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Floristic Diversity of Gani Reserve Forest of Kurnool District Andhra Pradesh, India with Emphasis on Medicinal Plants

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Abstract: The present paper aimed to study the floristic diversity of Gani Reserve forest of Kurnool district situated in the Eastern ghats of Andhra Pradesh, India. A total of 111 species (39 trees, **38** shrubs, **34** herbs) belonging to 47 families were recorded. Among families, Sterculiaceae (11 species), Malvaceae (8 species), Rubiaceae (6 species), Asteraceae (5 species) were most dominat families. **111** medicinal plants have been documented with their uses for the cure of more than 30 diseases and some of these are diabetes, jaundice, diarrhoea, dysentery, bronchitis, rheumatism, irregular menstruation, urinary problems and bone fracture, Cancer, Wounds. Bark of *Acacia leucophloea* used in the preparation of Arrack (distilled alcoholic drink). The roots of *Hemidesmus indicus* are used in the preparation of nanari a coolent during summer. The nature is true wealth of man and has many mysteries in its credit for every decease of man there is cure in this beautiful and wonderful nature.

Key words: Floristic diversity · GaniRF · Yerramalais forest · Endemism · Ethnobotanical

INTRODUCTION

India is well known for significant geographical diversity which has favored the formation of different habitats and vegetation type. Biological diversity is of fundamental importance to the functioning of all natural and human-engineered ecosystems and by extension to the ecosystem. The survival of man is intimately related to the availability of different plant resources. The plant wealth of a country is its pride and acquiring knowledge of flora and vegetation is of immense scientific and commercial importance. Biodiversity provides to human kind enormous direct economic benefits, an array of indirect essential; services through natural ecosystems and plays a prominent role in modulating ecosystem function and stability. Tropical forests constitute the most diverse plant communities on earth. These forests are disappearing at alarming rates owing to deforestation for extraction of firewood and other forest products. The problem with the chronic form of forest disturbance is that plants or ecosystem often do not get time to recover adequately because the human onslaught never stops [1]. Kurnool District has two major forest Nallamalais and Yerramalais forest.Yerramalis forest are the eastern ghat extensions and Gani RF is prominent forest with good vegetation. The forest is rich in floristic diversity. Gani Reserve forest was explored in 1982 By T.Pullaiah and R.R.V.Raju.For the past two decades no exploration work was carried out. This period is sufficient to develop new species i.e return of biodiversity.

The Gani Reserve forest is a dry deciduous forest. Forest comes under the Sothern thorn forest. The vegetation is varied depending upon the climate and edaphic factors. Apparently there are signs of forest becoming degraded from moist deciduous and to scrub type dominated by thorny. Succulent and xerophytic bushes. The forest is luxuriant in vegetation and enriched with many medicinal, rare, endemic and threatened categories of plants. As floristic diversity is the resource for medicine, agriculture, it needs to be conserved for us and for the coming generation. Due to industrialization, mining the forest is degraded at an alarming rate. The flora

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will focus the status of floristic diversity in the forest. It is hoped that the present investigation will contribute to the better understanding of the floristic and ecosystem diversity in the Eastern Ghats of Kurnool district.

Floristic studies are taxonomic studies of a flora or of a major segment of a flora, of a given area. Floristic studies help us to assess the plant wealth and its potentiality of any given area. Floristic studies also help us to understand the basic aspects of biology such as speciation, isolation, endemism and evolution. Flora of any area is not fixed up. It changes from time to time. Various ecological factors, mostly biotic, change the floristic components. Understanding of forest structure is a pre-requisite to describe various ecological processes and also to model the functioning and dynamics of forests [2]. Various ecological factors, mostly biotic, change the floristic components. The total number of species may be changed; dominant species may be replaced with other species; the floristic composition, i.e.; family: genus: species ratio may be changed. The degradation of tropical forests and destruction of habitat due to anthropogenic activities are the major causes of decline in the global biodiversity. To make a consolidated and up-to-date account of the flora, a region wise systematic botanical survey is essential. This will help to compile the knowledge of country's present plant wealth with emphasis on distribution and status. Ellis [3] in Flora of Nallamalais recorded 743 taxa under 109 families. The importance of studying local floristic diversity has been realized and carried out in forest of Kurnool district by Sudakar Reddy *et al*. [4], Sudhakar Reddy *et al*., [5, 6], Silar Mohammaed *et al*. [7]. Recently G. Meerabai and B. Padmavathi [8], conducted the inventorying of angiosperm diversity of forest of Kurnool district. The present study aimed at making an inventory of the angiosperm species of Gani RF and to document the medicinal uses of plant species by local people.

