



Exploration, Collection and Conservation of a few Rare, Endemic and Threatened Medicinal Plants from Kerala State

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ABSTRACT: Botanical surveys were conducted in many forest areas of Western Ghats of Kerala to collect medicinal plants for establishing a Medicinal Plant Garden at Sree Krishna College, Guruvayur, Thrissur district, Kerala. During these surveys the team could collect many rare and interesting plants. Among them 50 important endemic, rare, endangered and threatened medicinal plants are presented in this paper for conservation concern.

Keywords: Endemic rare, endangered medicinal plants, Western Ghats, Kerala

INTRODUCTION

India is floristically rich, ranking tenth on global basis and fourth among the Asian nations with three megacentres of endemism having 5725 endemic species representing 33.5% of Indian flora of about 17,000 species. Estimates of other plant taxa include: 5,000 species of Algae, 1600 species of Lichens, 20,000 Fungi, 2,700 Bryophytes and 600 Pteridophytes. The Eastern Himalaya, including North East India has 1808 endemic species out of 6000 species. The Western Himalaya has 1195 endemic species out of 5000 species. The Western Ghats comprises about 1500 endemic species out of the 4000 species. (Nayar, 1996)

Western Ghats, being one of the global hotspots of biodiversity, supports an enormous vegetal wealth, which over the years is undergoing great stress due to anthropogenic disturbances. This region which forms the “Malabar Botanical Province” according to phytogeographers is a narrow stretch running from the hills south of Tapati river in the north to Kanyakumari in the south along the west coast of India covering the

states of Goa, Maharashtra, Karnataka, Tamil Nadu and Kerala. The narrow stretch of Western Ghats running approximately 1500 km encompasses a considerable gradient of climatic conditions which have resulted in the development of diverse forest types ranging from the dry scrub types to the semi-evergreen and evergreen forests.

Study Area

The present study conducted in the forest areas of Western Ghats of Kerala has resulted in the collection of several interesting plants. Out of these, 50 rare, endemic, red listed and medicinally important plants are enumerated here with updated nomenclature, local name, family, habit, distribution, voucher numbers and important medicinal uses for better understanding of these taxa.

MATERIALS AND METHODS

The Botanical survey conducted to collect medicinal species from the different forest areas of Western Ghats of Kerala were carried out based on the information collected from Botanical

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Survey of India (MH), Coimbatore, Calicut University Herbarium (CALI) and Kerala Forest Research Institute (KFRI), and also with the help of regional and national floras (Sasidharan, 2004; Gopalan & Henry. 2000). Data on phenology, morphological characters and distributional patterns of the species were recorded. Preparation of herbarium specimens was done using the standard herbarium methods (Jain & Rao 1977 and Bridson & Formen 1991). Geographical Positional System (GPS) was used to record the latitudinal and longitudinal positions of the sites of occurrence for preparing the distribution maps. The voucher specimens are deposited in the herbarium of Sree Krishna College, Guruvayur, Thrissur district, Kerala. These species were collected from the different forest areas of are being maintained.

ENUMERATION

1. *Acrotrema arnottianum* Wight, Ill. 1: 9. t, 3. 1840. "Nilampunna" DILLENIACEAE

Habit: Small villous herbs. Flowers yellow, in few-flowered axillary racemes.

Dist: Endemic to Southern Western Ghats.

Habitat: Scattered populations seen on riverside cuttings and on forest floor in semi-evergreen to evergreen forests.

Parts used: Whole plant

Systems of Medicine: Folk

Uses: The whole plant is used for kidney stones.

2. *Anaphyllum wightii* Schott, Bonplandia 5: 127. 1857 & Gen. Aroid. t. 83. 1858. "Keerikizhang" ARACEAE

Habit: Root stock creeping. Inflorescence long peduncled, spathe twisted, dark violet.

Dist: Endemic to Western Ghats

Habitat: Fairly common in semi-evergreen and evergreen forests.

Parts used: Corms

Systems of Medicine: Folk

Uses: The corm is used against cobra bite.

Notes: The flowers emit unpleasant smell. Nayar (1996) treat this species as endangered.

