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Research Paper

A Study onTraditional Knowledge and Medicinal Applications of the Endemic Herbal Species in the Western Ghats of Shimoga Region, Karnataka, India

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Abstract: *India is very rich in cultural, ecological climate and consisting of rich soil area and floral diversity with also possesses a vast livestock wealth. In India, the rural, local and tribal people are still depend upon traditional herbal remedies for their own as well livestock healthcare. The Western Ghats of Shimoga district consisting of five different forest types and a variety of plant species which have rich in economic values are distributed and utilized by the local community for their traditional healthcare management. The present research work reveals the traditional knowledge of the endemic herbal species, their medicinal applications during local healthcare management and vulnerability of endemic species in the Western Ghats of Shimoga region. The study showed that more than 301 plant species belonging to 106 families are being utilized as herbal medicine and among them, about 86 endemic herbal species belonging to 44 families are being consumed by the local communities during their local medical care for varieties of diseases. Also, the study reveals about the vulnerability and critically endangered situation of 28 endemic herbal species which are high demand and reported greater potential towards medicinal values due to over exploration, pollution and habitation loss.*

Keywords: Traditional, Endemic species, Shimoga, Western Ghats, Endangered, Medicine.

Introduction

India is one of the twelve canters of mega diversity areas of the world with two biodiversity hotspots such as Western Ghats and Eastern Ghats[1]. The Western Ghats mountain ranges constitute the beautiful array of mountains along the western coast of India. It separates the Deccan Plateau from a narrow coastal strip along the Arabian Sea. The mountain range starts from the southern part of the Tapti River near the border area of the states of Gujarat and Maharashtra. The Western Ghats mountain ranges cover a length of around 1600 km running through the states of Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala, finally terminating at Kanyakumari district in the southernmost tip of the Indian peninsula[2]. The Western Ghat of Shimoga region is rich in diverse kinds of vegetation and topographical features. These bioregions are highly rich in flora and fauna and is also considered as one of the 34 global hot spots of biodiversity with 4780 plant species among them 2180 are endemic to this region[3,4]. India is rich in cultural, ecological climate, soil rich area and floral diversity and also possesses a vast wealth in livestock[5]. Mahammed Rahmatullah has reported that human beings using medicinal plants to treat diverse ailments goes back to thousands of years. The rural and tribal people still depend upon traditional herbal remedies for his own as well livestock healthcare[6]. Karnataka is one of the important areas falling under the Western Ghats track of peninsular India[7]. The Western Ghats of Karnataka has hilly regions to support several thousands of medicinal plants and it has also helped to develop traditional knowledge and folklore of medicine to cure various diseases and ailments[8]. The plants are used in traditional Chinese, Ayurveda, Siddha, Unani and Tibetan medicines. Ancient literature such as Rigveda, Yajurveda, Atharvaveda, Charak Samhita and Sushruta Samhita also describe the use of plants for the treatment of various health problems in this region[9,10]. Shetty has reported that about 135 infraspecific taxa of flowering plants are endemic to this region and endemic species of trees, shrub and herbs are confined only to the evergreen forests[11]. The forests of Shimoga district consist of five different types they are southern tropical wet evergreen forests, southern tropical semi evergreen climax

forests, southern tropical degradation and moist deciduous forests, southern tropical dry deciduous forests and southern tropical scrub forests. The district comprises of three forest divisions such as Shimoga, Bhadravathi and Sagar divisions. The forests of the district, which yield rich and valuable products, covered an area of 434516 hectares, nearly 40.27 % of the land in the district. The evergreen forests 69459 hectares (16%), semi-evergreen 88135 hectares (20.28%), moist deciduous 130612 hectares (30.06%), dry deciduous 109539 hectares (25.21%) and scrub forests 24111 hectares (5.55%)[12]. India endeavored in many natural blessings in terms of ecological, climatic and soil rich for plant growth. India possesses different types of climatic conditions and various tracts of tropical and temperate plains, hills and valleys. These factors are favorable for the growth of medicinal plants[13].

Material and Methods

Study area

Shimoga district is situated in the heart of the Western Ghats region of Karnataka state and it is one of the biodiversity hot spots in India. Shimoga lies between the latitude 13^0 27' and 14^0 39' N and the longitudes 74^0 38' and 76^0 04' E at a mean altitude of 640 meters above the sea level. The Shimoga district is rich in flora and fauna, it is a part of the Malnad region of Karnataka state and is also known as the gateway to Malnad or Malenaada Hebbagilu in Kannada. The district receives an average annual rainfall of 2869 mm[14]. The district is spread over an area of 8477 sq. kms with a forest area of 2.27 Lakh hectares. Kodachadri is the highest point which is 1343 meters above mean sea level and the lowest is the Nagavalli valley in Sagar taluk. The population of Shimoga is 1752753 with a density of 206 persons per sq.km according the 2011 census. The important rivers that flow through the Shimoga district are Tunga, Bhadra, Thungabhadra, Sharavati, Kumudvati and Varda. The network of streams of each of these rivers, the Tunga and the Bhadra unite to form the Tunga-Bhadra at Kudali in Shimoga taluk, 14kms from Shimoga[15]. Reddish to brownish clay loam to lateritic soil occur in the major parts of the district. Agriculture is the major occupation in this area and paddy, areca nut, sugarcane, banana, pepper, maize, ginger and cotton are the main crops. Shimoga district has the distinction of having the famous Jog Falls, which is recognized at international level in Sagar taluk.

Survey of traditional knowledge

A systematic survey was carried out in the Western Ghats of Shimoga region and all preliminary data was collected in the selected areas of the Western Ghats. About 22 places where most of all the endemic species are expected to be distributed such as Brahmeshwara, Karanagiri, Hirale, Soraba, Togarsi, Channashettikoppa, Siddapura, Sigandur, Jayanagar, Chikkajeni, Hosanagar, Hebailu, Hulikalghat, Hunasavalli, Kodur, Gartikere, Huncha, Shivapura, Jayapura, Thirthahalli, Agumbe and Sakrebailu were selected and coordinates of sampling cites can be seen in Figure 1.

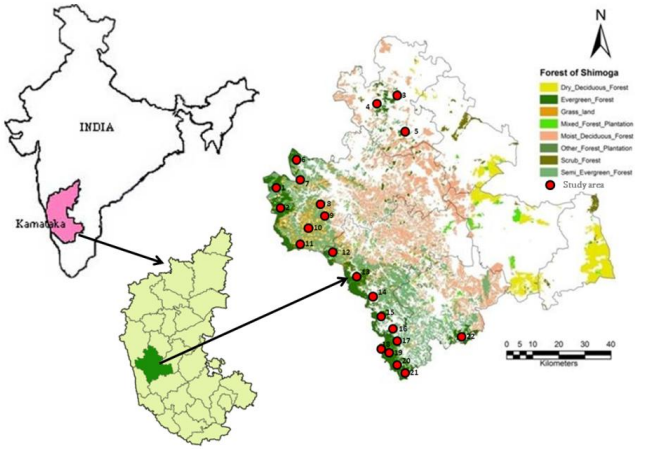

Figure 1: Map of the Waster Ghats distributed in the Shimoga regions and indicating the selected areas: 1.Brahmeshwara, 2. Karanagiri, 3. Hirale, 4. Soraba, 5. Togarsi, 6. Channashetti koppa, 7. Siddapura, 8. Sigandur, 9. Jayanagar, 10. Chikkajeni, 11. Hosanagara, 12. Hebailu, 13. Hulikal ghat, 14. Hunasavalli, 15. Kodur, 16. Gartikere, 17. Huncha, 18. Shiva pura, 19. Jayapur, 20. Thirthahalli, 21. Agumbe, 22. Sakrebailu.

Identification and other details such as local and scientific names, availability and distribution areas and other characteristics was carried out by discussion with the elderly tribal people, local herbal practitioners, botanists, forest officers, and available database such as literature and the internet. Geological distribution assessment of the most important endemic plant species in the Western Ghats of Shimoga region was carried out by GPS techniques using GPS instruments (Trimble Judo^{tm} series).