MATERIALS AND METHODS

An floristic survey was carried and their Traditional Uses in Gani forest of Kurnool district The Gani Reserve forest are a part of Eastern Ghats having rich vegetation and lie between the eastern longitudes of 76°58' to 78°56' N and northern latitudes of 14°54' to 16°14' (Fig. 1). Plant specimens have been collected from all over Gani

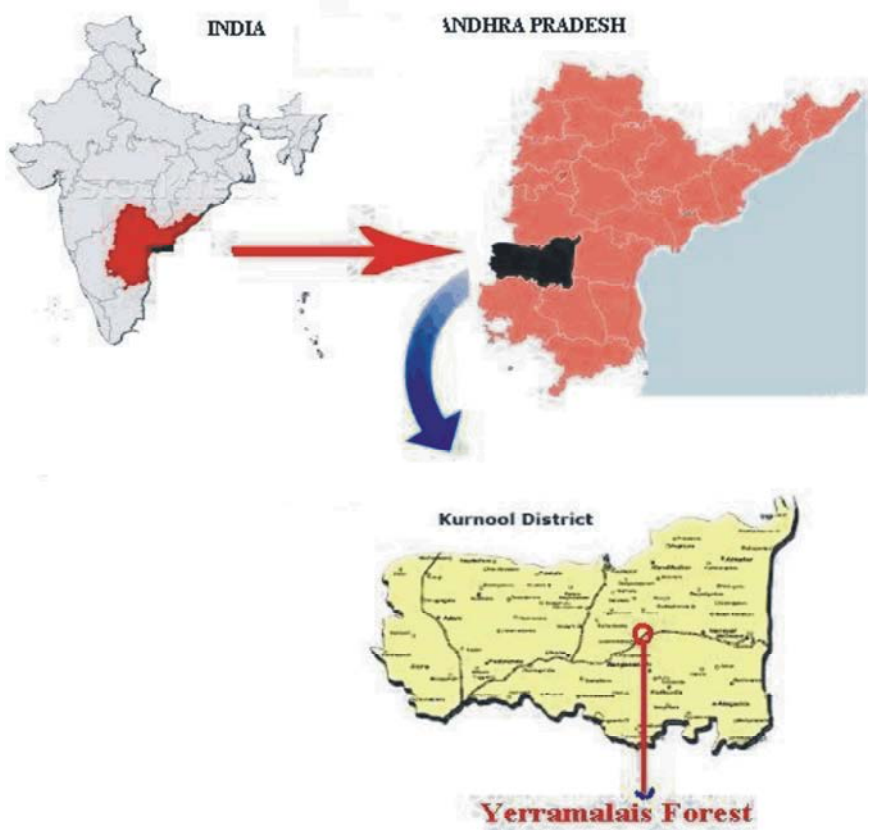

Fig. 1:

Reserve forest through several field trips covering all seasons during 2011 – 2012. Ethnobotanical data were collected according to the methodology suggested by Jain [9] through questionnaire, interviews and discussions among Sugali tribes in their local language. Herbarium voucher specimens are deposited in Department of Botany at Osmania UG & PG College, Kurnool andhra Pradesh India. The Medicinal plants were identified by the local people with their vernacular names, photographed and sample specimens were collected for the preparation of herbarium. The Flora of Kurnool [10] was used to ascertain the nomenclature In the enumeration, data were tabulated and arranged in the sequence of serial number, botanical name, family, vernacular name, habit, phenology and voucher number. Emphasis has also been given to the economically important species particularly the medicinal plants used as primary health-care. Ethnomedicinal values of plants were ascertained in consultation with village people using various methods [11, 12]. The information on the uses of medicinal plants has been gathered through interview of the local people.