3. *Andrographis stenophylla* C.B. Clarke, Fl. Brit. India 4: 503. 1884. ACANTHACEAE

Habit: Erect sub shrubs. Flowers in elongate racemes pale with dark red stripes, 2-lipped.

Dist: Endemic to Peninsular India.

Habitat: Scrub jungle and dry deciduous forests.

Uses: Leaves are used for cooling the body and also for muscular pain.

4. *Arisaema leschenaultii* Blume Blume, Rumphia 1: 93. 1836. 'Pambucholam' ARACEAE

Habit: Tuberos herbs. Spathe green or dark purple.

Distribution & Habitat: Endemic to Southern Western Ghats.

Habitat: Evergreen forests, sholas and grasslands.

Parts used: Roots and Corms

Systems of Medicine: Folk

Uses: Roots are used to kill worms, which infect cattle. Corms are aperient, carminative, expectorant and are used in dysentery, piles, in haemorrhoids and applied externally to treat rheumatism.

5. *Asparagus fysonii* Macbr. Macbr., Contr. Gray Herb., n.s. 56: 17. 1918. 'Satavari'

LILIACEAE

Habit: Armed climbers. Flowers creamy.

Dist: Southern Western Ghats. *Habitat:* Grasslands.

Parts used: Tubers

Systems of Medicine: Ayurveda, Siddha and Unani

Uses: The tuberous roots are used as demulcent and tonic and as a substitute for salep. They are tonic and demulcent. They are useful in diarrhoea, dysentery and general debility.

6. *Barleria prattensis* Sant., Kew Bull. 1948: 487. 1948. 'Madhurakurinji' ACANTHACEAE

Habit: Glabrous sub shrubs. Flowers pinkish-white.

Dist: Endemic to Southern Western Ghats.

Habitat: Moist deciduous forests.

Parts used: Whole plant

Systems of Medicine: Folk

Uses: Used for curing fever, energy tonic and increasing lactation level by the tribal people.

7. *Boswellia serrata* Roxb. ex Coleb. [= *Boswellia glabra* Roxb.] 'Kungilyam', 'Kunthurukkam'. BURSERACEAE

Habit: Small trees. Flowers white.

Distribution & Habitat: India. Dry deciduous forests and scrub jungles.

Parts used: Bark and Resin

Systems of Medicine: Ayurveda and Unani

Uses: Bark is used in diarrhoea, skin diseases, pulmonary affections and cutaneous troubles. Resin is expectorant, diuretic and stomachic and is used in diarrhoea and dysentery. Bark and resin are also used in ulcers, fevers, asthma, cough, bronchitis, jaundice and arthritis. Resin used to cure joint pain and swelling due to rheumatism.

8. *Bridelia stipularis* (L.) Blume [= *Bridelia scandens* (Roxb.) Willd.] 'Kanjikottam' EUPHORBIACEAE

Habit: Scandent shrubs. Flowers creamy-yellow.

Distribution & Habitat: Endemic to Peninsular India. Semi-evergreen and moist deciduous forests and sacred groves.

Parts used: Roots

Systems of Medicine: Folk

Uses: This plant is used as a adulterate for 'Bhadra' [*Aerva lanata* (L.) Juss. ex Schult.].

9. *Calophyllum calaba* L., Sp. Pl. 514. 1753. 'Manjapunna' CLUSIACEAE

Habit: Tree. Flowers white, fragrant.

Distribution & Habitat: Paleotropics

Parts used: Bark, Flowers, Resin and Seed oil

Systems of Medicine: Folk

Uses: Resin is used as emetic and purgative. Decoction of the bark applied in indolent ulcers. Flower and seed oil is applied in rheumatism and skin affections.

10. *Canthium rheedei* DC., Prodr. 4: 474. 1830, 'rheedii'; Hook. f., Fl. Brit. India 3: 134. 1880. 'Edalimaram, Karinkara' RUBIACEAE

Habit: Shrub. Flowers light green.

Distribution & Habitat: Endemic to Peninsular India. Evergreen forests and sacred groves.

Parts used: Leaves and Roots

Systems of Medicine: Folk

Uses: Boiled leaf water used as a mouthwash, is prepared against aphthae. Root decoction is better for obstructions of the liver, purifies blood and cheers up the patient.

