Prioritisation of Endemic Plants of Eastern Ghats for Biological Conservation

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Abstract

There is an international effort to identify species that face extinction in order to make conservation efforts more efficient. Availability of the updated data on the list of threatened plants is important for framing conservation strategies. It has been shown that about 10% of all plant taxa are threatened globally. The Red Data Book of Indian plants is a reference manual that lists threatened plants. The objective of present study was to test whether the Red Data Book provides a comprehensive list of the threatened endemic plants of Eastern Ghats and to suggest a list of potential plants for conservation ranking to include under Red Data Book (RDB). In order to accomplish this task, we listed a total of 145 species of endemic plants, including 44 RDB plant species, compared the data on species distribution based on herbaria, literature and current field surveys and cross checked the listings in the Red Data Book with individual species. The present paper highlights the current status of the endemic plants of Eastern Ghats.

Table 1. Endemic Plant species of Eastern Ghats.

S.No.	Taxon	Habit	RDB category	Uniqueness	Hill ranges	District-wise distribution
	GYMNOSPERMAE = CYCADOPHYTA Cycadaceae					
1	*Cycas beddomei* Dyer	Shrub	Vulnerable	Type locality	Seshachalam	Chittoor, Cuddapah
2	*Cycas sphaerica* Roxb.	Shrub		Scattered	South and Central Eastern Orissa	Gajapathi, Phulbani, Angul, Khurda, Cuttack, Dhenkanal, Nayagarh
	ANGIOSPERMAE = MAGNOLIOPHYTA DICOTYLEDONAE = MAGNOLIOPSIDA Acanthaceae					
3	*Andrographis beddomei* Clarke	Under shrub		Type locality	Nallamalais	Kurnool
4	*Andrographis nallamalayana* Ellis	Procum bent herb		Type locality	Nallamalais	Kurnool, Cuddapah
5	*Barleria morrisiana* Bor ex Fischer	Under shrub		Least Known	Cherukonda & Biligirirangan	Visakhapatnam Chamrajnagar

6	*Dicliptera beddomei* Clarke	Erect herb		Type collection	Nallamalais	Kurnool
7	*Justicia gingiana* Sebastine & Ramamurthy	Shrub		Type collection	Gingee hills	Villupuram
8	*Rostellualria vahlii* (Roth) Nees var. *rupicola* Ellis	Prostrate herb		Type collection	Nallamalais	Kurnool
9	*Phlebophyllum jeyporensis* (Bedd.) Bremek.	Shrub	Endangered	Scattered	Upper Godavari, Visakhapatnam, MahEndangereddragiri	East Godavari, Visakhapatnam Gajapati
10	*Nilgirianthus circarensis* (Gamble) Bremek.	Erect herb		Scattered	Visakhapatnam & Karlapat	Visakhapatnam Kalahandi
11	*Neuracanthus neesianus* Clarke	Erect herb	Endangered	Type collection	Arcot hills	Arcot
12	*Santapaua madurensis* Balakr. & Subram.	Erect herb	Endangered	Least Known	Alagar hills, Tanjore	Madurai (Alagar hills), Tanjore
13	*Thunbergia fragrans* Roxb. var. *hispida* Gamble	Climber		Least Known	Mahendragiri & Deomali	Gajapati, Koraput
	Anacardiaceae					
14	*Nothopegia heyneana* (Hook.f.) Gamble	Small tree	Vulnerable	Scattered	Dharakonda, Kolli hills	Visakhapatnam Salem
	Annonaceae					
15	*Alphonsea madraspatana* Bedd.	Small tree		Scattered		Cuddapah, Visakhapatnam North Arcot, Khurda
16	*Uvaria eucinata* Bedd.ex Dunn	Scandent shrub	Endangered	Least Known	Russelkonda, Karachuli	Ganjam
	Apiaceae					
17	*Bupleurum andhricum* Nayar & Banerji	Erect herb		Least Known		Srikakulam, Visakhapatnam
18	**Pimpinella tirupatiensis* Balakr. & Subram.	Erect herb	Endangered	Type locality	Seshachalam	Chittoor
	Asclepiadaceae					
19	*Brachystelma ciliatum* Arekal & Ramakrishna	Erect herb		Type collection	Kolar	Kolar
20	*Brachystelma glabrum* Hook.f.	Erect herb		Type collection	Palakonda	Cuddapah
21	*Brachystelma kolarensis* Arekal & Ramakrishna	Erect herb		Type collection	Kolar	Kolar
22	*Brachystelma volubile* Hook.f.	Twining herb		Least Known	Palakonda	Cuddapah
23	*Caralluma indica* N.E.Br.	Fleshy herb		Scattered		Nellore, Visakhapatnam, Chengalpattu, Villupuram
24	*Caralluma lasiantha* N.E. Br.	Fleshy herb		Scattered		Anantapur, Chittoor
25	*Ceropegia spiralis* Wight.	Tuberous climber	Vulnerable	Scattered		Cuddapah, Chittoor
26	**Decalepis hamiltonii* Wight. & Arn.	Tuberous climber		Scattered		Rayalaseema
27	*Heterostemma deccanense* (Talb.) Swarup & Mangaly	Wiry Climber	Endangered	Least Known	Maredumilli, Upper Sileru	East Godavari Khammam

28	*Oianthus disciflorus* Hook.f.	Climber		Least Known	Nallamalais	Kurnool
29	*Toxocarpus roxburghii* Wight & Arn.	Climbing shrub	Endangered	Least Known	Maredumilli, Sapparlu	East Godavari, Visakhapatnam
	Asteraceae					
30	*Cyathocline manilaliana* C.Raju & R. Raju	Erect herb		Type locality		Adilabad
31	*Notonia shevaroyensis* Fyson	Scapigerous herb		Type locality	Shevaroys	Salem
32	*Pentanema indicum* (L.) Ling var. *sivarajanianum* C. Raju & R. Raju	Erect herb		Type locality	Nallamalais (Upper Ahobilam)	Kurnool
33	*Vernonia shevaroyensis* Gamble	Shrub		Type locality	Shevaroys	Salem
	Burseraceae					
34	**Boswellia ovalifoliolata* Balakr. & Henry	Large tree		Type locality	Nallamalais, Seshachalam	Kurnool, Chittoor, Cuddapah
	Caryophyllaceae					
35	*Polycarpaea corymbosa* var. *longipetala* Srinivas. & Narasimh.	Erect herb		Type locality	Seshachalam	Chittoor
	Celastraceae					
36	*Maytenus bailadilliana* (Narayan & Mooney) D.C.S. Raju & Babu	Shrub		Scattered		Visakhapatnam, Kalahandi, Koraput, Bastar
	Cleomaceae					
37	*Cleome chelidonii* L.f. var. *pallai* C.S. Reddy & V.S. Raju	Erect herb		Type locality	Pakhal	Warangal
38	*Cleome viscosa* L. var. *nagarjunakondensis* Sund.-Ragh.	Erect herb		Type collection	Nagarjunakonda	Nalgonda
	Combretaceae					
39	*Combretum albidum* G.Don var. *cooperi* (Haines) Saxena & Brahmam	Climber		Type collection		Koraput
40	**Terminalia pallida* Brandis	Large tree		Type locality	Seshachalam	Kurnool, Chittoor, Cuddapah
	Convolvulaceae					
41	*Argyreia arakuensis* Balakr.	Climbing shrub		Type collection	Araku	Visakhapatnam
	Crassulaceae					
42	*Kalanchoe cherukondensis* Subbarao & Kumari	Fleshy herb		Type collection	Cherukonda	Visakhapatnam
	Cordiaceae					
43	*Cordia domestica* Roth	Small tree		Scattered	Palakonda, Chengalpattu	Cuddapah, Chengalpattu
	Cucurbitaceae					
44	*Trichosanthes anaimalaiensis* Bedd.	Climber	CR	Least Known	Nallamalais	Mahabubnagar
	Dipterocarpaceae					
45	**Shorea tumbuggaia* Roxb.	Lofty tree		Scattered		Chittoor, Cuddapah, Nellore, Chengalpattu

	Ebenaceae					
46	*Diospyros ebenum* Koenig ex Retz var. *acuminata* Haines	Large Tree		Least Known	Champagarh, Kuntagaon Khol	Nayagadh, Angul
	Euphorbiaceae					
47	*Bridelia cinerascens* Gehrm.	Small tree		Scattered		Cuddapah, Nellore, Chengalpattu
48	*Chamaesyce linearifolia* Sojak var. *nallamalayana* (Ellis) V.S. Raju & P.N. Rao	Erect herb		Type locality	Nallamalais	Kurnool
49	*Chamaesyce senguptae* (Balakr. & Subr.) V.S. Raju & P.N. Rao	Erect herb		Least Known	Nallamalais, Chengalpattu	Cuddapah, Kurnool, Chengalpattu
50	*Croton scabiosus* Bedd.	Small tree		Least Known	Nallamalais	Cuddapah, Kurnool
51	*Dimorphocalyx kurnoolensis* R. Raju & Pullaiah	Small tree		Type locality	Erramalais	Kurnool
52	*Glochidion tomentosum* Dalz.	Small tree	Vulnerable	Scattered		Visakhapatnam, East Godavari, Ganjam
53	*Homonoia intermedia* Haines	Small tree		Least Known	Linkarpara	Angul
54	**Phyllanthus indofischeri* Bennet	Erect herb		Scattered		Chittoor, Cuddapah, Kurnool
55	*Phyllanthus narayanaswamii* Gamble	Erect herb	Endangered	Least Known		East Godavari, Visakhapatnam
56	*Lasiococca comberi* Haines (*Homonoia comberi* (Haines) Merr.)	Small tree		Least Known	Upper Sileru, Mahendragiri	Visakhapatnam, Gajapati
	Flacourtiaceae					
57	*Flacourtia indica* (Burm.f.) Merr. var. *innocua* (Haines) Sax. & Brahm.	Shrub		Type collection	Khandagiri	Khurda
	Hypericaceae					
58	*Hypericum gaitii* Haines	Shrub		Least Known	Simlipal	Mayurbhanj
	Lamiaceae					
59	*Leucas diffusa* Benth.	Diffuse herb		Least Known		East Godavari, Salem
60	*Leucas indica* (L.) R. Br. var. *nagalapuramiana* (Chandr. & Sriniv.) Moulali & Pullaiah	Erect herb		Type collection	Nagalapuram hills	Chittoor
61	*Leucas mollissima* Wall. var. *mukherjiana* Subbarao & Kumari	Erect herb		Type collection	Cherukonda	Visakhapatnam
62	*Leucas mollissima* Wall. var. *sebastiana* Subbarao & Kumari	Erect herb		Type collection	Araku	Visakhapatnam
63	*Leucas mollissima* Wall. var. *silvestriana* Subbarao & Kumari	Erect herb		Type collection	Visakhapatnam	Visakhapatnam
64	*Leucas mukherjiana* Subbarao & Kumari	Villous herb	Endangered	Type collection	Visakhapatnam	Visakhapatnam

	Malvaceae					
65	*Decaschistia cuddapahensis* Paul & Nayar	Shrub		Type locality	Seshachalam	Chittoor, Cuddapah
66	*Decaschistia rufa* Craib	Shrub	Endangered	Scattered	Seshachalam , Chengalpattu	Cuddapah, Chittoor , Chengalpattu
	Malpighiaceae					
67	*Aspidopteris hutchinsonii* Haines	Climber	Vulnerable	Least Known	Russelkonda, Similipal	Ganjam, Mayurbhanj
	Mimosaceae					
68	*Acacia campbelli* Arn.	Small tree	Vulnerable	Scattered		East Godavari, Krishna, Nellore
69	*Acacia donaldii* Haines	Small tree		Scattered	Bamra	Sambalpur
70	*Albizia orissensis* Sahni & Bennet	Small tree		Type collection		Ganjam
71	*Albizia sikharamensis* Sahni & Bennet (awaits a final decision, could be *Acacia caesia* (L.) Willd.)	Small tree		Type collection	Nallamalais (Srisailam, way to Sikharam)	Kurnool
72	*Albizia thompsonii* Brandis	Large tree	Vulnerable	Scattered		Anantapur, Cuddapah, Mahabubnagar, Angul, Dhenkenal
73	*Mimosa barberi* Gamble	Shrub		Type collection	Tummaluru	East Godavari
	Melastomataceae					
74	*Memecylon jadhavii* K.N. Reddy, C.S. Reddy & V.S. Raju	Shrub		Type locality	Sapparla hills	Visakhapatnam
75	*Memecylon madgolense* Gamble	Shrub		Type collection	Madgula hills	Visakhapatnam
	Meliaceae					
76	*Aglaia haslettiana* Haines	Small tree		Type collection		Angul
77	*Toona ciliata* Roem. var. *brevipetiolulata* (Haines) Mishra & Panigr.	Small tree		Type collection		Angul
78	*Toona ciliata* Roem. var. *hainesii* (C.DC.) Mishra & Panigr.	Small tree		Type collection		Angul
	Myrtaceae					
79	**Syzygium alternifolium* (Wight) Walp.	Large tree		Scattered	Nallamalais, Seshachalam	Kurnool, Chittoor, Cuddapah
	Papilionaceae					
80	*Alysicarpus mahabubnagarensis* Raghavarao et al.	Erect herb		Type collection	Shadnagar	Mahabubnagar
81	*Alysicarpus monilifer* (L.) DC. var. *cuddapahensis* Almeida & Almeida	Erect herb		Type collection		Cuddapah
82	*Atylosia cajanifolia* Haines	Under shrub	Vulnerable	Scattered		East Godavari, Srikakulam, Visakhapatnam Ganjam, Kalahandi, Bastar

83	*Crotalaria clarkei* Gamble	Erect herb		Least Known	Araku, Pottangi	Visakhapatnam Koraput
84	*Crotalaria clavata* Wight & Arn.	Erect herb	Endangered	Least Known	Salem	Salem
85	*Crotalaria filipes* Benth.	Erect herb	Endangered	Least Known	Sanigaram	Karimnagar
86	*Crotalaria longipes* Wight & Arn.	Under shrub	Endangered	Least Known	Palakonda, Shevaroys	Cuddapah, Salem
87	*Crotalaria madurensis* Wight var. *kurnoolica* Ellis & Swamin.	Erect herb		Type locality	Nallamalais	Kurnool
88	*Crotalaria paniculata* Willd. var. *nagarjunakondensis* Thoth.	Erect herb		Type locality	Nagarjunakonda	Nalgonda
89	*Crotalaria rigida* Heyne ex Roth	Erect herb	Vulnerable	Least Known		Nellore, Krishna
90	*Crotalaria sandoorensis* Bedd. ex Gamble	Under shrub	Endangered	Least Known		Bellary (Sandoor hills), Dharmapuri, Salem
91	*Indigofera barberi* Gamble	Under shrub	Vulnerable	Scattered		Chittoor, Cuddapah, Kurnool, Salem, S. Arcot
92	*Mucuna minima* Haines	Climber		Type collection	Bamra	Sambalpur
93	**Pterocarpus santalinus* L.f.	Large tree		Scattered	South Eastern Ghats	Rayalaseema, Chengalpattu, Salem, Dharmapuri
94	*Rhynchosia beddomei* Baker	Under shrub	Vulnerable	Scattered		Cuddapah, Chittoor, Anantapur
95	*Rhynchosia hainesiana* Thoth.	Under shrub		Type collection		Angul
96	*Tephrosia purpurea* (L.) Pers. var. *maritima* Haines	Erect herb		Type locality		Balasore
	Rubiaceae					
97	*Gardenia gummifera* var. *gummiferoides* Haines	Shrub		Type collection	Bamra	Sambalpur
98	*Ophiorrhiza chandrasekharanii* Subbarao & Kumari	Erect herb		Type collection	Vankachinta	Visakhapatnam
99	*Lasianthus truncatus* Bedd.	Shrub		Least Known		Visakhapatnam, Gajapathi
100	*Pavetta madrassica* Bremek.	Shrub		Scattered		Krishna, Nellore, Visakhapatnam, Koraput, Chengalpattu
101	*Wendlandia angustifolia* Wight & Arn.	Small tree	Extinct	Least Known	Seshachalam	Cuddapah (ex Beddome)
102	*Wendlandia gamblei* Cowan	Small tree		Scattered		East Godavari, Visakhapatnam
	Rutaceae					
103	*Triphasia reticulata* Smith var. *parviflora* Santapau	Spiny shrub		Type locality	Seshachalam	Cuddapah
	Sapotaceae					
104	*Isonandra villosa* Wight	Small tree	Vulnerable	Scattered	Veligonda hills	Nellore

	Sterculiaceae					
105	*Eriolaena lushingtonii* Dunn	Small tree	Vulnerable	Type locality	Nallamalais	Kurnool
106	*Eriolaena hookeriana* Wight & Arn. var. *viridis* Haines	Small tree		Type collection		Angul
107	*Hildegardia populifolia* (Roxb.) Schott. & Endl.	Small tree	Endangered	Scattered		Anantapur, Chittoor, Cuddapah, Salem, Villupuram
108	*Heritiera kanikensis* Majumdar & Banerjee (awaits a final decision, could be *H. fomes)*	Small tree		Type collection		Kendrapada (Bhitarkanika)
	Verbenaceae					
109	*Premna calycina* Haines	Small tree		Least Known		Mayurbhanj, Angul, Nayagadh
110	*Premna latifolia* Roxb. var. *mucronata* (Roxb.) Clarke	Small tree		Least Known		Mayurbhanj
	Violaceae					
111	*Hybanthus vatsavayii* C.S. Reddy	Erect herb		Scattered		Khammam, Nalgonda, Warangal
	MONOCOTYLEDONAE = LILIOPSIDA					
	Commelinaceae					
112	*Commelina hirsuta* Clarke	Erect herb	Vulnerable	Least Known	Shanigaram hills	Karimnagar
113	*Murdannia juncoides* (Wight) Rolla Rao & Kammathy	Erect herb	Vulnerable	Scattered	Nallamalais	Cuddapah, Kurnool
	Cyperaceae					
114	*Lipocarpha reddyi* Hooper	Erect sedge		Least Known		Nalgonda, Khammam
	Eriocaulaceae					
115	*Eriocaulon echinulatum* Mart.	Erech herb		Type collection	Motijharan	Sambalpur
	Hydrocharitaceae					
116	*Halophila ovalis* (R.Br.) Hook.f. ssp. *ramamurthiana* Ravi & Ganesan	Submerged herb		Least Known	Theetapuram	Nellore
	Liliaceae					
117	**Urginea nagarjunae* Hemadri & Swahari	Bulbous herb		Type collection	Veligonda hillls, Bhata village	Nellore
	Orchidaceae					
118	*Aphyllorchis montana* (Thw.) Reichb.f.	Epiphyte	Vulnerable	Least Known	Seshachalam	Chittoor
119	*Bulbophyllum kaitiense* (Wight) Reichb.f.	Epiphyte	Vulnerable	Least Known		Chittoor (Tirumala hills), Salem
120	*Bulbophyllum panigrahianum* Misra	Epiphyte		Type collection	Simplipal	Mayurbhanj
121	*Corymborkis veratrifolia* (Reinw.) Bl.	Epiphyte	Vulnerable	Scattered	Seshachalam	Cuddapah
122	*Dendrobium ovatum* (Willd.) Kranz	Epiphyte	Vulnerable	Scattered	Seshachalam	Chittoor
123	*Eria meghasaniensis* (Misra) Misra	Epiphyte		Type collection	Simlipal	Mayurbhanj