RESULTS AND DISCUSSION

A total of 111 species (39 trees, 38 shrubs, 34 herbs) belonging to 47 families were recorded (Table. 1). Among families, Sterculiaceae (11 species), Malvaceae (8 species), Rubiaceae (6 species), Asteraceae (5 species) were most species diverse. Euphorbiaceae, Fabaceae, Mimosaceae Minispermaceae, Verbenaceae, Rhamnaceae, are represented by 4 species each. Asclepiadaceae Apocynaceae, Amaranthaceae, Acanthaceae Moraceae, Vitaceae, Lamiaceae, are represented by 3 species each. Arecaceae, Anacardiaceae, Capparidaceae, Oxalidaceae, Arecaceae, Anacardiaceae Capparidaceae. Oxalidaceae, Celastraceae, Cordiaceae, Strychnaceae by 2 species and remaining 23 families were monospecific..

Habit analysis shows that herbs are represented by 34 species including climbers, shrubs by 38 species and trees by 39 species. Out of 47 families recorded from the study area, 10 dominant families are Sterculiaceae, Malvaceae, Rubiaceae, Asteraceae, Euphorbiaceae, Fabaceae, Mimosaceae Minispermaceae, Verbenaceae, Rhamnaceae. The dominant families along with the number of species and genera are shown in (Fig. 2). Ten dominant families comprising 54 species represent 47.78% and the remaining 37 families with a total of 59 species contribute 52,21%.

Medicinally Important Plants: The present study identifies 111 medicinal plants locally used by the people of Yerrmalais forst area for the treatment of at least 30 common diseases and some of the important diseases are diabetes, jaundice, diarrhoea, dysentery, cold and cough, asthma, fever,spleen and snake bite, Leucoderma, Bone fracture,Cancer, Wounds and several skin diseases. The medicinal plants are listed in (Table 2) along with their family names, part (s) used and the diseases treated for. Photographs of some wild medicinally important species are presented in (Fig.3).