11. *Chionanthus mala-elengi* (Dennst.) P. S. Green **ssp. mala-elengi**, Bull. Bot. Surv. India 26. 124. 1984 'Malaelengi' OLEACEAE

Habit: Small trees. Flowers white, fragrant.

Distribution & Habitat: Endemic to Peninsular India. Moist deciduous and semi-evergreen forests.

Parts used: Leaves

Systems of Medicine: Folk

Uses: Leaves cooked in gingelly oil with pepper and aromatic reed is recommended in giddiness, epilepsy and similar affections of the brain.

12. *Cinnamomum malabattrum* (Burm. f.) Blume, Bijdr. 568. 1826. 'Vayana' LAURACEAE

Habit: Small trees. Flowers creamy-white.

Distribution & Habitat: Endemic to Southern Western Ghats. Moist deciduous to evergreen forests.

Parts used: Leaves

Systems of Medicine: Folk

Uses: Used as a substitute for 'Tamalapatra' (*Cinnamomum tamala* Nees & Eberm). Leaves are used for cardiac disorders, inflammations, helminthiasis, diarrhoea, hepatopathy and splenopathy.

13. *Clausena austroindica* (Dalz.) Oliver, J. Linn. Soc. Bot. 5: 36. 1861. RUTACEAE

'Gorakotta'

Habit: Shrubs. Flowers greenish-white.

Distribution & Habitat: Endemic to Southern Western Ghats. Evergreen and semi-evergreen forests.

Parts used: Leaves

Systems of Medicine: Folk

Uses: Leaves are used for headache.

14. *Curcuma amada* Roxb., Asiat. Res. 11: 341. 1810. 'Manga inchi' ZINGIBERACEAE

Habit: Tuberous herbs. Flowers white or pale yellow.

Distribution & Habitat: Native of Bengal. Widely cultivated throughout India.

Parts used: Rhizomes

Systems of Medicine: Ayurveda, Folk, Siddha and Unani

Uses: Parts used and uses are similar to 'Haridra' (*Curcuma longa* L.). It is also used in flatulence,

colic, wounds, chronic ulcers, skin diseases, fever, cough, bronchitis and constipation.

15. *Cynometra travancorica* Bedd., Fl. Sylv. t. 316. 1872. CAESALPINIACEAE

Habit: Large buttressed evergreen trees. Flowers white, in short dense flowered axillary racemes. Pods flat, smooth, rugose along the margins, semi-circular.

Dist: Endemic to Western Ghats of Kerala (Palakkad and Thrissur), Karnataka (Chikmagalur) and Tamilnadu (Tirunelveli Hills).

Habitat: Occasional in semi-evergreen and evergreen forests.

Parts used: Bark

Systems of Medicine: Folk

Uses: Bark is used for stomachache.

Notes: Nayar & Sastry (1988) reported that the species is rare. The present collection site had a good population of this species.

16. *Decalepis arayalpathra* (J. Joseph & V. Chandras.) Venter, Taxon 46: 712. 1997. 'Amirthapala' APOCYNACEAE

Habit: Tuberous under shrubs. Flowers light yellow.

Distribution & Habitat: Endemic to Southern Western Ghats. Along the slopes of grasslands.

Parts used: Tubers

Systems of Medicine: Folk

Uses: Tubers are used for peptic ulcer, cancer and liver affections.

17. *Decalepis hamiltonii* Wight & Arn. in Wight Contrib. Ind. Bot. 64. 1834. 'Mahanikizhangu' APOCYNACEAE

Habit: Liana. Flowers yellow.

Distribution & Habitat: Endemic to Peninsular India. Occasional in open rocky slopes and rocky cervices of dry to moist deciduous forests.

Parts used: Tuberous roots

Systems of Medicine: Ayurveda, Folk, Siddha and Unani

Uses: Part used and uses are similar to 'Sariba' and also used as a substitute for (*Hemidesmus indicus* (L.) R. Br.).

18. *Decalepis salicifolia* (Bedd. ex Hook. f.) Venter, Taxon 46: 712. 1997. 'Chedi Mahali' APOCYNACEAE

Habit: Erect shrubs. Flowers greenish-yellow, Follicles 2, lanceolate.

