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Ethnobotanical Study of Koundinya Wildlife Sanctuary; Andhra Pradesh, India

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Abstract

Koundinya wild life Sanctuary in Chittoor district, Andhra Pradesh located in the 12° 39'-13° 10' N and 78° 29'-78°.52' E falls in the hill ranges of the Eastern Ghats, a broken and discontinuous line of mountains in peninsular India. Koundinya wildlife Sanctuary is linear in Shape, running ca.70 km north to south. The breath varies from 1 to 15 km. It occupies 357km2.It has a periphery of about 224km with 53 fringe and 8 enclosure villages and is bordered by reserve forest of Andhra Pradesh or Tamil Nadu. The Sanctuary comes under two ranges: Palamaner in the north and Kuppam in the South. Palamaner range has four blocks: Tekumanda, Musalimadugu, Mordana and Nelipatla. The Kuppam range has six blocks: Naikaneri, Peddanaikdurg, Charagallu, Peddur Extension, Peddur and Kangundi. The main water resourses in the Sanctuary consists of the River Palar, its tributaries the Mallatar (or Kaigal) and Koundinya, from which the Sanctuary gets its name. The vegetation comprises predominantly of Southern Tropical Dry Mixed Deciduous (Champion and Seth 1968) with trees of *Hardiwikia binata Chloroxylon swietenia, Albizia amara, Boswellia serrata, Anogeissus latifolia ,Pterocarpus santalinus, Shorea spp, Diospyros spp and Ficus spp.* The vegetation varies widely in different areas as result of terrain soil, impact of graging, fires, woodcutting.

Keywords
Nanomedicines · Pharmacokinetics · Delivery · Guidelines

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INTRODUCTION

The term Protected area is commonly used to describe areas of Ecological and Biological importance. The area which is to be declared as Protected area have the great floral and faunal significance and needs to be conserve an ecological system and needs to be protected. An area which is having some floral or fauna species of great significance must be declared as protected area.

Protected area is classified into four types. These are 1. National Parks, 2. Sanctuaries, 3. Conservation reserves, and 4. Community Reserves. The area, which is having adequate ecological, faunal, floral, Geomorphological, natural, or Zoological significance has described as National Park. The main purpose of the national park is to protect, propagate or develop wildlife and its environment, but the any rights are not allowed inside the living people.

The area which is declared as the sanctuary having ecological, faunal, floral, geo morphological, natural or Zoological significance and to protect, propagate, develop the wild life and its environment but some certain rights were allowed the people living inside the sanctuary.

The areas which links the one protected area to the another is declared as Conservation Reserves. The Conservation Reserves are declared by the State Government. The main purpose of the conservation reserves is to protect landscapes, seascapes, floral and their habitat. The Conservation Reserves are declared by the State Government.

An area where an individual or a community has voluntary conserve the wildlife and its habitat is

declared as community reserves. The main purpose of the community reserves is protecting fauna, flora, and traditional and cultural values. These were also declared by the State Government.

Globally there are more than 161000 protected areas of October 2010 with covering 236 countries and territories throughout the world. (IUCN, World data base on protected areas). The total geographical area of India is 32, 87,590 km^2 of which the total forest cover is 6, 97,898 km^2 cover 21.23% geographical area of India. There are 17 mega diverse countries in the world of which India is also one among them. India is having only 2.4% of the world's land area, 16.7% human population of the world and 18% livestock.

India harbors a rich wildlife variety and have 730 protected areas of which 103 National Parks, 535 Wildlife sanctuaries, 66 Community reserves,26 conservation reserves covering an area of 160896.51 Km^2 covering 4.88 % geographical area of the India. Andhra Pradesh has 1National Park, 13 wildlife sanctuaries and 2 Zoo parks are extended over 9076.82 Km^2. (4.57% of the total geographical area). The Eastern Ghats is located between $77^0 22'$ and 85^0 20' East longitudes and $11^0 22'$ North latitudes in the tropical region. In Andhra Pradesh, the hilly region in the district of Vizayanagaram, Vishakapatnam, Srikakulam, East Godavari, Krishna, Guntur, Prakasam, Nellore, Kurnool, Anantapuram, Chittor and Kadapa forms the Eastern Ghats. The Northern portion includes the Godavari, Sileru-Machkund Basin and covers the district of Srikakulam, Vijayanagaram, Vishakapatnam, East Godavari and West Godavari. The Southern Eastern Ghats portion covers the districts of Guntur, Prakasam, Nellore, Kurnool, (Veligondas, Palakondas, Nallamalias, Erramalias etc) and extend also into adjoining Kadapa and Chittor districts of Seshachalams. Andhra Pradesh has 1 National Park, 13 wildlife sanctuaries and 2 Zoo parks of which one National Park and Six Wildlife Sanctuaries are in the Eastern Ghats and Four Wildlife Sanctuaries are located along the East Coast. Koundinya wildlife Sanctuary in Chittoor district, Andhra Pradesh is one among the 13 wildlife sanctuaries present in Andhra Pradesh.