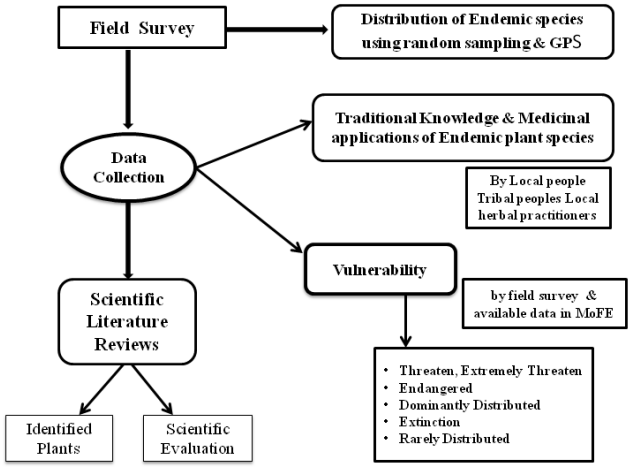

Figure 2: Schematic representations of the scientific survey of traditional knowledge & medicinal application of endemic plant species

During the survey, traditional knowledge of endemic plant species for medicinal application and local healing features was collected through interaction with the local community and herbal practitioners who are located in and around the study areas. The available hierarchy of economically important herbal species and vulnerability level was studied by field survey and available data in the forest department. Each and every visit to the study area, habitation and distribution frequency was well studied and individual species were photographed[16,17]. Schematic representation of the scientific survey of traditional knowledge & medicinal application of the endemic plant species can be seen in Figure 2.

Results and Discussion

A survey on traditional medicinal values of the major endemic plant species and their geological distribution in the Western Ghats of Shimoga Region, India was carried out in selected areas. The results obtained during a systematic survey on traditional knowledge, medicinal application, systematic taxonomy and vulnerability of important plant species are tabulated in Table 1. More than 301 plant species belonging to 106 families were identified and reported for their medicinal applications during the study. Among them, about 86 plant species were reported as diverse endemic species belonging to 44 families in the Western Ghats of Shimoga region. Also, a systematic survey was carried out on the vulnerable status of endemic plant species which were used as the potential herbal species to cure a large number of diseases in that region. Among the 86 endemic plant species, about 28 species which have unique features for multipurpose application and diversity in nature were reported as under the vulnerable condition (Table 1). Among the endemic herbal species reported in the study areas dominantly belonged to the families like *Apocynaceae, Caesalpiniaceae, Combretaceae, Celastraceae, Fabaceae, Annonaceae, Clusiaceae, Dipterocarpaceae, Lauraceae, Ebenaceae.*

The study showed that the local communities like farmers, tribal people and villagers in and around the Western Ghats along with visitors were using these endemic herbal species for the local healthcare management and cure for more than 120 diseases. Out of the endemic herbal species identified, species which belong to Fabaceae family were reported as a dominant herbal medicinal species and used alone for treatment of more than 50 diseases like piles, jaundice, cancer, asthma, diarrhea, snake bite, leprosy, skin disease, bronchitis, hydrocele, paralysis, diabetes and other ailments. Also, species belonging to Euphorbiaceae family were used to cure diseases (above 22 ailments) such as scabies, cough, kidney stone, debility, dental caries, fever, menorrhagia, skin ulcer, etc. Families like Rutaceae, Annonaceae, Ebenaceae mainly were used to treat (more than 20 ailments) stomachache, wound, blood dysentery, itching, knee pain, peptic ulcer, cancer, etc. Families like Lauraceae, Rubiaceae, Moraceae, Myrtaceae, Asclepiadaceae, Anacardiaceae (to treat more than 52 ailments) were used mainly to treat asthma, piles, leucorrhoea, scabies, joint fracture, memory enhancer, swelling, bronchitis, hair loss. Few endemic species in the Western Ghats of Shimoga regions were reported as potential herbal medicine to cure multipurpose and multilevel ailments[18]. Further the vulnerable status of the major endemic species were elucidated at different levels such as Threatened (*Spondias pinnata, Caesalpinia bonduc, Mammea suriga, Garcinia gummi-gutta, Ceropegia attenuate*), Extremely threatened (*Agave americana, Polyalthia fragrans*), Endangered (*Chrysanthemum coronarium, Meiogyne pannosa*), Rarely distributed (*Tabernaemontana coronaria, Hemidesmus indicus, Arenga wightii, Apama siliquosa, Impatiens balsamina, Millingtonia hortensis, Moulluva spicata, Mesua ferrea, Garcinia mangostana, Poeciloneuron indicum, Calophyllum apetalum*), Extremely endangered (*Holigarna grahamii, Sageraea laurifolia*), Dominantly distributed (*Caryota urens, Aristolochia indica, Orophea zeylanica, Saraca indica, Terminalia belerica, Terminalia chebula*) and Extinct (*Hopea parviflora*)[19]. Among the 86 endemic plant species, most of all the herbal species were reported as frequently utilized by the local people for local healthcare management and also commercial purposes[20].

Most of the local people interviewed, expressed their opinion that the vulnerability of such endemic species was caused by deforestation, pollution, climate change and over exploitation. The study showed that due to the economic, medicinal and nutritional values of these endemic species, they are high in demand. The local people as well as herbal practitioners consumed them a at large scale for commercial purposes. The present study showed that distribution of the unique and diverse endemic species were dominantly found only in eco-regions such as Agumbe, Sakarebailu and Shivapura due to the diverse nature of soil and environmental factors. Few diverse and unique herbal species such as *Diospyros candolleana, Terminalia arjuna, Caryota urens, Terminalia chebula, Zanthoxylum rhetsa, Artocarpus hirsutus, Careya arborea, Terminalia belerica, Diospyros melanoxylon, Wrightia tinctoria, Diospyros montana, Calophyllum apetalum, Caesalpinia bonduc* were reported as unique and available only in this region. The major unique and highly diverse herbal species in the Western Ghats of Shimoga regions are shown in Figure 3.

The study showed that most of all the endemic species which have unique features of medicinal applications were dominantly distributed in Agumbe, Sagar, Hosanagar and Thirthahalli regions and identified as an ecologically rich region of the world.

Table 1: Details of herbal plant species which are dominantly distributed in the Western Ghats of Shimoga region, vulnerable hierarchy, traditional knowledge & their medicinal applications

