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Fort flora of vizianagaram

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Abstract

Vizianagaram Fort is situated at the heart of the town with illuminates many lives and also home for both Flora and Fauna. The present paper explores the Flora of Vizianagaram fort. It is not only Royal palace or educational institution or tourist place but also a home of biodiversity, having good number of Flora and Fauna. The fort plants categorized into Mushrooms, Pteridophytes, Gymnosperm, Herbs (decumbent herbs, tuberous herbs), Shrubs, Trees (Shade trees, fruit yielding, Palms, Ornamental tree), Creepers, Hydrophytes, and Xerophytes etc. of 279 species belongs to 71 families. Economically fort plants are categorised into Medicinal plants, Ornamental plants, Weeds, Fruit yielding plants, Vegetable plants, Fibre yielding plants, Wood yielding plants, Fodder plants and Dye yielding plants.

Keywords: Flora, Fort, Sri Dr. P.V.G. Raju, Vizianagaram

Introduction

Vizianagaram fort was built in the year 1713 as a royal palace by Vijaya Rama Raju, also known as Anand Raju-I, the then Maharaja of Vizianagaram. It is situated in Vizianagaram which is away from 50 kilometres to the City of Viakhapatnam and 18 kilometres to the Bay of Bengal. During the year 1958 Rajah Saheb of Vizianagaram Dr. P.V.G.Raju donated his palace for educational institutions. "The most truly generous persons are those who give silently without hope of praise or reward" (Carol Ryrie Brink). "True generosity is an offering; given freely and out of pure love. No strings attached. No expectations" (Suze Orman). "Generosity is the most natural outward expression of an inner attitude of compassion and loving- kindness" (Dalai Lama). These quotes are not enough to describe Rajah Saheb Dr.P.V.G. Raju. In 1946 he decided to give-up the Zamindari (Estate) without taking any compensation. He created a trust in the name of his beloved father "Maharajah Alaknarayana Society of Arts and Science MANSAS" on 12th November 1958. He created permanent income to the Trust by gifting all his properties, which includes 6,622 acres of dry land and 2,350 acres of wetland. Now more than a dozen institutions from primary classes to post graduate college are under the management of MANSAS. Another remarkable event which gives pride not only to Dr.P.V.G.Raju but also to the state of Andhra Pradesh and to the nation as a whole was that he donated 100 acre of the land to the central Government for locating Sainik School at Korukonda village, near Vizianagaram town. Fort, Dr.P.V.G.Raju statue images given in Fig 1.

It is not only Royal palace or educational institution or tourist place but also a home of biodiversity, having good number of Flora and Fauna. Here we can see plenty of diversity in Flora and Fauna. Birds (Parrots, Pigeons, Crows, Common Myna, Cattle Egret), bats, butterflies and their babies, Beetles and Bugs, Bees, snakes, garden lizards, Squirrels millipedes and Centipedes are common fauna in the fort. There are Killers (White lies, Beetles), friends (Pollinators), Friemies (Butterflies are helped in pollination where as their babies are Licked the plants). Fauna showed in Fig 2. The present paper focus mainly on Flora, some important plants showed in Fig 3 & 4.

Fort flora is asset to many students and researchers. Every year all the educational institutes have been conducting exhibitions for the knowledge of students and public in Vizianagar Utsav on the occasion of Pyditalli Festival. Part of this Department of Botany, M.R.College for Women has been exhibiting some posters and live plants growing in the campus. Medicinal plants, Poisonous plants, Ornamental plants, Aromatic plants, Hydrophytes and Tuberous plants and creating awareness among the people about the plants and also conservation status. Some of the rare and endangered species are conserving in the fort campus, because here there are no anthropological activities and no animal threat.

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Materials and methods

Study area

The fort, built of stone, is in the shape of a square of side 240 metres and rises to a height of 10 metres. The width of the wall at the top varies from 8 to 16 metres. There are two gates of entry into the fort. A moat surrounded the fort. Apart from the two main gates, there are two temples and monuments located within the fort. Two important temples are the Hanuman temple, and the lakshmi temple known as the "Kota Shakti", which is the guardian deity of the fort. It is a home of biodiversity, having good number of Flora and Fauna. A total of 279 plants are growing in the campus. Coordinates of the fort: $18^{\circ}06'39''N$ $83^{\circ}24'38''E$.

As the study area is author's work place, continuous observations were conducted since 2010. During these years some changes in the flora were noticed. Especially in annual herbs, species richness is variant and changed year to year. Few important trees were lost due to road and building construction and also Hudhud cyclone (2014) damaged some of the trees. The lost trees were *Adenantha pavinina*, *Parkia*, *Limonia acidissima*, *Bauhinia purpurea*, *Bixa orellana*, *Callistemon linearis*, *Casuarina equisetifolia*, *Grevillea robusta* and *Sapindus*. During the years 2019 – 2021 for documentation and explore the fort flora author has collected and deposited in the College herbarium after identification. Plants were identified with the help of Local floras (Flora of Vizianagaram, Flora of Srikakulam, Flora of Andhra Pradesh and also taking help from BSI, Hyderabad. Plant list given in alphabetical order, in Table 1.

Results and discussion

A total of 279 species are listed in the Table 1. There is much more diversity in the fort flora. The present paper categorize the plants into Mushrooms, Pteridophytes, Gymnosperm, Herbs (decumbent herbs, tuberous herbs), shrubs, Trees (Shade trees, fruit yielding, Palms, Ornamental tree),

Creepers, Hydrophytes, and Xerophytes etc. of 280 species belongs to 71 families. Families list given in the Table 2.

With 24 species Fabaceae stood in first, followed by Euphorbiaceae, Apocyanaceae, Poaceae, Asparagaceae, Asteraceae, Zingiberaceae, Amaryllidaceae, Araceae, and Arecaceae. Eight families consist 3 species, thirteen families consist 2 species, seven families consist 5 species and 28 families are consist only single species. Table 3 showing 10 dominant families.

Herbs are common in the study area and occupy in the first place with 48.5 percent, next followed by trees, Shrubs, climbers and Hydrophytes. Details are shown in Table 4 with Pie chart.

Oldest trees in the study area are *Artocarpus heterophyllus*, *Azadirachta indica*, *Bombax ceiba*, *Brownea coccinea*, *Kleinhovia hospital*, *Pithecellobium dulce*, *Swietenia mahagoni*, *Tamarindus indica* and *Terminalia arjuna*.