MATERIALS AND METHODS

The study was carried out during July 2019 – March 2020 Plant specimens were collected and identified after studying all characters with the help of standard local flora and the relevant literature available on the internet (www.Googlescholar) the indigenous knowledge of local primitive communities like Yanadies, Yerukula and Loddy etc. The indigenous knowledge of these primitive communities through personal interviews is utilized in the identification of the key flora of the study area. Herbarium was prepared by the standard methods. The entire area of the sacred grove is thoroughly studied by repeated visits in different seasons of the year 2019–2020 covering pre-monsoon, monsoon, and post-monsoon seasons. It helps in observing the different developmental stages of medicinal plant species like vegetative, flowering, and fruiting stages. The plant specimens were collected, identified with the help of Flora of Presidency of Madras Gamble, 1967 and Genera Platarum of Bentham and Hooker 1897. During the field work, the specimens collected for the preparation of herbarium were processed in accordance with the methodology adopted by Jain and Rao 1977. The plant species are given in alphabetical sequence with other details such as botanical name, vernacular name, family, habit in Table 1.

Identification of plants

The plant species were collected from the forest with the help of practitioners and identified using the Gamble, J.S. 1915-36. Flora of Presidency of Madras, and local floras as well as through comparison with identified specimens deposited in the herbarium of Nedurumalli Bala Krishna Reddy medicinal plant research center Department of Botany Vidyanagar.

RESULTS AND DISCUSSION

Table: 1

S. No	Scientific Name	Vernacular Name	Family	Habit	Ethnobotanical uses
1	*Abelmoscus esculentus*(L.)	Ladies finger	Lythraceae	Herb	
2	*Abrus precatorious* L.	Gurivinda	Fabaceae	Climber	Anti inflamatery
3	*Acacia chundra (*Rothler)		Mimosaceae	Tree	Piles:
4	*Acalypha indica* L.	Muripinda	Euphorbiaceae	Herb	Skin diseases
5	*Accacia catechu* (L.f.) Willd	Sandra	Fabaceae	Tree	
6	*Accacia leucophloea* (Roxb.) Willd.	Tella thumma	Fabaceae	Tree	Allexiteric (Cold and Bronchites