S. No.	Family name	Name of the herbal species		Part of plant using	Traditional Knowledge & Medicinal Applications
		Scientific names	Kannada names / Sanskrith names		
1.	Apocynaceae	• *Tabernaemontana coronaria* (Jacq.) Willd.[$] • *Marsdenia raziana* Yogan. & Subr. • *Alstonia scholaris* (L.) R. Br. • *Rauvolfia serpentina* (L.) Benth. ex Kurz. • *Ervatamia coronaria* (Jacq.) Stapf. • *Ceropegia fimbriata* E.Mey.[$] • *Ceropegia candelabrum* L.[$] • *Tylophora indica* (Burm. f.) Merr.[*]	• Maddarasa/Nandyavartam • Unknown • Maddale/Saptaparna • Sarpa Gandhi/Sarpagandha • Nandi batlu/Tagara • Mangana kodu/ Yugmaphallottama • Patala/ Somalata • Saraye beru/ Lataksiri	• Roots, Plant gum, Flowers • Roots, Leaves and Bark • Bark, Leaves, Flowers • Roots, Bark and Leaves • Flowers, Leaves and Stem • Roots, Cinnamon • Roots, Leaves • Leaves, Roots	• Eye pain, Skin disease • Gastric ulcers, Stomach pain and Cramps • Asthma, Ulcer • Mental illness, Nerves disorder • Eye disease, Thorn removal • Diabetes, Leprosy, Rheumatism, Paralysis • Cataract, Rabies • Bronchial asthma, Inflammation, Bronchitis, Allergies
2.	Apiaceae	• *Polyzygus tuberosus* Walp. • *Hydrocotyle asiatica* L.	• Unknown • Vandelaga/Manduka parni	• Cinnamon, Leaves, Roots • Leaves,Whole plant	• Leprosy, Healing wound • Blood cleaning, Increasing memory power
3.	Asclepiadaceae	• *Hemidesmus indicus* (L.) R. Br. Ex Schult.[*,®] • *Ceropegia attenuate*.[*,#] • *Calotropis gigantea* (L.) R. Br. ex Schult. • *Pergularia daemia* (Forssk.) Chiov.	• Sogade beru/Ananta • Halike/Dugdhi • Yekke/Adithya • Uguru suttu balli/ Yugmapalika	• Roots and Leaves • Roots and Flowers • Leaves, Flowers, Roots • Leaves, Root bar, Stem	• Stomach pain, Leprosy • Memory enhancer • Wounds, Jaundice, Piles • Liver disorders, Asthma
4.	Acanthaceae	• *Justicia adhatoda* L. • *Barleria prionitis* L.[®]	• Adusoge/Vaasha • Kurantaka gida/Koranta	• Leaves, Roots, Flowers • Roots, Whole plant	• Asthma, Scabies • Cough, Piles
5.	Anacardiaceae	• *Spondias pinnata* (L. f.) Kurz.[*,#] • *Anacardium occidentale* L.[®] • *Mangifera indica* L • *Semecarpus anacardium* L.f. • *Odina wodier* Roxb.[@] • *Holigarna grahamii* (Wight) Kurz.[*,×]	• Amate mara/Ambaka • Geru mara/Parvathi • Mavina mara/Chuthaha • Gerkai/Agnimuka • Godda,Sinti mara/ Ajasrungi • Dodda holegeru/Singalika	• Bark, Leaves • Bark, Leaves, Fruits • Bark, Seeds, Leaves • Seeds, Bark • Leaves, Roots • Bark, Leaves, Seeds	• Leucorrhoea, Fever • Snake bite, Dysentery • Heart pain, Cough, Stomach pain • Leprosy, Piles, Ulcer • Jaundice, Hydrocil, Scabies • Chronic fever, Tiredness, Venereal disease
6.	Araceae	• *Colocasia antiquorum* Schott.[@] • *Pistia stratiotes* L.[®] • *Pothos scandens* L.	• Kesave/Aluki • Antaragange Gida/Jalakumbi • Adikabiluballi/Kshirini	• Leaves, Tuber • Leaves, Whole plant, Ash • Root, Leaves, Stem	• Piles, Blood disorders • Leprosy, Wound, Food Infection • Epilepsy, Asthma, Abscesses
7.	Arecaceae	• *Caryota urens* L.[*,@] • *Arenga wightii* Griff.[*,®] • *Calamus nagbettai* R.R.Fernald & Dey.[#] • *Phoenix sylvestris* (L.) Roxb. • *Borassus flabelliformis* L. • *Cocus nucifera* L.[@]	• Bhyne/Mada • Kadu tengu/Ankola • Baje/Bhadra • Yechalu mara/Kapilaha • Tali mara/Tanthi • Tengu/Narikela	• Roots, Leaves • Leaves, Bark, Fruits • Rhizome, Leaves • Roots, Seeds • Roots, Buds, Bark • Coconut Oil, Coconut water, Leaves	• Skin disease, Diabetes • Fever, Stomachache • Illnesses, Induce abortion • Neck pain, Toothache • Diabetes, Wounds • Fever, Headache
8.	Asteraceae	• *Chrysanthemum coronarium* L.[*,¥] • *Cyathocline lutea* law ex Wight	• Hale/Shevantika • Unknown	• Bark, Latex and Flowers • Roots and Flowers	• Bronchial asthma, Prameha, Dirty wounds

		• *Nanothamnus sericeus* Thomson • *Senecio aureus Georgi* • *Sphaeranthus indicus* L. • *Elephantopus scaber* L. • *Grangea maderaspatana* (L.) Poir.[®]	• Davala/Saptala • Unknown • Bodu kadale/Mahamundi • Nelamucchala/Hastipada • Karasi gida/Unknown	• Seeds, Fruits and Leaves • Roots and Flowers • Leaves, Roots, Flowers • Roots, Whole plant • Leaves, Flowers	• Liver disorders, Kidney stones • Hair tonic, Anti cancer • Uterine tonic • Jaundice, Piles • Dysentery, Fever, Hair loss • Ear pain, Wound, Fever
9.	Asparagaceae	• *Agave Americana* L.*[,$]	• Anekattali/Kantala	• Plant gel, Leaves	• Eye disease, Toothache
10.	Aristolochiaceae	• *Apama siliquosa* Lam.*[,®] • *Aristolochia indica* L.*[,@] • *Aristolochia bracteolate* Lam	• Chakraanika beru/ Kodassari • Yeshwara beru/Aihigandha • Adumuttada gida/Katrapooga	• Root, Leaves • Roots, Leaves • Leaves, Root, Dry leave	• Diarrhoea, Cholera, Ulcers, Snake bite • Cough, Fever • Wound, Snake bite
11.	Amaranthaceae	• *Achyranthes aspera* L.[®] • *Celosia argentea* L.[@]	• Uttarani/Apamarga • Annesoppu/Mithuna	• Leaves, Whole plant • Seeds, Leaves, Stem	• Scorpion bite, Piles • Eye disease, Galbladder problems
12.	Annonaceae	• *Orophea uniflora* Hook.f & Thomson.[#] • *Annona squamosa* L. • *Annona macrocarpa* Bard. Rodr.[®] • *Uvaria narum* A. DC • *Orophea zeylanica* J. Hk & Thoms.*[,@] • *Sageraea laurifolia* (Graham) Blatt.*[,×] • *Polyalthia fragrans* (Dalzell) Benth & Hook. F.*[,$] • *Meiogyne pannosa* (Dalzell) J. Sinclair.*[,¥]	• Unknown • Seetapala/Shubha • Laksmana phala/Laksmana phala • Unamini gida/Neelavalli • Sanna gouri/Unknown • Harikinjali/Tuvaraka • Habbe sanhesare/ Unknown • Kudubondo/Unknown	• Leaves, Roots • Leaves, Fruit, Seeds • Fruits, Seeds, Leaves • Root and Leaves • Flowers, Seeds • Leaves, Bark, Seeds • Seeds, Bark, Leaves • Leaves, Bark and Seeds	• Diarrhoea, Stomachache, Headache • Wound, Blood dysentery • Cancer treatement, Ulcer, Bone pain • Fever, Biliousness, Jaundice • Fever, Debility, Pimples • Dysentery, Peptic ulcer • Itching, Knee pain • Allergy, Menorrhagia, Cough
13.	Alangiaceae	• *Alangium salviifolium* (L.f.) Wangerin.[®]	• Ankole mara/Shodanum	• Root bar, Leaves, Seeds, Bark	• Snake bite, Dog bite, Fever
14.	Balsaminaceae	• *Impatiens talbotii Hook. F.* • *Impatiens balsamina* L.*[,®]	• Unknown • Basavana Paadadagida/ Tairini	• Leaves and Roots • Roots, Leaves and Flowers	• Reduce itching, Headache • Cough, Fever
15.	Begoniaceae	• *Begonia canarana Miq.*	• Unknown	• Flowers, Roots	• Ulcer, Burns and Toxic sores
16.	Bignoniaceae	• *Oroxylum indicum* (L.) Lam. • *Millingtonia hortensis L.f.*[*,®]	• Anemangu/Khilabipala • Akasha mallige/Badari	• Roots, Bark, Leaves • Flowers, Roots, Leaves	• Wound, Arthritis, Stomach ache • Ulcer, Wound, Snakebite
17.	Boraginaceae	• *Cordia myxa* L.[@]	• Solle mara/Slweshatakam	• Seeds, Root, Leaves, Bark	• Allergy, Mouth wound and Arthritis
18.	Bromeliaceae	• *Ananassa sativa*	• Ananus/Bahunetraphala	• Fruits, Roots	• Knee pain, Cancer, Menorrhagia
19.	Convolvulaceae	• *Ipomoea batatas* (L.) Lam. • *Evolvulus alsinoides* (L.) L.[@]	• Genasu/Kalamba • Vishnukranti gida/Vishnukrantham	• Leaves, Tuber, Roots • Whole plant, Roots	• Ulcer, Wound, Diabetes • Fever, Stomach ache
20.	Capparaceae	• *Crateva religiosa* Forst. F.	• Narumbele/Varuna	• Cinnamon, Seed, Roots	• Ulcer, Acidity
21.	Capparidaceae	• *Gynandropsis pentaphylla* (L.) DC.[®]	• Shirikala/Arkapustika	• Seeds, Leaves,Whole plant	• Piles, Fever, Allergy
22.	Cannaceae	• *Canna indica* L.	• Kelahoo/Vankeli	• Seeds, Flowers	• Jaundice, Ear pain
23.	Caesalpiniaceae	• *Saraca indica* L.*[,@] • *Caesalpinia bonduc* (L.) Roxb.*[,#] • *Cassia fistula* L. • *Moullava spicata* (Dalzell) Nicolson.*[,®]	• Ashoka mara/Vichitra. • Gajagada balli/Kuberaksha • Kakke/Rajawruksham • Huliuguru balli/ Ghrutakaranja	• Leaves, Bark, Flowers • Roots, Seeds, Fruit • Bark, Fruit • Roots, Leaves	• Bronchitis, Stomach pain • Diabetes, Skin disease, Piles • Skin infection, Laxative • Pneumonia, Skin diseases, Arthritis
24.	Casuarinaceae	• *Casuarina equisetifolia* L.[®]	• Gali mara/Sangaki	• Bark, Whole plant	• Skin ulcer, Headache
25.	Caricaceae	• *Carica papaya* L.	• Pappaye/Yeranda karkati	• Plant oil, Seeds, Raw fruit, Leaves	• Allergy, Eye pain
26.	Commelinaceae	• *Commelina indehiscens* E. Barnes.[#]	• Vaatapotha mara/Krishna	• Leaves, Roots	• Burns, Leprosy
27.	Costaceae	• *Costus speciosus* (J. Koenig) Sm.[®]	• Pushkara moola/Kashmeera	• Stems, Leaves	• Headache, Scabies, Antidote for Snake bite
28.	Combretaceae	• *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn.* • *Terminalia paniculata* Roth.[@]	• Matti/Arjunanama • Hunalu/Ashwakarna • Tare mara/Vibhitaka	• Bark, Stem, Leaves • Flowers, Bark • Bark, Leaves	• Snake bite, Eye pain • Cholera, Cataract • Mouth wound, Migrain