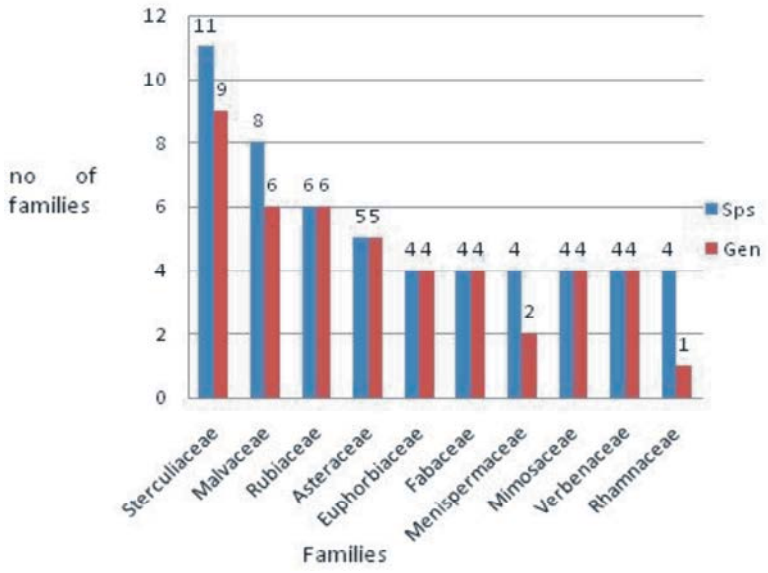

Fig. 2: Ten dominat families of Gani RF

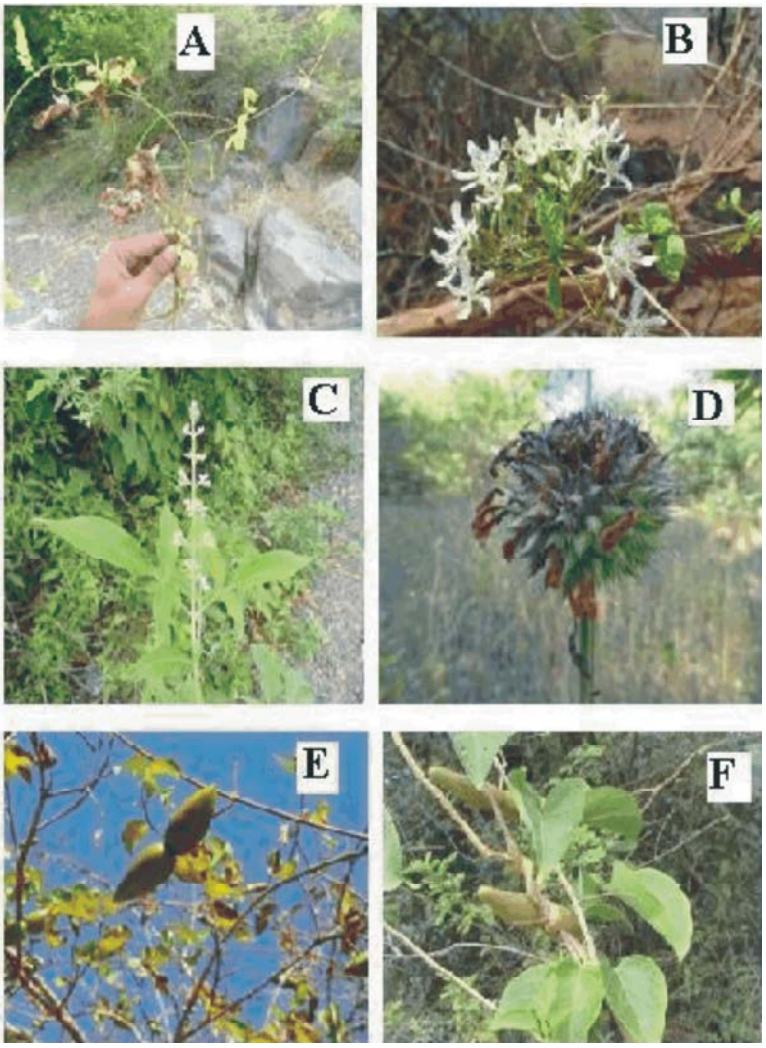

Fig. 3: Medicinal plants of Gani RF

Table 2: Medicinal plants used by the local people of Yerramalais forest

S.No	Scintific name	Family	Plant part used	Diseases to be treated
1	*Abutilon crispum* (L.) Don	Malvaceae	Root	Nervous disoders
2	*Abutilon indicum* (L.) Sweet	Malvaceae	Leaf juice	scorpion bite.
3	*Abrus precatorius*	Fabaceae	seed	Leucoderma
4	*Acacia leucophloea*	Mimosae	stem bark	Bronchitis
5	*A.nilotica*	Mimosae	Stem Bark	diabetes
6	*Acanthospermum hispidum* DC	Asteraceae	whole palnnt	Skin disease
7	*Achyranthes aspera* L.	Amaranthaceae	Seed&Leaves	antidote
8	*Aerva javanica*	Amaranthaceae	Root	Diabetes
9	*Ageratum conyzoides Linn*	Asteraceae	Leaf	cuts
10	*Alangium salvifolium*	Alangiaceae	Rootbark	snake bite
11	*Albizia amara*	Mimosaceae	Flowers	inflammations
12	*Albizia lebbeck* (L.) Willd.	Mimosaceae	Stem bark	allergic disorders.
13	*Ammania baccifera* L.	Lythraceae	Leaf	skin diseases
14	*Ampelocissus latifolia*	Vitaceae	Leaf	Dental disease
15	*Anisomeles indica*	Lamiaceae	Plant	astringent
16	*Anisomeles malabarica*	Lamiaceae	Plant	astringent
17	*Anthocephalus kadamba*.L	Rubiaceae	Leaves	astringent.