Hydrophytic plants are *Hydrilla verticillata*, *Ipomoea aquatic*, *Ludwigia adscendens*, *Najas indica*, *Nymphaea nouchali*, *Pistia stratiotes*, and *Spirodela polyrhiza*. Fig: 5

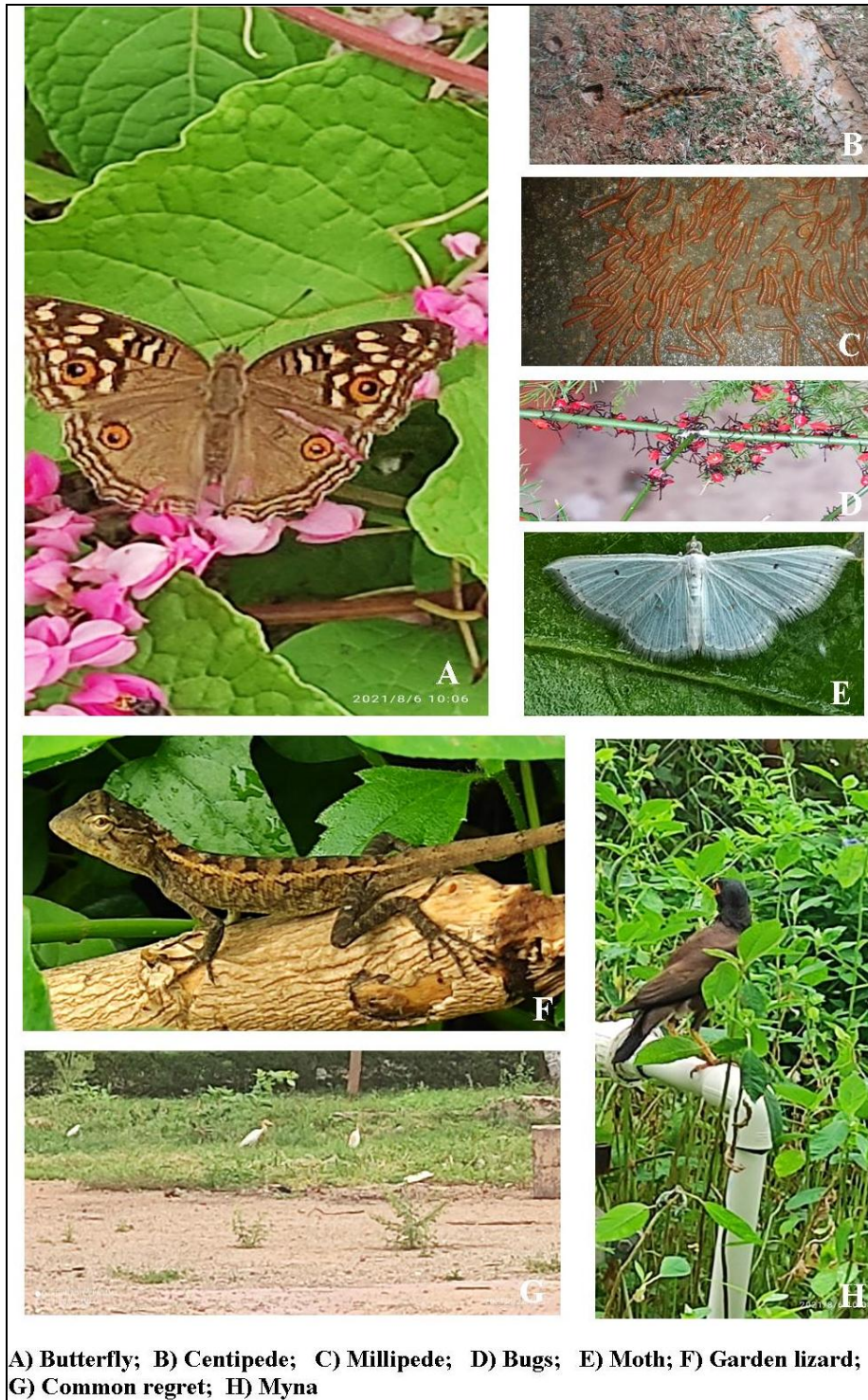
India has 173 Invasive plant species, in the state of Andhra Pradesh about 78 Invasive plant species are growing. Some of Invasive plant species in the study area are *Antigonon leptopus*, *Blumea lacera*, *Calotropis*, *Chloris barbata*, *Chromolaena odorata*, *Cleome rutidosperma*, *Cleome viscosa*, *Corchorus aestuans*, *Cryptostegia grandiflora*, *Digera muricata*, *Euphorbia hirta*, *Euphorbia cyathophora*, *Evolvulus nummularius*, *Lantana camara*, *Parthenium hysterophorus*, *Pistia stratiotes*, *Ravenia spectabilis*, *Senna alata*, *Spathodea campanulata*, *Tribulus terrestris*.

Economically fort plants are categorised into Medicinal plants, Ornamental plants, Weeds, Fruit yielding plants, Vegetable plants, Fibre yielding plants, Wood yielding plants, Fodder plants, Dye yielding plants and miscellaneous plants. List is given in the Table 5 with pie chart.





Fig 1: Fort Campus



A) Butterfly; B) Centipede; C) Millipede; D) Bugs; E) Moth; F) Garden lizard; G) Common egret; H) Myna

Fig 2: Fauna



A) *Acacia auriculiformis*; B) *Boerhaavia erecta*; C) *Brownea coccinia*; D) *Calyptocarpus vialis*; E) *Caryota urens*; F) *Cassia fistula*; G) *Desmodium gangeticum*; H) *Desmodium triflorum*; I) *Digeria arvensis*; J) *Euphorbia tirucalli*; K) *Pithecelloivium dulce*; L) *Kleinhovia hospita*