124	*Habenaria panigrahiana* Misra	Tuberous herb		Type collection	Mohana hills	Ganjam
125	*Habenaria panigrahiana* Misra var. *parviloba* Misra	Tuberous herb		Type collection	Bhanjanagar	Ganjam
126	*Habenaria ramayyana* Ramachandrachary & Wood	Tuberous herb		Type collection	Nallamalais (Amrabad)	Mahabubnagar
127	*Liparis vestita* ssp. *seidenfadenii* Misra	Tuberous herb		Type collection	Mahendragiri	Gajapati
128	*Vanilla wightiana* Lindl.	Leafless epiphyte	Vulnerable	Scattered		Chittoor, East Godavari, Salem
	Poaceae					
129	*Arthraxon depressus* Stapf ex Fischer	Erect grass	Vulnerable	Least Known		Khammam
130	*Arthraxon lanceolatus* (Roxb.) Hochst. var. *echinatus* (Nees) Hack.	Erect grass		Scattered		Mahabubnagar, Rayalaseema
131	*Arundinella setosa* Trin. var. *lanifera* Fischer	Erect grass	Vulnerable	Type collection	Mogilikuppa	Cuddapah
132	*Chrysopogon velutinus* (Hook.f.) Bor	Erect grass		Type collection		Cuddapah
133	*Iseilema venkateshwarluii* Satyavathi	Prostrate grass		Type collection		Guntur
134	*Dimeria mahendragiriensis* Ravi, Saxena & Brahm.	Erect grass		Type collection		Gajapathi
135	*Dimeria mooneyi* Raizada ex Mooney	Erect grass		Least Known	Raissili, Sonabera	Koraput
136	*Dimeria orissae* Bor	Erect grass		Least Known		Salem, Koraput
137	*Oropetium roxburghianum* (Steud.) S.M.Phillips	Erect grass	Vulnerable	Least Known		Nellore
138	*Oryza jeyporensis* Govind. & Krish.	Erect grass		Least Known	Biorgumma, Boipariguda	Koraput
139	*Panicum fischeri* Bor	Erect grass	Vulnerable	Least Known	Seshachalam	Chittoor, Cuddapah
140	*Paraphyparrhenia bellariensis* (Hack.) Clayton	Erect grass	Vulnerable	Least Known	Gooty, Bellary	Anantapur, Bellary
141	*Pineria kollimalayana* Mohanan & Rao	Erect grass		Type collection	Kolli hills	Salem
142	*Themeda mooneyi* Bor	Erect grass		Type collection	Raissili	Koraput
143	*Themeda saxicola* Bor	Erect grass		Type collection		Koraput
144	*Tripogon jacquemontii* Stapf	Erect grass	Vulnerable	Scattered		Chittoor, Mahabubnagar
145	*Tripogon wightii* Hook.f.	Erect grass	Vulnerable	Least Known	Seshachalam	Chittoor

(Type collection: Known from Type Collection only; Type locality: Known from Type Locality; Least Known: Least known in herbaria and field; Scattered: Species with discontinuous range of distribution)
* Species marked with asterisk are prioritised for conservation, C.A.M.P., 2001 (Andhra Pradesh)

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Quantitative Assessment of Plant Diversity, Bioresource Values and Conservation of Tropical Forests of Southern Eastern Ghats, India

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Abstract

This abstract is concerned with large-scale inventory of plant diversity and their bioresource potentials, which is an outcome of a part of on-going major DBT-funded Project titled “Quantitative assessment and mapping of plant resources of Eastern Ghats”. The Indian subcontinent, with its rich biodiversity, is one of the 12 mega-diversity countries in the world. The Eastern Ghats, the Western Ghats, Himalayas and the north-eastern hills constitute important biodiversity areas of India. Primary forests of Asia, particularly those of Western Ghats and Eastern Ghats of peninsular India are disappearing at an alarming rate due to the anthropogenic activities and are replaced by forests comprising inferior species or their land use pattern changed. The main objective of this study is to determine species diversity and distributional patterns of plant resources of Eastern Ghats and map them. The southern Eastern Ghats in the five major hill complexes inventoried (Chitteris, Kolli hills, Pachamalais, Shervarayans & Kalrayans) harbor five distinct forest types - tropical evergreen, semi-evergreen, mixed deciduous, dry deciduous and thorn forests. The entire stretch of southern Eastern Ghats (10Ú 93' – 12Ú 18' N) was divided into 6.25 km x 6.25 km grids and within each grid a 0.5 ha transect (5 m x 1 km) was established. Trees (e” 10 cm gbh) and lianas (e” 5 cm gbh) were inventoried in the whole transect. At the beginning and end of each transect shrubs (in 5m x 5m quadrat) and herbs (in 1m x 1m quadrat) were sampled. A total of 644 species from 112 families were recorded in a total of 116 grids completed. Contribution of trees to the total species was high - 257 species (40 %), followed by herbs 209 species (32 %), lianas 160 species (25 %) and shrubs 18 species (3%). Out of the total 112 families, the most speciose family was Euphorbiaceae with 44 species, followed by Papilionaceae (30 species), Poaceae (30 species), Acanthaceae (29 species) and Rubiaceae (28 species). For the total 644 species encountered in this inventory, phytogragraphic analysis and database preparation of RET and economically important species,with their abundance are in progress and such data will be of immense use in conservation measures.

Keywords: Eastern Ghats, Tropical forests, Plant diversity, Bioresources, Phytogeographic analysis, Conservation.

Table -1 **List of the predominant plant species in southern Eastern Ghats**

Evergreen forest

1. Nothopegia heyneana
2. Neolitsea scrobiculata
3. Memecylon edule
4. Diploclisia glaucescens
5. Gnetum ula
6. Embelia basaal
7. Cycas circinalis
8. Cassia auriculata
9. Breynia retusa
10. Alpinia calcarata
11. Peperomia dindigulensis
12. Pteris quadriaurita
13. Curcuma neilgherrensis

Dry deciduous

1. Albizia amara
2. Hugonia mystax
3. Calotropis gigantea
4. Asparagus racemosus
5. Chloroxylon swietenia
6. Secamone emetica
7. Cassia auriculata
8. Dioscorea oppositifolia
9. Anogeissus latifolia
10. Jasminum angustifolium
11. Catunaregam spinosa
12. Tribulus terresteris
13. Diospyros Montana
14. Ziziphus oenoplia
15. Tecoma stans
16. Passiflora edulis

Semi-evergreen Forest

1. *Syzygium cumini*
2. Hiptage benghalensis
3. Cassia auriculata
4. Cymbopogon martini
5. Canthium umbellatum
6. Grewia rhamnifolia
7. Jatropha gossypifolia
8. Oxalis corniculata
9. Memecylon edule
10. Combretum albidum
11. Breynia retusa
12. Bidens pilosa
13. Nothopegia heyneana
14. Dalbergia rubiginosa
15. Dodonaea viscose
16. Ceropegia candelabrum

Mixed-deciduous forest

1. Commiphora caudata
2. Cansjera rheedii
3. Cassia auriculata
4. Cymbopogon martinii
5. Ficus benghalensis
6. Derris scandens
7. Catunaregam spinosa
8. Asparagus racemosus
9. Hardwickia binata
10. Ventilago maderaspatana
11. Tecoma stans
12. Dioscorea oppositifolia
13. Anogeissus latifolia
14. Combretum albidum
15. Calotropis gigantea
16. *Lepidagathis cristata*

Thorn forest

1. Euphorbia antiquorum
2. Pterolobium hexapetalum

3. Carmona retusa
4. Tribulus terresteris
5. Acacia planifrons
6. Acacia caesia
7. Catunaregam spinosa
8. Heteropogon contortus
9. Acacia horrida
10. Acacia torta
11. Cassia auriculata
12. Barleria cuspidate
13. Albizia amara
14. Capparis sepiaria
15. Calotropis gigantean
16. Abutilon crispum

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Agri-Biodiversity of Eastern Ghats - Exploration, Collection and Conservation of Crop Genetic Resources

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Abstract

Eastern Ghats is a rich abode and a treasure trove for ethnic diversity in different agri-horticultural crops, their wild/ weedy relatives, medicinal, aromatic and dye yielding plants. However, due to socioeconomic developmental programmes and other biotic pressures the endemic crop genetic diversity accumulated through years of evolution under domestication and natural selection by the tribal groups is being wiped out from the nature. Keeping in view, the importance and potential of this vast genetic resources, NBPGR Reg.Station, Hyderabad have been making earnest efforts to explore, collect and conserve this endemic Agri-diversity in the Eastern Ghat areas in the South East Coastal India. From 1986 till date a total of 22 crop specific surveys were undertaken for the collection of germplasm diversity in different agri-horticultural crops and others which resulted in the collection of 3,637 accessions of germplasm. Also, most of the germplasm collected had been accessioned and being conserved for characterization, evaluation and utilization of the germplasm in various crop improvement programmes. Two varieties one in paddy (Maruteru Sannalu) and the other in coriander (Sudha) could already been released from the material collected. Concerted and systematic efforts have to be made in future as there is a tremendous urgency and scope for collection and conservation of Agri-diversity in general and medicinal plants, wild relatives and endemic tree species in particular for sustainable utilization from the Eastern Ghats.

Keywords – Agri-biodiversity, Germplasm, Conservation, Tribal groups
(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Legumes of Eastern Ghats – A Reappraisal and in Conservation Perspective

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Abstract
A total of 86 genera, 348 species and 16 infraspecific taxa of legumes are documented in the present account. A tabulation of all the accounted genera with number of species and infra-specific taxa recorded from Eastern Ghats is provided. The relative distribution of legume taxa in the Eastern Ghats of Andhra Pradesh, Orissa and Tamil Nadu was analysed. Out of 308 indigenous taxa of legumes reported from Eastern Ghats of these states, Andhra Pradesh exhibits the highest number (267 taxa) followed by Tamil Nadu (230) and Orissa (186). Only 10 legumes are exclusively endemic to Eastern Ghats and 52 other endemic taxa of India are known to be distributed in Eastern Ghats. Data on habit, distribution and present status are also provided for the endemic legumes. A table comprising 55 cultivated and naturalized taxa in the Eastern Ghats is also given. The nomenclature has been updated by referring to various literature including the website of International Legume Database and Information Service (ILDIS). The paper emphasizes the importance of the Eastern Ghats as supportive to endemic/economically important/wild relative legumes of the country. Issues concerning to conservation and management options of legumes are also addressed.

Key words: Eastern Ghats, legumes, endemics, cultivated and naturalized taxa, conservation.

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Invasion of Exotic Species: Threat to the Biodiversity

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Abstract

Biodiversity loss caused by invasive species may soon surpass the damage done by habitat destruction. Invasive exotic species are now a major focus of global conservation concern. The decisions need to be made on whether benefits derived from the invasive spread of an exotic species outweigh the reduced value of ecosystem services, e.g. the loss of grazing land in areas invaded with Prosopis juliflora. It is necessary to consider actions to deal with the current problems caused by invasive species and to reduce the magnitude of the problem in the future. In view of this, the present study attempted to document the invasive exotic plant species in the flora of Eastern Ghats. At present, there are 61 species of invasive exotic plants invaded on natural ecosytems of Eastern Ghats. These include the most serious invasives, such as *Alternanthera tenella, Cassia uniflora, Chromolaena odorata, Hyptis suaveolens, Lantana camara, Parthenium hysterophorus* and *Prosopis juliflora.*

Table 1. List of Invasive Exotic species in Eastern Ghats.

S.No.	Species	Family	Nativity
1	*Acanthospermum hispidum*	Asteraceae	Brazil
2	*Ageratina adenophora*	Asteraceae	Tropical America
3	*Ageratum conyzoides*	Asteraceae	Tropical America
4	*Alternanthera philoxeroides*	Amaranthaceae	Tropical America
5	*Alternanthera pungens*	Amaranthaceae	Tropical America
6	*Alternanthera tenella*	Amaranthaceae	Tropical America
7	*Argemone mexicana*	Papaveraceae	Tropical America
8	*Blainvillea acmella*	Asteraceae	Tropical America
9	*Blumea eriantha*	Asteraceae	Tropical America
10	*Blumea lacera*	Asteraceae	Tropical America
11	*Blumea obliqua*	Asteraceae	Tropical America
12	*Cassia absus*	Caesalpiniaceae	Tropical America
13	*Cassia hirsuta*	Caesalpiniaceae	Tropical America
14	*Cassia obtusifolia*	Caesalpiniaceae	Tropical America
15	*Cassia tora*	Caesalpiniaceae	Tropical America
16	*Cassia uniflora*	Caesalpiniaceae	Tropical America
17	*Celosia argentea*	Amaranthaceae	Tropical Africa
18	*Chloris barbata*	Poaceae	Tropical America
19	*Chromolaena odorata*	Asteraceae	Tropical America
20	*Cleome viscosa*	Cleomaceae	Tropical America
21	*Crotalaria pallida*	Papilionaceae	Tropical America
22	*Croton bonplandianum*	Euphorbiaceae	Temperate America
23	*Cuscuta chinensis*	Cuscutaceae	Mediterranean
24	*Cuscuta reflexa*	Cuscutaceae	Mediterranean
25	*Dinebra retroflexa*	Poaceae	Tropical America
26	*Echinops echinatus*	Asteraceae	Afghanistan
27	*Eichhornia crassipes*	Pontederiaceae	Tropical America
28	*Evolvulus nummularius*	Convolvulaceae	Tropical America
29	*Galinsoga parviflora*	Asteraceae	Tropical America
30	*Gnaphalium polycaulon*	Asteraceae	Tropical America
31	*Hyptis suaveolens*	Lamiaceae	Tropical America
32	*Impatiens balsamina*	Balsaminaceae	Tropical America
33	*Ipomoea carnea*	Convolvulaceae	Tropical America
34	*Ipomoea staphylina*	Convolvulaceae	Tropical Africa
35	*Lagascea mollis*	Asteraceae	Tropical America
36	*Lantana camara*	Verbenaceae	Tropical America
37	*Malachra capitata*	Malvaceae	Tropical America
38	*Martynia annua*	Pedaliaceae	Tropical America

39	*Mimosa pudica*	Mimosacceae	Brazil
40	*Nicotiana plumbaginifolia*	Solanaceae	Tropical America
41	*Ocimum canum*	Lamiaceae	Tropical America
42	*Parthenium hysterophorus*	Asteraceae	Tropical America
43	*Pennisetum purpureum*	Poaceae	Tropical America
44	*Peristrophe paniculata*	Acanthaceae	Tropical America
45	*Pistia stratiotes*	Araceae	Tropical America
46	*Prosopis juliflora*	Mimosacceae	Mexico
47	*Rhynchelytrum repens*	Poaceae	Tropical America
48	*Saccharum spontaneum*	Poaceae	Tropical West Asia
49	*Salvinia molesta*	Salviniaceae	Brazil
50	*Scoparia dulcis*	Scrophulariaceae	Tropical America
51	*Sesbania bispinosa*	Papilionaceae	Tropical America
52	*Sida acuta*	Malvaceae	Tropical America
53	*Sonchus asper*	Asteraceae	Mediterranean
54	*Sonchus oleraceus*	Asteraceae	Mediterranean
55	*Stachytarpheta jamaicensis*	Verbenaceae	Tropical America
56	*Tribulus lanuginosus*	Zygophyllaceae	Tropical America
57	*Tribulus terrestris*	Zygophyllaceae	Tropical America
58	*Triumfetta rhomboidea*	Tiliaceae	Tropical America
59	*Typha angustata*	Typhaceae	Tropical America
60	*Waltheria indica*	Sterculiaceae	Tropical America
61	*Xanthium strumarium*	Asteraceae	Tropical America

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Ethno Medicinal Wealth of Eastern Ghats from Srikakulam District, Andhra Pradesh with a Note on Conservation

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Introduction

This paper presents the study of 386 plants species included in 309 genera and 111 familes have been recorded from Srikakulam District. Curing different ailments / diseases by a single species ranging from 1-13. One hundred and thirty nine different ailments are cured by these plants with 1419 ethnomedicinal practices. Of the 386 ethnomedicinally effective plant species, 77 are employed to treat both human and veterinary ailments, 4 are exclusively used in veterinary purpose whereas 305 plants are exclusively used in treating human ailments. The present investigation is taken up in Srikakulam District of Andhra Pradesh, India with the objectives of collection, identification and inventorisation of plant species employed in ethonomedicinal practices by the tribal groups as a part of their culture and way of life, to bring some new plant species on to the agenda of medicinal plants and to contribute to the development of modern medicine, which the tribals have identified as alternatives to some traditional plant species, which are being depleted or missing from their vicinity due to over exploitation and to explore the ways and means of protection, conservation and preservation of medicinal plants and ethonomedicinal practices for the cause of health and healthy living. Srikakulam District, the northernmost part of the 23 districts of Andhra Pradesh State, lies along the coast of Coromandel. The District is located within the geographical coordinates of 800 50' - 190 12' of the Northern latitude and 830 32' - 840 47' Eastern longitude with an altitude range of 50 – 1120m. The District is bounded by Orissa State on the North, Bay of Bengal in the East and South East and Vizianagaram District in the West and South West, and Srikakulam District falls under upper Godavari Region of eastern ghats of Andhrapradesh. The geology and soil is of considerable variation from deltaic alluvial to red sandy soils presents an interesting floristic data. The vegetation is mainly of dry-deciduous forest type with a few pockets of moist decidous patches at higher altitudes. The use of plants and animals as a source of food and medicine is as old as humanity. Ethnomedicine is an area of research that deals with medicine derived from plants, animals and minerals etc. All the systems of medicine of the world had their origins in traditional or ethnomedicinal practices only. Out of thousands of plants used by the tribals to cure ailments, hundreds only found their way in all the systems of medicine in vogue today. The ethnomedicinal knowledge endowed with the aborigines is the resultant of millennia of experience, transmitted from generation to generation by oral tradition. The extensive ethonomedicinal information that still exists in many parts of the world for scientific scrutiny and adoption for posterity, lest it be lost under the debris of modernism. Srikakulam District is inhabited by major tribal communities like Savara and Japapu followed by Kuttiya, Gadaba, Yerukula and Kondadora. Almost all the tribal groups in the District practice podu cultivation on

the hill slopes and plough cultivation in the plains. Culturally all the tribes are not in the same level of development. The tribals generally depend on priests, sorcerers and herbalists for curing their ailments. Most of the drug preparations are either single or in combination of plant products and occasionally with animal products and minerals. The ethnomedicinal data of the present study are the outcome of series of intensive filed trips over a period of five years in 74 interior tribal pockets of Srikakulam, Palakonda, Pathapatnam, Tekkali and Kasibugga forest ranges of Srikakulam District. In addition to randomly selected informants in the field, tribal villages and shandies, the ethnomedicinal information furnished by 41 Vaidhyas have been recorded. Utility based classification of Ethonomedicinal data for curing different ailments of humans as well as cattle population by different parts of various plant species have been incorporated.