		• *Terminalia belirica* Wall.*,@ • *Terminalia chebula* Retz.*,@	• Alale/Abhaya	• Fruits, Seeds, Bark	• Eye pain, Ulcer, Wound, Fever
29.	Calophyllaceae	• *Mesua ferrea* L.*,® • *Calophyllum inophyllum* L.* • *Mammea suriga* (Buch-Ham. ex Roxb.) Kosterm.*,#	• Nagasampige/Kesharam • Surahonne/Punnagama • Surige mara/Patala	• Seeds, Leaves, Roots • Bark, Leaves, Seeds • Bark, Leaves, Seeds, Flowers	• Snake bite, Rheumatism, Sores • Hydrocil, Skin disease, Acidity • Scorpion bite, Stomach pain
30.	Clusiaceae	• *Garcinia mangostana* L.*,® • *Poeciloneuron indicum* Bedd.*,® • *Garcinia indica* (Thouars.) Choisy.® • *Calophyllum apetalum* Willd.*,® • *Garcinia gummi-gutta* (L.) Roxb.*,#	• Uppage/Kanakustha • Balagi/Golika • Kokam/Amlapura • Holi hone/Nag champa • Upagi mara/Vrikshamla	• Roots, Leaves • Bark, Leaves • Roots, Bark, Fruits • Leaves, Bark, Seeds • Leaves, Flowers, Seed	• Diarrhoea, Dysentery, Ulcer • Dysentery, Diarrhoea and Cholera • Piles, Stomach pain • Labour pain, General debility • Cough, Laxativ, Weekness
31.	Cucurbitaceae	• *Cephalandra indica* (Wight & Arn.) Naudin. • *Corallocarpus epigaeus* (Rottler) Hook.f.® • *Mukia maderaspatana* (L.) M.Roem.*	• Tonde balli/Kadana • Akasha garuda balli/Kadamba • Kadapavate balli/Agumani	• Leaves, Raw fruit • Root, Leaves • Tendrils, Roots, Leaves	• Mouth wound, Cough, Diabetes, Sores • Snake bite, Diarrhoea • Hyper acidity, Wound, Diarrhoea
32.	Cycadaceae	• *Cycas circinalis* L.*	• Goddeechalu/Hintalah	• Bark, Seeds	• Sores and Swellings
33.	Celastraceae	• *Celastrus paniculatus* Willd.* • *Lophopetalum wightianum* Arn.* • *Euonymus angulatus* Wight.* • *Salacia malabarica Gamble.*£	• Gangunde kaayi/Vega • Bannata/Jhangri • Unknown • Gandu beerana gida/ Alamoola	• Leaf, Seed, Plant gum • Bark,Leaves • Fruit, leaves and Seeds • Bark, Leaves and Leaves	• Wound, Fever and Amenorrhoea • Vomiting and Stomach pain • Cold, Headache, General body aches, pruritus • Appetizer enlarged spleen
34.	Dipterocarpaceae	• *Vateria indica* L.* • *Hopea ponga* (Dennst.) Mabb.* • *Dipterocarpus indicus* Bedd.* • *Hopea Jacobi* C.E.C.Fisch • *Hopea parviflora* Bedd.*,£	• Dhoopa/Ajakarna • Higa/ Pongal • Dooma/Tindukah • Unknown • Kiralu jogi/ Unknown	• Bark, Roots and Leaves • Root, Leaves • Leaves, Bark • Leaves and Seeds • Bark, Leaves and Stem	• Piles, Diarrhoea and Ear bleeding • Fever, Piles and Snake bite • Skin disease, Cough, Debility • Aenimic, Jaundice • Piles, Malaria
35.	Droseraceae	• *Drosera indica* L.$	• Hula Hidaka/ latarka	• Whole plant	• Sore nose
36.	Erythroxylaceae	• *Erythroxylun monogynum*.¥	• Devadaru/Pitadaru	• Whole plant, Bark, Plant gum	• To increase sperm count, Bone pain
37.	Ebenaceae	• *Diospyros Montana* Roxb.* • *Diospyros melanoxylon* Roxb.* • *Diospyros candolleana* Wight.* • *Diospyros paniculata* Delzell.* • *Diospyros angustifolia* Audib. ex Spach.* • *Diospyros chloroxylon* Roxb.* • *Diospyros malabarica* (Desr.) Kostel.*	• Balagani/Tumala • Tumri/Jalaja • Kare/Nila-vriksha • Karimara/Tinduka • Kari/Nripavhaya • Karugariatumara/ Dirghapatraka • Holitupare/Thimbiri	• Bark, Leaves • Bark, Leaves and Fruits • Flowers, Bark • Fruits, Leaves, Bark • Fruits, Leaves, Seeds • Seeds, Fruits, Leaves • Bark, Leaves	• Jaundice, Uterine and kidney stone • Malaria, Diarrhoea and labour pain • Skin disease, Swetting and pimples • Ulcer, Gonorrhea, Biliousness and Blood poisoning • Healing wound, Hair tonic • Epilepsy, Renal problems • Fever, Bood diseases, Gonorrhoea and Leprosy.
38.	Elaeocarpaceae	• *Elaeocarpus munroii Mast.**	• Nari bikki/Rudraksah	• Fruits and Leaves	• Epileptic fits, Brain disorder, Cephalagia
39.	Euphorbiaceae	• *Dalechampia stenoloba Raghavan & B.G.P.Kulk.*# • *Aporosa lindleyana (Wight.) Baill.*@ • *Phyllanthus emblica* L. • *Jatropha curcas* L. • *Euphorbia antiquorum* L. • *Manihot esculenta* Crantz.@ • *Breynia rhamnoides* Mull. Arg.	• Unknown • Salle mara/Uddala • Bettada nelli mara/Dhatri • Adaluharalu/Anukula • Jadekalli/Snuhi • Mara genasu/Tarukandha • Kempu huli/Aruni • Turachi balli/Kanchura	• Flowers and Leaves • Root, Leaves • Leaves, Fruits • Seeds, Leaves, Bark • Roots, Rhizome • Roots, Leaves • Whole plant, Root, Leaves • Root, Whole plant	• Cough, Stress • Cough,Scabies • Eye pain, Jaundice, Cough • Skin disease, Ulcer, Wounds • Scabies, Skin ulcers • Cancer, Kidney stone • Tonsillitis, Menorrhagia, Diabetes and Dental caries

