]
94	***Grewia gamblei*** J.R.Drumm. ex Dunn	Malvaceae	Used to treat snakebite (PB) by the tribal natives of Tirunelveli hills	[124]

95	@***Urena lobata*** L. subsp. ***Lobata*** *Urena lobata* L *Urena lobata* subsp. a*lba* S.N.Pardeshi & Srinivasu	Malvaceae	Roots are used as diuretic (GUA) & (KP) Traditionally used as healers for arthritis (SMSD), diabetes (MDs), cough (GH), malaria (MI)	[48] [125]
96	***Aglaia malabarica*** Sasidh.	Meliaceae	Treatment of fever (Fr), diarrhoea (DP), inflammation (In), wounds (OWI); extracts used as bactericides (MI), insecticides (Ms) and in perfumery (FFC)	[126]
97	***Dysoxylum malabaricum*** Bedd. ex C.D.C	Meliaceae	Decoction of the wood is useful in treatment of arthritis (SMSD), anorexia (Ms), cardiac debility (CSCD), expelling intestinal worms (GID), inflammation (In), leprosy (MI), rheumatism (SMSD); wood oil is used in treating ear and eye diseases (ED) Fruits and wood are nutritional (FN), used in traditional medicine (TFM)	[127] [128]
98	***Dysoxylum swaminathanianum*** Anil Kumar & Sivad.	Meliaceae	Traditional medicine (TFM)	[129]
99	***Gymnacranthera canarica*** (Bedd.ex King) Warb.	Myristicaceae	Soaps are made from seeds (DID)	[130]
100	***Knema attenuata*** (Wall. ex Hook.f. & Thomson) Warb.	Myristicaceae	Traditional medicine (TFM) Stem bark is used for treating inflammatory conditions (In), jaundice (LP), chronic fever (Fr); ingredient of Ayurvedic *Ashwagandhadi nei*, for the treatment of conditions such as spleen disorders (DBBO), breathing disorders (RSD), and impaired taste sensation (Ms) Used in folk medicine for treating jaundice (LP), chronic fever (Fr), inflammation (In), spleen disorder (DBBO), breathing disorder (RSD), impaired taste sensation (Ms); utilized either as whole plant or its specific parts (stem bark, fruit) for medicinal purpose (Misc)	[131] [132] [133]
101	***Myristica magnifica*** Bedd. *Myristica fatua* var *magnifica* (Bedd.) J. Sinclair	Myristicaceae	Traditional medicine (TFM) Seeds are used for the treatment of headaches (GH) and other sicknesses (GH); they are powdered, mixed with Senna as a purgative (GH); latex is used to check nasal haemorrhage (ENT)	[134] [135]
102	@***Myristica malabarica*** Lam.	Myristicaceae	Hepatoprotective (LP), anticarcinogenic (Cr), antithrombotic properties (CSCD); found as a constituent in many Ayurvedic preparations such as *Pasupasi* (TFM); exotic spice in various Indian cuisines (FFC)	[136]

			Anti-ulcer (BU), sedative (ND), hypnotics (ND), antimicrobial (MI), nematicidal (Ps), anti-inflammatory (In); in Ayurveda many conditions related to *vata* such as fever (Fr), bronchitis (RSD), cough (GH) and burning sensation (BU) can be treated by using aril; myalgia, sprains and sores (SMSD) can be treated by using the seed fat; seed fat is used to treat indolent ulcers (ED), as analgesic (GH) and for rheumatism (SMSD); seed fat for anti-inflammatory (In), antiulcer (BU), sedative (ND), hypnotic (ND), and antimicrobial actions (MI), spice in food (FN); aril is used as febrifuge (Fr), cooling (CA) and expectorant (ENT) The seeds used for external applications (DID); The fat mixed with a little oil for indolent and ill-conditioned ulcers (BU); pain (GH), cleanses the surface and establishes healthy action (FFC).	[137] [84]
103	***Eugenia singampattiana*** Bedd.	Myrtaceae	Kani tribe* use to get relief from toothache (DC), digestive problems (DP), asthma (RSD), giddiness (GH), body pain (GH), gastric complaints (GIA) and also as mouth freshener (GH); leaves and flowers are consumed to cure body and throat pain (ENT); tender fruits are consumed to get relief from leg sores (DID), rheumatism (SMSD); stems, leaves and flowers are consumed to get relief from gastric complaints (GIA)	[138]
104	@ ***Syzygium gardneri*** Thwaites *Syzygium kanarense* (Talbot) Raizada	Myrtaceae	Fruits are commonly used as traditional medicine (TFM)	[139]
105	***Syzygium mundagam*** (Bourd.) Chithra	Myrtaceae	Diabetes (MDs) Fruits are eaten (FN) by the *Paniya and Kuruma tribes in Wayanad, Kerala, India	[140] [141]
106	***Anacolosa densiflora*** Bedd.	Olacaceae	Siddha medicine (TFM)	[142]
107	***@Cleisostoma tenuifolium*** (L.) Garay *Luisia tenuifolia* Blume	Orchidaceae	Tumours (Tr), reduce swelling (In), heal fractures (SMSD) Cuts, wounds (OWI), boils (BU), abscesses (MI) Skin ailments (DID)	[143] [144] [145]
108	***Paphiopedilum druryi*** (Bedd.) Stein	Orchidaceae	Flowers are traditionally used as medicine, aphrodisiac (As)	[144]
109	***Phyllanthus singampattianus*** (Sebastine & A.N.Henry) Kumari & Chandrab.	Phyllanthaceae	Leaves used against jaundice (LP)	[146]