Dist: Endemic to the Western Ghats of Anamalai Hills (Coimbatore District) & Palni Hills (Dindugul District, Tamil Nadu)

Habitat: Rare in rocky slopes of grasslands in semi-evergreen forests.

Parts used: Tubers

Systems of Medicine: Folk

Uses: Tribes in Kerala are used pickled tuber chips for treating intestinal ailments and bleeding due to ulcers.

Notes: The type locality of this species is Poonachi, Tarakadavu Valley of Anamalai Hills of Tamil Nadu collected by Beddome (Hooker, 1883). Gamble, (1923) represented Beddome's collections in his respective flora. Nayar & Sastry, (1990) have reported that this species is endangered and it is known only from the type locality. Only few clumps with 20 plants were observed from the study area.

19. *Dysoxylum malabaricum* Bedd. ex Hiern in Hook. f., Fl. Brit. India 1: 548. 1875. 'Vellakil' MELIACEAE

Habit: Large trees. Flowers white to greenish yellow.

Distribution & Habitat: Endemic to Western Ghats. Evergreen forests.

Parts used: Heartwood

Systems of Medicine: Folk and Siddha

Uses: The plant is known as 'Agil' (*Aquilaria malaccensis* Lam.) and is used as an adulterant. Wood is used in rheumatism and wood oil is used in dyspnoea, ear and eye diseases.

20. *Ensete superbum* (Roxb.) Cheesman., Kew Bull. 1947: 100. 1948. 'Kalluvazha' MUSACEAE

Habit: Large succulent herbs. Flowers greenish-yellow.

Distribution & Habitat: Endemic to Peninsular India. Moist deciduous and semi-evergreen forests.

Parts used: Seeds

Systems of Medicine: Folk

Uses: Seeds are used to remove bladder stones, urinary disorders and toning the urinary system.

21. *Exacum tetragonum* Roxb., Fl. Ind. 1: 413. 1820. GENTIANACEAE

Habit: Erect herbs. Flowers purplish-white.

Dist: Endemic to Peninsular India.

Habitat: Grasslands and scrub jungles in laterite hillocks.

Parts used: Whole plant.

Systems of Medicine: Folk, Sidha, Unani

Uses: used for to treat fever, dysentery and sore throat in addition it is also used to treat cough, body pain and eye diseases..

22. *Garcinia indica* (Thouars) Choisy in DC., Prodr. 1:561. 1824. "Punam puli, Kokkum" CLUSIACEAE

Habit: Slender trees. Flowers orange-yellow.

Distribution & Habitat: Endemic to Central and Northern Western Ghats. Cultivated.

Parts used: Fruits, Leaves and Seeds

Systems of Medicine: Ayurveda, Tibetan and Unani

Uses: The seed butter astringent, demulcent, emollient, is used as a remedy in scrofulous diseases, dysentery, mucous diarrhoea and externally for excoriations, chaps, fissures of lips and as a substitute for spermaceti. The ripe fruit is anthelmintic and cardiogenic. The root bark, fruit, oil are used in case of thirst, piles, sprue, abdominal disorders, mouth diseases, cardiac diseases and worm infestation.

Notes: Rare in Kerala (Ahmedullah & Nayar, 1987). The seeds yield valuable fat known as 'Kokum butter', which is used as an edible fat, for adulterating ghee. The fruit rind is known as 'Kokam'; used in curries. Ripe fruit is edible. 'Kokam butter' is used as a remedy for scrofulous diseases, dysentery, fissures of lips, in ointments (Sharma & Sanjappa, 1993).

23. *Gardenia gummifera* L. f., Suppl. Pl. 164. 1781. 'Kambimaram' RUBIACEAE

Habit: Shrubs. Flowers white turning to yellow.

Distribution & Habitat: Endemic to Peninsular India. Dry deciduous forests.

Parts used: Gum

Systems of Medicine: Siddha and Unani

Uses: Gum is used in cutaneous diseases.

24. *Gymnema hirsutum* Wight & Arn. in Wight, Contrib. 44. 1834. ASCLEPIADACEAE

Habit: Climbing shrubs. Flowers yellow.

Distribution & Habitat: India. Evergreen forests.

Parts used: Leaves

Systems of Medicine: Folk

Uses: Part used and uses are similar to 'Meshashrangi' (*Gymnema sylvestre* (Retz) R. Br. ex Schult.).