Table 2: Continue

S.No	Scintific name	Family	Plant part used	Diseases to be treated
18	*Argemone mexicana* L.	Papaveraceae	Latex	scabies
19	*Balanites aegyptiaca* (L.) Del	Balanitaceae	Stem bark	Blood purifier
20	*Bauhinia racemosa* Lam.	Fabaceae	Stem bark	epilepsy
21	*Biophytum sensitivum* (L.) DC.	Oxalidaceae	whole plant	inflamation
22	*Boerhavia diffusa* L.	Nyctaginaceae	whole plant	jaundice
23	*Bombax ceiba* L.	Bombacaceae	Root bark	menstrual disorders
24	*Borassus flabellifer* L.	Arecaceae	root	Oedema
25	*Byttneria herbacae Roxb*.Pl. Cor	Sterculiaceae	Root stock	diarrhoea.
26	*Cadaba fruticosa* L.	Capparidaceae	Leaf	Leucoderma
27	*Calotropis gigantea* (L.) R. Br.	Asclepiadaceae	Leaves	antidote
28	*Calotropis procera* (Ait). R. Br	Asclepiadaceae	stem	Scabies
29	*Careya arborea Roxb*.	Lecythidaceae	Stem bark	diarrhoea.
30	*Cassia fistula* L.	Caesalpiniaceae	Bark	Eczema
31	*Capparis divaricata Lam*	Capparidaceae	Flower	Scabies
32	*Celastrus paniculatus Willd*	Celastraceae	Leaf	Eczema
33	*Chloroxylon swietenia* DC.	Flindersiaceae	Root bark	Infertility
34	*Cissampelos pareira* L	Menispermaceae	root	Purgative
35	*Cissus vitiginea* L.	Vitaceae	Root	Bone fracture
36	*Cissus quadrangularis*	Vitaceae	Stem	irregular menstruation
37	*Cocculus hirsutus* (L.) Diels	Menispermaceae	Root	rheumatism
38	*Combretum albidum* G. Don	Combretaceae	Leaf	wound
39	*Commiphora caudate* (Wight & Arn.)	Burseraceae	stem	body pains
40	*Corchorus olitorius* L.Sp.Pl	Sterculiaceae	Leaf	Febrifuge
41	*Corchorus trilocularis* L.Syst.Nat	Sterculiaceae	whole plant	stomache
42	*Cordia dichotoma Forest*. F.	Cordiaceae	Fruit	diuretic
43	*Croton bonplandianum Baill*.	Euphorbiaceae	Leaves	skin diseases
44	*Dalbergia paniculata Roxb*.	Fabaceae	Leaf	swellings
45	*Dodonaea viscosa* (L.) Jacq	Sapindaceae	Leaf	Bone fracture
46	*Eclipta prostrata* (L.) L.	Asteraceae	Leaf	jaundice.
47	*Erythroxylum monogynum Roxb*	Erythroxylaceae	Leaf	Jaundice
48	*Euphorbia hirta* L.	Euphorbiaceae	Plant	antidysenteric
49	*Ficus hispida* L. f.	Moraceae	Stembark	stomach ulcers
50	*Ficus racemosa* L.	Moraceae	Root latex	urinary stones
51	*Ficus religiosa* L.	Moraceae	Stembark	paralysis
52	*Gardenia gummifera* L.f	Rubiaceae	Gum	ulcers
53	*Gmelina arborea Roxb*	Verbenaceae	Root	Aphrodisiac
54	*Gmelina asiatica* L.	Verbenaceae	Fruit	Eczema
55	*Gomphrena globosa* L.	Amaranthaceae	Root	Cough
56	*Grewia flavescens Juss*.	Sterculiaceae	Stem bark	dysentery.
57	*Grewia hirsuta Vahl*	Sterculiaceae	Root	Diarrohoea
58	*Gyrocarpus americanus*	Herrnanduaceae	Stem bark	Cancer
59	*Guazuma ulmifolia Lam.Encycl*.	Sterculiaceae	Stem bark	demulcent
60	*Helicteres isora* L.	Sterculiaceae	Fruit	Scabies
61	*Hedyotis puberula* (G. Don) Arn.	Rubiaceae	Leaf	antidote.
62	*Hemidesmus indicus* (L.) R.Br	Periplocaceae	Root	Eczema
63	*Hibiscus ovalifolius* (Forsk.)	Malvaceae	Leaf	Wounds
64	*Holarrhena pubescens* (Buch. Ham) Wall.ex G.Don.	Apocynaceae	Bark	Leucoderma
65	*Holoptelia integrifolia* (Roxb.) Planch.	Ulmaceae	Stembark	vulnerary.
66	*Hybanthus enneaspermus* (L.)	Violaceae	whole plant	Aphrodisiac
67	*Justicia adhatoda* L	Acanthaceae	Leaf	Eczema
68	*Justicia betonica* L.	Acanthaceae	root	muscle pains
69	*Lannea coromandelica* (Houtt.) Merr	Anacardiaceae	stem bark	body pains
70	*Leonotis nepetiifolia* (L.)R.Br	Lamiaceae	Flower	Eczema
71	*Lepidagathis cristata Willd*.	Acanthaceae	Plant	anitipyretic.
72	*Mallotus philippensis* (Lam.) Muell.-Arg.	euphorbiaceae	Fruit	vulnerary
73	*Maytenus emarginata* (Wikkd.) Ding	Celastraceae	fruit	Lice eradication