Utility – Based Classification of Ethnomedicinal Data

The ethnomedicinally important/ plants along with the part used in bracket for different diseases / ailments are classified based on their utility. Under each group, the botanical names are arranged alphabetically. This classification presents a comprehensive picture of the whole text and forms an easy reference.

ABORTION : 1.*Annona suamosa* (Root); 2.*Caesalpiia bonduc(*Seed); 3.*Costus specious (*Rhizome) 4)*Dandrocalamus (*Whole Plant); 7)*Gloriosa superba (*Tuber); 8)*Holoptelea integrifolia (*Root bark) 9) *Ricinus comunis (*Root); 10)*Viscum articulatu (*Stem).

ABSCESS : 1)*Abution indicum (*Leaf); 2) *Ziziphus oenopila (*Bark)

ACIDITY : 1)*Centella asiatica (*Leaf); 2) *Cyperus rotundus (*Corm); 3)*Desmodium gangeticum (*Leaf)

ALLERGY: 1)*Crotolaria laburnifolia (*Leaf); 2) *Mirabilis Jalapa (*Leaf);.3) *Vetiveria zizaniodes (*Root).

AMOEBIC DYSENTERY : 1) *Artocarpus heterophyllus (*Fruit); 2.*Carica papaya (*Fruit); 3) *Shorea rabusta (*Latex).

AMENORRHOEA: 1) *Ananas comosus (*Root); *2) Buteamonosperma(*Seed); *3) Cassia fistula (*Leaf) ; *4.Celastrus paniculatus (*Root); *5)Datura metel* (Leaf); 6) *Sida cordata* (Root).

ANAEMIA : *1)Centella asiatica(*Leaf); *2)Curculigo orchioides(*Root); *3)Lygodium flexuosum (*Root).

ANALGESICS : *1)Clerodendrum serratum (*Root); *2)Neolamarckia cadamba (*Bark), *3)Carica papaya(*Fruit)

ANASARCA: *1)Achyranthes aspera (*Whole Plant);*2) Alangium Salvifolium(*Leaf); *3)Bauhinia purpurea (*Bark);4)*Cardiospermum halicacabum (*WholePlant); 5)*Careya arborea(*Bark); 6) *Curcuma pseudomontana (*Tuber);7)*Cycas circinalis(*Bark); *8)Diospyros Montana(*Bark); 9)*Elytraria acaulis (*Roots); 9) *Holoptelea integrifolia (*Bark); *10)Phyllanthus reticulates(*Bark); 11.*Solanum nigrum (*Whole Plant)

ANTHELMINTICS : *1) Alstonia venenata(*Bark); 2)*Azadirachta India (*Leaf); *3)Balanties aegyptiaca (*Fruit); 4.*Centratherum anthelminticum (*Leaf); 5) *Holarrhena antidysenterica (*Root); 6)*Mallotus philippensis (*Root);7) *Melia azadarach (*Leaf); 8) *Pterospermum xylocarpum (*Fruit); 9) *Urena lobata (*Root).

ANTIFERTILITY : *1) Butea monosperma (*Bank); *2)Haldina cordifolia (*Steam, Root bark); *3) Ipomoea pescaprae (*Whole plant).

ANTINARCTICS / LIQUOR ADDICTION : *1.Cassia fistula (*Root); *2.Cryptolepis buchanani (*Root); *3.Psidium guajava (*Leaf).

APHRODISIACS : *1Capparis zeylanica (*Root bark); *2.Caryota urens (*Whole plant); *3.Erythrina variegate (*Flower); *4. Mucuna utilis (*Root).

ARTHRITIS : *1.Brassica nigra (*Seed); *2.Calotropis giantea (*Root); 3) Capsicum frutescens (Fruit); 4) Citrus aurantifolia (Leaf); *5.Clitoria ternatea (*Root bark); *6. Commiphora caudate (*Resinous gum); *7.Holarrhena antidysenterica (*Bark); *8. Murraya paniculata (*Leaf); *9. Tephrosia Purpurea (*Root); *10.Thespesia populnea (*Bark)

ASTRINGENT : *1) Acacia chundra (*Bark)

ASTHMATIC ATTACK: *1).Boerhaavia diffusa (*Root); 2*)Butea monosperma (*Flower); 3) *Cassia fistula (*Fruit); 4) *Cissus quadrangularis (*Stem); 5)*Curculigo orchioides (*Root tuber); 6*. Datura metel (*Seeds, Fruit);7.*Holoptelea integrifolia (*Bark); *8.Indigofera tinctoria (*Root); *13. Justicia adhatoda (*Leaf, Flowers);*14.Tylophora indica (*Leaf); *15. Vitex negundo (*Leaf)

BACK ACHE : *1.Baswellia serrata (*Bark); *2.Centratherum anthelminicum (*Root); *3.Erythrina variegate (*Bark); *4.Vicoa Indica (*Root).

BELCHING : *1.Murraya koenigii (*Leaf)

BLOOD PRESSURE : *1.Arachis hypogaea (*Seed); *2.Cassia obtusifolia (*Leaf); *3.Flocouritia indica (*Root);*4.Momordica charantia (*Leaf); *5.Moringa oleifera (*Leaf); *6. Rauvolfia serpentina (*Root); *7. Terminalia arjuna (*Bark); *8.Tinospora cordifolia (*Whole Plant).

BLOOD PURIFICATION: *1.Hemidesmus indicus (*Root); *2.Nyctanthes arbor-tristis (*Leaf)

BOILS / BLISTERS / BURNS : *1.Abutilon indicum (*Leaf) 2.*Ammania baccifera (*Herb paste); 3*. Argyreia nervosa (*Leaf); 4*. Buchanania lanzan (*Bark); 5*. Cardiospermum halicacabum (*Leaf); 6) *Cassia auriculata (*Leaf); 7)*Cayratia auriculata(*Leaf); 7*. Cissus repens(*Root); 8.*Cleome viscosa (*Leaf); 9.*Combretum roxburghii (*Leaf) ; 10. *Desmodium gangeticum (*Leaf); 11*. Eclipta prostrate (*Leaf); 12.*Elytraria acaulis (*Leaf); 13*.Euphorbia hirta (*Whole Plant) ; 14.*Ficus bengalensis (*Latex); 15*. Heliotropium indicum (*Leaf); 16.*Hibiscus rosa-sinensis (*Leaf); 17.*Holop telea integrifolia (*Leaf); 18.*Jatropha curcas (*Latex); 19*. Ja tropha gossypifolia (*Leaf); 20*. Kalanchoe pinnata (*Leaf); *21.Leonotis nepetaefolia(*Flower); 22*. Plumbago zeylanica (*Plant);
23*. Pongamia pinnata(*Seed); 24. *Portulaca oleracea (*Plant); 25.*Sarcostemma secamone (*Leaf).

BONE-FRACTURES : *1.Alternanthera sessilis(*Whole plant); *2. Andrographis paniculata (*Whole Plant);*3.Cassia auriculata(*Leaf); 4.*Cissus quadrangularis(*Whole Plant); *5.Cissus repens Lam. (*Root) ; *6. Curcuma longa (*Rhizome) ; *7.Desmodium triflorum (*Plant); *8.Dichrostachys cinerea (*Root Bark) ; *9.Diospyrosmelanoxylon(*Fruit); *10.Dodonaea viscose(*Leaf) ;*11.Euphorbia nivulia(*Bark) ;*12.Ficus bengalensis(*Root);*13.Garuga pinnata (*Root); *14. Lannea coromandelica (*Bark);*15. Mimosa intsia (*Root Bark); *16.Oxaliscorniculata (*Whole Plan) ; *17. Rhaphidophora pertusa(*Root); *18. Sida acuta (*Leaf) ; *19.Spermacoce articularis (*Root); *20. Ziziphus mauritiana* (Bark).

BRAIN TONIC : *1. Bacopa monnieri (*Whole Plant) *2. Centella asiatica (Leaf); 3.Evolvulus alsinoides(*Plant)

BRONCHITIS : *1.Bacopa monnieri(*Leaf); *2.Citrus aurantifolia (*Rind); *3.Eclipta prostrate(*Plant); *4.Flacourtia indica(*Root) ; *5. Indigofera tinctoria(*Leaf); *6.Martynia annua(*Root); *7.Ocimum temuiflorum (*Leaf);*8.Wrightia tinctoria*;(Latex).

BRUISES : *1. Agave cantula(*Leaf); *2. Emilia sonchifolia(*Leaf); *3.Litsea glutinosa (*Bark) ; *4.Mallotus philippensis (*Leaf)

CANCER: *1.Ammania baccifera (*Leaf); *2.Celastrus paniculatus(*Root)

CARBUNCLE: *1. Abutilon indicum (*Leaf); *2.Albizia lebbeck(*Flower); 3*. Argyreia nervosa (*Leaf); *4. Hibiscus rosa-sinensis (*Leaf)

CATARRH : *1.Barleria prionitis(*Leaf); *2. Clerodendrum viscosum (*Leaf).

CENTIPEDE BITE : *1. Adiantum philippense(*Rhizome);

CHEST PAIN: *1.Aloe vera (*Leaf); *2. Aristolochia indica(*Root);*3. Asparagus racemosus (*Root tubers);*4.Buchanania lanzan(*Bark); *5. Careya arborea*;(Bark); *6. Casearia elliptica* (Bark); *7.Cheilanthes tenuifolia* (Whole Palnt); *8. Chloroxylum Swietenia(*Bark) ; *9. Cissampelos pareira (*Root); *10. Shorea robusta (*Resinous secretion).

CHICKEN POX: *1.Achyranthes aspera(*Leaf); *2.Azadirachta indica(*Leaf);*3. Bombax ceiba (*Flower); *4.Cayratia auriculata(*Leaf); *5.Dendrophthoe falcata (*Flower); *6. Gloriosa superba (*Tuber); *7.Sesbania grandiflora(*Bark).

COLD: *1.Acorus calamus (*Rhizome); 2*. Celastrus paniculatus(*Seed); *3.Curcuma longa (*Rhizome);*4.Dioscorea bulbifera(*Rhizome); *5.Euphorbia tirucalli (*Stem) ; *6. Glycosmis pentaphylla (*Root Bark); *7. Justicia adhatoda* (Stem); 8) Leucas caphalotes (Flower); 9) Phyllanthus embilica (Leaf); *10.Piper nigrum(*Leaf).

CONSTIPATION : *1.Amaranthus tricolor(*Stem); *2. Carica papaya (*Fruit); *3. Cassia fistula (*Fruit); *Luffa acutangula (*Seed) ; *5.Operculina turpethum(*Root).

CONTRACEPTION : *1. Abrus precatorius(*Seed Coat); *2. Bombax ceiba(*Flower); *3. Costus speciosus(*Rhizome); *4.Mimosa pudica(*Root) ; *5.Opuntia dillenii (*Plant) ; *6.Pueraria tuberose (*Tuber) ; *7.Spermadictyon suaveolens (*Root).

COOLING EFFECT: *1. Blumea mollis (*Leaf) ; *2.Cipadessa baccifera(*Leaf) ; *3.Cocculus hirsutus(*Leaf) ; *4.Erythrina fusca (*Leaf) ; *5.Phoenix loureirii (*Fruit); *6. Sansevieria roxburghiana(*Rhizome) ; *7. Tephrosia purpurea (*Leaf).

COUGH : *1. Abrus precatorius(*Leaf); *2.Acacia sinuata (*Leaf) ; *3. Acalypha indica (*Whole plant); *4.Allium cepa(*Onion juice) ; *5.Aloe vera(*Leaf); *6.Carissa spanarum (*Fruit*,* Flower); *7.Celastrus paniculatus(*Seed); *8.Coleus ambonicus(*Leaf); *9. Curcuma longa(*Rhizome); *10.Diospyros melanoxylon (*Bark); 11.*Euphorbia tirucalli. (*Stem); *12. Helicteres isora (*ruit decoction) ; *13.Kalanchoe pinnata (*Leaf); *14.Justica adhatoda (*Leaf); *15.Ocimum tenuiflorum(*Leaf) ; *16.Phyla nodiflora (*Plant) ; *17.Piper longum (*Fruit) ; *18. Piper nigrum (*Leaf); *19.Solamum nigrum (*Fruit); *20.Solamum torvum (*Fruit*,* Leaf); *21. Terminalia chebula (*Bark); *22. Zingiber officinale (*Rhizome)

CRACKS : *1. Anisochilus carnosus(*Leaf)

CROUP : *1. Acalypha indica (*Whole plant)

DANDRUFF / LICE : *1.Aloe vera* (Leaf); 2. *Annona Squamosa* (Seed); *3.Caryota urens(*Nut); *4.Cochlospermum religiosum (*Leaf); *5. Gloriosa superba (*Leaf) ; *6.Gmelina asiatica(*Fruit); *7.Hibiscus rosa sinensis (*Leaf); *8. Lannea coromandelica (*Seed); *9. Maytenus emarginata (*Leaf); *10. Mruuaya koenigii (*Leaf) ; *11.Nyctanthes arbor-tristis (*Seed); *12. Ocimum tenuiflorum(*Leaf); *13. Pongamia pinnata(*Bark*, Leaf)* ; *14. Pterospermum xylocarpum*(Leaf) ; *15. Thespesia populnea (*Bark).

DIABETES : *1. Aegle marmelos(*Leaf) ; *2.Azadirachta indica (*Seed); *3.Bougainvillea spectabilis (*Leaf) ; *4.Cassia auriculata (*Whole plant); *5.Catharanthus roseus (*Leaf); *6. Centratherum anthelminticum(*Leaf); *7.Clitoria ternatea(*Flower); *8.Crucuma pseudomontana (*Tuber); *9.Glycosmis pentaphylla (*Leaf); *10.Gymnema sylvestre(*Leaf); *11.Momordica charantia(*Fruit) ; *12.Syzygium cuminii(*Seed*,* leaf); *13. Terminalia chebula (*Fruit); *14.Tinospora coriacea (*Stem).

DIAPHORETIC : 1. Toddalia asiatica (Root bark)

DIARRHOEA : 1.Actinopteris radiata (whole plant); 2.Aegle marmelos (Fruit) ; 3.Andrographis paniculata (Root, leaf); 4. Bacopa monnieri (Leaf); 5.Barringtonia acutangula(Kernels); 6.Bauhinia recemosa (Root bark) ; 7.Brassica nigra (Seed); 8. Buchanania lanzan(Bark); 9.Careya arborea (Bark) ; 10.Catharanthus roseus(Leaf); 11. Citrus Medica(Fruit) ; 12. Cyperus routundus (Root); 13.Diospyros chlorozylon(Leaf); 14. Elephantopus scaber(Root) ; 15. Ficus hispida (Latex); 16.Hemidesmus indicus(Root); 17. Kalanchoe pinnanta (Leaf); 18.Maranta arundinacea (Rhizome) 20.Murraya paniculata(Leaf); 21) Oxalis corniculata(Plant); 22)Punica granatum. (Fruit); 23. Sida cordata(Whole plant) ; 24. Soymida febrifuga(Bark) ; 25.Strychnos nux- vomica (Bark) ; 26. Strychonos potatorum (Seed) ; 27.Woodfordia fruticosa (Flower).

DIPHTHERIA : *1. Crateva magna (*Bark)

DIURETIC : *1. Alysicarpus Monilifer(*Whole plant) ; *2.Kalanchoe lanceolata (*Leaf) ; *3.Rivea hypocrateriformis (*Plant)

DOG BITE : *1.Alangium salvifolium(*Root bark) ; *2. Calotropis gigantean(*Flower) ; *3. Detura metal (*Leaf); *4.Helicteres isora(*Root) ; *5. Pithecellobium duice (*Root) ; *6.Strychnos potatorum(*Seed)

DROPSY : *1. Barleria longiflora (*Root) ; *2. Oroxylum indicum (*Root bark)

DYSENTERY : *1. Actinopteris radiata (*Whole plant) *2. Ailanthus excelsa (*Bark) *3. Anogeissus acuminata(*Bark) *4. Canthium parviflorum (*Root bark); *5.Diospyros melanoxylon (*Fruit); *6. Euphorbia hirta(*Leaf) ; *7. Jatropha curcas (*Latex); *8. Lagerstroemia parviflora (*Leaf); *9. Limonia acidissima (*Fruit); *10.Maranta arunjdinacea(*Rhizome); *11. Murraya koenigii (*Leaf); *12.Murraya*

*paniculata (*Leaf);*13.Naringi cremulata (*Bark) ; *14. Piper nigrum (*Root); *15.Pithecellobium dulce(*Bark) ; *16.Psidium guajava (*Shoot) ; *17. Punica grantum (*Fruit) ; *18. Scoparia ulcis (*Root);*19. Sida cordata (*Whole plant) ; *20. Sterculia urens(* Gum); *21.Syzygium cuminii(*Bark).