25. *Gymnostachyum febrifugum* Benth., Flora 32: 558. 1849 'Nilamuchala' ACANTHACEAE

Habit: Scapigerous herbs. Flowers pink, yellow at mouth.

Distribution & Habitat: Endemic to Southern Western Ghats. Evergreen forests.

Parts used: Roots

Systems of Medicine: Folk

Uses: The root is used as a febrifuge. The root is pounded with limejuice and applied to the tongue to remove blisters and sores.

26. *Heliotropium keralense* Sivar. & Manilal, J. Indian Bot. Soc. 51: 348. 1972. 'Thelkkada' BORAGINACEAE

Habit: Erect pubescent herbs. Flowers white, arranged in long terminal or leaf opposed scorpioid cymes.

Dist: Endemic to South India (Kerala)

Habitat: Moist localities in fields, open wet places, along the banks of water bodies.

Notes: This species was so far known only from Kerala from the marshy localities of West Coast parts of Western Ghats from Calicut, Malappuram, Thrissur Palakkad, Alappuzha and Kottayam districts.

27. *Heracleum candolleianum* (Wight & Arn.) Gamble, Fl. Pres. Madras 565(399). 1919 'Chittalam' APIACEAE

Habit: Herbs. Flowers white.

Distribution & Habitat: Endemic to Southern Western Ghats. Sholas and grasslands.

Parts used: Seed oil

Systems of Medicine: Folk

Uses: Seed oil is used for urinary disorders, cough, hyperacidity, wasting diseases, cardiac diseases, wounds, pruritus, abdominal disorders and vomiting.

28. *Heracleum rigens* Wall. ex DC., Prodr. 4: 191. 1830. 'Chittalam' APIACEAE

Habit: Large perennial herbs. Roots tuberous. Flowers on large, erect compound umbels.

Dist: Endemic to Southern Western Ghats.

Habitat: Grasslands.

Parts used: Tubers

Systems of Medicine: Folk

Uses: 10g of dried tuber mixed with 5g of *Centella asiatica* ('Vallarai') paste is taken once a day for one month against ulcer.

29. *Humboldtia vahliana* Wight, Ic. tt. 1607,1608. 1850. 'Kurappunna'
CAESALPINIACEAE

Habit: Trees. Flowers white in many flowered, axillary brown velvety racemes.

Dist: Endemic to Southern Western Ghats.

Habitat: Along river banks in semi-evergreen and evergreen forests.

Parts used: Bark

Systems of Medicine: Folk and Siddha

Uses: Bark is used in biliousness, leprosy, ulcers and epilepsy.

30. *Hydnocarpus macrocarpa* (Bedd.) Warb. in Engl. & Prantl, Nat. Pflanzenf. 3(3): 21. 1893. "Malamkummatti, Vellanku, Malamarotti"
FLACOURTIACEAE

Trees. Flowers foul smelling, greenish yellow.

Dist: Endemic to Southern Western Ghats of Tamil Nadu and Kerala.

Habitat: Occasional in evergreen forests, along with the riparian vegetation

Parts used: Seeds

Systems of Medicine: Folk

Uses: Parts used and uses are similar to 'Tuvaraka' (*Hydnocarpus pentandra* (Buch.-Ham.) Oken).

Notes: Nayar & Sastry (1990) reported this species as Endangered. Collection from

Kakkayam forest extended its distribution towards the northern part of Kerala.

31. *Hydnocarpus pentandra* (Buch.-Ham.) Oken, Allg. Naturf. 3: 1381. 1841. 'Marotti'
FLACOURTIACEAE

Habit: Trees. Flowers greenish-white.

Distribution & Habitat: Endemic to Western Ghats. Semi-evergreen, moist deciduous forests and plains.

Parts used: Seeds and Seed oil

Systems of Medicine: Ayurveda, Folk, Siddha and Unani

Uses: Seeds are used for leprosy, skin diseases, leucoderma, pruritus, eczema, dermatitis, phthisis, tubercular laryngitis, chronic ulcers, dyspepsia, flatulence and verminosis.

32. *Justicia beddomei* (Clarke) Bennet, Indian J. For. 5: 326. 1982. 'Chittadalodakam'
ACANTHACEAE

Habit: Shrubs. Flowers white.