7	*Accacia nilotica* (L.) Willd.ex.Del.ssp.*indica* (Benth.) Brenan.	Nalla Thumma	Fabaceae	Tree	Piles
8	*Achyranthus aspera* L.	Uttareni	Amaranthaceae	Herb	Wounds
9	*Actinodaphnae madaraspetana* Bedd.ex.Hook.f.	Kovan Kutti	Lauraceae	Tree	Aphrodisic
10	*Aegle marmeles* (L.) Correa	Maredu	Rutaceae	Tree	Asthma
11	*Aerva lanata* (L.) Juss.	Konda pindi	Amaranthaceae	Herb	Kidney diseases
12	*Alangium salvifolium* (L.f.)	OOduga	Alangiaceae	Tree	Aphrodisiac.
13	*Albizia amara* (Roxb.)	Chigara	Fabaceae	Tree	Insecticide
14	*Albizia lebbeck* (L.) Benth	Dirisena	Mimosaceae	Tree	Piles.
15	*Albizia odoratissima* (L.f.) Benth.	Konda Chigara	Mimosaceae	Tree	Skin diseases
16	*Allianthus excella* Roxb.	Peddamanu	Simaroubaceae	Tree	Antipyretic
17	*Anacardium occidentale* L.	Cashenut	Anacardiaceae	Tree	Fruit Edible
18	*Andrographis Paniculata* (Burm.f.)	Nelavemu	Acanthaceae	Herb	Leucorrhoea
19	*Annogesus latifolia* (Roxb.ex.Dc.)	Velema	Combretaceae	Tree	Snake bite
20	*Annona squamosa* L.	Sitapalam	Anonaceae	Tree	Lice
21	*Aristolochia brachteolata Lam*	Gadida gadapa	Aristolochiaceae	Herb	Snake bite
22	*Artocarpus integrifolia* L.f.	Panasa	Moraceae	Tree	Fruit edible
23	*Asperagus racemosus* Willd.	Sathavari	Liliaceae	Shrub	Constipation
24	*Atlantia monophylla* (L.) Correa	Adavi Nimma	Rutaceae	Tree	Rheumatism
25	*Azadirachta indica* A.Juss.	Neem	Meliaceae	Tree	Jaundice
26	*Bauhinia raceosa* Lam	Are	Fabaceae	Tree	Diarrohoea
27	*Boerhavia diffusa* L.	Aticamamidi	Nyctaginaceae	Herb	Asthma.
28	*Borassus flabellifera* L.	Tati	Arecaceae	Tree	
29	*Boswellia serrata* Roxb.ex.Colebr.	Sambrani	Burseraceae	Tree	Skin eruptions
30	*Bouganvillia glabra* Choisy	Kagitalapulu	Nyctaginaceae	Shrub	Ornamental
31	*Buchnania axillaris* (Desr.) Raman	Sarapappu	Anacardiaceae	Tree	Diarrohoea
32	*Buchnania lanzan Spreng.*	Sara	Anacardiaceae	Tree	Glandular swellings.
33	*Butea monosperma* (Lam.) Taubert	Moduga	Fabaceae	Tree	Gastric troubles.
34	*Calotropis gigantia* (L.)	Tellagilledu	Asclepiadaceae	Shrub	Tooth ache
35	*Canthium dicoccum* Gaertn.	Nallabalusu	Rubiaceae	Tree	Fractures.
36	*Cassia fistula* L.	Rela	Fabaceae	Tree	Rheumatism
37	*Cassia roxburghii* DC.	Yerra munaga	Fabaceae	Tree	Foot cracks
38	*Cassine glauca* (Rottb.)	Nerdhi	Caelastraceae	Tree	Cot making
39	*Chionanthus zeylanica* L.	Punigi	Oleaceae	Tree	Blood dysentery
40	*Chloroxylon swietinia* DC.	Billudu	Rutaceae	Tree	Antidote.
41	*Cissus quadrangularis* Linn.	Nalleru	Vitaceae	Shrub	Bone fractures
42	*Cleisanthus collinus* (Roxb.)	Kodisa	Elaeocarpaceae	Tree	Poultice
43	*Cleome gynandra* L.	Vaminta	Cleomaceae	Herb	Earache
44	*Cleome viscosae* L.	Kukkavaminta	Cleomaceae	Herb	Headache
45	*Cochlospermum religosum* (L.) Alston.	Kondaburuga	Cochlospermaceae	Tree	Ulcers
46	*Commiphora caudate* (Wight & Arn.) Engler	Kondamamidi	Burseraceae	Tree	Dropsy.
47	*Cordia monoica* Roxb.	Poda iriki	Boraginaceae	Tree	Excessive Menstruation
48	*Cordia wallichhi* G.Don.		Boraginaceae	Tree	Fever
49	*Cymbopogan citrates* DC	Lemon grass	Poaceae	Herb	Gastric troubles