EAR ACHE / EAR PROBLEMS / TYMPANITES : *1.Borassus flabelifer(*Petiole); *2. Capparis zeylanica (*Root bark); *3. Capsium annuum(*Flower);*4.Cleome viscose (*Leaf); *5.Costus speciosus(*Rhizome) ; *6.Diplocyclos palmatus(*Fruit) ;*7. Pueraria tuberosa(*Root) ; *8. Solamum nigrum (*Leaf) ; *9.Solamum torvum(*Fruit) ; *10. Vanda tessellate (*Leaf).

ECZEMA: *1. Acacia nilotica(*Bark); *2. Citrus medica(*Leaf) ; *3.Coldenia procumbens. (*Whole plant); *4.Elephantopus scaber (*Root); *5. Jatropha curcas(*Latex) ; *6. Thespesia populnea(*Fruit) ; *7. Ziziphus oenoplia(*Bark)

EMETICS : *1. Acalypha indica(*Leaf) ; *2. Ageratum conyzoides (*Leaf) ; *3. Alternanthera sessilis (*Root); *4.Cassia occidentalis(*Root) ; *5. Dalbergia sissoo(*Leaf).

EPILEPSY : *1. Allium sativum(*Cloves) ; *2.Bauhinia racemosa(*Bark) ; *3. Boerhaavia diffusa(*Root) ; *4. Coesalpinia bonduc (*Root bark) ; *5. Coldenia procumbens(*Leaf); *6. Cuscuta reflexa(*Plant) ; *7. Dodonaea viscose (*Leaf); *8.Hibiscus rosa sinesis(*Bark); *9.Ichnocarpus frutescenes(*Root); *10. Merremia tridentate(*Fruit); *11.Ocimum americanum(*Leaf); *12. Pavetta tomentosa(*Bark); *13. Semecarpus anacordium(*Seed); *14. Streblus asper(*Bark); *15. Terminalia arjuna(*Bark); *16.Tylophora indica(*Leaf) ; *17. Vitex negundo(*Leaf).

ERUPTIONS : *1. Albizia lebbeck(*Flowers)

EYE DISEASES : *1. Alternathera sessills(*Leaf) ; *2. Carissa spinarum (*Flower) ; *3. Cassia auriculata (*Leaf) ; *4. Coccinia grandis(*Leaf) ; *5.Colebrookia oppositifolia(*Leaf) ; *6. Dendrocalamus strictus(*Leaf) ; *7. Eclipta prostrata(*Plant) ; *8. Emilia sonchifolia(*Leaf) ; *9. Gymnema sylvestre(*Root); *10. Kalanchoe pinnata (*Leaf); *11. Moringa oleifera (*Leaf) ; *12. Phaseolus trilobus (Leaf); 13) Phyllanthus amarus (*Whole plant); *14. Piper betle (*Leaf); *15. Sesbania grandiflora(*Flower) ; *16. Solena heterophylla (*Leaf).

FERTILITY : *1. Diplocyclos palmat rus(*Seed); *2. Ficus racemosa(*Bark) ; *3. Limonia acidissima (*Bark).

FEVER : *1. Bixa orellana (*Root bark) ; *2. Boerhaavia diffisa (*Leaf); *3.Bridelta retusa (*Bark); *4. Canthium parviflorum (*Leaf); *5. Celastrus paniculatus(*Seed); *6. Chloroxyhum swietenia(*Bark); *7. Clerodendrum serratum (*Root) ; *8.Crateva magna (*Bark); *9. Dalbergia latifolia(*Bark) ; *10. Evolvulus nummularius(*Whole plant); *11. Hyptis suaveolens (*Root); *12. Lagerstroemia parviflora(*Root bark); *13. Lannea coromandelica (*Bark); *14. Merremia tridentate (*Plant); *15.Momordica charantia(*Fruit); *16. Naringi crenulata(*Bark); *17. Pergularia daemia(*Shoot); *18.*

*Phaseolus trilobus (*Leaf); *19. Polycarpaea corymbosa(*Plant); *20. Polygola arvensis (*Plant); *21. Rauvolfial serpentina(*Root); *22. Ricinus communis(*Root); *23. Scoparia dulcis(*Root) ; *24. Strychnos potatorum(*Bark) ; *25. Terminalia bellirica (*Fruit); *26. Tinospora cordifolia(*Root) ; *27. Trichosanthes tricuspidata (*Fruit) ; *28. Vernonia cineria(*Leaf).

FILARIASIS : *1. Cassia occidentials(*Root bark); *2. Mimosa pudica(*Leaf) ; *3. Mucuna utilis (*Root*).*

FISSURES : *1. Alagium salvifolium(*Leaf) ; *2. Anisochilus carnosus (*Leaf) ; *3.Ficus bengalensis(*Latex) ; *4. Lawsonia inermis(*Leaf).

FISTULA : *1. Cajanus cajan(*Root*,* Leaf) ; *2. Carica papaya(*Latex) ;

FLATULENCY: *1. Ageratum conyzoides(*Whole palnt) ; *2.Aristolochia bracteolate (*Plant).

GALACTOGOGUE: *1. Asparagus racemosus(*Root); *2.Carica Papaya(*Root bark); *3. Costus speciosus*(Rhizome); *4. Curcuma pseudomontana(*Tuber); *5.Cyperus rotundus (*Root*)*; *6. Gmelina arborea(*Root); *7. Gymnema sylvestre (*Root) ; *8.Hemidesmus indicus(*Root); *9.Leptadenia reticulata(*Leaf); *10. Modhuca longifolia (*Stem or root bank).

GASTRIC TROUBLES / DYSPEPSIA : *1. Barleria prionitis(*Whole Plant) ; *2. Cissus repens(*Root) ; *3. Crateva magna(*Bark) ; *4.Cucumis melo (*Fruit) ; *5. Lannea coromandelia(*Bark); *6. Mimosa intsia untrang (*Root); 7*. Pueraria tuberosa(*Root); *8.Terminalia chebula(*Bark).

GIDDINESS: *1. Colebrookia oppositifolia(*Bark); *2. Trichosanthes tricuspidata (*Tuber).

GONORRHOEA : *1. Agave cantula (*Leaf) ; *2. Calotropis procera (*Flower); *3. Clitoria ternatea (*Root); *4. Cocculus hirsutus(*Leaf) ; *5. Cuminum cyminum(*Seed) ; *6. Ficus bengalensis (*Latex); *7. Ficus religiosa(*Bark); *8. Jatropha gossypifolia(*Latex) ; *9. Pedalium murex. (*Plant); *10. Phyla nodiflora(*Whole plant); *11.Plumeria rubra(*Root bark) ; *12. Shorea robusta(*Gum powder) ; *13. Solanum nigrum(*Whole plant).

HAEMATURIA: *1.Ammania baccifera(*Plant);*2.Bambusa arundinacea (*Culms); *3. Butea superba (*Plant); *4. Cuscuta reflexa (*Plant); *5. Phyla nodiflora (*Leaf) ; *6. Smilax zeylanica(*Root)

HAEMORRHAGE: *1. Amaranthus Spinosus(*Root); *2.Artemisia vulgaris.(*Leaf) ; *3. Catharanthus roseus (*Leaf)

HAIR TROUBLES :*1. Citrullus colocynthis(*Seed); *2.Eclipta prostrata(*Leaf) ; *3.Hibiscus rosa sinensis(*Leaf).

HEADACHE: *1.Barringtonia acutangula (*Seed); *2.Capsium frutescens(*Leaf); *3. Cissus quadrangularis.(*Stem) ; *4. Cissus repens (*Root); *5.Cleome gynandra(*Leaf) ; *6. Datura innoxia (*Leaf); *7. Leucas cephalotes*;(Leaf); *8. Merremia hederacea (*Leaf); *9.Oxalis corniculata (*Leaf); *10. Piper longum(*Fruit) ; *11. Sebastiania chamelea (*Leaf) ; *12. Zingiber offcinale(*Rhizome).

HEAL CRACKS : *1.Anacordium occidentale (*Pericarp) ; *2. Cayratia pedata (*Tuber) ; *3. Semecarpus anacardium(*Pericarp).

HERPES : *1. Adiantum philippense(*Rhizome) ; *2. Xanthium strumarium(*Leaf).

HICCUPS : *1. Evolvulus alsinoides(*Plant)

HOARSENESS OF VOICE : *1. Acorus calamus.(*Rhizome)

HYDROCELE : *1.Caesalpinia bonduc (*Leaf) ; *2. Cassytha filiformis(*Whole plant) ; *3. Pedalium murex (*Fruit)

HYPER TENSION : *1. Allium sativum(*Cloves) ; *2. Arachis hypogaea(*Seed*.* Pod)

IMPOTENCY : *1.Chloroxylum swietenia(*Root bark); *2. Hybanthus* enneasperums *(*Whole plant);*3. Sphaeranthus indicus(*Root*,* Inflorescence)

INDIGESTION : *1. Amaranthus spinosus (*Root); *2.Aristolochia bracteolate(*Whole plant) ; *3. Cadaba fruticosa(*Leaf); *4. Colebrookia oppositifolia(*Leaf); *5. Cyperus rotundus (*Root); *6. Maranta arundinacea (*Rhizome); *7.Piper betle(*Leaf); *8. Pogostemon bengalensis(*Root); *9.Pueraria tuberosa(*Tuberous root); *10. Syzygium cuminii(*Bark); *11. Zingiber officinale (*Rhizome) ; *12.Maranta arundinacea (*Rhizome)

INFLAMMATION : *1. Alangium salvifolium(*Leaf) ; *2.Gmelina asiatica(*Fruit); *3. Jatropha gossypifolia* (Whole Plant)*; 4.Memecylon umbellatum(*Bark); *5. Rubia cardifolia (*Root); *6. Waltheria indica (*Root).

INFLATED STOMACH : *1.Physalis minima(*Leaf) ; *2.Pimpinella heyneana (*Seed)

INSOMNIA : *1. Arachis hypogaea(*Leaf) ; *2.Oxalis corniculata(*Leaf)

INTERMITTENT FEVER : *1. Anisomeles indica(*Leaf) ; *2.Bixa orellana(*Bark) ; *3.Calotropis procera(*Root bark) ; *4. Cyperus rotundus(*Root) ; *5.Viscum articulatum (*Plant).

INTESTINAL WORMS : *1. Acalypha indica(*Leaf); *2.Ananas comosus(*Leaf) ; *3. Andrographis paniculata(*Root, Leaf); *4. Argemone mexicana(*Latex) ; *5. Aristolochia bracteolate(*Leaves); *6. Boerhaavia diffusa(*Root); *7.Calycopteris floribunda (*Leaf); *8. Cissampelos pareira (*Root); *9. Citrullus colocynthis (*Fruit); *10. Curcuma longa (*Rhizome) ; *11.Erythrina variegata(*Leaf)

ITCHES : *1. Abutilon indicum (*Leaf) ; *2. Aloe vera (L.) Burm.(*Leaf) ; *3.Jatropha gossypifolia (*Leaf)

JAUNDICE: *1.Acacia sinuate(*Leaf); *2. Andrographis paniculata(*Whole plant) ; *3. Azadirachta indica (*Flower) ; *4. Blumea mollis (*Whole plant) ; *5. Boerhaavia diffusa (*Root) ; *6. Bridelia retusa (*Bark); *7. Centella asiatica(*Whole plant); *8. Curcuma pseudomontana (*Tuber) ; *9. Eclipta prostrata(*Leaf); *10. Evolvulus alsinoides(*Leaf) ; *11.Flacourtia indica(*Leaf) ; *12. Ixora pavetta (*Bark) ; *13. Lygodium flexuosum(*Leaf); *14. Madhuca longifolia (*Bark); *15. Operculina turpethum (*Bark); *16.Oroxylum indicum (*Bark); *17. Phyllanthus amarus(*Whole plant) ; *18. Polycarpaea corymbosa(*Whole plant) ; *19. Polygomum glabrum (*Root) ; *20. Pterocarpus marsupium (*Bark) ; *21. Ricinus communis(*Tender Leaf) ; *22. Tamarindus indica (*Flower) ; *23.Tribulus terristris (*Whole plant) ; *24. Tridax procumbens(*Plant) ; *25.Woodfordia fruticosa(*Bark)

KIDNEY STONES : *1. Aerva lanata(*Whole plant); *2. Amaranthus viridis(*Root) ;*3. Barleria longiflora(*Root); *4. Coleus ambonicus (*Whole plant);*5.Dichrostachys cinerea (*Root); *6. Musa paradisiacal(*Rhizome) ; *7. Scoparia dulcis(*Plant) ; *8. Sesbania grandiflora(*Plant).

LABOUR PAINS : *1.Cissampelos pareira(*Shoot decoction); *2.Sphaeranthus indicus (*Plant) ; *3. Sterculia urens (*Bark) ; *4. Zingiber officnale(*Rhizome).

LAXATIVE : *1. Abutilon indicum (*Seed); *2. Acalypha indica (*Leaf); *3. Acorus calamus (*Rhizome); *4.Ailanthus excelsa (*Bark); *5.baliospermum montanum (*Seed oil) ; *6. Cassia fistula (*Root bark, leaf, Fruit); *7. Delonix elata(*Leaf) ; *8.Hibiscus sabdariffa(*Leaf) ; *9. Jatropha curcas (Seed Oil); 10. Kalanchoe lancelata (Leaf); 11.Ricinus communis(*Seed); *12. Rivea hypocrateriformis(*Plant); *13.Terminalia bellirica (*Seed) ; *14. Terminalia chebula (*Seed).

LEPROSY : *1. Anacardium occidentale (*Bark); *2. Cassia fistula (*Bark); *3. Centella asiatica (*Leaf); *4. Dalbergia latifolia (*Bark, Leaf); *5. Gloriosa superba (*Tuber); *6. mallotus phillippensis (*Fruit)

LEUCODERMA : *1. Cassia fistula (*Bark) ; *2. Catharanthus reoseus (*Plant latex); *3. Coldenia procumbens (*Leaf); *4. Ficus hispida (*Latex) ; *5.Lawsonia inermis(*Leaf) ; *6. Vernonia cineria (*Seed).

LEUCORRHOEA : *1. Aerva lanata (*Root) ; *2. Aristolochia bracteolate(*Stem) ; *3. Asparagus racemosus(*Root) ; *4. Bombax ceiba* (Flower) ; *5. Cardiospermum halicacabum.(*Root) ; *6.*

*Celastrus paniculatus(*Root bark) ; *7. Cocculus hirsutus (*Leaf); *8. Curculigo orchioides(*Tuber) ; *9. Drythrina variegata(*Bark) ; *10.Euphorbia hirta(*Leaf) ; *11. Ficus religiosa (*Bark) ; *12. Flocourtia indica (*Stem) ; *13. Jatropha gossypifolia (*Latex) ; *14. Litsea glutinosa (*Bark) ; *15. Memecylon umbellatum(*Root bark) ; *16. Mucuna utilis (*Seed) ; *17. Paracalyx scariosa (*Root) ; *18. Phyllanthus emblica (*Pericarp) ; *19. Pongamia pinnata(bark)* ; *20.Prosopis cineraria (*Root bark) ; *21.Smilax zeylanica(*Root) ; *22. Streblus asper (*Root) ; *23. Terminalia arjuna (*Bark); *24.Urgenia indica(*Bulb)

MALARIA : *1. Andrgraphis paniculata(*Whole plant) ; *2.Azadirachta indica (*Root bark) ; *3. Cassia obtusifolia (*Seed); *4. Cipadessa baccifera(*Root); *5.Clerodendrum serratum(*Root) ; *6.Dendrophthoe falcate (*Flower); *7.Desmodium triflorum (*Whole plant); *8.Melia azedarach(*Bark); *9. Mimosa pudica (*Root) ; *10.Moringa oleifera(*Bark) *11. Musa paradisiacal l(*Pseudo stem);*12.Nyctanthes arbortristis(*Leaf); *13.Ocimum tenuiflorum(*Leaf);*14.Pedalium murex(*Leaf); *15.Raphanus sativus(*Seed);*16.Ricinus communis (*Leaf); *17. Sida rhombifolia (*Root);*18.Solamum surrattense Burm.(*Root); *19. Tamarindus indica (*Fruit); *20.Toddalia asiatica(*Bark) ; *21.Wrightia arborea (*Root) ; *22.Xanthium strumarium (*Plant).

MENTAL DISORDERS : *1.Biophytum nervifolium(*Whole plant) ; *2.Calotropis gigantean (*Flower)

MUMPS : *1. Dendrophthoe falcate(*Whole plant); *2. Hibiscus rosa sinensis* (Leaf); *3) Sansevieria roxburghiana (*Leaf)

NASAL BLEEDING : *1. Punica granatum (*Flower)

NAUSEA : *1. Citrus aurantifolia(*Rind); *2.Cariandrum sativum (*Seed) ; *3. Cyperus rotundus(*Corm).

NERVOUS DISORDERS : *1. Artimisia vulgaris (*Leaf); *2.Bacopa monnieri (*Whole plant); *3. Citrus aurantifolia(*Rind) ; *4. Phoenix sylvestris (*Fresh Toddy)

NEURALGIA : *1. Brassica nigra (*Seed)

OBESITY : *1. Commiphora caudata(*Resinous gum) ; *2. Macrotyloma uniflorum(*Seed)

OEDEMA : *1. Careya arborea (*Bark); *2. Kydia calycina (*Root)

PARALYSIS : *1. Allium sativum(*Bulb); *2. Atlantia monophylla (*Fruit) ; *3.Capparis zeylanica (*Root bark) ; *4. Cassia occidentalis(*Root) ; *5. Ficus racemosa (*Leaf); *6. Ficus religiosa(*Bark) ; *7. Sida cordata(*Leaf) ; *8 Smilax zeylanica (Root tuber); 9. Solanum surattense (Fruit); 10.Tephrosia purpurea (*Root)

PEPTIC ULCERS : *1. Aegle marmelos(*Leaf) ; *2. Cissampelos pareira (*Root) ; *3. Cleome gynandra(*Whole plant) ; *4.Mimosa intsia (*Plant) ; *5. Mitragyna parvifolia (*Bark) ; *6. Momordica charantia (*Root) ; *7. Pueraria tuberosa (*Tuberous root) ; *8. Solena heterophylla (*Root) ; *9. Sterculia urens (*Bark)

PILES : *1. Abutilon indicum (*Seed) ; *2. Achyranthes aspera(*Root); *3. Aegle marmelos (*Fruit) ; *4. Amorphophallus paeoniifolius (Corm)* ; *5. Azadirachta indica(*Leaf) ; *6.Carica papaya (*Latex) ; *7. Celosia argentea var. cristata (*Inflorescence) ; *8. Cynodon dactylon(*Grass) ; *9. Jatropha gossypifolia(*Latex) ; *10.Manilkara hexandra (*Bark) ; *11. Plumbago zeylanica (*Root bark) ; *12. Polygonum glabrum(*Root) ; *13. Pterocarpus marsupium (*Bark)

PNEUMONIA : *1. Trichosanthes tricuspidata (*Tuber)

POST PATRUM PROBLEMS : *1. Ailanthes excelsa (Leaf); 2) Bueta monosperma (Bark); 3.Coccinia grandis(*Whole plant); 4*. Leonotis nepetaefolia (*Inflorescence); *5. Macrotyloma uniforum(* Seed) ; *6. Plumbago zeyanica (W*hole plant) ; *7.Pongamia pinnata (*Bark).