Table 2: Continue

S.No	Scintific name	Family	Plant part used	Diseases to be treated
74	*Millingtonia hortensis*	Bignoniaceae	stem bark	cough
75	*Morinda pubescens Smith*	Rubiaceae	Stembark	jaundice
76	*Moringa concanesis Nimmo ex Dalz*	Moringaceae	antidote	stem bark
77	*Oxalis latifolia Kunth*	Oxalidaceae	whole plant	Urinary infectins
78	*Pavonia zeylanica* (L.) Cav.Diss	Malvaceae	whole plant	Anthelmintic
79	*Pavetta tomentosa Roxb. ex Smith*	Rubiaceae	Leaves	analgesic
80	*Phoenix sylvestris* (L.) Roxb.	Arecaceae	Gum	genitourinary diseases.
81	*Physalis minima* L.	Solanaceae	Leaves	tumours
82	*Premna tomentosa Willd.*	Verbenaceae	Root	antidote
83	*Polycarpea corymbosa* (L.) Lam	Caryphyllaceae	Leaf	jaundice
84	*Pouzolzia zeylanica* (L.) Bennett	Urticaceae	Root	diuretic.
85	*Rhynchosia minima* (L.) DC.	Fabaceae	Leaf	boils.
86	*Semicarpus anacardium* L.f.	Anacardiaceae	Bark	Eczema
87	*Sida acuta Burm.* f.	Malvaceae	Leaf	snake bite
88	*Sida cordata* (Burm. f.) Borssum	Malvaceae	Leaf paste	Scorpion sting
89	*Soymida febrifuga* (Roxb) A.Juss	Meliaceae	Stem bark	Diarrohoea
90	*Stercularia urens Roxb.Pl.Cor*	Sterculiaceae	Gum	Diabetes
91	*Sphaeranthus indicus* L.	Asteraceae	Leaf	Scabies
92	*Sterculia urens Roxb.*	Sterculiaceae	Stem bark	Rhematism
93	*Strychnos nux vomica* L.	Strychnaceae	seed	Leucoderma
94	*Strychnos potatorum* L.f.	Strychnaceae	Stem bark	antidote to snake
95	*Thespesia populnea* L.	Malvaceae	Bark	Leprosy
96	*Tilacora acuminata* (Lam.) Hook.f.& Thoms	Menispermaceae	root	snake bite
97	*Tinospora cordifolia* (Willd.) Miers.ex.Hook	Menispermaceae	Stem bark	Diabetes
98	*Toddalia asiatica* (L.) Lam.	Rutaceae	Fruit	Scabies
99	*Tragia involucrata* L.	Euphorbiaceae	Plant	fever
100	*Triumfetta rhomboidea Jacq.*	Sterculiaceae	root	dysentery
101	*Urena lobata* L.	Malvaceae	Root	rheumatism.
102	*Vernonia cinerea* (L.) Less.	Asteraceae	Leaves	For phlegm.
103	*Vitex negundo* L.	Verbenaceae	Leaves	diabetics.
104	*Waltheria indica* L.	Sterculiaceae	whole plant	Purgative
105	*Wattakaka volubilis* (L.f.)Stapf	Asclepiadaceae	root	Antidote
106	*Wrightia arboea* (Dennst.)	Apocyanaceae	Bark	Dysentery
107	*Wrightia tinctoria* (Roxb.) R. Br.	Apocyanaceae	Stem bark	Piles
108	*Ziziphus horrida*	Rhamnaceae	Leaf	Scabies
109	*Ziziphus mauritiana*	Rhamnaceae	Leaf	Scorpion sting
110	*Ziziphus oenoplia* (L.) Mill.	Rhamnaceae	Fruit	Aphrodisiac
111	*Ziziphus xylopyrus* (Retz.) Willd.	Rhamnaceae	Stem bark	chloera