Distribution & Habitat: Endemic to Southern Western Ghats. Cultivated.

Parts used: Whole plant

Systems of Medicine: Ayurveda

Uses: The plant is bitter, astringent, refrigerant, expectorant, diuretic, antispasmodic, febrifuge, depurative, styptic and tonic. Leaves are good for irritable cough and for bleeding in diarrhoea and especially in haemoptysis. Flowers are used in ophthalmia. The roots along with the leaf-juice are used in phthisis, cough, haemoptysis and asthma.

33. *Kingiodendron pinnatum* (Roxb. ex DC.) Harms in Engl. & Prantl, Nat. Pflanzenf. 1(1): 194. 1897. "Ennappayin, Kulavu"
CAESALPINIACEAE

Large trees. Flowers dull yellow, mildly fragrant, densely arranged in axillary cylindrical paniculate racemes. Pods obovoid-oblong, brown.

Dist: Endemic to Southern Western Ghats

Habitat: Occasional in semi-evergreen to evergreen forests

Parts used: Oleoresin

Systems of Medicine: Folk and Unani

Uses: The oleoresin is used locally for the treatment of gonorrhoea, rheumatism and dressing for sores of elephants.

Notes: Nayar & Sastry (1990) reported this species as Rare. A timber yielding tree and the resin obtained from the stem is used for gonorrhea, rheumatism and as a dressing for sores of elephants.

34. *Knema attenuata*(Wall. ex Hook. f. & Thoms.) Warb., Monogr. Myris. 590. 1897. 'Chorappayin, Chorappathiri'
MYRISTICACEAE

Small trees. Flowers unisexual; males in axillary and lateral fascicles and females few.

Dist: Endemic to Western Ghats

Habitat: Common in evergreen and semi-evergreen forests.

Parts used: Aril and seeds

Systems of Medicine: Folk and Unani

Uses: It is one of the ingredients of 'Ashwagandhadhi ghritam' (medicated ghee) used for spleen disorders, breathing disorders and tastelessness..

35. *Mahonia leschenaultii* (Wall. ex Wight & Arn.) Takeda, Fl. Pres. Madras 32(23). 1915. "Mullukadambu, Mullumanjanathi"
BERBERIDACEAE

Habit: Shrubs with stiff, erect, corky-barked stem. Flowers dark yellow, in long erect racemes. Berries globose, dark purple when ripe.

Dist: Endemic to Southern Western Ghats

Habitat: Occasional in montane evergreen forests.

Parts used: Roots

Systems of Medicine: Folk

Uses: Diuretic, demulcent.

36. *Mussaenda frondosa* L., Syst. Nat. (ed.10) 2: 931.1759. 'Vellilam' RUBIACEAE

Habit: Scandent shrubs. Flowers golden-yellow.

Distribution & Habitat: Endemic to Western Ghats. Moist deciduous, semi-evergreen forests and plains.

Parts used: Roots, Leaves and Stem

Systems of Medicine: Ayurveda, Folk, Siddha and Unani

Uses: Roots demulcent, used in leprosy and eye troubles. Decoctions of dried shoots are given to children in coughs. Decoction of leaves is used against intestinal worms.

37. *Myristica malabarica* Lam., Acad. Roy. Sci. Mem. Math. Phys. (Paris) 162. 1791. "Ponnampoovu, Pathiripoovu"
MYRISTICACEAE

Habit: Medium sized trees. Male flowers many, female 3-4 per cyme. Capsule oblong, densely brown hairy.

Dist: Endemic to Southern Western Ghats

Habitat: Occasional in semi-evergreen to evergreen forests.

Parts used: Seeds and Aril

Systems of Medicine: Ayurveda, Folk, Siddha and Unani

Uses: The aril of the seeds is useful in cough, bronchitis, fever and burning sensation. The fat

obtained from the seeds is good for pain in muscles, sprains and sores.

38. *Naregamia alata* Wight & Arn., Prodr. 117. 1834. 'Nilanarakam' MELIACEAE

Habit: Herbs. Flowers white.

Distribution & Habitat: Endemic to Peninsular India. Moist deciduous forests and plains.