PSORIASIS : *1. Argemone mexicana (*Whole plant); *2. Coldenia procumbens(*Leaf) ; *3. Curcuma longa(*Rhizome) ; *4. Justica adhatoda (*Leaf)

RASHES : *1. Datura innoxia (*Seed) ; *2. Datura metel(*Seed)

RAT BITE : *1. Entada pursaetha (*Leaf)

RHEUMATISM : *1. Amorphophallus paeoniifolius(*Corm) ; *2. Atalantia monophylla (*Fruit) ; *3. Azima tetracantha(*Leaf*,* root) ; *4. Brassica nigra (*Seed) ; *5. Calotropis gigantean (*Root) ; *6. Cissampelos pareira(*Root) ; *7. Cissus repens (*Root) ; *8. Cryptolepis buchanani(*Root) ; *9. Cycas circinalis(*Root) ; *10.Datura innoxia(*Leaf) ; *11. Datura metel(*Leaf*,* fruit) ; *12. Dichrostachys cinerea(*Root) ; *13. Ficus microcarpa(*Latex) ; *14. Guizotia abyssinica (*Seed) ; *15. Kalanchoe lanceolata(*Leaf) ; *16. Lagerstroemia parviflora(*Bark); *17. Ocimum tenuiflorum (*Leaf); *18. Plumbago zeylanica (*Root) ; *19. Pueraria tuberose (*Tuber) ; *20. Ricinus communis (*Root); *21. Sesamum indicum(*Oil); *22. Sterculia turens (*Bark) ; *23.Terminalia chebula (*Fruit) ; *24. Urena labata (*whole plant) ; *5. Vanda tessellata(*Root) ; *26. Vitex negundo(*Root*,* Leaf) *27. Woodfordia fruticosa (*Leaf)

RIBMUSCLE PAIN : *1. Alangium salvifolium (*Root bark) ; *2. Baliospermum montamum (*Root) ; *3. Borassus (*Stem) ; *4. Cascabela thevetia (*Latex) ; *5. Datura Innoxia (*leaf) ; *6. Datura metel (*Leaf*,* Fruit) ; *7. Momordica dioica (*Tuber); *8. Streblus asper (*Bark).

ROTTING TOES : *1. Impatiens balsamina (*Leaf)

BRAIN TONIC : *1. Bacopa monnieri(*Whole plant)

SCABIES : *1. Abutilon indicum(*Leaf) ; *2. Asparagus racemosus(*Leaf) ; *3.Crinum asiaticum (*Bulb) ; *4. Crotalaria verrucosa (*Leaf) ; *5. Holoptelea integrifolia (*Bark); *6. Pergularia Daemia(*Fruit, Leaf)

SCORPION STING / INSECTSTING : *1. Adiantum philippense(*Rhizome); *2. Bridelia retusa (*Bark); *3.Crotalaria larburnifolia (*Leaf) ; *4. Diplocyclos palmatus (*Leaf) ; *5. Heliotropium indicum (*Leaf) *6. Luffa acutangula (*Tendril) ; *7. Selaginella repanda (*Plant); *8. Strychnos nux-vomica(*Root bark) ; *9. Tamarindus indica (*Seed);*10. Tinospora cordifolia(*Tuber, aerial root)

SCROFULA : *1. Plumbago auriculata(*Root) ; *2. Xanthium strumarium(*Leaf)

SCURVY : *1. Anacardium occidentale(*Fruit) ; *2. Phyllanthus emblica (*Fruit) ; *3. Portulaca oleracea(*Plant)

SKIN DISEASES : *1. Acalypha indica (*Leaf) ; 2*. Argemone mexicana(*Leaf) ; *3. Biophytum nervifolium (*Leaf); *4. Blumea mollis(*Leaf); *5. Calamus viminalis(*Rechis, petiole) ; *6. Cleistanthus collinus (*Root bark); *7. Coldenia procumbens(*Whole plant) ; *8. Combretum roxburghii (*Leaf); *9. Crotalaria verrucosa(*Leaf) ; *10. Cucumis melo (*Fruit) ; *11. Curcuma longa (*Rhizome) ; *12. Desmodium triflorum (*Leaf) ; *13.Entada Pusaetha (*Seed) ; *14. Indoneesiella echiodes(*Leaf) ; *15. Kydia calycina(*Bark) ; *16.Momordica dioica(*Leaf) ; *17. Murraya koenigii (*Bark) ; *18. Moringa oleifera (*Bark) ; *19. Plumbago auriculata (*Root) ; *20. Plumeria rubra (*Latex) *21. Pueraria tuberosa* (Tuber);*22. Strychnos nuxvomica(*Leaf); *23. Vicoa indica(*Leaf).

SMALL POX : 1. *Sesbania grandiflora(*Bark)

SNAKE BITE / ANTIDOTE FOR POISON : *1. Acorus calamus(*Root bark) ; *2. Aristolochia indica (*Root) ; *3.Calotropis procera(*Leaf) ; *4.Entada pursaetha (*Seed) ; *5. Helicteres isora(*Bark) ; *6. Hybanthus enneaspermus (*Plant) ; *7. Indoneesiella echiodes(*Plant) ; *8. Lantana camara (*Seed) ; *9. Murraya koenigii (*Bark); *10.Polygala arvensis (*Plant); *11. Rauvolfia serpentine (*Root) ; *12. Solena heterophylla(*Root bark) ;*13. Stachytarpheta urticaefolia (*Plant) ; *14. Strychnos nux-vomica (*Root bark) ; *15. Strychnos potatorum (*Seed); *16. Tiliacora acuminata(*Root); *17. tinospora cordifolia (*Plant, Tuber) ; *18. Trichosanthes tricuspidata (*Root) ; *19. Urgenia indica(*Bulb) ; *20. Woodfordia fruticosa(*Bark) ; *21. Wrightia arborea (*Latex)

SPERMATORRHOEA : *1. Barleria prionitis (*Leaf) ; *2.Evolvulus alsinoides (*Whole plant) ; *3.Ficus bengalensis (*Fruit) ; 4. *Mucana utilis(*Seed) ; *5. Smilax zeylanica (*Root tuber) ; *6. Tinospora cordifolia* (Plant).

SPLEEN DISORDERS : *1. Barringtonia acutangula(*Seed); *2. Canavalia gladiata (*Root) ; *3. Citrullus colocynthis (*Root).

SORES: *1.Leonotis nepetaefolia (*Inflorescence, seed); *2.Commelina benghalensis(*Plant) ; *3. Moringa oleifera (*Bark)

SPRAINS : *1. Aganosma caryophyllata(*Leaf of plant); *2. Cascabela thevetia(*Latex); *3. Cassytha filiformis(*Stem) ; *4. Chromolaena odorata (*Whole plant) ; *5. Ichnocarpus frutescens(* Leaf, Flower)*; 6. Kalanchoe lanceolata (*Leaf) *; 7. Ixora pavetta (*Root or stem bark) *; 8. Lannea coromandelica (*Bark) *; 9. Madhuca longifolia(*Flower) *; 10. Mirabilis jalapa (*Root)*; 11 .Terminalia chebula (*Fruit).

STERILIZATION : *1. Canavalia gladiata (*Seed) *; 2. Carica papaya (*Seed) *; 3. Datura metal(*Root) *; 4. Pandanus odoratissimus(*Root) *; 5. Tragia involucrate(*Leaf) *; 6. Tribulus terrestris (*Root)

STIMULANT DRINK : *1. Hemidesmus indicus (*Root) *; 2. Piper betle (*Leaf)

STOMACH PAIN : *1. Andhographis paniculata (*Root, leaf) *; 2. Aristolochia indica (*Root)*; 3. Asparagus racemosus(*Root tubers) *; 4. Baliospermum montanum (*Root)*;* 5. Borreria pusilla)(Whole plant) ; 6. Cheilanthes tenuifolia (Root); *7. Clerodendrum serratum* (Root) ; *8. Cyperus rotundus (Corn)* ; *9. Elephantopus scaber (*Root) ; *10. Garuga pinnata (*Bark); *11. Haldina cordifolia* (Bark) ; *12. Helicteres isora(*Fruit) ; *13. Holarrhena antidysenterica (*Root bark); *14. Limonia acidissima (*Leaf); *15.Lygodium flexuozum (*Root) ; *16. Pergularia daemia (*Root); *17. Pterospermum xylocarpum (*Fruit); *18. Soymida febrifuga (*Bark); *19. Tephrosia purpurea(*Root) ; *20. Wrightia tinctoria(*Bark).

SYPHILIS : *1. Agave cantual (*Leaf) ; *2. Cocculus hirsutus(*Leaf) ; *3. Lawsonia inermis (*Leaf) ; *4. Vitex altissima (*Root *bark).*

TEETH INFECTION / TROUBLES : *1. Achyranthes aspera (*Root) ; *2.Barleria prionitis(*Leaf); *3. Crateva magna (*Leaf); *4. Evolvulus alsinoides(*Whole plant); *5. Ficus microcarpa (*Fruit); *6. Indigofera tinctoria(*Leaf); *7.Indoneesiella echioides (*Root); *8. Jatropha curcas (*Root);*9. Jatropha gassypifolia (*Whole plant);*10.Madhuca longifolia(*Bark); *11.Nyctanthes arbor-tristis (*Bark); *12. Phyla nodiflora (*Whole plant); *13. Piper nigrum (*Root); *14. Psidium guajava (*Leaf); *15. Solamum surattense (*Whole plant); *16. Streblus asper (*Stem, Branches).

THROAT TROUBLES : *1. Abrus precatorius(*Root) ; *2. Allium cepa (*Bulb); *3. Coriandrum sativum (*Plant) ; *4. Crotalaria laburnifolia (*Leaf); *5. Nyctanthes arbor-tristis (*Bark).

TUBERCULOSIS : *1. Actinopteris radiate (*Leaf); *2. Artocarpus heterophyllus (*Fruit); *3. Capparis zeylanica (*Root bark); *4. Justicia adhatoda (*Leaf); *5. Schleichera aleosa (*Bark); *6. Thespesia lampas(*Seed)

TYPHOID : *1. Adintum philippense (*Whole plant) ; *2. Balanites aegyptiaca (*Seed) ; *3. Diospyros melanoxylon (*Bark); *4. Thespesia lampas (*Root) .

ULCERS : *1. Anacardium accidentale (*Bark); *2. Biophytum nrevifolium (*Leaf);*3. Buchanania lanzan (*Bark); *4. Calycopteris floribunda (*Root bark); *5. Canscora diffusa (*Whole plant); *6. Catunaregam spinosa(*Root) ; *7. Centella asiatica(*Whole *Plant)* ; *8. Cuscuta reflexa(*Plant)*; 9. Cyperus rotundus (*Root)*;10. Elephantopus scaber(*Root)*; 11. Ficus hispida (*Bark)*; 12. Heliotropium indicum (*Leaf)*; 13. Hyptis suaveolens (*Seed)*; 14. Kydia calycina (*Bark) *; 15.Maytenus emarginata (*Leaf)*; 16. Nyctanthes arbor-tristis(*Bark) *; 17. Pongamia pinnta (*Bark*,* Leaf)*; 18. Selaginella repanda (*Plant) *; 19. Waltheria indica* (Plant).

URINARY DISORDERS : *1. Anogeissus latifolia (*Gum); *2. Artemisia vulgaris.(*Leaf); *3. Caryota urens (*Whole Plant); *4. Crateva magna (*Bark); *5. Cynodon dactylon(*Leaf); *6. Justicia adhatoda (*Leaf) ; *7.Martynia annua (*Leaf) ; *8. Mimosa pudica* (Root) ; *9. Tribulus terristris (*Whole plant) ; *10. Vetiveria zizanioides (*Root).

URETERAL STONES : *1. Aerva lanata (*Whole *plant)* ; *2. Coleus ambonicus (*Whole *Plant)* ; *3. Dichrostachys cinerea (*Root) ; *4. Phyla nodiflora (*Leaf)

UTERINE BLEEDING: *1.Celosia argentea var. cristata (*Inflorescence)

WHITE DISCHARGE / GLEET : *1. Wrightia arborea (*Root); *2. Xanthium strumarium (*Plant).

WHOOPING COUGH : *1. Artemisia vulgaris (*Leaf) ; *2. Desmodium gangeticum (*Root); *3. Limonia acidissima (*Root bark) ; *4. Pterolobium hexapetalum (*Bark).

WITHLOW : *1.Calotropis gigantean (*Latex) ; *2. Citrus aurantifolia (*Fruit)

WOUNDS / CUTS : *1. Ageratum conyzoides(*Plant); *2. Borassus flabellifer (*Male flower); *3. Calamus viminalis (*Rachis*,* petiole) ; *4. Carica papaya (*Fruit) ; *5. Cassia obtusifolia (*Leaf) ; *6. Chromolaena odorata (*Whole plant); *7. Cleome viscose (*Leaf); *8. Cyperus rotundus (*Root); *9. Eclipta prostrata (*Leaf) ; *10. Emilia sonchifolia(*Leaf) ; *11. Euphorbia hirta(*Plant); *12. Euphorbia nivulia Buch. (*Latex); *13. Ficus hispida (*Root *bark)*; *14. Ficus micrpcarpa (*Root *bark)*; *15. Garuga pinnata(*Leaf); *16.Gmelina asiatica (*Fruit); *17. Heliotropium Indicam (Leaf); 18. Hibiscus sabdariffa (*Leaf);*19.Kalanchoe pinnata (*Leaf); *20. Leonotis neptoaefolia(*Inflorescence); *21. Mallotus Phillippensis (*Leaf); *22. Mangifera indica(*Gum of Bark); *23. Maytenus emargianta (*Leaf); *24. Portulaca oleracea(*Plant); *25. Sarcostemma secamone (*Leaf); *26. Semecarpus anacardium (*Pericarp) ; *27.Shorea robusta (*Bark); *28. Stachytarpheta urticaeflia(*Leaf); *29.Terminalia chebula (*Fruit); *30. Tridox procumbens (*Plant); *31. Urena lobota (*Leaf); *32. Wrightia tinctoria (*Latex)

Ethnomedicinal data for veternary diseases / ailments / uses

S. No.	Name of the Plant	Disease / Ailment / Uses	Parts Used
1.	*Abrus precatorius*	Wounds	Root
		Sore mouth	Root, *leaf*
2.	*Abul\tilon indicum*	Sore *eye*	Leaf
3.	*Anona reticulata*	Wounds	Leaf
4.	*Annona swuamosa*	Wounds	Leaf
5.	*Anogeissus latifolia*	Snake bite	Seed
6.	*Aristolochia bracteolate*	Indigestion & ***Flatulence***	Whole *Plant*
7.	*Atylosia scarabeoides*	Diarrhoea, Gastric disorders	Whole *Plant*
8.	*Azadirachta indica*	Ulcers, Wounds, ***Skin & Liver*** Diseases, Cough, & Anthelmintic.	Leaf
9.	*Boerhaavia diffusa*	Diuretic	Whole *plant*
10.	*Butea monosperma*	Intestinal worms	Leaf
11.	*Caesalpinia bonduc*	Inflammation *of* ***Umbilicus*** Intestinal worms, ***Cholera***	Leaf , Seed
12.	*Carissa spinarum*	Wounds	Root
13.	*Casearia elliptica*	Wounds, Ulcers & *Urinary* troubles	Bark
14.	*Chlorozylum swietenia*	Wounds & Ulcers	Leaf
15.	*Cissus guadrangularis*	Fractured bones	Stem
16.	*Citrus Medica*	Scabies	Leaf
17.	*Citrus sinensis*	Ulcers & Worms	Leaf
18.	*Cleistanthus collinus*	Sores	Bark
19.	*Clematis gouriana*	Wounds	Leaf
20.	*Coccinia grandis*	Galactagogue	Leaf
21.	*Colebrookea oppositifolia*	Cataract	Leaf
22.	*Coleus ambonicus.*	Eye *infection* & ***Worms***	Leaf
23.	*Commelina benghalensis*	Yoke *sores*	Plant
24.	*Cateva magna*	Diphtheria	Bark
25.	*Cryptolepis buchananii*	Galactagogue	Leaf
26.	*Dalbergia sissoo*	Diarrhoea	Leaf
27.	*Dendrocalamus strictus*	Anthrax	Leaf
28.	*Dendrophthoe falcate*	Bone fractures	Plant
29.	*Dodonaea viscose*	Bone fracture	Leaf
30.	*Drosera burmanii*	Wounds	Root
31.	*Diospyros melanoxylon*	Dirrhoea	Bark
32.	*Elephantopus scaber*	Wounds	Root
33.	*Enatada pursaetha*	Vermifuge	Seed
34.	*Ficus hispida*	Galactagogue	Fruit
35.	*Glycosmis pentaphylla*	Wounds	Leaf
36.	*Grewia hirsute*	Bone fracture	Root
37.	*Grewia tiliaefolia*	Dislocated joints	Root *bark*
38.	*Hemionitis arifolia*	Wounds and ulcers	Plant
39.	*Holoptelea integrifolia*	Bronchial disorders	Leaf
40.	*Jatropha gossypifolia*	Eye injures, Bone fracture	Plant Root
41.	*Kalanchoe pinnata*	Skin infection	Leaf
42.	*Lawsonia inermis*	Loose motions	Leaf
43.	*Leonotis nepetaefolia*	Mastitis *(*Inflammation*)*	Root
44.	*Leucas cephalotes*	Ulcerous wounds	Leaf, *Seed*
45.	*Litsea glutinosa*	Bone fracture	Bark
46.	*Luffa acutangula*	Yoke *gal sore*	Leaf
47.	*Macaranga peltata*	Wounds & Worms	Bark
48.	*Macrotyloma uniflorum*	Galactagague	Seed
49.	*Madhuca longifolia*	Intestinal worms, Joint pains for stiffness	Flower, Seed
50.	*Manilkara hexandra*	Throat *infections*	Bark
51.	Martynia *annua*	Wounds & sores	Leaf
52.	*Melia azedarach*	Anthelmintic & Fever	Leaf