		• *Tragia involucrata* L. • *Margaritaria indica* (Dalz.) Airy Shaw.*****	• Kaali kudari/Unknown	• Bark, Leaves	• Fever, Stomachache, Scabies • Debility, Herpes, Boils and Burns
40.	Flacourtiaceae	• *Flacourtia Montana* Graham.***** • *Hydnocarpus pentandrua* (Buch-Ham.) Oken.***** • *Casearia rubescens* Dalzell.*****	• Hannu sampige/Unknown • Sulti/Garudaphala • Simbala mara/Saptchakra	• Fruits, Leaves • Leaves, Stem • Fruits, Leaves	• Jaundice, Gastropathy • Leprosy, Boils and Burns • Scorpion string, Thorn removal
41.	Fabaceae	• *Erythrina indica* Lam.***** • *Albizia lebbeck* (L.) Benth.***** • *Crotalaria sandoorensis* Gamble.® • *Cynometra travancorica* Bedd.¥ • *Cynometra beddomei* Prain.¥ • *Cynometra bourdillonii* Gamble.# • *Eleiotis trifoliolata* T. Cooke.# • *Flemingia gracilis* (Mukerjee) Ali.# • *Saraca asoca* (Roxb.) Willd.@ • *Pterocarpus santalinus* L. F. • *Pongamia pinnata* (L.) Pierre.@ • *Butea frondosa* Roxb • *Dalbergia latifolia* Roxb.® • *Caesalpinia pulcherrima* (L.) Sw.® • *Acasia arabica* • *Sesbania aegyptiaca* Poir • *Phanera variegata* (L.) Benth • *Tamarindus indica* L. • *Gliricidia sepium* (Jacq.) Walp • *Sesbania grandiflora* (L.) Pers.@ • *Dichrostachys cinerea* (L.) Wight & Arn • *Indigofera tinctoria* Mill • *Senna sophera* (L.) Roxb • *Senna tora* (L.) Roxb.***** • *Senna occidentalis* (L.) Link • *Mucuna pruriens* (L.) DC • *Tephrosia purpurea* (L.) Pers • *Acacia concinna* (Wild.) DC.®	• Haluvana/Kantaki • Baage/Bandhi • Nela baevu/Unknown • Unknown • Unknown • Unknown • Unknown • Unknown • Ashokadamara/Ashoka • Rakthachandana/Kuchandana • Honge mara/Karanja • Muttugalu mara/Palasha • Beete mara/Shishapa • Ratnagangi/Angaraha • Karijali/Badari • Arishina geenagimara/Doonchi • Mandarada gida/Kuddala • Hunase mara/Amla wruksah • Gobbarada gida/Madre • Agase mara/Booka • Yedatari/Veerawruksham • Olle neeli/Vajra neeli • Kasamardavu/ Granthi • Tagache/Taga • Dodda tagache/Kasamarda • Nasagunni/Atmagupta • Vajrada neeli gida/Shimbiphala • Sege kai/Shrivalli	• Bark, Flowers • Bark, Flowers, Leaves • Roots and Leaves • Leaves and Flowers • Roots and Stem • Bark and Leaves • Rootbar, Rhizome • Leaves and Flowers • Leaves, Bark • Bark, Whole plant • Seeds, Leaves, Roots • Bark, Flowers, Seeds • Bark, Leaves • Leaves, Flowers, Seeds, Bark • Bark, Seeds • Leaves, Flowers, Ripen Fruit • Bark, Roots • Seeds, Fruits, Leaves • Leaves, Flowers • Flowers, Roots • Bark, Leaves, Root • Root, Leaves, Blue tuber • Cinnamon, Leaves, Bark • Flowers, Leaves, Seeds • Root, Leves, Seeds • Seeds, Dried leaves • Roots, Whole plant, Leaves • Seeds, Leaves	• Leucorrhoea and Male impotency • Cough,Eye disease, Stomachache • Skin disease, Hydrocil • Bronchitis, Neuralgia • Paralysis, Piles • Asthma, Fever • Diabetes, Hyper acidity • Rheumatic disorder • Skin sisease, Dropsy • Piles, Skin disease • Skin disease, Allergy • Diarrhoea, Fever • Leprosy, Obesity, Dyspepsia • Galbladder problem, Mouth wound • Asthma, Toothache • Fever, Headache • Fever, Diarrhoea, Memory enhancer • Asthma, Constipation, Dysentery • Burning sensation, Allergy, Ulcer • Eye disease, Fever, Scabies • Cough,Leprosy, Eye disorder • Diarrhoea, Piles • Urinary disorder, Skin disease • Fever, Swellings, Healing wound • Dysentery, Cough, Stomachache • Snakebite, Parkinson's disease • Toothache, Leprosy • Jaundice, Skin diseases
42.	Gramineae	• *Hubbardia heptaneuron* Bor.£	• Unknown	• Leaves, Flowers and Roots	• Memory enhancer, Fever
43.	Gentianaceae	• *Canscora decussate* (Roxb.) Schult & Schult.f..®	• Shankha pushpa/ Akshapida	• Root bark, Leaves, Rhizome	• Liver injury, Blood purifier in Syphilis
44.	Hypoxidaceae	• *Curculigo orchioides* Gaertn	• Nelatale/Bhoomitala	• Roots, Tuber	• Dropsy, Hydrocil
45.	Icacinaceae	• *Nothapodytes nimmoniana* (J.Graham) Mabb.*****	• Durvasane/Latarka	• Leaves, Fruits, Seeds	• Scabies, Itching, Dysentery
46.	Isoetaceae	• *Isoetes sampathkumarnii L.N. Rao.*£	• Unknown	• Whole plant	• Spleen and Liver disease
47.	Lamiaceae	• *Tectona Grandis* L.f. • *Ocimum sanctum* L. • *Clerodendrum inerme* (L.) Gaerth.@	• Sagvani/Thykapila • Tulasi/Bharathi • Vishama dhari /Kundali	• Flowers, Seeds, Leaves • Leaves, Roots • Leaves, Whole plant, Roots	• Kidney stone, Allergy • Cough, Mouthwound, Fever • Diarrhoea, Scorpion bite
48.	Laminaceae	• *Ocimum basilicum* L.® • *Coleus amboinicus* Lour	• Kamakasturi/Manjarica • Sambar sappu/Makanda	• Leaves, Seeds • Leaves, Whole plant	• Swelling of tonsils, Kidney stone • Wounds, Dyspepsia