50	*Dalbergia lanceolaria* L.f.	Yerra Pachari	Fabaceae	Tree	Blood dysentery
51	*Dalbergia latifolia* Roxb.	Jitregi	Fabaceae	Tree	Leucoderma
52	*Dalbergia paniculata* Roxb.	Pachari	Fabaceae	Tree	Rheumatic swellings.
53	*Datura metal* L.	Nalla ummetha	Solanaceae	Herb	Bronchial Asthma
54	*Dendrocalamus strichtus* (Roxb.)	Chinna veduru	Poaceae	Shrub	Wounds
55	*Dioscorea oppositifolia* L.	Adavidumpa	Dioscoreaceae	Twinning vines	Hydrocele
56	*Dioscorea pentaphylla* L.	Dukkapendalam	Dioscoreaceae	Tuberous vines	Asthma
57	*Diospyrus buxifolia* (Blume) Hiern.	Uttipallu	Ebenaceae	Shrub	Urinary disorders
58	Diospyrus chloroxylon Roxb.	Ullinda	Ebenaceae	Tree	Indigestion
59	*Diospyrus melanoxylon* Roxb.	Tumki	Ebenaceae	Tree	Urinary disorders
60	*Diospyrus montana* Roxb.	Jagadagondi	Ebenaceae	Tree	Fever
61	*Diospyrus peregrina* (Gaertner)		Ebenaceae	Tree	Dysentery
62	*Dolichandrone atrovierens* (Heyne ex Roth)	Neerudhi	Bignoniaceae	Tree	improve immunity power in children
63	*Dolichondrone crispa* Seem		Bignoniaceae	Tree	Arthritis
64	*Drypetes sepiaria* (Wight& Arn.)	Manchi beera	Euphorbiaceae	Tree	Cough.
65	*Ehretia laevis* Roxb.	Pogadi Chettu	Cordiaceae	Tree	Wounds
66	*Eriolaena hookeriana* Wight & Arn.	Botta	Sterculiaceae	Tree	Cataract
67	*Erythroxylon indicum* (DC.)	Devadaru	Erythroxylaceae	Tree	Diseases.
68	*Erythroxylum monogynum* Roxb.	Devadari	Erythroxylaceae	Shrub	Eye Ulcers.
69	*Euphorbia antiquorum* L.	Pedda jamudu	Euphorbiaceae	Shrub	Ring Worm
70	*Euphorbia ligularia* Roxb.	Sanna Jamudu	Euphorbiaceae	Shrub	Dog bite
71	*Euphorbia tirucalli* L.	Kada Jamudu	Euphorbiaceae	Tree	Cough and Cold
72	*Ficus arnottiana* (Miq.) Miq.	Bandaravi	Moraceae	Tree	Wounds
73	*Ficus benghalensis* L.	Marri	Moraceae	Tree	Wounds
74	*Ficus hispida* L.f.	Bramhamedi	Moraceae	Tree	Hydrocele.
75	*Ficus microcarpa* L.f.	Kondajivvi	Moraceae	Tree	Scabies
76	*Ficus mollis* Vahl.	Juvvi	Moraceae	Tree	DSiabetes.
77	*Ficus racemosa* L.	Aathipandu	Moraceae	Tree	Diarrhoea.
78	*Gardenia gummifera* L.f.	Bikki	Rubiaceae	Tree	Constipation
79	*Gardenia latifolia* Soland.	Karinga	Rubiaceae	Tree	Edible.
80	*Gardenia resinifera* Roth.	Errabikki	Rubiaceae	Tree	Curing Worms.
81	*Gemilina asiatica* L.	Adavigummadi	Verbanaceae	Shrub	Hair falling
82	*Gloriosa superba* L.	Nabhi	Liliaceae	Climber	Piles.
83	*Grewia damine* Gaertner	Adavijana	Tiliaceae	Shrub	Snake bite
84	*Grewia flavescens* A.Juss.	Bankajana	Tiliaceae	Tree	Wounds and Boils.
85	*Grewia hirsuta* Vahl	Chittijana	Tiliaceae	Tree	Dysentery.
86	*Gymnema sylvestris* (Retz.)	Podapathri	Asclepiadaceae	Climber	Scorpion sting
87	*Gyrocarpus americanus* Jacq.	Tellapoliki	Hernandiaceae	Tree	Wounds.
88	*Hardwikia binata* Roxb.	Api	Fabaceae	Tree	Fibers used for making robes
89	*Hemidesmus indicus* (L.)	Sugandhipala	Asclepiadaceae	Creeper	Cool drink (Nannari)
90	*Holoptelia integrifolia* (Roxb,)	Nemalinara	Ulmaceae	Tree	Dysentery
91	*Hugonia mystax* L.	Kakibeera	Linaceae	Straggling Shrub	Rheumatism.
92	*Ipomea pes -caprae*	Chevula pilliteega	Convolulaceae	Herb	Body pains.
93	*Ixora finlaysoniana* Wall.ex.G.Don.		Rubiaceae	Shrub	Dysentery