110	***Piper nigrum*** L. *Piper nigrum* var. *hirtellosum* Asokan Nair & Ravindran	Piperaceae	Dried seeds of *P. nigrum* are taken orally for throat infection (ENT) *P. nigrum* leaves used to treat skin diseases (DID) by the Kani tribe* Fruit is anthelmintic (MI), "kapha" and "vata" (GH)., asthma (RSD), pains (GH), diseases of the throat (ENT), piles (In) & (SMSD), urinary discharges (GUA), ozoena (ENT), night blindness (ED), increases biliousness (DP), brings on sleep (Ms) and epileptic fits (ND) carminative (GIA), bechic (GH), aphrodisiac (As), purgative (GH), alexipharmic (PB); useful in toothache (DC), inflammation (In), pain in the liver (LP) and the muscles (SMSD), diseases of the spleen (DBBO), eructations (GIA), leukoderma (DID), lumbago (SMSD), chronic fevers (Fr), paralysis (SMSD); facilitates menstruation (GUA), dries the humours of the body stimulant in cholera (MI), weakness following fevers (Fr), vertigo (ENT), coma (GH), as a stomachic in dyspepsia (DP) and flatulence (GIA); as an antiperiodic in malarial fever (Fr) & (MI); and as an alternative in paraplegia and arthritic diseases (SMSD) rubefacient properties (DID), and as a local application for relaxed sore-throat (ENT), piles (SMSD), and some skin diseases (DID)	[147] [6] [84]
111	***Eriochrysis rangacharii*** C.E.C.Fisch.	Poaceae	Fodder to buffaloes (FN)	[148]
112	***Ochlandra wightii*** (Munro) C.E.C.Fisch.	Poaceae	Leaves are used as fodder, thatching substitute (FN)	[149]
113	***Ardisia blatteri*** Gamble	Primulaceae	Traditional medicine for curing fever (Fr), cough (GH), rheumatism (SMSD)	[150]
114	***Ardisia sonchifolia*** Mez	Primulaceae	Native people of Kuttanad, Kerala use as medicine (Misc); as wild fruit resource for the natives of Kuttanad (FN); leaf is used as a food additive for livestock (FN)	[151]
115	***Gynochthodes ridsdalei*** Razafim. & B.Bremer *Morinda reticulata* Gamble	Rubiaceae	Postnatal care (PPC) Stomach disorders (GIA) Maternal care (PPC); rich in protein, fat, calcium, vitamin C (FN) Jaundice (LP), back pain (SMSD), blood purification (DBBO), laxative (SMSD)	[152] [153] [154]
116	***Ochreinauclea missionis*** (Wall. ex G.Don) Ridsdale	Rubiaceae	Bark is used locally for curing rheumatism (SMSD), leprosy (MI), ulcers (BU)	[155]
117	***Ophiorrhiza shendurunii*** A.E.S.Khan, E.S.S.Kumar & Pushp.	Rubiaceae	Antitussive (GH), analgesic (GH) Ulcers (BU), gastropathy (GIA), leprosy (MI), amenorrhoea (GUA)	[156]
118	@***Atalantia racemosa*** Wight & Hook. *Atalantia racemosa* var. *bourdillonii* K. Narayanan & M.P.Nayar	Rutaceae	Traditionally used in the treatment of snake bite (PB), itching of skin (DID), paralysis (SMSD), chronic rheumatism (SMSD); leaf decoction is used in the treatment of bronchitis (RSD), asthma (RSD), cough (GH), bronchi (RSD), as blood purifier (DBBO); leaves are useful in curing ringworm (Ps), skin diseases (DID); poultice of the leaves is applied to wounds (OWI); leaf extract is used to cure eczema (DID); roots are used to combat dropsy (In)	[157]