Parts used: Whole plant, Roots and Leaves

Systems of Medicine: Ayurveda and Folk

Uses: Roots are emetic, cholagogue, expectorant and useful in chronic bronchitis. Leaves form constituent of preparations used in biliousness. Whole plant is used for wounds, ulcers, bronchitis, dyspepsia, catarrh, anaemia and fevers.

39. *Pittosporum neelgherrense* Wight & Arn., Prodr. 154. 1834. 'Analivenga' PITTOSPORACEAE

Habit: Small tree. Flowers slender simple racemes, pale yellow.

Dist: Endemic to Southern Western Ghats.

Habitat: Evergreen and shola deciduous forests.

Parts used: Bark

Systems of Medicine: Folk

Uses: Bark is used in snake-bites.

40. *Premna serratifolia* L., Mant. Pl. 2: 253. 1771. 'Munja' VERBENACEAE

Habit: Large shrubs. Flowers greenish-yellow.

Distribution & Habitat: Indo-Malesia. Scrub jungles along seacoasts and mangroves.

Parts used: Roots and Leaves

Systems of Medicine: Folk, Siddha and Unani

Uses: Part used and uses are similar to 'Agnimantha' (*Premna corymbosa* Rottl.). It is mainly used for neuralgia, inflammations, cardiac disorders, bronchitis, leprosy, skin diseases, constipation and diabetes.

41. *Pterospermum reticulatum* Wight & Arn., Prodr. 69. 1834. "Mala vuram, Mala viriam" STERCULIACEAE

Medium sized trees. Flowers white, solitary, axillary. Capsules ovoid, hard, 5-valved, densely brown stellate pubescent outside.

Dist: Endemic to Southern Western Ghats

Habitat: Rare in the deciduous forests.

Parts used: Bark

Systems of Medicine: Folk

Uses: Root bark is employed as fish-poison and bark chewed with betel leaves as a masticatory.

42. *Pterospermum rubiginosum* Heyne ex Wight & Arn., Prodr. 68. 1834. "Malam-thodali" STERCULIACEAE

Medium sized trees. Flowers white, solitary, axillary towards the end of the branchlets.

Dist: Endemic to Western Ghats.

Habitat: Occasional in deciduous and evergreen forests.

Parts used: Bark

Systems of Medicine: Folk

Uses: Root bark is employed as fish-poison and bark chewed with betel leaves as a masticatory.

43. *Salacia beddomei* Gamble, Bull. Misc. Inform. Kew 1916: 133. 1916 & Gamble, Fl. Pres. Madras 215 (155). 1918. 'Korantivalli' CELASTRACEAE

Habit: Large climbers. Flowers greenish-yellow.

Distribution & Habitat: Endemic to Western Ghats. Semi-evergreen and evergreen forests.

Parts used: Roots

Systems of Medicine: Ayurveda

Uses: Part used and uses are similar to 'Saptacakra' (*Salacia chinensis* L.).

44. *Salacia fruticosa* Heyne ex Lawson in Hook. f., Fl. Brit. India 1: 628. 1875. 'Ponkoranti' CELASTRACEAE

Habit: Climbers. Flowers greenish-yellow.

Distribution & Habitat: Endemic to Western Ghats. Evergreen, semi-evergreen forests, sacred groves and plains.

Parts used: Roots

Systems of Medicine: Ayurveda

Uses: Part used and uses are similar to 'Saptacakra' (*Salacia chinensis* L.).

45. *Sida rhomboidea* Roxb. ex Fleming, Asiat. Res. 11. 178. 1810. 'Kurumthotti' MALVACEAE

Habit: Herbs. Flowers yellow.

Distribution & Habitat: Pantropical. Wastelands and degraded forest areas.

Parts used: Roots

Systems of Medicine: Ayurveda, Folk, Siddha, Tibetan and Unani

Uses: Part used and uses are similar to 'Bala' (*Sida alnifolia* L.). Roots are used for dermatopathy, diarrhoea, tuberculosis, leucorrhoea, strangury, and burning sensation.

46. *Strobilanthes ciliatus* Nees in Wall., Pl. Asiat. Rar. 3: 85. 1832. 'Karimkurinji' ACANTHACEAE

Habit: Shrubs. Flowers bluish-white.

