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ECOLOGICAL DISTRIBUTION OF TRADITIONAL MEDICINAL PLANTS IN ALAGAR HILLS OF EASTERN GHATS, TAMILNADU

M. Jayakumar[1*] and S. Karuppusamy[2]

[1]Department of Biology, PMT College, Usilampatti, Tamilnadu, India.
[2]Department of Botany, Botanical Research Centre, The Madura College, Madurai- 625 011, Tamilnadu, India.

Corresponding Author

S. Karuppusamy
Email:- ksamytaxonomy@gmail.com

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ABSTRACT

Alagar hills of Eastern Ghats with tropical dry deciduous and scrub forests landscape provides a suitable habitat for growth of number of medicinal plants. A total of 146 traditional medicinal species including 145 angiosperms and one gymnosperm were identified from the study area representing 114 genera and 52 families. The habits of these 146 medicinal plants comprised of 53 herbs, 23 shrubs, 33 trees and 37 climbers. Ecological diversity index (IVI) indicates the quantitative distribution of medicinal plants in different forest types of the study area whereas dominant IVI were noted for trees like *Lannea coromandelica*, *Phyllanthus emblica* and *Syzygium cumini*. Similarly less distributed medicinal plants in the area are *Tylophora indica*, *Solena amplexicaulis*, *Ophiorrhiza mungos*, *Gardenia gummifera*, *Cycas circinalis*, *Celastrus paniculata* and *Adenia wightiana*. *Cycas circinalis* is an endangered and endemic medicinal plant included in IUCN red list. Medicinal uses of plant species in Alagar hills categorized into folklore medicinal plants (140 species), ethnomedicine (142 species), Ayuvedic medicinal plants (53 species) and Siddha medicinal plants (69). A total of 146 medicinal plants covered all these categories and about 47 species are used in all the medicinal systems. This baseline data provides the effective implementation of conservation strategies for potential medicinal plants.

Key words: Traditional medicinal plants, Ecodiversity, endangered, conservation.

INTRODUCTION

India harbours a great diversity of medicinal plants because of biodiversity rich hot spots of Eastern Himalaya and Western Ghats lying in Indian subcontinent. So far, about 8500 species of Anagiosperms, 44 species of Gymnosperms, and 700 species of Pteridophytes have been reported as medicinal species in India. There has been exploiting a variety of herbals for effective treatment of various ailments since the time immemorial. The uses of plant medicines in India is deep rooted on traditional knowledge and codified medicinal systems like Siddha and Ayurveda was prescribed more than 900 medicinal plants species which are highly effective against human ailments (Akshay et al., 2014). The recent discipline of scientific exploration of traditional medicinal plant study such as ethnobotany, also well documented in Indian regions which is added increasing number of medicinal plants. But still availability of medicinal plants in regional wise or state wise and their ecological status are not studied so far. The present study aimed to enumerate the traditional medicinal plants and their ecological diversity in Alagar hills of Eastern Ghats in Tamilandu.

MATERIALS AND METHODS

Study area

Alagar hills of Eastern Ghats is lying approximately between 77°30' and 78°20' longitude and 10°05' – 10°09' latitude. The elevation of the area of investigation ranges from 650 to 3000 feet above sea level. Variations in the altitude and rainfall have a bearing

on the vegetation in general. The floristic divisions of the area of investigation consist of sthorny scrub forest, dry deciduous forest, moist mixed deciduous forest and savannah grasslands.

Data collection

Four plots (each 1 hectare) were established in different forest types at different elevation within the forest areas of Alagar hills of Eastern Ghats. Each of the one hectare plot were divided into 100 of 10 x 10 m subquadrats. Data were gathered from each quadrat and herbs, shrubs, climbers and trees were enumerated carefully from the each quadrat. Further all the species were screened either medicinal or non-medicinal with pertinent literature and check in the google search engine.

Specimen collection and identification

All the plant species were collected from the quadrats carefully tagged and prepared herbarium voucher specimens. The initial identification done with help of local Floras (Gamble and Fischer, 1957; Matthew, 1983; Henry et al., 1987) and confirmation of the identification in Botanical Survey of India, Southern Circle, Coimbatore with comparison of authentic specimens deposited in BSI.

Data analysis

Data collected from the quadrat study were used to calculate frequency, density and basal area from which each species in every plot inferred the quantitative analysis through the calculation of Importance Value Index (IVI) by the sum of relative frequency, relative density and relative dominance (McIntosh, 1950).