Fig 3: Flora



Fig 4: Flora



Fig 5: Aquatic Plants

Table 1. List of the plant diversity in Fort Campus

S. No	Scientific Name	Family	Common Name	Habit	Uses
1	<i>Acacia auriculiformis</i> A.Cunn.Ex Benth	Fabaceae	Auri, earpod wattle	Tree	Ornamental and Wood yielding plant
2	<i>Acalypha hispida</i> L.	Euphorbiaceae	The Chenille plant	Shrub	Ornamental plant
3	<i>Acalypha indica</i> L.	Euphorbiaceae	Muripenda, Indian Mercury	Herb	Medicinal plant
4	<i>Acalypha wilkesiana</i> (Jacq.) R.K.Jansen	Euphorbiaceae	Copper leaf, Jacob's coat	Shrub	Ornamental plant
5	<i>Achyranthus aspera</i> (Forssk) Roem. & Schult.	Amaranthaceae	Uttareni	Herb	Medicinal plant
6	<i>Acmella radicans</i> (Jacq.) R.K.Jansen	Asteraceae		Herb	Weed
7	<i>Adenium obesum</i> (Forssk) Roem. & Schult.	Apocyanaceae		Succulent	Ornamental plant
8	<i>Adiantum aleuticum</i> (Rupr.) C.A.Paris	Pteridaceae	Maidenhair fern	Herb	Ornamental weed
9	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Maredu	Tree	Medicinal plant
10	<i>Aerva lanata</i> (L.) Juss. Ex Schult	Amaranthaceae		Herb	Medicinal plant
11	<i>Agave americana</i> L.	Asparagaceae	Kittanaara	Shrub	Fiber yielding
12	<i>Allamanda cathartica</i> L.	Apocyanaceae	Golden trumpet	Shrub	Ornamental plant
13	<i>Allamanda violacea</i> Gardner	Apocyanaceae		Creeper	Ornamental plant
14	<i>Alocasia macrorrhizos</i> (L.) G.Don	Araceae	Giant Taro	Tuberous herb	Ornamental plant
15	<i>Alocasia sanderiana</i> (Schott) G.Don	Araceae	kris plant	Tuberous herb	Ornamental plant
16	<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	Kalabanda	Succulent	Medicinal plant
17	<i>Alpinia calcarata</i> (Andrews) Roscoe	Zingiberaceae		Tuberous herb	Ornamental plant
18	<i>Alpinia speciosa</i> (Blume) D.Dietr	Zingiberaceae	Shell Ginger	Tuberous shrub	Ornamental plant
19	<i>Alstonia scholaris</i> (L.) R.Br.	Apocyanaceae	Edaakula chettu/ Devils tree	Tree	Wood yielding
20	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Ponnaganti kura	Herb	Leafy vegetable
21	<i>Alysicarpus monilifer</i> (L.) DC	Fabaceae		Decumbent herb	Weed
22	<i>Amaranthus dubius</i> Mart. ex Thell.	Amaranthaceae	Thota kura	Herb	Leafy vegetable
23	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Mulla thotakura	Herb	Leafy vegetable
24	<i>Amorphophallus paeonifolius</i> (Dennst) Nicolson.	Araceae	Kanda gadda	Tuberous herb	Vegetable
25	<i>Andrographis echioides</i> (L.) Nees	Acanthaceae		Herb	Medicinal plant
26	<i>Andrographis paniculata</i> (Burm.f.) Nees[Acanthaceae	Nela vemu	Herb	Medicinal plant
27	<i>Anisomeles malabarica</i> (L.) R.Br. ex Sims	Lamiaceae	Malabar catmint/ Mogabiraku	Shrub	Medicinal plant
28	<i>Amnona squamosa</i> L.	Annonaceae	Custard apple	Tree	Fruit yielding
29	<i>Antigonon leptopus</i> Hook. & Am.	Polygonaceae	Mexican creeper	Creeper	Ornamental plant
30	<i>Argemone mexicana</i> L.	Papaveraceae	Mexican poppy, Pichi kusuma	Herb	Medicinal plant
31	<i>Aristida adscensionis</i> L	Poaceae	Chipurugaddi	Grass	Fodder
32	<i>Aristolochia indica</i> L.	Aristolochiaceae	Indian birth wort/Eshvara veru	Creeper	Medicinal plant
33	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Jackfruit, Panasa	Tree	Fruit yielding
34	<i>Asparagus densiflorus</i> (Kunth) Jessop	Asparagaceae	Asparagus		Ornamental plant
35	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Satavari	Climber	Medicinal plant
36	<i>Asparagus setaceus</i> (Kunth) Jessop	Asparagaceae	Asparagus fern	Climber	Ornamental plant
37	<i>Asplenium nidus</i> L.	Aspleniaceae	Nest fern	Herb	Ornamental plant