Distribution & Habitat: Endemic to Peninsular India. Evergreen and semi-evergreen forests.

Parts used: Roots and Whole plant

Systems of Medicine: Folk and Unani

Uses: In Kerala, this plant is used as a substitute for 'Sahacara' (*Barleria prionitis* L.). The plant is used for neurological disorders, ulcers, glandular swellings, itching, leprosy and other skin diseases, toothache and gum diseases.

47. *Strophanthus wightianus* Wall. ex Wight, Ic. t. 1301. 1848. 'Kampetti, Neyvalli' APOCYNACEAE

Habit: Climbers. Flowers white.

Distribution & Habitat: Endemic to Southern Western Ghats. Evergreen and semi-evergreen forests.

Parts used: Seeds

Systems of Medicine: Folk

Uses: Seeds are used in cardiac troubles.

48. *Syzygium travancoricum* Gamble in Bull. Misc. Inform. 240. 1918 & Fl. Pres. Madras 1: 480. 1919. 'Poriyal' MYRTACEAE

Trees. Flowers greenish-yellow to white, mildly fragrant.

Dist: Endemic to southern Western Ghats of Kerala and Tamil Nadu.

Parts used: Bark

Systems of Medicine: Folk

Uses: Bark is used in local medicine.

Notes: The Red Data Book of Indian Plants (Nayar & Sastry, 1987) reported that "only 4 trees of this species are known to exist in a sacred grove of Aickad in Quilon (Kollam) district". However, subsequent studies particularly made by Dr. N. Sasidharan (Kerala Forest Research Institute), have confirmed its existence in Thiruvananthapuram, Kollam, Pathanamthitta, Thrissur and Wayanad districts. Red Listed status of this species is endangered for Kerala and Tamil Nadu.

49. *Thottea duchartrei* Sivar., Babu & Indu, Indian J. For. 8: 265. 1985. 'Alpam' ARISTOLOCHIACEAE

Habit: Erect herbs. Flowers purplish.

Distribution & Habitat: Peninsular India and Sri Lanka. Evergreen and semi-evergreen forests.

Parts used: Roots

Systems of Medicine: Folk

Uses: Roots are used in ulcers, gonorrhoea, leprosy, fever, cholera, rheumatism and antidote to snake-venum.

50. *Trichopus zeylanicus* Gaertn. ssp. *travancoricus* (Bedd.) Burkill ex Narayanan 'Arogyappacha' DIOSCOREACEAE

Habit: Herbs. Flowers brownish.

Distribution & Habitat: Endemic to Southern Western Ghats. Evergreen and semi-evergreen forests.

Parts used: Leaves and Fruits

Systems of Medicine: Folk

Uses: Fruits and leaves are used for stamina, immunity and vitality. The Kani tribes of Kerala eat the fruits to overcome hunger and thirst. Recently, an ayurvedic medicine known as 'Jivani' is prepared from this plant.

RESULTS AND DISCUSSION

During the surveys conducted in different forest areas of Kerala resulted the collection of **50** rare, endemic, red listed and taxonomically important species are enumerated here with updated nomenclature, local name, family, habit, distribution, voucher numbers and important notes for better understanding of these taxa. The detailed taxonomical studies reveal that, several species under a severe threat due to habitat specificity and human interference etc. Therefore there is an urgent need to conserve these species from serious threat to under extinction.

CONCLUSION

Western Ghats region is very rich in biological resources, which have not been satisfactorily documented and utilized. The opportunities for inventorization and bioprospection of our endemic flora though limitless, several constraints like lack of trained field botanists/ ethno-botanists, lack of

much needed cooperation between field botanists and biotechnologists, apathy towards field oriented studies have become the limiting factors. There is an urgent need to generate adequate number of taxonomists and field botanists who have become endangered. The limited number of existing agriculture crops may not sustain the ever increasing population in the coming decades and therefore search for alternate/additional crops is a must. Documentation of all life support species and life saving species in different zones of the country and their utilization can certainly help in our fight against hunger and ailments in coming years. Therefore serious efforts are needed to initiate truly collaborative programmes involving taxonomists and biotechnologists for Bioprospection of our resources and product development. Conservation of our biological resources is another challenging task needing the attention of all biological scientists.

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