49.	Lauraceae	• *Machilus macrantha* Nees.***** • *Cinnamomum travancoricum Gamble*.***** • *Cinnamomum wightii Meisn.*[¥] • *Persea macrantha. (Nees.) Kosterm.****** • *Cinnamomum zeylanicum* Blume • *Alseodaphne semecarpifolia* Nees • *Persea americana* Mill • *Cassytha filiformis* L. • *Beilschmiedia wightii* (Nees.) Benth. ex J. Hk.***** • *Actinodaphne hookeri* Meisn.*****	• Gulimavu/ Picchilataru • Dodda sampige/Kanjua • Adavilavanga/Tejpatra • Chittu thandri/ Picchilataru • Dalchinni/Nalada • Mase mara/Sehunda • Benne hannu/Barbara • Aakasha balli/Akasavalli • Kamatti/Unknown • Tudagenasu/Kucandanah	• Bark, Leaf • Bark, Leaves • Flower bud • Bark and Leaves • Bark,Leaves • Leaves, Bark and Flowers • Wound, Leaves • Whole plant, Leaves • Leaves, Flowers, Roots • Leaves, Tuber, Roots	• Asthma, Ulcer and Wound • Wounds, Fever, Intestinal worms • Stress, Nerves disorder • Asthma, Fever • Toothache, Wound • Dysentery, Bone fracture • Cancer, Allergy • Gonorrhoea, Kidney ailments • Cardiac disease, Ulcer • Diaphoretic skin, Diabetes, Dysentery
50.	Lecythidaceae	• *Careya arborea* Roxb.***** • *Barringtonia acutangula* (L.) Gaertn.***** • *Barringtonia recemosa* (L.) Spreng.[®]	• Kavalu mara/Kalindi • Kempu kanagina/Abbiphala • Samudra phala/Samudrapalum	• Roots, Flowers • Bark, Leaves, Roots • Roots, Seeds	• Cough, Piles and Joundice • Malarial fever, Skin disease, Influenza • Pit disease, Fiver, Cough
51.	Loganiaceae	• *Strychnos nux-vomica* L.[®] • *Strychnos potatorum* L.f.	• Kasarka/Karskara • Calibeeja/Khataka	• Leaves, Bark, Seeds • Bark, Seed, Leaves	• Leprosy, Digestion problem • Gonorrhea, Leukorrhea
52.	Linaceae	• *Hugonia belli Sedgw.*[#] • *Linum usitatissimum* L.	• Bila/Kodivirai • Atasi gida/Atasi	• Leaves, Flowers • Seed, Plant oils, Leaves	• Skin disease, Fever • Dysentery, Cholesterol, Constipation
53.	Liliaceae	• *Asparagus racemosus* Willd	• Satawari/Bahuputra	• Roots, Leaves and Stem	• Diarrhoea, Piles
54.	Lythraceae	• *Punica granatum* L. • *Lawsonia alba* Lam. • *Rotala malampuzhensis* R.V.Nair.*****	• Dalimbe mara/Karaka • Madarangi/Kuravaka • Unknown	• Flowers, Buds • Leaves, Cinnamon • Flowers, Leaves	• Headache, Mouth wound • Joundice, Scabies • Influenza, Leprosy
55.	Magnoliaceae	• *Michelia champaca* L.	• Sampige mara/kusuma	• Root, Leaves, Seeds	• Allergy, Botulism, Boils and Burns
56.	Martyniaceae	• *Hatha Jodi*.[®]	• Huli uguru gida/Kakanasa	• Flowers, Leaves	• Jaundice, Ulcer
57.	Malvaceae	• *Bombax malabaricum* DC.***** • *Hibiscus rosa-sinensis* L. • *Sterculia foetida* L. • *Pterospermum reticulatum* Wight & Arn.***** • *Sida carpinifolia* L.f.[@]	• Kempu boorugada mara/Poorani • Dasavala/Japapushpa • Penari/Viktadiram • Kesala/Unknown • Vishakhaddi/Bala	• Stem, Seeds, Bark, Roots • Flowers, Leaves, Roots • Cinnamon, Leaves, Seeds • Stem and Leaves • Roots, Leaves	• Piles, Scabies • Laziness, Kidney stone • Urinary disorder, Diarrhoea • Diarrhoea, Dysentery, Ulcer • Joint pain, Snake bite
58.	Myrtaceae	• *Eugenia jambolana* Lam.***** • *Syzygium laetum* (Buch.-Ham.) Gandhi.***** • *Syzygium travancoricum* Gamble.[¥] • *Eugenia jambos* L. • *Eugenia uniflora* L. • *Eucalyptus globulus* labill • *Psidium guava* Griseb.[®]	• Nayi Neralu/Jambam • Kanu Panneralu/ Shriisanjnan • Jeeva hale/Jivanti • Jambu nerale/Jambu • Cherry/Sudhamuli • Nilgiri/Nilaniryasa • Perale/Perala	• Root, Dry seed • Root Bark, Fruits • Leaves, Seeds • Leaves, Fruits • Leaves, Fruit • Leaves and Cinnamon • Bark, Leaves	• Fever, Cardiac diseases • Sore throats, Thrush, Dysentery • Weekness, Constipation • Joint pain, Fever, Ring worm • Cold, Stomach pain • Headache and Herpes • Jaundice, Dysentery
59.	Myristicaceae	• *Myristica malabarica* Lam.***** • *Myristica dactyloides* Gaertn.***** • *Knema attenuate* Warb.*****	• Kanagi/Asana • Gidda rampatre/Jyotismati • Hedamangala/Unknown	• Seeds, Leaves • Seeds, Leaves • Seeds, Leaves, Bark	• Fever, Cough • Ulcer, Sores, Bronchitis, Rheumatism • Cataracts, Migraine, Thorn removal
60.	Myrsinaceae	• *Embelia ribes* Burm.f.	• Vayuvilanga/Chitra	• Roots, Fruits and Leaves	• Heart disease, Jaundice
61.	Moraceae	• *Ficus asperrima* Roxb.***** • *Artocarpus hirsutus* Lam.***** • *Ficus benghalensis* L.[®] • *Ficus religiosa* L. • *Ficus racemosa* L. • *Ficus carica* L. • *Ficus elastica* Roxb.ex Hornem • *Artocarpus lakoocha* Roxb.	• Garagatti/Shakataka • Hebbalasu/Panasa • Alada mara/Manavruksha • Arali mara/Pippalam • Atti mara/Udumra • Anjeera/Manjula • Rubber mara/Lapitana • Vate huli/Panasum	• Fruit, Leaves, Bark • Bark, Leaves, Fruits • Bark, Leaves, Plant milk • Root, Leaves, Raw fruit • Roots, Bark, Plant gel • Roots, Leaves, Fruit • Roots, Bark • Leaves, Seeds	• Skin disease, Sweating • Diarrhoea, Skin disease, Pustule • Eye pain, Diabetes • Fever, Cough, Stomachache • Diarrhoea, Diabetes • Cold, Fever • Wounds, Allergy • Bone fracture, Fever

		• *Ficus nervosa* B. Heyne ex Roth.*	• Neeratti/Udumbara	• Leaves, Bark, Fruits	• Fever, Hemorrhoids Respiratory, Urinary diseases
62.	Moringaceae	• *Moringa pterygosperma* Gaertn.	• Nuggemara/Sanamaka	• Wetroots, Leaves, Stem, Plant gel	• Fever, Nerves disorder and Dog bite
63.	Musaceae	• *Ensete superbum* (Roxb.) Cheesman.* • *Musa paradisiacal* L.	• Kadubale/Dasha • Bale gida/Kadali	• Fruits, Leaves • Fruit, Roots, Leaves	• Burning sensation, Kidney stone • Kidney stone, Urinary bladder, Diarrhoea
64.	Menispermaceae	• *Coscinium fenestratum* (Goetgh.) Colebr.* • *Tinospora cordifolia* (Willd.) Miers.®	• Arasina balli/ Darvi • Amrutaballi/Guluchi	• Root, Leaves • Leaves, Whole plant	• Dyspepsia, Indigestion, Flatulence • Joundice, Diabetes, Fever
65.	Melastomataceae	• *Medinilla beddomei* C.B. Clarke.® • *Memecylon terminale* Dalzell.®	• Unknown/Adulsa • Unknown/Unknown	• Bark, Leaves, Rhizome • Rhizome, Leaves, Bark	• Leprosy, Blood dysentery • Hair tonic, Healing wound
66.	Mimosaceae	• *Xylia xylocarpa* (Roxb.) Taub	• Jambe/Simasapa	• Bark, Leaves and Stem	• Leprosy, Diabetes and Fever
67.	Meliaceae	• *Azadirachta indica* A. Juss • *Swietenia mahagoni* (L.) Jacq. • *Aglaia elaeagnoidea* (A.Juss.) Benth.*	• Bevina mara/Ravipriya • Mahagoni/Chowkamba • Nyavala/Gandaprimgu	• Bark, Leaves, Seeds • Bark, Leaves • Root, Stem, Leaves	• Leprosy, Fever, Diarrhoea • Malaria, Fever • Labour pain, General debility
68.	Muntingiaceae	• *Muntingia calabura* L.	• Gasagase hannina mara/	• Leaves, Fruits	• Diabetes, Leprosy, Burning sensation
69.	Nyctaginaceae	• *Mirabilis jalapa* L.* • *Boerhavia diffusa* L.@	• Vibhuthi gida/Sandyaraga • Sanadika/Punarnava	• Leaves, Root • Roots, Leaves	• Abscesses, Inflammation, Cough • Eye disease, Piles, Mouth wound
70.	Orchidaceae	• *Eria albiflora* Rolfe.# • *Trias stocksii* Benth. Ex Hook.f.®	• Unknown • Unknown	• Leaves, Flowers • Rootbar, Leaves	• Fever, Skin disease • Hyperacidity, Dysentery
71.	Orobanchaceae	• *Rhamphicarpa longiflora* Benth.*	• Tutari/Unknown	• Flowers, Leaves	• Deodorant, Typhoid
72.	Oxalidaceae	• *Averrhoa carambola* L. • *Oxalis corniculata* L.	• Bimbali hannu/Karambola • Neeru goli/Changeri	• Fruit, Bark, Leaves • Leaves, Palnt oil	• Kidny stone, Fever, Scorpion sting • Wound, Cough
73.	Oleaceae	• *Nyctanthes arbor-tristis* L. • *Jasminum angustifolium* (L.) Willd	• Parijatha/Malika • Kadumallige/Priya	• Seeds, Flowers, Leaves • Roots, Leaves	• Fever, Skin disease, Piles • Stomach pain, Cough
74.	Pandanaceae	• *Pandanus fascicularis* Lam.	• Kedige/Ketaki	• Leaves, Roots	• Joint pain, Laxative
75.	Papavaeraceae	• *Argemone Mexicana* L.	• Datturi/Finila	• Leaves, Seeds, Flower	• Skin disease, Influenza
76.	Passifloraceae	• *Adenia hondala (Gaertn.) W.J.de Wilde.*#	• Kemmuchandu hannina balli/Vidari	• Root, Fruit	• Snake bite therapy
77.	Periplocaceae	• *Utleria salicifolia Bedd. ex Hook.f.*¥ • *Janakia arayalpathra J. Joseph & Chandras.*¥	• Unknown/Kshirini • Unknown	• Rhizomes, Perennial • Fresh leaves	• Ulcer, Dysentery • Pyorrhoea, Stomatitis and bad breath
78.	Pedaliaceae	• *Pedalium murex* L.	• Aneneggilu/Gajadastry	• Root, Whole plant, Leaves	• Leucorrhoea, Piles, Fever
79.	Phyllanthaceae	• *Phyllanthus talbotii Sedgw.*$ • *Phyllanthus acidus* (L.) Skeels.® • *Phyllanthus niruri* L. • *Bischofia javanica* Blume.*	• Kadu hoge soppu/Amalakke • Rajanelli/Lavani • Nela nelli/Bhumyamalaki • Neela	• Whole plant • Leaves, Roots • Whole plant, Buds • Fruits, Leaves, Seeds	• Cough, Fever and Stress • Asthma, Skin disease, body pain • Jaundice, Kidney stone • Illness, Fever, Rabies
80.	Piperaceae	• *Piper barberi Gamble.*× • *Piper longum* L. • *Piper nigrum* L. • *Piper betle* L.	• Unknown/Kava kava • Hippali/Pippali • Menasina balli/Maricham • Viledele/Kalaskanda	• Leaves, Roots • Fruits, Leaves • Seeds, Leaves • Leaves, Rootbar	• Pale stools, Dark urine • Fever, Asthma, Cold • Paralysis, Diarrhoea • Headache, Joint pain
81.	Plumbaginaceae	• *Plumbago rosea* L.	• Chitramula/Agni	• Roots, Leaves	• Leprosy, Toothache
82.	Portulacaceae	• *Portulaca quadrifida* L.®	• Bacchale soppu/Lonica	• Leaves, Whole plant	• Snake bite, Sores, Diarrhoea, Hemorrhoids
83.	Proteaceae	• *Grevillea robusta* A.Cunn. ex R.Br.	• Silver oak/Bhodhi	• Flowers, Fruits, Seeds, Leaves	• Heart pain, Skin disease
84.	Poaceae	• *Bambusa arundinacea* Willd. • *Eragrostis cynosuroides* (Retz) P.Beauv.	• Bidiru/Thejana • Darbehullu/Kusha	• Leaves, Bark, Stem • Roots, Grass	• Cough, Allergy • Diarrhoea, Itching, Nervous