38	<i>Auricularia auricula-judae</i> (Bull.) J.Schröt.	Auriculariaceae	Wood ear	Fungus	
39	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Vepa chettu, Neem	Tree	Medicinal plant, Wood yielding
40	<i>Azolla pinnata</i> R.Br.	Salviniaceae	Moqueto fern, Water velvet	Herb	Biofertilizer
41	<i>Barleria cristata</i> L.	Acanthaceae	Bluebell barleria	Shrub	Ornamental plant
42	<i>Bauhinia acuminata</i> L.	Fabaceae	White Orchid tree	Tree	Ornamental plant
43	<i>Bauhinia purpurea</i> L.	Fabaceae	Orchid tree, Butterfly tree	Tree	Ornamental plant
44	<i>Bauhinia variegata</i> (L.)Benth.	Fabaceae	Mountain ebony	Tree	Ornamental plant
45	<i>Blumea lacera</i> L.	Asteraceae		Herb	Medicinal plant
46	<i>Boerhavia diffusa</i> L.nom.cons.	Nyctaginaceae	Punarnava	Decumbent herb	Medicinal plant
47	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Erect spiderling	Herb	Weed
48	<i>Bombax ceiba</i> L.	Malvaceae	Cotton tree	Tree	Filling purpose
49	<i>Brachiaria remota</i> (Retz.) Haines	Poaceae		Grass	Fodder
50	<i>Brownea coccinea</i> Jacq.	Fabaceae	Scarlet flame bean, rose of Venezuela	Tree	Medicinal plant
51	<i>Caesalpinia pulcherrima</i> (L.) Sw	Fabaceae	Peacock flower	Shrub	Ornamental plant
52	<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	Redgram/Kandulu		Pulses and vegetable
53	<i>Caladium bicolor</i> (Aiton) Vent.	Araceae	Heart of Jesus	Tuberous herb	Ornamental plant
54	<i>Calotropis procera</i> (Aiton) W.T.Aiton	Apocyanaceae	Jilledu, Crown flower	Shrub	Medicinal plant
55	<i>Calypocarpus vialis</i> Less.	Asteraceae	Creeping Cinderella weed	Herb	Weed
56	<i>Canna indica</i> L.	Cannaceae	Indian Shot	Tuberous herb	Ornamental plant
57	<i>Caralluma stalagmifera</i> C.E.C.Fisch	Apocyanaceae	Dark purple caralluma	Succulent	Ornamental plant
58	<i>Caralluma umbellata</i> / Boucerosia	Apocyanaceae	Kundeti kommulu	Succulent	Ornamental plant
59	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Ballon vine	Climber	Medicinal plant
60	<i>Carica papaya</i> L.	Caricaceae	Papaya	Tree	Fruit yielding
61	<i>Carissa carandas</i> L.	Apocyanaceae	Bengal currant	Shrub	Fruit yielding
62	<i>Caryota urens</i> L.	Arecaceae	Fih tail palm	Tree	Alcoholic Beverage
63	<i>Catharanthus roseus</i> G.Don	Apocyanaceae	Billaganneru	Herb	Medicinal plant
64	<i>Chamaecostus cuspidatus</i> (Nees & Mart)C.Specht & D.W.Stev.	Costaceae	Inulin plant	Tuberous shrub	Medicinal plant
65	<i>Cheilocostus speciosus</i> (J.Konig) C.Specht	Costaceae	Crepe ginger	Tuberous shrub	Medicinal plant
66	<i>Chloris barbata</i> Sw.	Poaceae		Grass	Fodder
67	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Asteraceae	Kamourodda	Herb	Weed
68	<i>Cissus quadrangularis</i> L.	Vitaceae	Devils back bone/ Nalleru	Succulent	Medicinal plant
69	<i>Cissus rotundifolia</i> Vahl	Vitaceae	Arabian wax cissus	Succulent	Medicinal plant
70	<i>Citrus aurantium</i> L.	Rutaceae	Narinja	Tree	Fruit yielding
71	<i>Clematis gouriana</i> Roxb.ex DC	Ranunculaceae	Indian Travellers Joy	Climber	Medicinal plant
72	<i>Cleome gynandra</i> L.	Cleomaceae	Vaminta	Herb	Medicinal plant
73	<i>Cleome rutidosperma</i> DC.	Cleomaceae	Fringed spider flower	Herb	Weed
74	<i>Cleome viscosa</i> L.	Cleomaceae	Aian spider flower, tick weed	Herb	Medicinal plant
75	<i>Clitoria ternatea</i> L.	Fabaceae	Aian pigeonwings, sanku pushpam	Climber	Ornamental plant, Medicinal plant
76	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Dondakaya	Climber	Vegetable
77	<i>Cocculus hirsutus</i> (L.) Diels	Menispermaceae	Dusari teega, cheepuru teega	Climber	Medicinal plant
78	<i>Cocos nucifera</i> L.	Arecaceae	Coconut, Kobbari	Tree	Fruit yielding
79	<i>Codiaeum variegatum</i> (L.) A.Juss.	Euphorbiaceae	Fire croton	Shrub	Ornamental plant
80	<i>Coleus amboinicus</i> Lour.	Lamiaceae	Mexican mint	Succulent	Medicinal plant
81	<i>Combretum indicum</i> (L.) DeFilipps	Combretaceae	Rangoon creeper	Climber	Ornamental plant
82	<i>Commelina attenuata</i> K.D.Koenig ex Vahl	Commelinaceae		Decumbent herb	Weed
83	<i>Commelina benghalensis</i> L.	Commelinaceae	Bengal dayflower	Decumbent herb	Weed
84	<i>Conocarpus erectus</i> L.	Combretaceae	Button wood	Tree	Ornamental plant
85	<i>Corchorus aestuans</i> L.	Malvaceae		Herb	Weed
86	<i>Cordylone fruticosa</i> (L.) A.Chev.	Asparagaceae	ti plant, Palm lily	Shrub	Food, traditional medicine and Ornamental plant
87	<i>Cordia sebestena</i> G.Forst.	Boraginaceae	Scarlet cordia, Geiger tree	Tree	Ornamental plant
88	<i>Cosmos sulphureus</i> Cav.	Asteraceae	Sulfur cosmos	Herb	Dye yielding plant
89	<i>Costus woodsonii</i> Maas.	Costaceae	Red button ginger	Tuberous shrub	Ornamental plant
90	<i>Crinum asiaticum</i> L.	Amaryllidaceae	Poison bulb/ Chengalva puvvu	Tuberous shrub	Ornamental plant
91	<i>Crinum latifolium</i> L.	Amaryllidaceae		Tuberous herb	Ornamental plant
92	<i>Crotalaria juncea</i> L.	Fabaceae	Janumu	Shrub	Fiber yielding
93	<i>Cryptostegia grandiflora</i> Roxb.ex R Br.	Apocyanaceae	Rabbaru teega	Climber	Ornamental plant
94	<i>Curcuma amada</i> Roxb.	Zingiberaceae	Mamidi allamu	Tuberous herb	Medicinal plant
95	<i>Curcuma longa</i> L.	Zingiberaceae	Turmeric, Pasupu	Tuberous herb	Medicinal plant
96	<i>Cycas circinalis</i> L.	Cycadaceae		Gymnosperm	Ornamental plant
97	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Garika	Grass	Fodder
98	<i>Cyperus rotundus</i> L.	Cyperaceae	Tunga	Tuberous herb	Weed
99	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Poaceae	Star grass	Grass	Fodder
100	<i>Desmodium gangeticum</i> (L.) DC	Fabaceae	Salparni	Herb	Medicinal plant
101	<i>Desmodium triflorum</i> (L.) DC	Fabaceae	Beggar weed	Decumbent herb	Medicinal plant
102	<i>Delonix regia</i> (Hook.) Raf.	Fabaceae	Turayi	Tree	Ornamental plant
103	<i>Dicanthium annulatum</i> (Forssk.)	Poaceae		Grass	Fodder
104	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae		Decumbent herb	Medicinal plant
105	<i>Digitaria ciliaris</i> (Retz.) Koel	Poaceae		Grass	Fodder
106	<i>Digitaria sanguinalis</i> (L.)	Poaceae		Grass	Fodder
107	<i>Dioscorea esculenta</i> (Lour.) Burkill	Dioscoreaceae	Yam	Creepers	vegetable
108	<i>Dracaena angolensis</i> (Welw.ex Carriere) Byng & Christenh	Asparagaceae		Tuberous herb	Ornamental
109	<i>Dracaena fragrans</i> (L.) Ker Gawl.	Asparagaceae	Striped dracaena, cornstalk dracaena	Shrub	Ornamental
110	<i>Dracaena reflexa</i> Lam.	Asparagaceae	Song of India	Shrub	Ornamental
111	<i>Dracaena roxburghiana</i> (Schult.&Schult.f.) Byng & Christenh.	Asparagaceae		Tuberous herb	Medicinal plant
112	<i>Dracaena trifasciata</i> (Prain) Mabb.	Asparagaceae	Mother in law tung, Snake plant	Tuberous herb	Ornamental
113	<i>Duranta erecta</i> L.	Verbenaceae	Golden duranta	Shrub	Ornamental
114	<i>Dyopsis luteceus</i> (H.Wendl.) Beentje & J.Dransf	Arecaceae	Golden cane palm, Yellow Palm	Tree	Ornamental
115	<i>Eclipta alba</i> Hassk.	Asteraceae	Guntagalagaraaku	Herb	Medicinal plant
116	<i>Elaeis guineensis</i> Jacq.	Arecaceae	Palm oil	Tree	Oil yielding plant
117	<i>Elaeocarpus ganitrus</i> Roxb.ex G.Don	Elaeocarpaceae	Rudraksha	Tree	
118	<i>Eleusine indica</i> (L.) Gaertn.	Poaceae		Grass	Fodder
119	<i>Eragrostis ciliaris</i> (L.)	Poaceae		Grass	Fodder
120	<i>Euphorbia geneculeta</i> Ortega	Euphorbiaceae		Herb	Weed
121	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Garden spurge	Herb	Medicinal plant