119	***Vepris bilocularis*** (Wight & Arn.) Engl.	Rutaceae	Folk medicine (TFM) Roots used for vomiting (DP); wood is used against rheumatic agents (SMSD), asthma (RSD), ear diseases (ENT), edema (In), skin diseases (DID)	[158] [159]
120	***@Salix tetrasperma*** Roxb. *Salix ichnostachya* Lindl. ex Andersson	Salicaceae	Bark as febrifuge (Fr)	[84]
121	***Allophylus concanicus*** Radlk.	Sapindaceae	Folk medicine (TFM)	[160]
122	***Madhuca insignis*** (Radlk.) H.J.Lam	Sapotaceae	Food (FN); seed oil used as medicine (Misc); seed oil is used to treat high temperature (CA), irritation of eyes (ED); fruits are edible (FN)	[161]
123	***Palaquium ellipticum*** (Dalzell) Baill.	Sapotaceae	Folk medicine (TFM)	[162]
124	***Symplocos macrophylla*** subsp. ***rosea*** (Bedd.) Noot. *Symplocos racemosa* Wight ex C.B.Clarke	Symplocaceae	*S. racemosa* bark is used for abortion (AC), aphrodisiacs (As), arthritis (SMSD), asthma (RSD), astringents (DID), bronchitis (RSD), diarrhoea (DP), dysentery (DP), dyspepsia (DP), ear ache (ENT), elephantiasis (Ps), endophthalmitis (ED), gonorrhoea (STD), hemoptysis (RSD), haemorrhage (DBBO), infection (MI), inflammation (In), inflammatory bowel diseases (GIA), leprosy (MI), leukorrhea (GUA), liver diseases (LP), menorrhagia (GUA), menstruation-inducing agents (GUA), periodontal diseases (DC), skin diseases (DID), tuberculosis (Ts), lymph node (DBBO), vaginal discharge (GUA), cooling effect on body (CA), antifibrinolytic agent (DBBO), general tonic for rejuvenation (FN); leaves of *S. racemosa* are used for abortion (AC), aphrodisiac (As), astringent (DID), haemorrhage (DBBO), infection (MI), leprosy (MI), abortifacient (AC)	[163]
125	***Alpinia smithiae*** M.Sabu & Mangaly	Zingiberaceae	Folk medicine, various ailments for men and cattle (TFM); flavouring various food and curry preparations (FN) & (FFC) Used as folk medicine and remedies by tribal natives in Kerala (TFM)	[164] [165]
126	***Meistera nilgirica*** (V.P.Thomas & M.Sabu) Škorničk. & M.F.Newman *Amomum nilgiricum* V.P.Thomas & M.Sabu	Zingiberaceae	Ethnomedicinal applications (TFM)	[166]

Plants in Table S1 are listed in the alphabetic order of their family names. *Tribal communities and their geographic distribution: Kurumba - Nilgiri district of Tamil Nadu;[1] Kattunayaka - Wayanad district of Kerala and Mudumalai Wildlife Sanctuary of Tamil Nadu;[167] Kani - Agasthyamalai Hills of Kerala and Tamil Nadu;[87,64] Paniya - the largest tribal group in Kerala, located especially in Wayanad;[141, 168] Kuruma - Wayanad district;[141] Irula - Nilgiri Hills of Tamil Nadu,[1] Attappady of Kerala;[168] Malavedan - tribal community in Pathanamthitta district (Binu 2010);[169] Malappandaram - tribal community in Pathanamthitta (along the Pamba, Achankovil rivers) and Kollam (Pathanapuram and near Shencotta ranges) districts; some have migrated to Srikrishnapuram in the Palakkad district[169,170]; Malasar - Palakkad and Thrissur districts (KIRTADS);[170] Muthuvan - Idukki district and the adjoining region of Western Ghats in the Palakkad and Thrissur districts (KIRTADS); Palliyar - Kottayam district (KIRTADS);[170] Kadar - primitive tribes in Kerala (Thrissur, Palakkad districts) and Tamil Nadu (Pollachi division of Anamalai Tiger Reserve);[168,170,171] Pulaiyar - Kerala and Tamil Nadu;[172] Kudumbi - Konkan, a stretch of land by the western coast of India;[92] Gowli - Uttara Kannada district in Karnataka;[173] Jenu Kuruba - Mysore, Kodagu, Chamarajanagar, scattered in other districts.[173] Some tribal groups and local people listed in Table S1 are not mentioned by their group names in the original literature sources.

Names in bold italics indicate correct name of the taxa and are strictly endemic to the Western Ghats; @ before bold italics indicates taxa which are also distributed outside the boundary (not strictly endemic) of Western Ghats. Names in normal italics are the names mentioned along with traditional uses in cited references.

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