Ethnomedicinal inventory

Information on plants with ethnomedicinal uses was collected from informants living in villages adjacent to the surrounding forest areas. The primary information from the informants considered the folklore medicinal uses. The species enumerated from the quadrats were compared with the check list of medicinal floras and pertinent literature (*www.**medicinalplants**.in*). The medicinal plants used in codified medicinal systems like Siddha and Ayurveda also checked carefully and listed those medicinal plants available in study plots.

Diversity status

Diversity status of the medicinal plants were analysed with IUCN guide lines (version IUCN 2014) and the listed medicinal species were compared with the distribution pattern with available literature (IUCN, 2014).

RESULTS AND DISCUSSION

Alagar hills with tropical dry deciduous and scrub forests landscape provides a suitable habitat for growth of number of medicinal plants. A total of 146 medicinal species including 145 angiosperms and one gymnosperm were identified from the study area representing 114 genera and 52 families (Table 1). The habits of these 146 medicinal plants comprised of 53 herbs, 23 shrubs, 33 trees and 37 climbers. Similar study was reported in Kolli hill of eastern Ghats (Anand et al., 2006) and Vellingiri hills of Eastern Ghats (Samydurai et al., 2012). The dominant medicinal plant families in the study area are Leguminosae (17 species), Euphorbiaceae (12 species), Lamiaceae (9 species), Apocynaceae (8 species) and Rubiaceae (7 species). Whereas in the dominant medicinal plant genera are *Cassia* (5 species), *Acalypha*, *Gymnema* and *Ziziphus* (3 species each), *Abutilon*, *Andrographis*, *Cardiospermum*, *Capparis*, *Commiphora*, *Dioscorea*, *Embelia*, *Ficus*, *Jatropha*, *Leucas*, *Mollugo*, *Ocimum* and *Phyllanthus* (2 species each).

The forest types observed from the study area are thorny scrub forest, dry deciduous forest, moist deciduous forest and savannah woodland forests. The forests are serving habitat for the growth of medicinal plants with specific climatic niche. Many number of medicinal plants are distributed in scrub forest (53 species), dry deciduous forest (52) and also these forests shared about 26 species are common distribution (Table 1). Moist deciduous forest have a few number of medicinal plants about 6 species and savannah grass lands also having about 5 species of medicinal plants.

Diversity index (IVI) indicates the quantitative distribution of medicinal plants in different forest types of the study area whereas dominant IVI were noted for trees like *Lannea coromandelica*, *Phyllanthus emblica* and *Syzygium cumini* (Table 1) which are associated with dry deciduous forests. A potential climbing medicinal plant like *Embelia basaal* (5.11) also have high diversity index in this forest area. Many number of medicinal plants have least diversity indices due to its rarity of distribution namely *Tylophora indica*, *Solena amplexicaulis*, *Scilla hyacinthina*, *Portulaca oleracea*, *Phyllanthes debilis*, *Ophiorrhiza mungos*, *Leucas hirta*, *Iphigenia indica*, *Glinus lotoides*, *Gardenia gummifera*, *Cycas circinalis*, *Celastrus paniculata* and *Adenis wightiana* (Table 1).

Among the 146 medicinal plants, only one medicinal species are identified endangered species in IUCN category which is *Cycas circinalis*. This gymnosperm plant is frequently distributed in dry deciduous to moist deciduous forests and valleys. Underground part of rhizome is being cut off for medicinal market and leaves of the plant is collected regularly for decoration purposes that are the main threatening factor of *Cycas circinalis*. This plant species is noted an endemic and endangered in south India which is used multi-purpose plant in Tamilnadu and Kerala [7].

Medicinal uses of plant species in Alagar hills categorized into folklore medicinal plants (140 species), ethnomedicine (142 species), Ayuvedic medicinal plants (53 species) and Siddha medicinal plants (69). A total of 146 medicinal plants covered all these categories and about 47 species are used in all the medicinal systems (Table 1). It reflects the plant diversity of Alagar hills is a potential source of medicinal plants. Already the forest areas of Alagar hills announced the medicinal plants conservation area (MPCA) by FRLHT *(envis.frlht.org/tds/770_1.htm)*. The medicinal plant inventory among the local people were living the close vicinity of the hill area resulted the folklore medicinal plants about 140 species. Some of the medicinal information and therapeutic values of the plants are new such as *Furgraea foetida*, *Adenia wightiana*, *Consjera rheedii* and *Iphigenia indica*. Number of medicinal plants which are collected from the hills for trade purposes and also sold in local market such plants are *Gymnema sylvestre*, *Furgraea foetida*, *Embelia tjerium-cottam*, *Artocarpus hirsutus*, *Entada rheedii*, *Caesalpinia bonduc, Strychnos potatorum* and *Swietenia macrophylla*. Karuppusamy et al. (2009) have reported lesser known ethnomedicinal plants from the Alagar hills.