122	<i>Euphorbia milii</i> Des Moul.	Euphorbiaceae		Succulent	Ornamental
123	<i>Euphorbia splendens</i> Bojer ex Hook.	Euphorbiaceae		Succulent	Ornamental
124	<i>Euphorbia tirucalli</i> L.	Euphorbiaceae	Pencil tree	Tree	Medicinal plant
204	<i>Euphorbia tithymaloides</i> L.	Euphorbiaceae		Succulent	Ornamental plant
125	<i>Euphorbia trigona</i> Roxb.	Euphorbiaceae		Succulent	Ornamental, Medicinal plant
126	<i>Evolvulus nummularius</i> (L.) L.	Convolvulaceae		Decumbent herb	Medicinal plant
127	<i>Excoecaria bicolor</i> (Hassk.) Zoll.ex.Hassk.	Euphorbiaceae		Shrub	Ornamental
128	<i>Ficus carica</i> L.	Moraceae	Common fig/ Anjeer	Tree	Fruit yielding
129	<i>Ficus hispida</i> Blanco	Moraceae	Opposite leaf fig/ Bomma medi	Tree	
130	<i>Ficus racemosa</i> Willd.	Moraceae	Cluster fig/ Medi chettu	Tree	Medicinal plant
131	<i>Ficus religiosa</i> Forssk.	Moraceae	Raavi/ Peepal tree	Tree	Medicinal plant
132	<i>Foeniculum vulgare</i> Mill.	Apiaceae	Fennel/Sompu	Herb	Medicinal plant
133	<i>Licula grandis</i> H.Wendl.	Arecaceae	Fan Palm	Tree	Ornamental
134	<i>Furcraea foetida</i> (L.) Haw.	Asparagaceae	Mauritius-hemo	Succulent	Fiber yielding
135	<i>Galphimia glauca</i> Bartl.	Malpigiaceae		Shrub	Ornamental
136	<i>Ganoderma lucidum</i> (Curtis) P.Krast.(1881)	Ganodermataceae	Bracket fungi/ Shelf mushroom	Fungus	
137	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae		Decumbent herb	Weed
138	<i>Gomphrena globosa</i> L.	Amaranthaceae	Bogada banti/Globe amaranth	Herb	Ornamental
139	<i>Graptophyllum pictum</i> (L.) Griff.	Acanthaceae	Caricature plant	Shrub	Ornamental
140	<i>Hedychium coronarium</i> J.Koenig	Zingiberaceae	White ginger lily/Butterfly lily	Tuberous shrub	Medicinal plant
141	<i>Hamelia patens</i> Jacq.	Rubiaceae	Fire bush	Tree	Ornamental
142	<i>Heteropogon contortus</i> (L.) P. Beauv.ex.Roem. & Schult.	Poaceae	Blacks spear grass	Grass	Fodder
143	<i>Hibiscus lobatus</i> (Murray) Kuntze	Malvaceae	Ataka naara	Herb	Weed
144	<i>Hibiscus tiliaceus</i> L.	Malvaceae	Beach Hibiscus	Tree	Ornamental
145	<i>Hippeastrum correiense</i> (Bury) Worsley	Amaryllidaceae	Easter lily	Tuberous herb	Ornamental
146	<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Ulmaceae	Nemalinar chettu/ nali	Tree	Wood yielding
147	<i>Hydrilla verticillata</i> (L.f.) Royle	Hydrocharitaceae	Waterhyme	Aquatic plant	Medicinal plant
148	<i>Hymenocallis latifolia</i> (Mill.) Planch.	Amaryllidaceae	Spider lily	Tuberous herb	Ornamental plant
149	<i>Indigofera linifolia</i> (L.f.) Retz.	Fabaceae	Narrow leaf indigo	Decumbent herb	Weed
150	<i>Indigofera tinctoria</i> L.	Fabaceae	Birdsville indigo(L.f.) Retz	Decumbent herb	Weed
151	<i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Neeti thuti	Aquatic plant	Leafy vegetable
152	<i>Ipomoea hederifolia</i> L.	Convolvulaceae	Scarlet morning glory,	Climber	Ornamental
153	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	Tigers paw	Creeper	Weed
154	<i>Ixora coccinea</i> L.	Rubiaceae	Nuruvarahalu	Shrub	Ornamental
155	<i>Jasminum sambac</i> (L.) Ait.	Oleaceae	Jasmine/ Malli	Shrub	Ornamental
156	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Nepalam	Shrub	Medicinal plant
157	<i>Jatropha podagrica</i> Hook.	Euphorbiaceae	Coral plant, Buddha belly plant	Succulent	Ornamental
158	<i>Kaempferia galanga</i> L.	Zingiberaceae	kachoralu	Tuberous shrub	Medicinal plant
159	<i>Kaempferia rocoeana</i> Wall.	Zingiberaceae	Peacock ginger	Tuberous herb	Ornamental plant
160	<i>Kaempferia rotunda</i> L.	Zingiberaceae	Bhumi champa	Tuberous herb	Medicinal plant
161	<i>Kleinia grandiflora</i> (Wallich ex DC) N.Rani.	Asteraceae	Large flower Kleinia	Succulent	Ornamental plant
162	<i>Kalanchoe pinnata</i> (Lam.)Pers.	Crassulaceae	Miracle leaf/ Ranapalaku	Succulent	Medicinal plant
163	<i>Kleinhovia hospita</i> L.	Malvaceae	Guest tree	Tree	Medicinal plant
164	<i>Lagerstroemia speciosa</i> (L.)Pers.	Lythraceae	Pride of India	Shrub	Ornamental plant