94	*Ixora pavetta* Andr.	Nooru varahalu	Rubiaceae	Shrub	Constipation
95	*Jatropha curqas* L.	Adavi amudamu	Euphorbiaceae	Shrub	mouth ulcers
96	*Jatropha glandulifera*		Euphorbiaceae	Shrub	Piles
97	*Lannea coromandelica* (Houtt.)Merr.	Gumphena	Anacardiaceae	Tree	Stomachache
98	*Lepisanthes tetraphylla* (Vahl) Radlk.	Konda kunkudu	Sapindaceae	Tree	Dysentery
99	*Leucas aspera* L.	Thummi	Lamiaceae	Herb	Cold
100	*Leucas indica var nagalapuramina*	Chinna poola thummi	Lamiaceae	Herb	Headache
101	*Limonia acidissima* L.	Velaga	Rutaceae	Tree	Diarrhoea
102	*Madhuca indica* J.Gmelin	Ippa	Sapotaceae	Tree	Headache
103	*Mangifera indica* L.	Mamidi	Anacardiaceae	Tree	Diarrohoea
104	*Manilkara hexandra* (Roxb.) Dubard	Pala	Sapotaceae	Tree	Agricultural implements.
105	*Memeselon umbelliatum* Burm.f.	Alli	Lythraceae	Shrub	Astringent.
106	*Mithrogyna parvifolia* (Roxb.) Korth	Battaganapa	Rubiaceae	Tree	Snake bite
107	*Morinda pubescens* J.E.Smith	Thogari	Rubiaceae	Tree	Curing mad dog bite
108	*Naringi crenulata* (Roxb.)	Thorrivelaga	Rutaceae	Tree	Epilepsy.
109	*Nelumbo nucifera*	Tamara	Nelumbonaceae	Herb	Diarrhoea
110	*Ochna obtusata* DC	Sonari	Ochnaceae	Tree	Snake bite.
111	*Phyllanthus amarus* L.	Nela usiri	Euphorbiaceae	Herb	Jaundice
112	*Phyllanthus emblica* L.	Usiri	Euphorbiaceae	Tree	Diabetes
113	*Pithecellobium dulce* (Roxb.)	Simachintha	Fabaceae	Tree	Fever.
114	*Plumaria alba* L.	Deva ganneru	Apocynaceae	Tree	Sprains.
115	*Polyanthus cerasoides* (Roxb.)	Dudduga	Annonaceae	Tree	Poultice.
116	*Pongamia pinnata* (L.) Pierre.	Kanuga	Fabaceae	Tree	Boils
117	*Premna latifolia* Roxb.	Peddanalli	Verbanaceae	Tree	Dropsy
118	*Premna tomentosa* Willd.	Naguru	Verbanaceae	Tree	Biliousness
119	*Pterocarpus marsupium* Roxb.	Aegisa	Fabaceae	Tree	Skin diseases.
120	*Pterocarpus santalinus*	Errachandanam	Fabaceae	Tree	Diabetes
121	*Pulicaria whitiana*	Adavi chamanthi	Asteraceae	Herb	
122	*Rhus mysoorensis*	Kadapurugudu	Anacardiaceae	Tree	Piles.
123	*Santalum album* L.	Chandanam	Santalaceae	Tree	Skin eruptions
124	*Sapindus emarginatus* Vahl.	Kunkudu	Sapindaceae	Tree	Headache
125	*Sarcopetalum tomentosum* (Roxb.)		Annonaceae	Tree	Rheumatism
126	*Sarcostemma acidum* (Roxb.)	Aakujamudu	Asclepiadaceae	Shrub	Dog bite.
127	*Semecarpus anacardium* L.f.	Nallajeedi	Anacardiaceae	Tree	Cough.
128	*Shorea roxburghii* G.Don	Jalari	Dipterocarpaceae	Tree	Asthma.
129	*Solanum surattense*	Vakudu	Solanaceae	Herb	Cough.
130	*Soymida febrifuga* (Roxb.) A.Juss.	Somi	Meliaceae	Tree	Fever.
131	*Sterculia urens* Roxb.	Tapasi	Sapotaceae	Tree	Fever.
132	*Strychnos nux-vomica* L.	Musti	Loganiaceae	Tree	Leucoderma.
133	*Strychnos potatorum* L.f.	Chilla	Logaiaceae	Tree	Scorpion sting.
134	*Syzygium cumini* (L.) Skeels	Neredu	Myrtaceae	Tree	Diabetes.
135	*Tamarindus indica* L.	Chintha	Fabaceae	Tree	Ascariasis
136	*Tectona grandis* L.f.	Teak	Verbanaceae	Tree	Furniture
137	*Terminalia arjuna* Wt.& Arn	Tellamadhi	Combretaceae	Tree	Agricultural implements