		• *Andropogon schoenanthus* L. • *Saccharum officinarum* L. • *Oryza sativa* L. • *Cynodon dactylon* (L.) Pers.	• Nese/Takratuni • Kabbu/Sarkara • Batta/Tandula • Garike hullu/Doorva	• Leaves, Rootbar, Rhizome • Stem, Leaves • Rice, Layer rice • Stem, Leaves	• Cough,Throat pain, Herpes wounds • Jaundice, Cough • Stomach cancer, Indigestion • Blood dysentery, Fever
85.	Rhamnaceae	• *Ziziphus jujube* Mill	• Boore mara/Badari	• Cinnamon, Seeds, Fruit	• Piles, Weakness, Dysentery
86.	Rosaceae	• *Rosa centifolia* Lour. • *Prunus dulcis* (Mill.) D.A. Webb. • *Rubus fockei* Gandhi.®	• Gulabi/Sumana • Badami/Vatada • Unknown/Madhavi latha	• Flowers,Leaves • Bark, Seeds, Leaves • Whole plant	• Asthma, Neck pain, Fever • Burning sensation, Arthritis • Hemorrhoids and Cystitis
87.	Rutaceae	• *Zanthoxylum rhetsa* DC.* • *Aegle marmelos* (L.) Correa • *Citrus medica* L. • *Ruta graveolens* L. • *Citrus limon* (L.) Osbeck • *Feronia elephantum* Correa • *Murraya koenigil* (L.) Spreng • *Toddalia aculeate* (Sm.) Pers • *Citrus aurantium* L.	• Jummana mara/Tejaswini • Bilwa patre/Bilwa • Gajanimbe/Matulanga • Nagadali/Somalatha • Nimbe/Jambeeram • Beladamara/Kapistha • Karibevu/Krishnapatra • Kadumenasu/Kanja • Kittale mara/Naramgum	• Fruit, Leaves, Seeds • Fruit, Roots, Leaves • Fruit, Leaves • Roots and Leaves • Leaves, Roots, Fruit • Roots, Leaves, Fruit, Bark • Leaves, Roots, Fruit • Roots, Leaves • Fruits, Plant layer	• Asthma, Heart attack, Cholera • Diabetes, Cough, Fever • Diarrhoea, Headache, Vomiting • Snake bite and Scorpion sting • Skin disease, Itching • Diarrhoea, Blood dysentery • Blood dysentery, Dysentery • Fever, Joint pain, Malarial fever • Nerves disorder, Jaundice
88.	Rubiaceae	• *Anthocephalus cadamba* (Roxb.) Miq.* • *Ochreinauclea missionis (Wall. ex G.Don) Ridsdale.*× • *Ophiorrhiza brunonis* Wight & Arn.£ • *Rubia cordifolia* L. • *Coffea Arabica* L. • *Ixora coccinea* L. • *Pavetta indica* • *Morinda citrifolia* L.* • *Paederia foetida* L.® • *Neanotis prainiana* (Talbot.) W.H.Lewis.$	• Kadamba/Priyakam • Anavu/Vilanga • Unknown/Sarpakshi • Siragutti balli/Samanga • Coffee/Mlechapalum • Kisgara/Pathaki • Pavate/Kakachedi • Maddi/Ashyka • Hesarani/Prasarani • Unknown	• Roots, Fruits, Leaves, Bark • Flowers, Bark and Leaves • Roots and Leaves • Leaves, Stem • Seeds, Leaves • Roots, Leaves • Root, Leaves • Root, Stem, Seeds • Leaves, Flowers • Bark, Leaves	• Wounds, Ulcers, Swelling, Menstual pail • Scabies, Bronchitis • Memory enhancer, Skin disease • Joint fracture and Hair loss • Asthma, Digestion problem • Menstrual pain, Leucorrhoea • Piles, Scabies, Bronchities • Asthma, Dysentery, Fever • Cough, Cold • Asthma, Fever
89.	Sapotaceae	• *Mimusops elengi* L.* • *Madhuca longifolia* (J.Koenig ex L.) J.F.Macbr *Bassia latifolia* Roxb.	• Renjalu,Bakula/Bakulam • Hippe mara/Madhuka • Ippe/Madhukam	• Bark, Seeds, Flowers • Flowers, Bark • Bark, Flowers, Seeds	• Allergy, Fever, Arthritis • Piles, Ulcer • Piles, Hydrocil and Dog bite
90.	Sapindaceae	• *Litchi chinensis* Sonn. • *Nephelium lappaceum* L. • *Sapindus trifoliatus* L. • *Harpullia arborea* (Blanco.) Radl.*	• Leeche/Alichika • Rambutan/Bilwa • Antavala/Fhinila • Bidasale/Unknown	• Fruits, Leaves • Fruits, Leaves and Root • Raw fruit, Seeds • Fruits, Leaves	• Hair loss, Skin disease • Diabetes, Blood pressure • Leprosy, Wounds • Diabetes, Hyper acidity
91.	Santalaceae	• *Santalum album* L.	• Sreegandha/Dahasini	• Plant bark, Sandal oil	• Cough, Fever
92.	Salvadoraceae	• *Salvadora persica* L.	• Goni mara/Gudapala	• Bark, Leaves, Rhizome	• Arthritis, Asthma, Fever
93.	Staphyleaceae	• *Turpinia malabarica* Gamble.®	• Unknown/Mahadronah	• Bark, Stem	• Skin disease, Menorrhagia
94.	Scrophulariaceae	• *Bacopa monnieri* (L.) Wettst.	• Brahmi/Gundala	• Roots, Leaves	• Diarrhoea, Fever
95.	Simaroubaceae	• *Ailanthus triphysa* (Dennst..) Alston.*	• Maddi doopa/Madala	• Bark, Leaves, Flowers	• Snake bite, Skin eruptions, Insect bite
96.	Solanaceae	• *Solanum xanthocarpum* Schrad. & H. Wendl • *Solanum trilobatum* L.	• Kantakari/Vyapthi • Kakamunchi/Agnidamini	• Root, Whole plant • Leaves, Fruit, Root	• Whitlow, Cough, Asthma and chest pain • Asthma, Cold, Cough
97.	Sterculiaceae	• *Heritiera papilio* Bedd.® • *Helicteres isora* L.	• Unknown • Balamuri/Avartani	• Bark, Leaves, Stem • Leaves, Flowers and Stem	• Leprosy, Aenimic • Cough, Toothache
98.	Symplocaceae	• *Symplocos racemosa* Roxb.*	• Lodha/Tilva	• Stem, Bark, Flower	• Diarrhoea, Fever, Eye disorders