165	<i>Lantana camara</i> L.	Verbenaceae	Gaju poolu	Herb	Ornamental plant
166	<i>Lawsonia inermis</i> L.	Lythraceae	Henna tree, Gorintaaku	shrub	Dye yielding plant
167	<i>Lediborea revoluta</i> (L.f) Jessop	Asparagaceae	South Indian Skill.	Tuberous herb	Medicinal plant
168	<i>Leucaena leucocephala</i> (Lam.) de wit	Fabaceae	White lead tree/ Kanti Subabul	Tree	
169	<i>Licula orbicularis</i> Becc.	Arecaceae		Palm	Ornamental plant
170	<i>Livistona chinensis</i> L.	Arecaceae	Chinese Fan palm	Palm	Ornamental plant
171	<i>Ludwigia adscendens</i> (L.) H.Hara	Onagraceae	the evening primrose	Aquatic plant	Vegetable
172	<i>Manihot esculenta</i> Crantz.	Euphorbiaceae	Karapendalamu	Tuberous shrub	vegetable
173	<i>Manilkara hexandra</i> (Roxb.) Dubard.	Sapotaceae	Pala chettu	Tree	Wood yielding
174	<i>Mariscus squarrosus</i> (L.) C.B.Clarke.	Cyperaceae	Scarlet morning glory,	Herb	Weed
175	<i>Mentha arvensis</i> L.	Lamiaceae	Pudeena	Decumbent herb	Medicinal plant
176	<i>Microstachys chamaelea</i> (L.) Mull.Arg.	Euphorbiaceae		Herb	Weed
177	<i>Millingtonia hortensis</i> L.f.	Bignoniaceae	Punnaga	Tree	Ornamental
178	<i>Mimops elengi</i> L.	Sapotaceae	Pagada/ Spanish cherry	Tree	Fruit yielding
179	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Chandra kanta/4 o clock plant	Tuberous herb	Medicinal plant
180	<i>Mollugo nudicaulis</i> Lam.	Aizoaceae	Naked-stem carpetweed	Herb	Medicinal plant
181	<i>Moringa oleifera</i> Lam.	Moringaceae	Mulaga/ Drumstick plant	Tree	vegetable
182	<i>Muntingia calabura</i> L.	Muntingiaceae	Strwberry tree	Tree	Medicinal plant
183	<i>Murraya koenigii</i> (L.) Sprengel	Rutaceae	Cury leaf tree	Tree	Medicinal plant
184	<i>Murraya paniculata</i> (L.) Jack.	Rutaceae	Orange Jasmine	Tree	Ornamental
185	<i>Musa paradisiaca</i> L.	Musaceae	Plantain tree/Banana	Tree	Fruit yielding
186	<i>Mussaenda erythrophylla</i> Schumacher & Thonn	Rubiaceae	Red flag bush	Shrub	Ornamental
187	<i>Najas indica</i> (Willd.) Cham	Hydrocharitaceae	Najas grass	Aquatic plant	Aquarium plant
188	<i>Nerium indicum</i> Mill.	Apocyanaceae	Kaliveru	Shrub	Ornamental
189	<i>Nerium oleander</i> L.	Apocyanaceae	Oleander	Shrub	Ornamental
190	<i>Nyctanthes arbor-tritis</i> L.	Oleaceae	Coral jasmine/ Parijaatam	Tree	Medicinal plant
191	<i>Nymphaea nouchali</i> Burm.f.	Nymphaeaceae	Blue lotus	Aquatic Plant	Medicinal plant
192	<i>Ocimum americanum</i> L.	Lamiaceae	American basil	Aromatic herb	Medicinal plant
193	<i>Ocimum basilicum</i> L.	Lamiaceae	Sweet basil	Aromatic herb	Medicinal plant
194	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Holy basil	Aromatic herb	Medicinal plant
195	<i>Oldenlandia herbacea</i> DC.	Rubiaceae		Herb	Weed
196	<i>Oldenlandia umbellata</i> Steud.	Rubiaceae		Herb	Weed
197	<i>Oreodox regia</i> Boiss.	Arecaceae		Palm	Ornamental plant
198	<i>Oxalis corniculata</i> L.	Oxalidaceae	Procumbent yellow sorrel, pulichinta	Decumbent herb	Medicinal plant
199	<i>Oxalis latifolia</i> Kunth.	Oxalidaceae	garden pink sorrel	Tuberous herb	Weed
200	<i>Oxalis triangularis</i> A.St.Hil.	Oxalidaceae	False shamrock	Tuberous herb	Ornamental plant
201	<i>Pancreatium longiflorum</i> Roxb.ex Ker Gawl.	Amaryllidaceae		Tuberous herb	Ornamental plant
202	<i>Parthenium hysterophorus</i> Adans.	Asteraceae		Shrub	Weed
203	<i>Passiflora foetida</i> L.	Passifloraceae		Climber	Medicinal plant
205	<i>Peltophorum pterocarpum</i> (DC.) K.Heyne	Fabaceae	Pacha Turayi, Yellow flame tree	Tree	Ornamental plant
206	<i>Pennisetum setaceum</i> (Forssk.) Chiov	Poaceae	crimson fountaingrass	Grass	Ornamental plant
207	<i>Pereskia grandifolia</i> subsp. grandifolia	Cactaceae		Shrub	Ornamental plant
208	<i>Pergularia daemia</i> subsp. Garipensis (E.Mey.) Goyder	Apocyanaceae	Dushtapu teega	Climber	Medicinal plant
209	<i>Phyllanthus acidus</i> (L.) Skeels	Phyllanthaceae	Country gooseberry	Tree	Fruit yielding