Table 1. Traditional medicinal plant diversity of Alagar hills in different forest types.
(Forest types: SC – Scrub forest; DDF – Dry deciduous forest; MDF – Moist deciduous forest; SVF – Savannah woodland forest; IUCN categories: NE- Not evaluated; EN- Endangered; Medicinal systems used: FL – Folklore, AU – Ayurveda; EM – Ethnomedicine; SD – Siddha)

Botanical name	Habit	Forest types	Diversity value (IVI)	IUCN category	Uses in medicinal systems
Abutilon hirtum (Malvaceae)	Shrub	SC	1.40	NE	FL, EM, SD
Abutilon indicum (Malvaceae)	Shrub	SC, DDF	1.52	NE	FL, AU, EM, SD,
Acacia pennata (Leguminosae)	Straggler	DDF	0.34	NE	FL
Acalypha alnifolia (Euphorbiaceae)	Herb	SC, DDF	1.25	NE	FL, AU, EM
Acalypha fruticosa (Euphorbiaceae)	Shrub	DDF	1.63	NE	FL, EM
Acalypha indica (Euphorbiaceae)	Herb	SC	2.10	NE	FL, AU, EM, SD
Achyranthes aspera (Amaranthaceae)	Herb	SC, DDF	1.39	NE	FL, AU, EM, SD
Adenia wightiana (Passifloraceae)	Climber	MDF	0.01	NE	FL
Aegle marmelos (Rutaceae)	Tree	SC	0.24	NE	FL, AU, EM, SD
Aerva lanata (Amaranthaceae)	Herb	SC	1.21	NE	FL, AU, EM, SD
Aganosma cymosa (Apocynaceae)	Climber	DDF	0.22	NE	FL, EM
Alangium salvifolium (Alangiaceae)	Tree	DDF	1.83	NE	FL, AU, EM, SD
Albizia amara (Roxb.) Boiv. (Leguminosae)	Tree	DDF, SC	2.44	NE	FL, EM
Alternanthera sessilis (Amaranthaceae)	Herb	SC	2.70	NE	FL, EM
Amaranthus spinosus (Amaranthaceae)	Herb	SC	1.10	NE	FL, EM
Anamirta cocculus (Menispermaceae)	Liana	DDF, SC	0.21	NE	FL, AU, EM, SD
Andrographis echioides (Acanthaceae)	Herb	SC	1.11	NE	EM
Andrographis paniculata (Acanthaceae)	Herb	SC, DDF	2.15	NE	FL, AU, EM, SD

Anisomeles indica (Lamiaceae)	Herb	SC	1.43	NE	FL, EM
Anisomeles malabarica (Lamiaceae)	Herb	SC, SVF	1.24	NE	EM
Antidesma alexiteria (Euphorbiaceae)	Tree	DDF	2.14	NE	EM, FL
Aristolochia indica (Aristolochiaceae)	Climber	SC, DDF	1.01	NE	FL, AU, EM, SD
Artocarpus hirsutus (Moraceae)	Tree	SVF	1.40	NE	FL, AU, EM, SD
Asparagus racemosus (Liliaceae)	Herb	SC, DDF	0.25	NE	FL, AU, EM, SD
Atalantia monophylla (Rutaceae)	Shrub	DDF, SC	0.11	NE	FL, AU, EM
Azima tetracantha Lam. (Salvadoraceae)	Shrub	SC	1.46	NE	FL
Basella alba (Basellaceae)	Climber	DDF	1.02	NE	FL, AU, EM, SD
Buchanania lanzan (Anacardiaceae)	Tree	SVF, DDF	3.13	NE	FL, AU, EM, SD
Bauhinia racemosa L. (Leguminosae)	Tree	DDF	2.01	NE	FL, EM
Benkara malabarica (Rubiaceae)	Shrub	SC	5.15	NE	EM, FL
Breynia vitis-idaea (Phyllanthaceae)	Shrub	SC, DDF	1.42	NE	FL, AU, EM, SD
Bridelia retusa (Euphorbiaceae)	Tree	SC	4.12	NE	FL
Cadaba fruticosa (Capparidaceae)	Shrub	SC	2.13	NE	FL, AU, EM, SD
Cadaba trifoliate (Capparidaceae)	Shrub	SC, DDF	2.63	NE	FL
Caealpinia bonuduc (Leguminosae)	Climber	DDF	4.12	NE	FL, EM
Calamus rotung (Arecaceae)	Climber	MDF	2.11	NE	FL, AU, EM, SD
Canavalia virosa Roxb. (Leguminosae)	Climber	SC	1.48	NE	FL, EM
Canthium parviflorum (Rubiaceae)	Shrub	SC	5.26	NE	EM, FL
Capparis sepiaria (Capparidaceae)	Shrub	SC	4.19	NE	FL, AU, EM, SD
Capparis zeylanica (Capparidaceae)	Shrub	SC	2.10	NE	FL, AU, EM, SD
Caralluma adscendens var. *attenuata* (Apocynaceae)	Herb	SC	0.12	NE	FL, EM
Cardiospermum canescens (Sapindaceae)	Climber	SC	0.16	NE	EM, FL
Cardiospermum halicacabum (Sapindaceae)	Climber	SC	0.12	NE	FL, AU, EM, SD
Carissa spinarum (Apocynaceae)	Straggler	DDF	2.15	NE	FL