99.	Thymelaeaceae	• *Aquilaria agallocha* Roxb.	• Agaru/Aguru	• Bark, Resinous stem, Resinous wood	• Skin disorders, Chronic ulcers and Wounds
100.	Tiliaceae	• *Grewia tiliaefolia* L.*****	• Tadasalu/Dhavana	• Bark, Leaves	• Stomach pain, Skin disease
101.	Ulmaceae	• *Aphananthe cuspidate* (Blume) Planch.*****	• Narubhutala/ Durgandha	• Bark, Leaves, Fruits	• Itching, Ear bleeding, Migrain
102.	Verbenaceae	• *Gmelina arborea* Roxb. • *Lantana camara* L.	• Shivane/Gandhari • Kasuti huvina gida/Chaturangi	• Roots, Bark, Leaves • Leaves, Roots,Bark	• Cough, Fever, Headache • Asthma, Joint pain
103.	Violaceae	• *Hybanthus enneaspermus* (L.) F.Muell.	• Purusharatna soppu/Purusharatnam	• Root, Fruit	• Urinary affections, Bowel complaints, Scorpion sting
104.	Xanthorrhoeaceae	• *Aletris littoralis* J. Koenig ex Steud. • *Aloe barbadensis* Mill.	• Lolesara/Kanya • Kattali/Kumari	• Leaves, Whole part • Whole plant	• Piles, Eye disease • Joint pain, Diabetes
105.	Zygophyllaceae	• *Balanites roxburghil* Planch.*****	• Ingula/Inguda	• Bark, Fruit seed, Leaves	• Jaundice, Cough, Snake bite
106.	Zingiberaceae	• *Kaempferia galangal* L. • *Paracautleya bhatii* R.M.Sm.**$**	• Kacchoor/Sugandavacha • Unknown/Haridra	• Whole plant • Bark, Leaves, Flowers	• Stomachache, Diarrhoea, • Leprosy, Cough

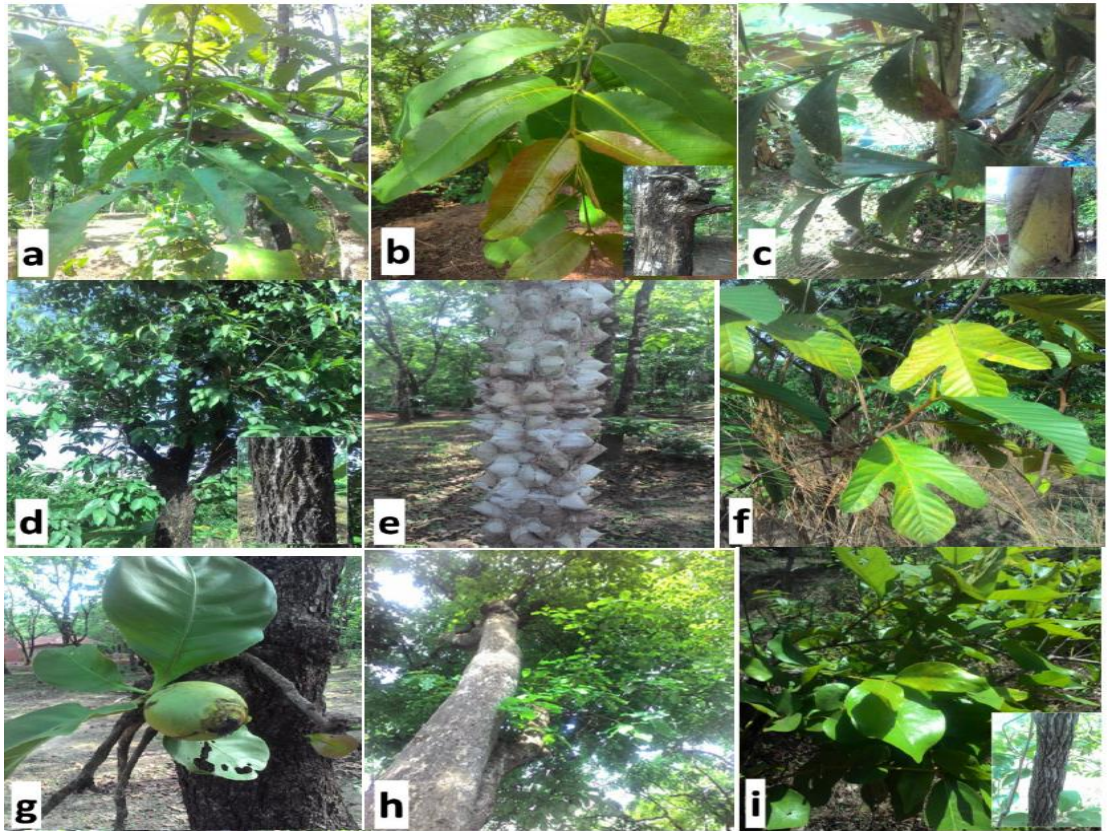

Figure 3: Highly diverse and unique endemic herbal species in the Western Ghats of Shimoga region: (a) diospyros candolleana, (b) terminalia arjuna, (c) caryota urens, (d) terminalia chebula, (e) zanthoxylum rhetsa, (f) artocarpus hirsutus, (g) careya arborea, (h) terminalia belerica, (i) diospyros melonaxylon, (j) wrightia tinctoria, (k) diospyros montana, (l) calophyllum apetalum, (m) caesalpinia bonduc, (n) anthocephalus cadamba

Commonly recorded and distributed endemic plant species in the selected areas were *Arenga wightii, Barringtonia acutangula, Syzygium laetum, Ensete superba, Symplocos racemosa, Morinda citrifolia, Bischofia javanica, Dipterocarpus indicus, Aglaia elaegnoidea, Elaeocarpus munronii, Margaretia indica, Albizia lebbeck, Erythrina indica, Machilus macrantha, Beilschmeidia wightii, Bombax malabaricum, Myristica malabarica, Myristica dactyloides, Knema attenuate, Coscinium fenestratum, Mimusops elengi, Ailanthus triphysa, Holigarna grahamii, Chrysanthemum coronarium, Millingtonia hortensis, Saraca indica, Moulluva spicata, Poeciloneuron indicum, Lophopetalum wightianum*. When compared to other part of the country, most of all the endemic herbal species were reported as the potential source for medicinal and nutritional application in this region[21].

Conclusion

The present work is the result of an intensive and systematic survey of traditional knowledge and other economic values of the major endemic plant species distribution in the Western Ghats of Shimoga region. Total 86 endemic plant species were recorded after critical screening and these species were utilized by the local people for their potential home remedies and healthcare management of many diseases. Some of these diverse and unique herbal species were continuously exploited and threatened due to over exploration, pollution and climate change. Hence, there is an urgent need for their conservation before they get extinct. Sustainable management of existing endemic herbal resources is needed in that region.

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