210	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Indian gooseberry, amla	Tree	Fruit yielding & Medicinal plant
211	<i>Phyllanthus madras</i> pattens	Phyllanthaceae		Herb	Medicinal plant
212	<i>Phyllanthus niruri</i> L.	Phyllanthaceae	Nelausiri	Herb	Medicinal plant
213	<i>Phyllanthus reticulatus</i> Poir.	Phyllanthaceae	Purudu kayalu	Shrub	Medicinal plant
214	<i>Philodendron erubescens</i> K.Koch & Augustin	Araceae	blushing philodendron	Creepers	Ornamental plant
215	<i>Physalis minima</i> L.	Solanaceae	Budda budasara	Herb	Medicinal plant
216	<i>Pistia stratiotes</i> L.	Araceae	Water cabbage	Aquatic plant	Ornamental plant
217	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Fabaceae	Seema chintha	Tree	Fruit yielding
218	<i>Plumeria pudica</i> Jacq.	Apocyanaceae	Temple tree	Tree	Ornamental plant
219	<i>Plumeria rubra</i> L.	Apocyanaceae		Tree	Ornamental plant
220	<i>Polianthes tuberosa</i> L.	Asparagaceae	Tuberose, lily	Tuberous herb	Ornamental plant
221	<i>Polyalthia longifolia</i> (Sonn.) Thwaites	Annonaceae	Naramamidi	Tree	Ornamental plant
222	<i>Pongamia pinnata</i> (L.) Pierre.	Fabaceae	Ganuga, Kamu chettu	Tree	Medicinal plant
223	<i>Pteris</i> L.	Pteridaceae		Herb	Ornamental plant
224	<i>Punica granatum</i> L.	Punicaceae	Daaninna, Pomegranate	Tree	Fruit yielding
225	<i>Ravenia spectabilis</i> (Lindl.) Engl.	Rutaceae		Shrub	Ornamental plant
226	<i>Rhodophiala rosea</i> (Sweet) Traub	Amaryllidaceae	Easter lily	Tuberous herb	Ornamental plant
227	<i>Rhynchosia minima</i> (L.) DC	Fabaceae	Least snout-bean, burn-mouth-vine	Climber	Weed
228	<i>Rosa indica</i> L.	Rosaceae	Gulabi, Rose	Shrub	Ornamental plant
229	<i>Rottboellia exaltata</i> L.f.	Poaceae	Itch grass	Grass	Fodder
230	<i>Ruellia tuberosa</i> L.	Acanthaceae	Fever root, Snapdragon root	Tuberous herb	Weed
231	<i>Salvinia minima</i> Baker.	Salviniaceae	water spangles	Aquatic fern	Bioagent for wastewater treatment, feed
232	<i>Sapindus marginatus</i> Willd.	Sapindaceae	Kunkullu, Soapnut	Tree	Medicinal plant
233	<i>Scadoxus multiflorus</i> (Martyn) Raf.	Amaryllidaceae	Blood lily	Tuberous herb	Ornamental plant
234	<i>Scoparia dulcis</i> L.	Scropulariaceae	Dakshini, Sweet broom	Herb	Medicinal plant
235	<i>Senna alata</i> (L.) Roxb.	Fabaceae	Candle bush, ringworm shrub	Shrub	Medicinal plant
236	<i>Senna fistula</i> L.	Fabaceae	Indian laburnum, Rela	Tree	Medicinal plant
237	<i>Senna siamea</i> (Lam.) Irwin et Barneby.	Fabaceae		Tree	Ornamental
238	<i>Setaria verticillata</i> (L.) P.Beauv.	Poaceae	Bristly foxtail	Grass	Fodder
239	<i>Psidium guajava</i> L.	Myrtaceae	Guava, Jamakaya	Tree	Fruit yielding
240	<i>Solanum nigrum</i> L.	Solanaceae	Kamanchi	Herb	Medicinal plant
241	<i>Spathodea campanulata</i> P.Beauv.	Bignoniaceae	Tulip tree	Tree	Wood yielding
242	<i>Spermacoce hispida</i> L.	Rubiaceae	Shaggy button weed	Herb	Medicinal plant
243	<i>Spirodela polyrhiza</i> (L.) Schleid.	Araceae	Common duckmeat	Aquatic Plant	Animal feed, biofuel, bioremediation
244	<i>Swietenia mahagoni</i> (L.) Jacq.	Meliaceae	West Indian mahogany	Tree	Wood yielding
245	<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	Neredu	Tree	Fruit yielding
246	<i>Syzygium malaccense</i> (L.) Merr. & L.M.Perry.	Myrtaceae	Malay apple	Tree	Fruit yielding
247	<i>Tagetes erecta</i> L.	Asteraceae	Banthi	shrub	Ornamental
248	<i>Talinum fruticosum</i> (L.) Juss.	Talinaceae	Englih bachali	Succulent	Leafy vegetable
249	<i>Tamarindus indica</i> L.	Fabaceae	Tamarind, Chinthha	Tree	vegetable
250	<i>Tecoma stans</i> (L.) Juss. ex Kunth	Bignoniaceae	Yellow bells	Tree	Wood yielding
251	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	Combretaceae	Arjun tree, tella maddi	Tree	Wood yielding
252	<i>Terminalia catappa</i> L.	Combretaceae	Indian Almond, Badam	Tree	Nut yielding
253	<i>Terminalia chebula</i> Retz.	Combretaceae	Myrobalan, Karakkaya	Tree	Medicinal plant
254	<i>Tinospora cordifolia</i> (Thunb.) Miers	Minispermaceae	Thippatheega	Climber	Medicinal plant
255	<i>Tradescantia spathacea</i> Sw.	Commelinaceae	Boat lily, Moses in the Cradle	Herb	Ornamental
256	<i>Tradescantia pallida</i> (Rose) D.R.Hunt	Commelinaceae	Purple heart	Decumbent herb	Ornamental
257	<i>Tradescantia zebrena</i> (Schinz) D. R. Hunt	Commelinaceae	inch plant or wandering Jew	Decumbent herb	Ornamental
258	<i>Trianthema decandra</i> L.	Aizoaceae	Gangabayala kura	Decumbent herb	Leafy vegetable
259	<i>Trianthema triquetra</i> Rottler & Willd (Tt.Cr)	Aizoaceae	Galijeru	Decumbent herb	Leafy vegetable
260	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Palleru	Decumbent herb	Medicinal plant
261	<i>Trichodesma zeylanicum</i> (Burm.f.) R.Br.	Boraginaceae	Pedda gurragutti, Camel bush	Herb	Medicinal plant
262	<i>Tridax procumbens</i> L.	Asteraceae	Gaddichemanthi	Herb	Medicinal plant
263	<i>Typhonium inopinatum</i> Prain.	Araceae		Tuberous herb	Medicinal plant
264	<i>Typhonium roxburghii</i> Schott.	Araceae	Dwarf voodoo lily	Tuberous herb	Medicinal plant
265	<i>Typhonium trilobatum</i> (L.) Schott.	Araceae	Bengal Arum	Tuberous herb	Medicinal plant
266	<i>Urochloa panicoides</i> P.Beauv.	Poaceae		Grass	Fodder
267	<i>Vernonia cinerea</i> (L.) Less	Asteraceae	Sahadevi	Herb	Medicinal plant
268	<i>Vitex negundo</i> L.	Lamiaceae	Vavili	Tree	Medicinal plant
269	<i>Washingtonia filifera</i> (Linl.) H.Wendl.	Arecaceae		Palm	Ornamental
270	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Ashwagandha	shrub	Medicinal plant
271	<i>Yucca gloriosa</i> L.	Asparagaceae		Shrub	Ornamental
272	<i>Zephyranthes candida</i> (Lindl.) Herb.	Amaryllidaceae	Rain lily/ Zephyr lily	Tuberous herb	Ornamental & Medicinal plant
273	<i>Zephyranthes carinata</i> Herb.	Amaryllidaceae	Rain lily/ Zephyr lily	Tuberous herb	Ornamental & Medicinal plant
274	<i>Zephyranthes citrina</i> Baker	Amaryllidaceae	Rain lily/ Zephyr lily	Tuberous herb	Ornamental & Medicinal plant
275	<i>Zephyranthes rosea</i> Lindl.	Amaryllidaceae	Rain lily/ Zephyr lily	Tuberous herb	Ornamental & Medicinal plant
276	<i>Zingiber cassumunar</i> Roxb.	Zingiberaceae	Karu allamu	Tuberous herb	Medicinal plant
277	<i>Zingiber montanum</i> (J.König) Link ex A.Dietr.	Zingiberaceae	Adavi allamu	Tuberous herb	Medicinal plant
278	<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Allamu, Ginger	Tuberous herb	Medicinal plant
279	<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	Regu	Tree	Fruit yielding