53.	*Morinda pubescens*	Cracks on the neck	Leaf
54.	*Mucana utilis wall.*	Gastric disorders & ***Worms***	Seed
55.	*Murraya paniculata*	Bone fracture	Leaf
56.	*Ocimum americanum*	Wounds	Leaf
57.	*Oroxylum indicum*	Wounds	Root *bark*
58.	*Pergularia daemia*	Muscular pains ***& Eye diseases***	Leaf
59.	*Phyllanthus reticulates*	Dysentery	Leaf
60.	*Piper longum.*	Wounds & Ulcers	Fruit
61.	*Plumbago zeylanica*	Wounds	Plant
62.	*Plumeria rubra*	Wounds & *Skin* ***Infections***	Latex
63.	*Pongamia pinnata*	Bronchial problems, Galactagogue. Skin diseases, Sores & Wounds	Leaf, Seed
64.	*Prosopis cineraria*	Mouth *ulcers*	Leaf
65.	*Pterocarpus marsupium*	Wounds & Worms	Bark
66.	*Pterolobium hexapetalum*	Dyspepsia	Bark
67.	*Rubia cordifolia*	Post natal problems	Bark
68.	*Schiechera oleosa*	Wounds & *Ulcers*	Seed
69.	*Semecarpus anacardium*	Wounds	Seed
70.	*Shorea robusta Gaertn.*	Dysentery	Bark
72.	*Solena heterophylla*	Cuts on the tongue	Tuberous *root*
73.	*Spermodictyon suaveolens*	Wounds	Leaf
74.	*Strychnos potatorum*	*Eye* infections	Seed
75.	*Terminalia chebula*	Anthrax	Fruit
76.	*Thespesia Lampas*	*Eye* diseases	Root
77.	*Trema orientalis*	Mouth diseases	leaf
78.	*Trichosanthes tricuspidata*	Dysentery	Tuber
79.	*Tridax procumbens*	Wounds	Root
80.	*Urena lobata*	Wounds	Leaf
81.	*Xanthium strumarium*	Gland swellings	Plant

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Liana Diversity in Eastern Ghats

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Abstract

Eastern Ghats are a discontinuous chain of hill ranges running parallel to the east coast of peninsular India, extending through parts of four states; Orissa, Andhra Pradesh Karnataka and Tamil Nadu. Eastern Ghats are part of Deccan peninsula biogeographic zone supporting diverse dry tropical forests comprising of all plant life forms. Lianas (woody climbers) are one of the significant groups of vascular plants. Lianas are woody climbing plants that rely on external physical support to ascend to the canopy. It is reported that approximately one half of the

families of vascular plants contain climbing species and the climbing habit has apparently evolved independently Lianas have a variety of adaptations for climbing towards the forest canopy such as stem twining, tendrils arising from leaf and branch modifications, thorns and spines. Lianas contribute heavily to high above ground biomass, whole forest transpiration, Carbon sequestration and also provide essential food and canopy structure to many forest animals. Lianas are found to be diverse and higher in abundance in disturbed forest areas as they can better utilize the sunlight and the gaps formed. A total of 149 liana species representing 31 families and 90 genera are present in the Eastern Ghats. Fabaceae is the dominant family with 28 species followed by Asclepiadaceae with 14 species and Convolvulaceae comprising of 12 species. All the climbing mechanisms – twining, tendril climbing, hook climbing, and straggling except root climbing are observed in this region. Among them, twiners with 109 species (74%) are the dominant lianas followed by stragglers with 32 species (22%) and the rest 4% include 4 hook climbers and 3 tendril climbers. Among lianas different kinds of diaspore types adapted for wind, animal, water and autochorous modes of dispersal were observed. Forty six species (31%) bore wind dispersed diaspores like samara, seeds with tufts of hairs and 44 species (30%) had reward producing diaspores meant for dispersal by animals and 57 species can be categorized as featuring autochorous mode of dispersal.

Key words: Climbing mechanism, Dispersal modes, Eastern Ghats, Lianas

Table 1. List of lianas, their climbing mechanism and dispersal mode of Eastern Ghats

Plant Name	Climbing type	Dispersal mode
RANUNCULACEAE		
Clematis smilacifolia Wall.	TW	Wind
Clematis wightiana Wall. ex Wight & Arn.	TW	Wind
Naravelia zeylanica (L.) DC.	TW+TC	Wind
ANNONACEAE		
Artabotrys hexapetalus (L.f.) Bhandari	HC	Animal
Uvaria lurida Hook.f. & Thoms.	TW	Wind
MENISPERMACEAE		
Anamirta cocculus (L.) Wight & Arn.	TW	Animal
Cocculus hirsutus (L.) Diels in Engl.	TW	Animal
Pachygone ovata (Poir.) Miers ex Hook.f.&Thoms.	TW	Animal
Parabaena sagittata Miers	TW	Animal
Tiliacora acuminata (Lam.) Miers	TW	Animal
Tinospora cordifolia (Willd.) Miers ex Hook.f.& Thoms.	TW	Animal
Tinospora sinensis (Lour.) Merr.	TW	Animal
CAPPARACEAE		
Capparis floribunda Wight III.	STR	Animal
Capparis roxburghii DC.	STR	Animal
Capparis sepiaria L.	STR	Animal
Capparis zeylanica L.	STR	Animal
Maerua oblongifolia (Frossk.) A. Rich.	STR	Autochorous
TILIACEAE		
Grewia obtusa Wall. Ex Dunn	TW	Animal
Grewia rhamnifolia Heyne ex Roth.	STR	Animal
LINACEAE		
Hugonia mystax L.	HC	Animal
MALPIGHIACEAE		
Aspidopterys cordata (Heyne ex Wall.) A. Juss.	TW	Wind
Hiptage benghalensis (L.) Kurz	TW	Wind
RUTACEAE		
Paramignya monophylla Hook.f.	STR	Animal
Paramignya scandens (Griff.) Craib	STR	Animal
Zanthoxylum limonella (Dennst.) Alston	STR	Animal
Toddalia asiatica (L.) Lam. var. *floribunda* Gamble	STR	Animal
OLACACEAE		
Olax imbricata Roxb.	TW	Autochorous
Olax scandens Roxb.	STR	Animal
OPILIACEAE		
Cansjera rheedii Gmel.	TW	Animal
Opilia amentacea Roxb.	TW	Animal
ICACINACEAE		
Natsiatum herpeticum Ham. ex. R. Br.	TW	Autochorous
Pyrenacantha volubilis Wight	TW	Autochorous
CELASTRACEAE		
Celastrus paniculatus Willd.	TW	Animal
Loeseneriella obtusifolia (Roxb.) A.C. Smith	TW	Wind
Reissantia grahamii (Wight) Ding Hou	TW	Wind
Reissantia indica (Willd.) Halle	TW	Wind
Salacia chinensis L.	TW	Animal
Salacia oblonga Wall. ex Wight & Arn.	TW	Animal
Salacia reticulata Wight	TW	Animal
RHAMNACEAE		

Gouania leptostachya DC.	TC	Autochorous
Helinus lanceolatus Hook.f.	TC	Autochorous
Sageretia filiformis (Roem. & Schultes) G.Don	STR	Animal
Ventilago denticulata Willd.	HC+STR	Wind
Ventilago gamblei Susseng.	HC+STR	Wind
Ventilago maderaspatana Gaertner	HC+STR	Wind
Ziziphus funiculosa Buch.-Ham.	STR	Animal
Ziziphus oenoplia(L.)Mill.	STR	Animal
Ziziphus rugosa Lam.	TW	Animal
CONNARACEAE		
Connarus paniculatus Roxb.	TW	Wind
*Rourea minor (*Gaertn.) Alston	TW	Autochorous
FABACEAE		
Abrus fruticulosus Wall. ex Wight & Arn.	TW	Autochorous
Abrus precatorius L.	TW	Animal
Atylosia albicans (Wight & Arn.) Benth.	TW	Autochorous
Atylosia volubilis (Blanco) Gamble	TW	Autochorous
Butea parviflora Roxb.	TW	Autochorous
Butea superba Roxb.	TW	Autochorous
Canavalia mollis Wight & Arn.	STR	Autochorous
Canavalia virosa (Roxb.) Wight & Arn.	TW	Autochorous
Dalbergia candenatensis Dennst.	TW	Autochorous
Dalbergia rubiginosa Roxb.	STR	Autochorous
Dalbergia spinosa Roxb.	STR	Autochorous
Dalbergia volubilis Roxb.	TW	Autochorous
Derris scandens (Roxb.) Benth.	TW	Wind
Derris trifoliata Lour.	TW	Wind
Dunbaria ferruginea Wight & Arn.	TW	Autochorous
Millettia auriculata Banker ex Brandis	TW	Autochorous
Millettia racemosa (Wight & Arn.) Benth.	TW	Autochorous
Mucuna atropurpurea DC.	TW	Autochorous
Mucuna gigantea DC.	TW	Autochorous
Mucuna hirsuta Wight & Arn.	TW	Autochorous
Mucuna monosperma DC. ex Wight	TW	Autochorous
Mucuna nigricans (Lour.) Steud.	TW	Autochorous
Paracalyx scariosus (Roxb.) Ali	TW	Autochorous
Pueraria tuberosa DC.	TW	Autochorous
Rhynchosia bracteata Benth.	TW	Autochorous
Rhynchosia hirta (Andrews) Meikle & Verdc.	TW	Autochorous
Rhynchosia rothii Benth. ex Aitch.	TW	Autochorous
Rhynchosia viscosa (Roth) DC.	TW	Autochorous
CAESALPINIACEAE		
Bauhinia vahlii Wight & Arn.	TW	Autochorous
Caesalpina cucullata Roxb.	STR	Wind
Caesalpina bonduc (L.)Roxb.	STR	Animal
Caesalpinia digyna Rottl.	STR	Autochorous
Pterolobium hexapetalum (Roth) Sant. & Wagh	STR	Wind
MIMOSACEAE		
Acacia caesia (L.) Willd.	STR	Autochorous
Acacia pennata (L.) Willd.	STR	Autochorous
Acacia sinuata (Lour.) Merr.	STR	Autochorous
Entada pursaetha DC.	TW	Hydrophily
Mimosa intsia L.	STR	Autochorous
Mimosa polyancistra Benth.	STR	Autochorous
Mimosa prainiana Gamble	STR	Autochorous
COMBRETACEAE		

Calycopteris floribunda	TW	Wind
Combretum albidum G.Don	TW	Wind
Combretum latifolium Bl.Bijdr.	TW	Wind
Combretum roxburghii Spreng.	TW	Wind
PASSIFLORACEAE		
Adenia cardiophylla (Mast.) Engler	TC	Wind
RUBIACEAE		
Morinda umbellata L.	TW	Autochorou
Oxyceros rugulosus (Thunb.)Tiry.	TW	Animal
MYRSINACEAE		
Embelia basal (Roemer ex Schultes) A. Dc.	STR	Animal
Embelia ribes Burm.f.	STR	Animal
OLEACEAE		
Jasminum angustifolium Vahl.	TW	Animal
Jasminum roxburghianum Wall.	TW	Autochorou
Jasminum scandens Vahl.	TW	Animal
Jasminum sessiliflorum Vahl.	TW	Animal
APOCYNACEAE		
Aganosma cymosa (Roxb.) G.Don	TW	Wind
Aganosma dichotoma (Roth) K. Schum.	TW	Wind
Anodendron paniculatum (Roxb.) A. DC.	TW	Wind
Carissa inermis Vahl,Symb.	STR	Animal
Ichnocarpus frutescens (L.) R. Br.	TW	Wind
Vallaris solanacea (Roth) O. Kuntze	TW	Wind
ASCLEPIADACEAE		
Cosmostigma racemosum (Roxb.) Wight	TW	Wind
Cryptolepis buchanani Roem. & Schult.	TW	Wind
Cryptostegia grandiflora R.Br.	TW	Wind
Decalepis hamiltonii Wight & Arn.	TW	Wind
Gymnema sylvestre (Retz.) R.Br.	TW	Wind
Gymnema hirsutum Wight & Arn.	TW	Wind
Gymnema tingens Wight & Arn.	TW	Wind
Hemidesmus indicus (L.) R.Br. var. *indicus*	TW	Wind
Holostemma ada-kodien Schult.	TW	Wind
Leptadenia reticulata (Retz.) Wight & Arn.	TW	Wind
Marsdenia brunoniana Wight & Arn.	TW	Wind
Marsdenia tenacissima (Roxb.) Moon.	TW	Wind
Secamone emetica (Retz.) R. Br.	TW	Wind
Wattakaka volubilis (L.f.) Stapf.	TW	WInd
LOGANIACEAE		
Strychnos colubrina L.	TW	Animal
Strychnos lenticellata Hill	TW	Animal
Strychnos wallichiana Steud.	TW	Animal
CONVOLVULACEAE		
Argyreia arakuensis Bal.	TW	Autochorou
Argyreia cymosa (Roxb.) Sweet Hort.	TW	Autochorou
Argyreia daltoni C.B. Clarke	TW	Autochorou
Argyreia hirsuta Arn.	TW	Autochorou
Argyreia involucrata C.B. Clarke	TW	Autochorou
Argyreia nervosa (Burm.f.) Boj.	TW	Autochorou
Argyreia roxburghii Choisy	TW	Autochorou
Argyreia setosa (Roxb.) Choisy	TW	Autochorou
Erycibe paniculata Roxb.	TW	Autochorou
Hewittia scandens (Milne) Mabb.	TW	Autochorou
Rivea hypocrateriformis (Desr.) Choisy	TW	Wind
Rivea ornata Choisy	TW	Wind

VERBENACEAE		
Holmskioldia sauguinea Retz.	TW	Autochorous
Sphenodesme involucrata (Presl) Roxb.	TW	Autochorous
Symphorema involucratum Roxb.	TW	Wind
Symphorema polyandram Wight	TW	Wind
POLYGONACEAE		
Polygonum chinense L.	TW	Autochorous
EUPHORBIACEAE		
Bridelia stipularis (L.) Bl.	TW	Animal
Dalechampia indica Wt.	TW	Autochorous
Mallotus repandus Muell.-Arg.	TW	Wind
Pterococcus corniculatus (Sm.) Pax & Hoffm.	TW	Autochorous
MORACEAE		
Plecospermum spinosum Trecul.	STR	Animal
GNETACEAE		
Gnetum ula Brongn.	TW	Animal

Note: HC – Hook climbers, STR- Stragglers, TC-Tendril climbers, TW- Twiners.

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Medico-Botanical Evaluation of Certain Crude Drugs Used for Alimentary Disorders by Adivasis in Eastern Ghats of Andhra Pradesh

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Abstract

The intensive exploration and repeated interviews, conducted with herbal doctors and tribal health practitioners, yielded the alimentary disorders as the most common and prevalent ailments in tribal hamlets of the Eastern Ghats of Andhra Pradesh. About 36 species belonging to 35 genera and 21 families of angiosperms were recorded as common crude drugs used for the purpose in the area. The comprehensive data pertaining to the botanical name, medicobotanical properties, mode of administration, etc was provided.

Key words: Crude drugs, alimentary disorders, Eastern Ghats.