138	*Terminalia bellerica* (Gaertn.)	Tandra	Combretaceae	Tree	Dropsy.
139	*Terminalia cuneata* Roth		Combretaceae	Tree	Diarrhoea.
140	*Terminalia elliptica* Willd.		Combretaceae	Tree	Bone fractures.
141	*Yucca gloriosa*		Asperagaceae	Shrub	Purgative
142	*Vanda tessellata* (Roxb.)	Vadanika	Orchidaceae	Herb	Earache.
143	*Vitex altissima* L.f.	Nemali adugu	Verbanaceae	Tree	Galactogogue.
144	*Vitex negundo* L.	Vavili	Verbanaceae	Tree	headache
145	*Vitex pinnata* L.		Lamiaceae	Tree	Epilepsy.
146	*Wendlandia tinctoria* DC.		Rubiaceae	Tree	Syphilis
147	*Wrightia tinctoria* (Roxb.) R.Br.	Aakupala	Apocynaceae	Tree	Stomachache.
148	*Ziziphus mauritiana* Lam	Regu	Rhamnaceae	Tree	Snake bite
149	*Ziziphus xylopyrus* (Retz.)	Gotti	Rhamnaceae	Tree	Wounds.

CONCLUSION

Nearly 149 species belonging to 50 families were recorded. Out of 149 plant species herbs 19;Shrubs 19;Trees 104 ;Climbers 04.Fabaceae occupies first place with 18 species; Euphorbiaceous occupies second place with 10 species; Rubiaceae occupies third place with 08 species; Anacardiaceae, Moraceae and Verbanaceae occupies fourth place with 06 species, Rutaceae and Combretaceae occupies fifth place with 05species.

Figure 1: Dominant families of the Study Area

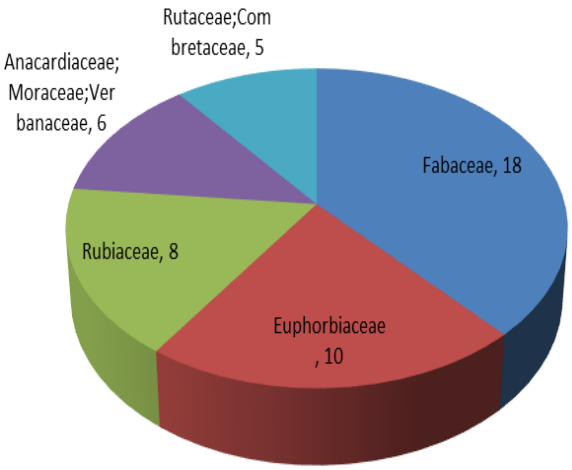
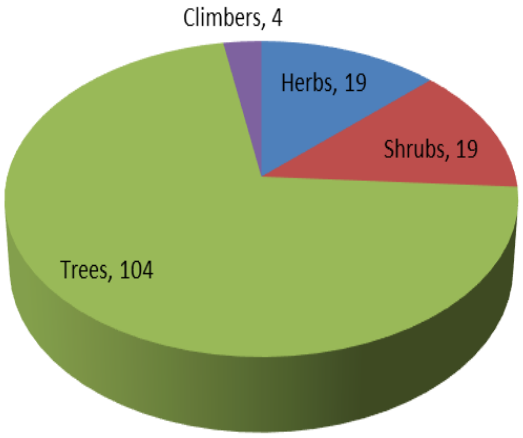


Figure 2: Habitat analysis of the Study Area



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