Table 2. Different plant groups in study area with number of families and species

S. No	Category	Number of families	Number of Species
1	Fungi	2	2
2	Pteridophytes	3	5
3	Gymnosperm	1	1
4	Dicots	53	184
5	Monocots	12	89

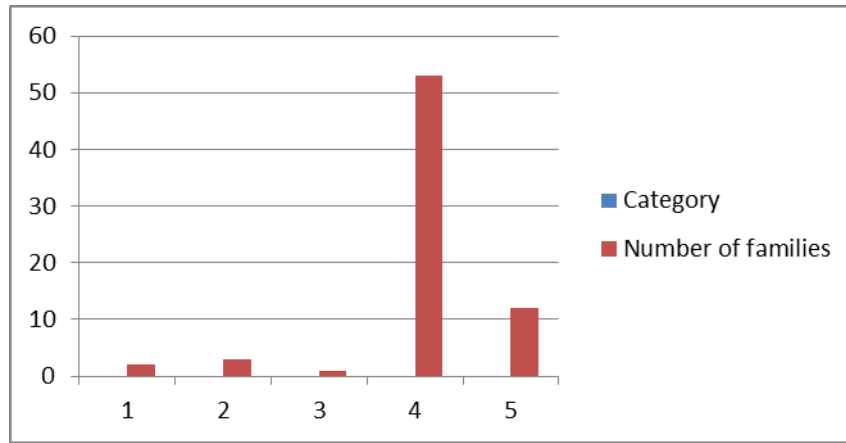


Fig 1. Graph showing dominant plant groups based on number of families

Table 3: 10 dominant families

S. No	Name of the Family	Number of Species
1	Fabaceae	24
2	Euphorbiaceae	16
3	Apocyanaceae	15
4	Poaceae	15
5	Asparagaceae	14
6	Asteraceae	11
7	Zingiberaceae	11
8	Amaryllidaceae	11
9	Araceae	10
10	Arecaceae	9

Table 5: Economically important plants

Medicinal plants	33%
Ornamental plants	21%
Weeds	9%
Fruit yielding plants	6.40%
Vegetable plants	5%
Fodder plants	5%
Wood yielding plants	2.80%
Fibre yielding plants	1%
Dye yielding plants	0.70%
Miscellaneous plants	14%

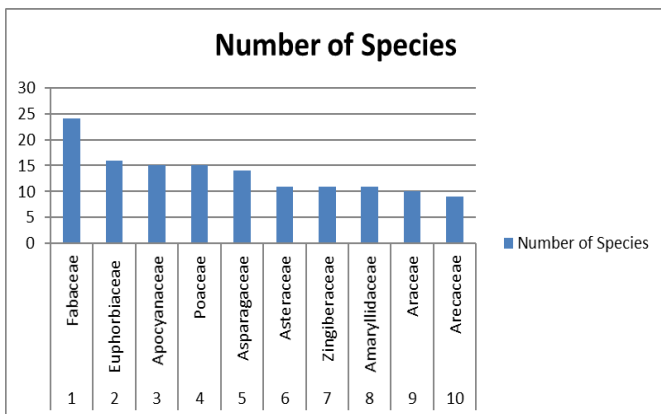


Fig 2. Species richness in 10 dominant families

Table 4. Major life forms in Fort Campus

Herbs	48.50%
Trees	30.70%
Shrubs	14%
Climbers	7.80%
Hydrophytes	2.50%

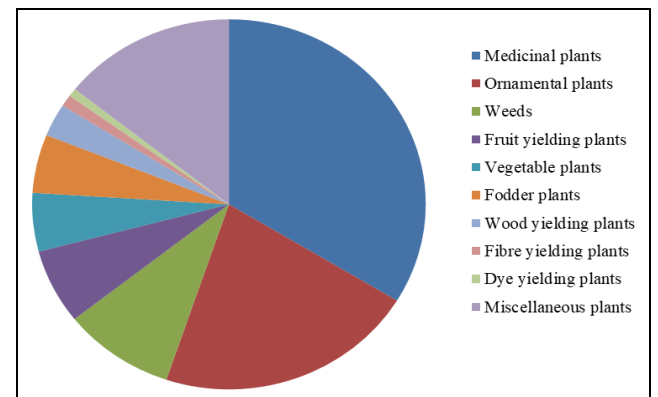


Fig 5. Graph showing economically important plants

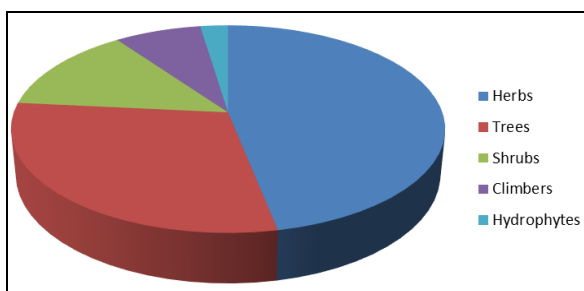


Fig 3: Graph showing Major life forms in Fort Campus

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Conclusion

As mentioned above, fort campus is suitable for growing all kinds of plants, which are native plants, invasive plants, and introduced plants (rare and endangered). For ex-situ conservation fort campus is the best place, here there is no anthropological and animal polluted activities. Especially the Buruju (Tower) area is more suitable for growing rare and endangered plants for conservation. Author has strongly recommended that if there is any projects on Biodiversity conservation and plant conservation of rare and endangered plant species choose this area for conservation.

References

1. Prakasarao J. Plant diversity and their significance of

- Adikavi Nannaya University Campus Asian Journal of Plant Science and Research. 2016;6(3):43-54.
2. Prameela R. Uncultivated fodder grass for cattle Tropical Plant Research. 2016;3(3):533-535.
 3. Prameela R, Swamy J, Venkaiah M. *Typhonium inopinatum* Prain (Araceae): An addition to the flora of Andhra Pradesh Annals of plant Sciences 2018;7(4):2147-2149.
 4. Prameela R, Venkaiah M, Swamy J, Prakasarao J. Amaryllids of Andhra Pradesh, India Tropical Plant Research. 2020;7(3):594-603.
 5. Pullaiah T. Flora of Andhra Pradesh (India), Scientific Publishers, Jodhpur. 2018, 5.
 6. Rao JP, Aniel Kumar O, Venkaiah M. Diversity and Distribution of Tree species in Andhra University Campus, Visakhapatnam City, Andhra Pradesh, India. National Seminar on Genomes, Environment & Human Welfare-Retrospect and Prospect. Department of Botany, Andhra University, Visakhapatnam. 2013.
 7. Reddy CS, Bhagyanarayana G, Reddy KN, Raju VS. Invasive Alien Flora of India Biodiversity News of Andhra Pradesh. 2008;(2):2-3.
 8. Rolla Rao S, Sriramulu HS. Flora of Srikakulam district, Andhra Pradesh, India (*Flora of India Series*). Indian Botanical Society, Meerut. 1986.
 9. Singh Aarvind. International Journal of Bioinformatics and Biomedical Engineering. 2015;1(3):222-236.
 10. Venkaiah M. Studies on the Vegetation and Flora of Vizianagaram district, Andhra Pradesh, Andhra University, Visakhapatnam. 2004.