Cassia absus (Leguminosae)	Herb	SC, DDF	1.02	NE	FL, AU, EM, SD
Cassia auriculata (Leguminosae)	Shrub	SC	1.24	NE	FL, AU, EM, SD
Cassia italic (Legumonosae)	Herb	SC	0.14	NE	FL, EM
Cassia occidentalis (Leguminosae)	Shrub	SC	0.16	NE	FL, EM
Cassia tora (Leguminosae)	Herb	SC	2.15	NE	FL, AU, EM, SD
Catunaregum spinosa (Rubiaceae)	Shrub	SC, DDF	2.18	NE	FL, AU, EM, SD
Celastrus paniculta (Celastraceae)	Climber	DDF	0.01	NE	FL, AU, EM, SD
Centella asiatica (Apiaceae)	Herb	SC, DDF, MDF	0.14	NE	FL, AU, EM, SD
Chloroxylon swietenia DC. (Flindersiaceae)	Tree	DDF	0.11	NE	FL, EM
Cissus quadrangularis (Vitaceae)	Climber	SC	1.04	NE	FL, AU, EM, SD
Citrullus colocynthis (Cucurbotaceae)	Climber	SC	1.25	NE	FL, EM, SD
Cleistanthus collinus (Euphorbiaceae)	Tree	SC, DDF	0.12	VU	FL, AU, EM, SD
Cleome viscose (Capparidaceae)	Herb	SC	2.14	NE	FL, AU, EM, SD
Clitorea ternatea (Leguminosae)	Twiner	SC	1.08	NE	FL, AU, EM, SD
Cocculus hirsutus (Menispermaceae)	Climber	SC	1.26	NE	FL
Combretum albidum (Combretaceae)	Liana	DDF	3.12	NE	EM
Commelina benghalensis (Commelinaceae)	Herb	SC	1.05	NE	FL,EM
Commiphora caudate (Burseraceae)	Tree	DDF	4.16	NE	EM, FL
Commiphora pubescens (Burseraceae)	Tree	DDF	3.62	NE	EM
Consjera rheedii (Opiliaceae)	Shrub	DDF	5.16	NE	EM, FL
Coolebrokia violacea (Lamiaceae)	Herb	MDF	1.02	NE	FL
Cyanotis tuberose (Commelinaceae)	Herb	DDF	1.91	NE	FL
Cycas circinalis (Cycadaceae)	Shrub	DDF	0.01	EN	EM, FL, SD
Cymbopogon citratus (Poaceae)	Herb	SVF	2.90	NE	FL, EM
Cynodon dactylon (Poaceae)	Herb	SC	1.04	NE	FL, AU, EM, SD
Cyperus rotundus (Cyperaceae)	Herb	SC	1.92	NE	FL, AU, EM, SD
Desmodium gangeticum (Leguminosae)	Herb	SC	1.24	NE	FL, EM, SD