Table-1: Medico-botanical enumeration of crude drugs

Botanical name/Vernacular name/ Family	Part used	Disease	Mode of administration
Abrus precatorius L. / Guruvinda/ (Fabaceae)	L	Stomach ache	Chewed with sugar and swallowed for stomach ache
**Abutilon crispum* (L.) G.Don / Nelabenda / (Malvaceae)	R	Diuretic	Extract given orally once a day for 2-3 days
Allophyllus serratus (Roxb.)Kurz / Guvvagutti or Sallikunkudu / (Sapindaceae)	R	Diarrhoea	Decoction given orally
**Anisomeles indica* (L.) Ktze. / Adabeera / (Lamiaceae)	Wp	Stomach ache	Infusion given orally
**Aristolochia bracteolata* Lam. / Gadidagadapa, Aristolochiaceae	L(fr)	Indigestion	Juice mixed in mother milk , given orally
**Basella rubra* L. / Errabachhali / (Basellaceae)	L(fr)	Diuretic	Juice mixed with butter, given orally
Bauhinia purpurea L./ Bontachettu/ (Caesalpiniaceae)	Sd	Indigestion	Powdered and made paste with sesam oil and given orally
**Bauhinia vahlii* Wt.&Arn. / Vistarlaku / (Caesalpiniaceae)	Sd	Indigestion	Powdered and made into paste (with sesam oil), given orally
**Buchanania axillaris*(Desr.) Raman. / Sara / (Anacardiaceae)	G	Diarrhoea	Given orally with hot water
Cannabis sativa L. / Bangiaku/ (Cannabinaceae)	L	Diarrhoea	Mixed with tubers of *Withania somnifera* ground paste given orally
Cassia auriculata L. / Thangedu / (Caesalpiniaceae)	Sh	Diarrhoea	Ground in curds, given orally
Ceiba pentandra (L.) Gaertn. / Tellaburuga / (Bombacaceae)	Sb	Diarrhoea	Decoction given orally
Curculigo orchioides Gaertn. / Nelatadi / (Hypoxidaceae)	Tb	Indigestion	Mixed with garlic ground, given orally
Cissamopelos pareira L. / Vishaboddi / (Menispermaceae)	R	Indigestion	Mixed with pepper and garlic ground, extract given orally
**Derris scandens* (Roxb.) Benth./ Merugaku or Nallateega / (Fabaceae)	L	Indigestion	Mixed with ginger ground, extract given orally with butter milk
**Desmodium pulchellum* (L.) Benth./Teegavelaga/ (Fabaceae)	Sb	Diarrhoea	Decoction given orally
**Diospyros candolleana* Wt. / Jagada ganti / (Ebenaceae)	L	Diarrhoea	Paste mixed in curds given orally
Euphorbia hirta L. / Palaku / (Euphorbiaceae)	Wp	Dysentery	Milky juice given orally

Ficus racemosa L. / Medi / (Moraceae)	Fr	Dysentery	Paste mixed in curds, given orally
Grewia hirsuta Vahl. / Chitti jana / (Tiliaceae)	Fr&R	Diarrhoea & Dysentery	Decoction given orally
Gymnema sylvestre (Retz) R.Br. Podapatri / (Asclepiadaceae)	L	Diarrhoea	Mixed in curds, given orally
Hemidesmus indicus (L.) R.Br. / Sugandapala / (Asclepiadaceae)	R	Indigestion	Mixed with pepper and garlic ground, paste given orally
**Kedrostris foetidessima* (Jacquin) Cogn. / Muradandaku / (Cucurbitaceae)	Sb	Indigestion	Mixed with pepper and garlic ground, paste given orally.
**Morus alba* L. / Mulbari / (Moraceae)	Fr(fr)	Indigestion	Juices given orally
**Passiflora foetida* L. / Jukemalle, Tella tumiki / (Passifloraceae)	L	Diarrhoea	Paste mixed in goat milk, given orally
**Pavonia odorata* Willd. / Chittibenda / (Malvaceae)	R	Dysentery	Decoction given orally
**Pergularia daemia* (Forssk)Chiov. /Juttapaku / (Asclepiadaceae)	L	Dysentery	Paste mixed in curds, given orally
Phyllanthus amarus Schum& Thonn. / NelaUsiri/(Euphorbiaceae)	Sh	Dysentery	Tender tips crushed, paste given orally
Plumbago zeylanica L. / Tella Chitramoolamu/ (Plumbaginaceae)	R	Indigestion	Decoction given orally
Pongamia pinnata (L.) Pierr. / Kanuga / (Fabaceae)	Sb	Dysentery	Decoction mixed in butter milk, given orally
Pterocarpus santalinus L. / Raktachandanamu / (Fabaceae)	Sb	Diarrhoea	Infusion given orally
Rhus mysorensis G.Don/ Sundara/ (Anacardiaceae)	Fr	Dysentery	Extract mixed in curds, given orally
Rynchosia suaveolens (L.f.) Dc. / Adavi kandi / (Fabaceae)	L	Stomach ache	Mixed with ginger and common salt, ground, paste given orally
Tephrosia purpurea (L.) Pers. / Vempali / (Fabaceae)	R	Stomach ache	Extract given orally
Terminalia chebula Retz. / Karakkaya / (Combretaceae)	Fl Fr	Dysentery Indigestion	Paste mixed in jaggery, given orally. Pepper and garlic ground, paste given orally

Fl: flower; Fr: fruit; G: gum; L: leaf; R: root; Sb: stem bark; Sd: seed; Sh: shoot; Tb: tubers; Wp: whole plant

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Folk Medicine for Nervous Disorders Used by Local Tribes in the Forests of Eastern Ghats of Andhra Pradesh

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Abstract

The present paper deals with folk information on therapeutic properties of 44 crude drugs used to cure nervous disorders by the natives of Eastern Ghats of Andhra Pradesh. Among them, 17spp are hitherto not reported and new to the science. The systematic enumeration of the identified crude drugs was appended.

Keywords: Folk medicine, neurological ailments, taxonomic validation.

Table-1. Systematic enumeration of crude drugs.

Botanical name / Family	Vernacular name	Part used	Disease	Mode of administration
**Acalypha indica* L. - Euphorbiaceae	Pippali	Leaves	Epilepsy and Fits	Ground with that of *Leucas aspera*, garlic and pepper, exract given orally.
Allium sativum L. - Liliaceae	Vellulli	Tuber	Epilepsy and Fits	Extract dropped into nostrils.
Alstonia venenata R.Br. - Apocynaceae	Edakulapala	Fruits	Epilepsy and Fits	Decoction given orally.
Annona squamosa L. - Annonaceae	Sitaphalamu	Leaves	Epilepsy and Fits	Crussed, applied through nostrils.
Aristolochia indica L. - Aristolochiaceae)	Nalla Eswari	Leaves	Epilepsy and Fits	Ground with that of *Argemone mexicana*, pepper and garlic, extract given orally.
***Atalantia correa* Roxb - Rutaceae	Adavinimma	Fruits	Paralysis	Oil extracted from berries applied on joints.
***A. racemosa* Roxb - Rutaceae	Adavinimma	Fruits	Paralysis	Oil applied on affected parts for one month.
Azadirachta indica Juss. - Meliaceae	Yapa	Stem bark	Epilepsy and Fits	Extract filtered and dropped into nostrils.
Bacopa monnieri (L.) Wettst - Scrophulariaceae	Neeli sambarani	Whole plant	Epilepsy and Fits	Extract given orally.
**Bixa orellana* L. - Bixaceae	Jaffra	Fruits	Epilepsy and Fits	Pulp extract given orally.
**Caralluma umbellata* Haw - Asclepiadaceae	Kundeti kommulu	Stem	Epilepsy and Fits	Extract mixed with that of *Butea monosperma*, pepper and garlic given orally.
***Cardiospermum canescens* Wall. -Sapindaceae	Tella budda kakara	Whole plant	Epilepsy and Fits	Extract with lemon water given orally once a day for 10 days.
Cassine glauca (Rottb.) Ktze. Celastraceae	Neridi	Stem bark	Epilepsy and Fits	Extract given orally.
**Catharanthus pusillus* (Murr.) G.Don -Apocynaceae	Konda mirapa	Whole plant	Epilepsy and Fits	Extract given orally.
Citrullus colocynthis (L.) Schrad -Cucurbitaceae	Papara teega	Root	Epilepsy and Fits	Ground with that of *Coccinia grandis*, extract given orally or as eye drops.

Clerodendron inermi Gaertn. - Verbenaceae	Isandaraku	Leaves	Epilepsy and Fits	Mixed with that of *Calotropis gigantea* (5:1) and 2g camphor, ground, extract dropped into nostrils.
**C. phlomides* L. f. - Verbenaceae	Thakkalaku	Root	Epilepsy and Fits	Mixed with stem bark of *Butea monosperma*, pepper, garlic and kasturi, extract given orally.
Cymbopogon flexuosus Wats. - Poaceae	Nimmagaddi	Leaves	Epilepsy and Fits	Extract applied into nostrils.
**C. martini* (Roxb.) Wats. - Poaceae	Kamakshi kasuvu	Leaves	Epilepsy and Fits	Extract applied into nostrils.
Cynodon dactylon Pers. - Poaceae	Garika gaddi	Root	Epilepsy and Fits	Decoction given orally.
**Erythrina stricta* Roxb. - Fabaceae	Mullu moduga	Stem bark	Epilepsy and Fits	Extract applied externally.
**E. variegate* Roxb - Fabaceae	Badisa	Whole plant	Epilepsy and Fits	Extract applied in to nostrils.
**Euphorbia nivulia* Buch-Ham. -Euphorbiaceae	Akujamudu	Leaves	Epilepsy and Fits	Ground with that of *E. tirucalli* and *Ruta chapalense,* extract heated on fire and given orally 3 times daily.
Gmelina arborea Roxb.- Verbenaceae	Gumartek	Shoot	Epilepsy and Fits	Decoction given orally.
Indigofera tinctoria L. - Fabaceae	Nili	Whole plant	Epilepsy and Fits	Extract dropped into nostrils.
**Ipomoea campanulata* L. - Convolvulaceae	Purititige	Whole plant	Epilepsy, Fits and paralysis	Boiled in oil, applied externally.
**Madhuca longifolia* Gmel. - Sapotaceae	Ippa	Wood	Epilepsy and Fits	Decotion given orally.
Martynia annua L. - Pedaliaceae	Telukondikaya	Leaves	Epilepsy and Fits	Extract dropped into nostrils.
Myrtus communis L. - Myrtaceae	Chittijana	Leaves	Epilepsy and Fits	Juice applied externally.
***Pavetta breviflora* DC. - Rubiaceae	Paccha kommi	Leaves	Epilepsy and Fits	Extract dropped into nostrils.
Pergularia daemia (Forsk.) Choiv. -Asclepiadaceae	Dustapu teega	Leaves	Epilepsy and Fits	Ground with onion, made into paste and given orally for 3 days.
***Pluchea tomentosa* DC. Asteraceae	Gamadaru	Leaves	Epilepsy and Fits	Extract as nosal drops.
Sansevieria roxburghiana Schult. -Agavaceae	Chaga	Leaves	Epilepsy and Fits	Ground with garlic and pepper, extrct given orally.
Sapium insigne Benth. - Euphorbiaceae	Devasurupi	Leaves	Epilepsy and Fits	Ground with *Corum capticum,* given orally.
Sarcostemma acidum (Roxb.) Voigt. -Asclepiadaceae	Pandirijemudu	Fruit	Epilepsy, Fits and Paralysis	Decoction given orally and extract applied externally.
Solanum aguivi Lam.- Solanaceae	Ramamulaka	Roots	Epilepsy and Fits	Ground with fruits of *Coccinia grandis*, extract dropped into nostrils.
S. surattense Burm. f. - Solanaceae	Nallakasi	Roots	Epilepsy and Fits	Ground with gorojanam and saffron, mixed in goat milk, given orally.
Srtychnos nux-vomica L. - Loganiacea	Mushti	Seeds	Epilepsy and Fits	Extract used as tonic.
Tragia involucrata L. - Euphorbiaceae	Teetakanthar aku	Shoot	Epilepsy and Fits	Extract given orally.
Trema orientalis (L.) Bl. - Ulmaceae	Kondajonna	Root bark and Leaves	Epilepsy and Fits	Extract used in epileptic fits.
Tribulus terrestris L. - Zygophyllaceae	Palleru	Leaf	Epilepsy and Fits	Ground with gorojanam, infusion given orally.
Vitex altissima L.f. - Verbenaceae	Nemaliadugu	Leaf and Root	Epilepsy, Fits and Nervous debility.	Extract applied externally and juice dropped into nostrils.

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Medicinal Plants used in Ayurvedic Formulations for Certain Ailments Availability - Need for Conservation and Cultivation

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Abstract

In Ayurveda various plants and their parts are used in Medicinal formulations to deal with ailments in general. The medicinal formulations are documented extensively in classical texts, like Charaka samhita, Susrutha samhita, Sarangadhara samhita and so on. The various formulations are in use in Indian society for a very very long time, and as such they are time honoured. In order to test some of these formulations the Trust has taken up studies for validation purpose. For standardization purposes, the plants involved in the various formulations have been procured from market and / or obtained from near by forest areas. Having conducted the various studies on ailments like Acidity, Krimi, Low back pain / Sciatica, Medoroga, Osteoarthritis, Pandu, Piles, Prameha, Psoriasis, Rheumatoid arthritis, Sirahsoola, Skin diseases, it was found that the number of patients suffering from the said ailments and seeking intervention through Ayurveda was quite large. It is foreseen that the demand for various plants may go up in the future, because of increasing popularity of Ayurveda. In this presentation we wish to draw the attention of concerned people about need for conservation, cultivation and other measures for preserving the plant species of interest in accordance with their abundance ratio.

Table 1A Medicinal plants in A.P. with reference to Eastern Ghats - Availability: Abundant (Ref.1)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Amalaki	*Emblica officinalis*	Euphorbiaceae	AD, Anem, Diab, Lbp & Sci, Migr, OA, Obes, Psor
2	Amruta	*Tinospora cordifolia*	Menispermaceae	Acid, AD, Anem, Lbp & Sci, OA, Psor, RA
3	Anantamoola	*Hemidesmus indicus*	Asclepiadaceae	AD, Lbp & Sci, RA
4	Aswagandha	*Withania somnifera*	Solanaceae	Lbp & Sci, OA
5	Aswattha	*Ficus religiosa*	Moraceae	Diab
6	Atibala	*Abutilon indicum*	Malvaceae	OA
7	Babboola	*Acacia arabica*	Mimosaceae	Lbp & Sci
8	Bhringaraja	*Eclipta alba*	Compositae; Asteraceae	AD
9	Chavya	*Piper chaba*	Piperaceae	OA, Psor
10	Danti	*Baliospermum montanum*	Euphorbiaceae	AD, Diab, RA
11	Dhava	*Anogeissus latifolia*	Combretaceae	Diab
12	Erandamoola	*Ricinus communis*	Euphorbiaceae	OA, RA
13	Gokshura	*Pedalium murex*	Pedaliaceae	Lbp & Sci, OA, RA
14	Haritaki	*Terminalia chebula*	Combretaceae	AD, Anem, Diab, Lbp & Sci, Migr, OA, Obes, Pil, Psor, RA
15	Khadira	*Acacia catechu*	Mimosaceae	AD, Diab, Psor
16	Kutaja	*Holarrhena antidysenterica*	Apocynaceae	Diab, Int-worm
17	Latakaranja	*Caesalpinia bonducella*	Caesalpiniaceae	Psor
18	Neem	*Azadirachta indica*	Meliaceae	AD, Int-worm, Migr, Psor
19	Nirgundi	*Vitex negundo*	Verbenaceae	AD, Lbp & Sci, OA
20	Nyagrodha	*Ficus bengalensis*	Moraceae	Diab
21	Patra (Tejapatra)	*Cinnamomum tamala*	Lauraceae	OA
22	Punarnava	*Boerhaavia diffusa*	Nyctaginaceae	Anem, OA, Pil, RA
23	Satavari	*Asparagus racemosus*	Liliaceae	Diab, Lbp & Sci, OA
24	Shunthi	*Zingiber officinale*	Zingiberaceae	AD, Lbp & SCI, OA, Obes, Pil, Psor, RA
25	Suryavarta	*Helianthus annuus*	Compositae; Asteraceae	Migr
26	Vibhitaki	*Terminalia bellirica*	Combretaceae	AD, Diab, Lbp & Sci, Migr, OA, Obes, Psor, RA

Table 1B Medicinal plants in A.P. with reference to Eastern Ghats - Availability: Abundant (as noticed by us)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Adhaki	*Cajanus indicus*	Papilionaceae ; Fabaceae	Diab
2	Ajamoda	*Apium graveolens*	Umbelliferae ; Apiaceae	AD, Int-worm, OA, Psor
3	Ajwain (khurasani)	*Hyoscyamus niger*	Solanaceae	AD, Lbp & Sci, OA
4	Dadima	*Punica granatum*	Punicaceae	Int-worm
5	Dhanyaka	*Coriandrum sativum*	Umbelliferae; Apiaceae	OA
6	Ela	*Elettaria cardamomum*	Zingiberaceae	OA, Psor
7	Haridra	*Curcuma longa*	Zingiberaceae	AD, Diab, Obes, Psor
8	Jeeraka	*Cuminum cyminum*	Umbelliferae ; Apiaceae	OA, Psor
9	Katu (Sarshapa)	*Brassica campestris*	Cruciferae; Brassicaceae	Psor
10	Krishna jeeraka	*Nigella sativa*	Ranunculaceae	AD, OA, Psor
11	Tila	*Sesamum indicum*	Pedaliaceae	Int-worm, Lbp & Sci, OA, RA
12	Twak	*Cinnamomum zeylanicum*	Lauraceae	OA, RA
13	Udumbara	*Ficus glomerace*	Moraceae	Diab
14	Yashtimadhu	*Glycyrrhiza glabra*	Papilionaceae; Fabaceae	AD, Diab, OA, RA

Table 2A Medicinal plants in A.P. with reference to Eastern Ghats - Availability: Common (Ref.1)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Aragwadha	*Cassia fistula*	Caesalpiniaceae	Diab, OA, Psor, RA
2	Chakramarda	*Cassia tora*	Caesalpiniaceae	Psor
3	Karanja	*Pongamia pinnata*	Papilionaceae; Fabaceae	Diab, Pil
4	Madhuka	*Madhuca indica*	Sapotaceae	Diab
5	Paatha	*Cissampelos pareira*	Menispermaceae	AD
6	Varuna	*Crataeva nurvala*	Capparidaceae	Diab

Table 2B Medicinal plants in A.P. with reference to Eastern Ghats – Availability: Common (as noticed by us)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Dhattura	*Datura metel*	Solanaceae	Lbp & Sci, OA
2	Patri	*Borassus flabellifer*	Palmae; Arecaceae	Obes
3	Priyala	*Buchanania lanzan*	Anacardiaceae	Diab
4	Pugaphala	*Areca catechu*	Palmae; Arecaceae	Diab

Table 3 Medicinal plants in A.P. with reference to Eastern Ghats - Availability: Optimum (Ref. 1)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Amra	*Mangifera indica*	Anacardiaceae	Diab
2	Bhallataka **(Ref. 3)**	*Semecarpus anacardium*	Anacardiaceae	Diab
3	Musta	*Cyperus rotundus*	Cyperaceae	AD, Diab, OA, Obes, Psor
4	Raasna	*Alpinia galanga*	Zingiberaceae	Lbp & Sci, OA, RA
5	Talamooli (Kalimusli)	*Curculigo orchioides*	Amaryllidaceae; Hypoxidaceae	OA
6	Vasa	*Adhatoda vasica*	Acanthaceae	AD, Psor

Table 4A Medicinal plants in A.P. with reference to Eastern Ghats - Availability: Rare and Vulnerable (Ref. 1)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Saptaparna	*Alstonia scholaris*	Apocynaceae	Diab
2	Usheera	*Vetiveria zizanioides*	Gramineae; Poaceae	OA

Table 4B Medicinal plants in A.P. with reference to Eastern Ghats – Availability: Rare (as noticed by us)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Kampillaka	*Mallotus philippinensis*	Euphorbiaceae	Diab
2	Paribhadra	*Erythrina indica*	Papilionaceae; Fabaceae	AD, Diab