In addition to the medicinal plants used for treatment of several diseases, the inhabitants of Yerramalais forest tribes Sugali use bark of *Acacia leucophloea* used in the preparation of arrak (Narcotic drink). The roots of *Hemidesmus indicus* are used in the preparation of nanari a coolent during summer.The local people also use some plants in their religious festivals, i.e. *Aegle marmelos*, *Ficus benghalensis*, *F. religiosa, Mangifera indica*,*Ocimum tenuiflorum, Cocos nucifera,* etc.

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REFFERENCES

1. Singh, S.P., 1998. Chronic disturbance, a principal cause of environmental degradation in developing countries (Editorial). Environ. Conserv., 25: 1-2.
2. Elourard, C., J.P. Pascal, R. Pelissier, B.R. Ramesh, F. Houllier, M. Durand, S. Aravajy, M.A. Moravie and C. Gimaret-Carpentier, 1997. Monitoring the structure and dynamics of a dense moist evergreen forest in the Western Ghats (Kodagu District, Karnataka, India). Tropical Ecology, 38: 193-214.

3. Ellis, J.L., 1987. Flora of Nallamalais. Vol. 1-2, Botanical Survey of India, Calcutta.
4. Sudhakar Reddy, C., M.S.R. Murthy and C.B.S. Dutt, 2002. Vegetation diversity and endemism in Eastern Ghats, India. Proceedings of the National Seminar on Conservation of Eastern Ghats. EPTRI., Hyderabad, pp: 109-134.
5. Sudhakar Reddy, C., K. Thulsi Rao, I. Siva Rama Krishna and S.M.M. Javed, 2008. Vegetation and Floristic Studies in Nallamalais andhra Pradesh, India. Journal of Plant Sciences, 3: 85-91.
6. Sudhakar Reddy, *et al*., 2008. Structure and Floristic Composition of Tree Diversity in Tropical Dry Deciduous Forest of Eastern Ghats, Southern Andhra Pradesh, India, Asina journal of Scintific Research, 1(1): 57-64.
7. Silar Mohammed, M., S.A. Rasheed and S. Maqbool Ahamed, 2009. Indian Journal of Applied and Pure Biology, 24(1): 183-186.
8. Meerabai, G. and B. Padmavathi, 2011. Plant Diversity in Protected Area of Nallamala Forest at Velugodu, Kurnool andhra Pradesh, India, The Indian Forester, 137: 512-520.
9. Jain, S.K., 1987. Ethnobotany-Its scope and various subdisciplines. In Jain S.K. (ed.), A Manual of Ethnobotany. Scientific Publishers, Jodhpur.
10. Raju, R.R.V. and T. Pullaiah, 1997. Flora of A.P Vol. 3, Scientific Publishers Jodhpur.
11. Pal, D.C. and S.K. Jain, 1998. Tribal Medicine, Calcutta: Naya Prakash.
12. Paria, N., 2005. Medicinal Plant Resources of SouthWest Bengal.Kolkata: Directorate of Forests, Govt. of West Bengal.