Digera muricata (Amaranthaceae)	Herb	SC	0.14	NE	FL
Dioscorea oppositifolia (Dioscoreaceae)	Climber	DDF	0.15	NE	FL, EM
Dioscorea tomentosa (Dioscoreaceae)	Climber	DDF	1.02	NE	EM
Diploclisia glaucescens (Menispermaceae)	Liana	MDF	2.14	NE	EM
Dolichandron atrovirens (Bignoniaceae)	Tree	DDF	1.78	NE	FL
Embelia basaal (Myrsinaceae)	Climber	DDF	5.12	NE	FL
Embelia tjerium-cottam (Myrsinaceae)	Climber	DDF	1.03	NE	FL, EM, AU
Entada rheedii (Leguminosae)	Climber	MDF	1.01	NE	FL, AU, EM, SD
Erythroxylum monogynum (Erythroxylaceae)	Shrub	SC, DDF	2.10	NE	FL, EM
Euphorbia antiquorum (Euphorbiaceae)	Tree	SC, DDF	2.14	NE	EM
Euphorbia hirta (Euphorbiaceae)	Herb	SC	0.19	NE	EM, FL, SD
Euphorbia nivulia (Euphorbiaceae)	Tree	DDF	1.03	NE	FL
Euphorbia serpens (Euphorbiaceae)	Herb	SC	0.02	NE	FL
Ficus microcarpa (Moraceae)	Tree	DDF	2.10	NE	FL, EM
Ficus virens (Moraceae)	Tree	DDF	3.12	NE	EM
Furcraea foetida (Agavaceae)	Shrub	SC, DDF	2.14	NE	FL, EM
Gardenia gummifera (Rubiaceae)	Shrub	DDF	0.03	NE	EM
Gisekia pharnesioides (Aizoaceae)	Herb	SC	1.03	NE	FL
Givotia moluccana L.Sreem. (Euphorbiaceae)	Tree	DDF	4.12	NE	FL, EM
Glinus lotoides (Aizoaceae)	Herb	SC	0.02	NE	FL
Globba bulbifera (Zingiberaceae)	Herb	DDF	0.01	NE	FL
Gmelina asiatica (Verbenaceae)	Shrub	SC	2.15	NE	FL, EM, SD
Grewia hirsuta Vahl (Malvaceae)	Shrub	SC, DDF	4.14	NE	FL
Gymnema alterniflorum (Apocynaceae)	Climber	SC	1.04	NE	FL
Gymnema elegans (Apocynaceae)	Climber	DDF	1.02	NE	FL, EM
Gymnema sylvestre (Apocynaceae)	Climber	SC, DDF	1.27	NE	FL, AU, EM, SD
Gyrocarpus americanus Jacq.	Tree	DDF	3.42	NE	FL

(Hernandiaceae)					
Hybanthus enneaspermus (Violaceae)	Herb	SC	0.13	NE	FL, EM, SD
Indigofera linnaei (Leguminosae)	Herb	SC	1.12	NE	FL
Iphigenia indica (Liliaceae)	Herb	DDF	0.02	NE	FL, SD
Jatropha curcas (Euphorbiaceae)	Shrub	SC	1.05	NE	FL, AU, EM, SD
Jatropha tanjorensis (Euphorbiaceae)	Shrub	SC	2.15	NE	FL
Justicia glauca (Acanthaceae)	Herb	SC, DDF	0.14	NE	FL
Lannea coromandelica (Annonaceae)	Tree	DDF	5.13	NE	FL, EM, SD
Leucas aspera (Lamiaceae)	Herb	SC	0.15	NE	FL, AU, EM, SD
Leucas hirta (Lamiaceae)	Herb	DDF	0.02	NE	FL
Melia azidarach (Meliaceae)	Tree	DDF, MDF	3.14	NE	FL, EM
Memecylon umbellatum (Melastomataceae)	Shrub	DDF	4.12	NE	FL
Merremia emarginata (Convolvulaceae)	Climber	SC	0.16	NE	FL, EM
Mimosa pudica L. (Leguminosae)	Herb	SC	1.26	NE	FL, EM, SD
Mollugo cerviana (Aizoaceae)	Herb	SC	0.13	NE	FL, AU, EM, SD
Mollugo pentaphylla (Aizoaceae)	Herb	SC	0.16	NE	FL, EM
Morinda pubescens (Rubiaceae)	Tree	DDF	4.12	NE	EM
Mukia maderaspatana (Cucurbitaceae)	Climber	SC	0.13	NE	FL, SD
Naravelia zeylanica (Ranunculaceae)	Climber	DDF	1.02	NE	SD
Ocimum americanum (Lamiaceae)	Herb	SC	0.12	NE	FL
Ocimum tenuiflorum (Lamiaceae)	Herb	SC	0.15	NE	FL, AU, EM, SD
Oldenlandia umbellate (Rubiaceae)	Herb	SC	1.01	NE	FL, AU, EM, SD
Ophiorrhiza mungos (Rubiaceae)	Herb	DDF, MDF	0.05	NE	FL, AU, EM, SD
Orthosiphon rubicundus (Lamiaceae)	Herb	SC	1.03	NE	FL
Pachygone ovate (Menispermaceae)	Climber	DDF	1.52	NE	FL, EM
Phyllanthus debilis (Phyllanthaceae)	Herb	SC, DDF	0.01	NE	EM
Phyllanthus emblica (Phyllanthaceae)	Tree	DDF	5.12	NE	FL, AU, EM, SD
Plectranthes amboenicus	Herb	DDF	014	NE	EM