Table 5 Medicinal plants in A.P. with reference to Eastern Ghats - Availability: Endemic & Red listed (Ref. 2)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Arjuna (Ref. 4)	*Terminalia arjuna*	Combretaceae	Diab
2	Bhunimba	*Andrographis paniculata*	Acanthaceae	Migr
3	Chitraka	*Plumbago zeylanica*	Plumbaginaceae	AD, Diab, OA, Pil, Psor
4	Daruharidra (Ref. 5)	*Coscinium ferestratum*	Menispermaceae	AD, Diab, OA, Pil, Psor
5	Guggulu (Ref. 5)	*Commiphora mukul*	Burseraceae	Anem, Lbp & Sci, OA, Obes, Psor, RA
6	Jambu	*Syzygium cuminii*	Myrtaceae	Diab
7	Manjishta	*Rubia cordifolia*	Rubiaceae	AD, RA
8	Maricha	*Piper nigrum*	Piperaceae	AD, Lbp & Sci, OA, Obes, Psor
9	Meshasringi	*Gymnema sylvestre*	Asclepiadaceae	Diab
10	Palasa	*Butea frondosa*	Papilionaceae; Fabaceae	AD
11	Parpata	*Fumaria parviflora*	Fumariaceae	OA
12	Patola	*Trichosanthes dioica*	Cucurbitaceae	Diab, OA, Psor
13	Pippali	*Piper longum*	Piperaceae	AD, OA, Obes, Pil, Psor, RA
14	Pushkaramoola	*Inula racemosa*	Compositae; Asteraceae	Lbp & Sci, OA
15	Sajjaras / Raal	*Shorea robusta*	Dipterocarpaceae	Diab, RA
16	Satahva	*Pimpinella anisum*	Umbelliferae; Apiaceae	Lbp & Sci
17	Shyonaka	*Oroxylum indicum*	Bignoniaceae	Diab
18	Talisa patra	*Taxus baccata*	Taxaceae	OA
19	Trivrut	*Operculina turpethum*	Convolvulaceae	AD, RA
20	Vacha	*Acorus calamus*	Araceae	AD, Lbp & Sci, OA, Psor
21	Vatsanabha	*Aconitum ferox*	Ranunculaceae	OA, Lbp & Sci
22	Vidanga	*Embelia ribes*	Myrsinaceae	AD, Int-worm, OA, Obes, Psor, RA
23	Vidari	*Pueraria tuberosa*	Papilionaceae; Fabaceae	OA
24	Vijayasara	*Pterocarpus marsupium*	Fabaceae; Papilionaceae	Diab, Obes
25	Vriddhadaraka / Samudrapalaka	*Argyreia speciosa*	Convolvulaceae	Lbp & Sci

Table 6 Medicinal plants in A.P. with reference to Eastern Ghats (No information regarding status of availability)

S.No.	Sanskrit name used in Ayurveda	Latin name	Family	Ailments in which used
1	Ativisha	*Aconitum heterophyllum*	Ranunculaceae	Psor
2	Bakuchi	*Psoralea corylifolia*	Papilionaceae; Fabaceae	AD , Psor
3	Devadaru	*Cedrus deodar*	Pinaceae	Anem, Diab, E4OA, Psor, RA
4	Hapusha	*Juniperus communis*	Pinaceae; Cupressaceae	Lbp & Sci
5	Harenuka	*Vitex agnus-castus*	Verbenaceae	AD
6	Hing	*Ferula foetida*	Umbelliferae; Apiaceae	Int-worm
7	Katukarohini	*Picrorhiza kurroa*	Scrophulariaceae	OA
8	Kushta	*Saussurea lappa*	Compositae; Asteraceae	OA, Psor
9	Lodhra	*Symplocos racemosa*	Symplocaceae	Diab
10	Rohitaka	*Tecomella undulata*	Bignoniaceae	Diab
11	Sati	*Hedychium spicatum*	Zingiberaceae	Lbp & Sci
12	Swetasarshapa	*Brassica campestris*	Cruciferae; Brassicaceae	Psor
13	Yavakshara	*Hordeum vulgare*	Gramineae; Poaceae	OA, Psor

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Ethno-Medico-Botanical Properties of *Terminalia* species (Combretaceae) in the Eastern Ghats of Andhra Pradesh, India

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Abstract

The paper deals with ethno-medico-botanical properties of Terminalia species (Combretaceae) in the Eastern Ghats of Andhra Pradesh, India. The crude drugs belonging to seven species used by local tribes for different human and veterinary ailments. The maximum drug samples were prepared from fruits (38) followed by stem bark (12) and leaves (5) etc.

Key words: Ethno medicine, Terminalia species, Eastern Ghats, Andhra Pradesh.

Table1: Systematic enumeration of crude drugs of *Terminalia* species

S.No	Botanical name / Vernacular name	Purpose	Part	Mode of preparation / administration
1	*Terminalia alata* Heyne ex Roth. Nalla maddi (or) Ina maddi	Constipation	Fr	Powder mixed with one glass of hot Water, given orally.
		Diarrhoea	Fr	Infusion mixed with Cow milk / hot water, given orally.
		Dysentery	Fr	Infusion mixed with one glass of butter milk, given orally.
		Heart stroke	Sb	Decoction given orally.
		Piles	Fr	Infusion mixed with Cow urine, given orally.
		Rheumatic back pains	Fr	Infusion mixed with honey and Cow milk, given orally.
2	*T . arjuna* (Roxb. ex Dc.) Wight & Arn. Tella maddi	Blood pressure	Sb	1g of powder mixed with honey, given orally twice a day for a week days.
		Fractures	Sb	1g of powder mixed with Cow milk, given orally twice a day for a week days.
		Veterinary diseases	Sb	Mixed with that of Anogeissus latifolia , fruits of Phyllanthus emblica and Aegle marmelos (50 g each) and 20 g of Pepper and garlic, pounded, extract given orally twice daily for five days.
3	*T. bellirica* (Gaertn.) Roxb. Tani (or) Tandra	Asthma	Fr	Infusion mixed with honey , given orally / along with that of *T. chebula* & *Phyllanthus emblica,* twice a day for week days.
		Dropsy	Fr	Mixed with that of *T. chebula* & *Phyllanthus emblica*, often called tri phala churna, further mixed with tri katakas as *Bacopa monnieri, Piper longum* & *Piper nigrum* in equal parts, given orally twice a day for week days.
		Jaundice	Sb	Infusion mixed with garlic and pepper in Cow milk, given orally.
		Leucorrhoea	Fr	Boiled along with that of *Phyllanthus emblica* & *T. chebula*, decoction given orally.
		Throat infection	Fr	Pulp mixed with salt and long pepper , given orally.
4	*T.chebula* Retz. Karakkai	Asthma	Fr	Coarsely powdered and smoke in a pipe.
		Cooling	Fr	30g of powder mixed in palm jaggery given orally.
		Cough	Fr	1g of powder mixed with hot water, given orally / paste given orally.
		Cardiac disorders	Fr	Rind, kept in water over night, decoction given orally once a day for 10 days.
		Diabetes	Fr	Along with those of *T.bellirica* and *Phyllanthus emblica* ground, paste given orally.
		Dysentery	Fl	Paste mixed in jaggery, given orally.
		Dyspepsia	Fr	Along with that of pepper and garlic ground, paste given orally.
		Fever	Fr	Along with that of *Balanitis roxburghii* & *Coccinia grandis*, whole plant of *Andrographis paniculata* and stem of *Tinospora cordifolia* ground, extract given orally.
		Intestinal worms	Fr	Powder mixed with honey, given orally.
		Leucoderma	Fr	Powder mixed with buttermilk and, given orally three times daily for seven days.
		Malaria fever	Fr	Along with the whole plant of *Andrographis paniculata* stem of Tinospora cordifolia and stem bark of Azadirachta indica boiled in water and one spoon of decoction given orally.
		Piles	Fr	Infusion mixed in buttermilk given orally, for a week days.

		Gastritis	Fr	Infusion mixed with ginger powder, honey & ghee given orally two times per day for three days.
		Hoarseness of voice	Fr	Powder mixed with honey given orally thrice a day for two days.
		Scabies	Fr	Powder given orally and as external application.
		Stomachache	Fr	Powder given orally with water.
		Tongue diseases	Fr	Rind of fruit kept in mouth, secreted salvia engulfed three times per day for two days.
		Toothache	Fr	Infusion made as paste, applied on gums of teeth.
		Whooping cough	Fr	Powder mixed with cow urine, given orally.
		Wounds	Fr	Infusion given orally and also as external application.
5	*T.coriacea* (Roxb.) Wight & Arn.	Intestinal worms	Sb	Decoction given orally.
		Orchitis	Sb	Made into a fine paste with egg yolk and applied externally.
		Scrofula	L	Ground with turmeric, made into paste, applied externally.
6	*T.pallida* Brandis. Tella karaka	Cold	Fr	Infusion mixed in cowmilk, given orally.
		Cough	Fr	Infusion given orally.
		Diabetes	Fr	Infusion given orally with butter milk once a day for 35 days.
		Diarrhoea	Fr	Boiled, decoction given orally.
		Inflammations	Fr	Ground and paste applied on swellings.
		Ulcers	Fr	Infusion mixed with honey, given orally.
7	*T.paniculata* Roth. Neemani	Parotitis	Sb	Juice mixed with ghee and rock -salt, applied externally.

L: Leaf; Fl: Flower; Fr: Fruit; Sb : Stem bark ; Sd: Seed.

Table2: Statistical analysis of crude drugs based on disease and part of the plant

S.No	Disease	Part used					No of diseases
		L	Fl	Fr	Sb	Sd	
1	Asthma			2			2
2	Blisters			1			1
3	Blood pressure				1		1
4	Boils	1					1
5	Cardiac disorders			1	1		2
6	Chronic dysentery			1			1
7	Cold			1			1
8	Constipation			1			1
9	Cough			2			2
10	Diabetes			3			3
11	Diarrhoea			2			2
12	Dropsy			2			2
13	Dysentery		1		1		2
14	Dyspepsia			1			1
15	Earache	1					1
16	Ecchymosis				1		1
17	Fever			1			1
18	Gastritis			1			1
19	Gonorrhoea				1		1
20	Heart stroke				1		1
21	Hoarseness of voice			1			1
22	Indigestion			1			1
23	Inflammations			1			1
24	Intestinal worms				1		1
25	Joundice				1		1
26	Leprosy	1					1
27	Leucoderma			1			1
28	Leucorrhoea			1	1		2

29	Malaria fever			1			1
30	Orchitis					1	1
31	Parotitis				1		1
32	Piles			1			1
33	Rheumatic back pains			1			1
34	Rheumatic joints	1					1
35	Scabies			1			1
36	Scrofula	1					1
37	Stomachache			1			1
38	Tendersores in cattle			1			1
39	Throat infection			1			1
40	Tongue diseases			1			1
41	Ulcers				1		1
42	Urinary disorders				1		1
43	Vertigo			1			1
44	Whooping cough			1			1
45	Wounds			1			1
	Total samples	5	1	35	12	1	54

L : Leaf ; Fl : Flower ; Fr: Fruit ; Sb : Stem bark ; Sd : Seed.

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Survey, Collection and Nutritional Assessment of Lesser known Edible Plant Resources used by Major Tribes of Eastern Ghats in Andhra Pradesh

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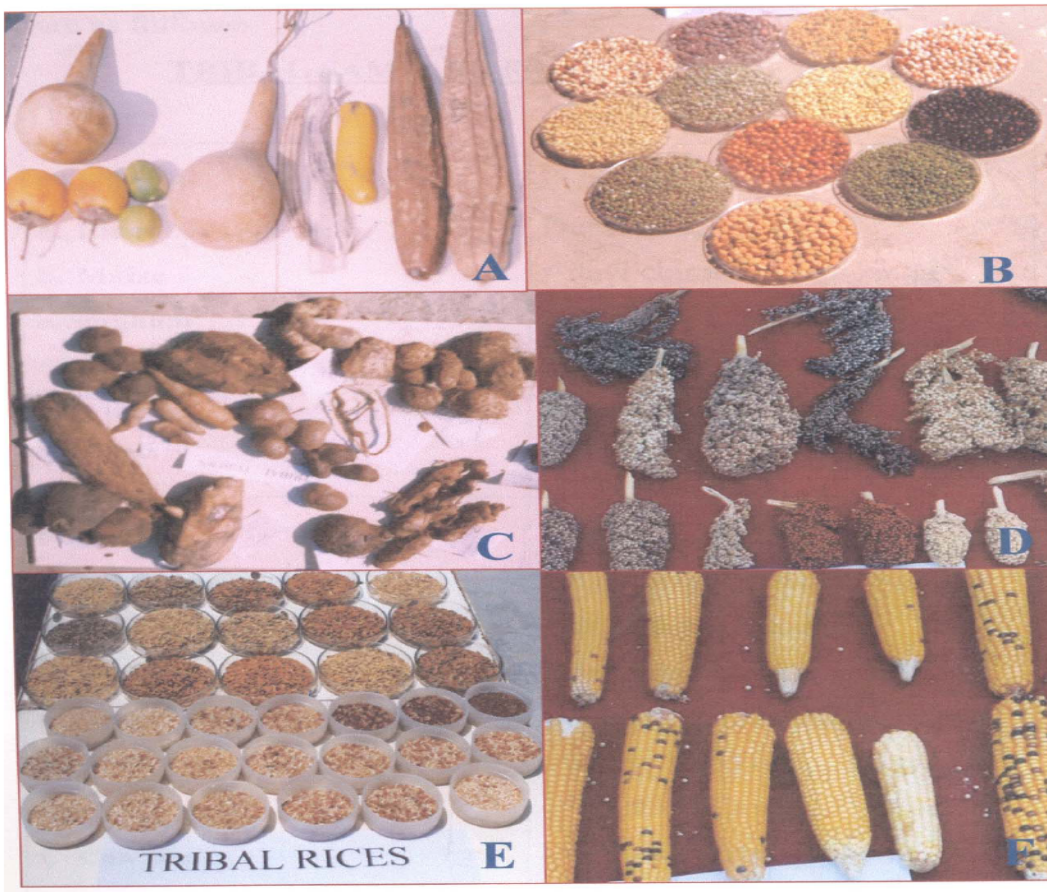
Abstract

Rice is one of the world's most important crops. There are two species in the Oryza genus that are cultivated: 1. Oryza sativa - the Asian rice which is grown world wide are about 20 to 22 wild species of Oryza genus found in tropics. However, according to Richharia and Govindaswami (1990) "the genus Oryza includes 27 species of which 25 are wild and two are cultivated viz., Oryza sativa and Oryza glaberrima" and "of the 25 wild species, seven are found in Indian Union." It is economically a very important crop since it is a major source of nutrition for about three billion people. Therefore, much crop improvement work has been done in rice to feed our ever increasing population. International Rice Research Institute (IRRI), Central Rice Research Institute (CRRI) and a number of other agricultural institutions distributed world wide have achieved remarkable success in rice breeding. As an undesirable outcome of it, a large number of land races or traditional varieties have been replaced by a few successful rice cultivars. To counter the ill-effect of such success, Governments, rice research institutions and rice breeders have taken steps to conserve not only the cultivars but also wild relatives and related taxa of rice. Oryza sativa and its different varieties developed so far were used as staple food materials by human beings. Due to increase in the demand on food grain production and newly developed

existing varieties of rice which are susceptible to different diseases, pests and to different climatic conditions. There is an urgent need to develop the yield of existing rice by using the wild relatives of rice for increasing resistance and yield. The wild verities of crop plants are very important source for new genome which is useful in developing the cultivars for improving the yield, resistance to pests and climatic conditions. In this connection field survey was conducted to identify the different varieties of rice relatives in the forests of Eastern Ghats. The attempts were made to evaluate the food qualities of the wild relatives of rice. About 30 villages were selected from Karimnagar district and about 13 villages from Adilabad district for field survey and collected different wild species of cereals, millets, pulses, fruits and oil seeds. In the present investigation 20 samples of rice viz., Dussavadlu, Erra vadlu, Tella vadlu, Dividivadlu and Water paddy of wild origin were collected and the nutritional qualities of the grains were tested for the total carbohydrate and Nitrogen quantities which are very important ingredients in the food and estimated using standard methods. The nutritional quantities and the aspects of conservation of wild relatives of rice and other food resources were discussed and presented during the seminar.

Fig. 1. Germplasm collected from tribal areas:



A. Vegetables, B- Pulses, C- Tubers, D- Sogham, E- Rice Varieties, F- Maize

(Source: Proc. National Seminar on Conservation of Eastern Ghats)

Conserving biodiversity in the species-Rich forests of Andhra Pradesh in Eastern Ghats, India

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Abstract

Varied physiographic and climatic conditions in the Eastern Ghats region of India once supported biodiverse flora, fauna, and habitats. Apart from mangrove forests, the Eastern Ghats has largely deciduous forests, dry and moist, alternately occupying scrub jungles. Because of deforestation and the swidden or shifting cultivation practiced by tribal groups, dense forests are now limited to only a few pockets. As a result, wildlife species are affected by an increasing threat to their survival. For instance, the cheetah is now extinct in the region, and the tiger is being pushed to the edge. Diversity is drastically reduced among plants, animals, and habitats. The author reports on the current status of species richness among faunal groups in the region.

Keywords: Biodiversity, conservation, species richness, eastern ghats, Andhra Pradesh, India.

(Source: Selbyana 21(1,2): 52-59.)

A Preliminary Observation on Butterflies of Seshachalam Biosphere Reserve, Eastern Ghats Andhra Pradesh, India

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Seshachalam hills, one of the first Biosphere Reserve in Andhra Pradesh, located in southern Eastern Ghats of Chittoor and Kadapa districts. It is spread over 4755.99 Km .2 The vegetation is a unique mix of the dry deciduous and moist deciduous types. A detailed survey of butterflies was conducted from August 2011 to January 2012. The objective of the observation is to determine the presence of butterflies. The reserve area has different habitats like scrub jungle, open forest and trial path. Each zone was explored on the basis of possibility and availability of butterflies. A total of 50 species of butterflies were recorded under five families. The family Nymphalidae and Lycaenidae were found dominant with 20 species and 12 species, respectively, followed by Pieridae (11 species), Papilionidae (5 species) and two species from the family Hesperiidae. More number of species was observed in Talakona followed by Mamandur, Balapalli, Tirumala, Jungle Book and Divyaram. Observed species were grouped in five categories on basis of number of sighting in the field. The butterflies were categorized as Very Common (VC) 40% (20 species), Common (C) 36% 18 species, Uncommon (UC) 10% (5 species), Occasional (O) 8 % (4 species) and Rare (R) 6 % (3 species). Out of 50 species, six species namely *Pachliopta hector, Hypolimnas bolina, Amblypodia anita, Euchrysops cnefus Lampides boeticus* and *Euploea core* are Scheduled species.

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