(Lamiaceae)					
Plumbago zeylanica (Plumbaginaceae)	Herb	SC, DDF	1.24	NE	FL, AU, EM, SD
Premna latifolia (Verbenaceae)	Shrub	DDF	1.06	NE	FL, EM, SD
Protulaca oleracea (Portulacaceae)	Herb	SC	0.02	NE	FL, SD
Pterocapus marsupium (Leguminosae)	Tree	DDF, MDF	4.16	NE	FL, EM, SD
Salvadora persica (Salvadoraceae)	Tree	DDF	0.12	NE	FL, AU, EM, SD
Scilla hyacinthine (Liliaceae)	Herb	SC	0.01	NE	FL
Secamone emetic (Apocynaceae)	Climber	DDF	1.05	NE	FL, EM
Solanum nigrum (Solanaceae)	Herb	SC	0.02	NE	FL, AU, EM, SD
Solena amplexicaulis (Cucurbitaceae)	Climber	SC	0.01	NE	FL, AU, EM, SD
Stachytarpheta jamaicensis (Verbenaceae)	Herb	SC, DDF	1.01	NE	FL
Stereospermum colais (Bignoniaceae)	Tree	DDF	2.12	NE	FL, EM, SD
Swietenia macrophylla (Meliaceae)	Tree	DDF	3.12	NE	FL
Syzygium cumini (Myrtaceae)	Tree	DDF, MDF	5.11	NE	FL, AU, EM, SD
Tephrosia purpurea (Leguminosae)	Herb	SC	0.22	NE	FL, AU, EM, SD
Terminalia arjuna (Combretaceae)	Tree	DDF	6.12	NE	FL, EM
Terminalia coriacea (Combretaceae)	Tree	DDF, MDF	7.54	NE	FL, AU, EM, SD
Tiliacora acuminate (Menispermaceae)	Climber	DDF	1.10	NE	FL
Tinospora cordifolia (Menispermaceae)	Climber	SC, DDF	0.10	NE	FL, AU, EM, SD
Toddalia asiatica (Rutaceae)	Shrub	DDF	3.12	NE	FL, EM
Trianthema portulacastrum (Aizoaceae)	Herb	SC	0.12	NE	EM
Tylophora indica (Apocynaceae)	Climber	SC, DDF	0.05	NE	FL, AU, EM, SD
Ventilago maderaspatana (Rhamnaceae)	Straggler	DDF	3.15	NE	FL, AU, EM, SD
Vernnia cinerea (Asteraceae)	Herb	DDF	2.10	NE	FL, EM, SD
Watakakka volubilis (Apocynaceae)	Climber	DDF	1.10	NE	EM, FL
Wrightia tinctoria (Apocynaceae)	Tree	SC, DDF	3.16	NE	FL, AU, EM, SD
Ziziphus maritiana (Rhamnaceae)	Tree	DDF	2.12	NE	EM, FL
Ziziphus oenoplia	Shrub	SC, DDF	3.15	NE	FL

(Rhamnaceae)					
Ziziphus xylopyrus (Rhamnaceae)	Tree	DDF	1.48	NE	FL, EM

CONCLUSION

Medicinal plants occupy a vital role in local health care system and represent a major national bioresources. The local people and tribals to cure different ailments ranging from simple injuries, cuts, wounds, fever, diarrhoea, ulcers, swelling, bone fracture, potency, antidote, skin care, night blindness, tooth ache, asthma, cough and cold, etc. Hence, there is an immense need for documentation and sustainable conservation of medicinal plant diversity to provide future generation. This base line information gives an idea for adapting suitable strategy with most appropriate method of conservation.

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