



## Distribution of macro-flora in CAS marine biology campus, southeast coast of Cuddalore, Tamil Nadu, India

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### Abstract

The present study provides account of the angiosperms of CAS in Marine Biology campus, Parangipettai taluk, Cuddalore district in Tamil Nadu state at India. The Cuddalore district which comes under the coastal region of Tamilnadu is one of the important areas in the state as far as plant distribution is concerned. The extensive survey of the area conducted during 2017-2019, it is result in total of 110 species belonging to 92 genus under 48 families. Out of these, 95 species under 78 genera from 42 families belong to dicotyledons and 15 species under 14 genera from 5 families belongs to monocotyledons. From this study, 36 trees, 14 Shrubs, 48 Herbs and 12 climbers are come under 110 species. Fabaceae (9 spp.) comprises of the maximum number of species, followed by Euphorbiaceae (7 spp.), Apocynaceae (5 spp.), Malvaceae (5 spp.), Amaranthaceae; Caesalpiniaceae; Lamiaceae; Phyllanthaceae; Solanaceae are (4 spp.) and other families are occupied 3, 2 and 1. Some of the largest genera in the area are Fabaceae (8 spp.), Euphorbiaceae (7 spp.), Apocynaceae (5 spp.), Caesalpiniaceae (4 spp.) and other families are 3, 2 and 1. The entire campus is chiefly dominated by Mangrove trees such as *Rhizophora mucronata* Lam, *Rhizophora apiculata* Bl, *Avicennia marina* (Forssk.) Vierh, *Avicennia officinalis* L and *Excoecaria agallocha* L.

**Keywords:** floral diversity, CAS campus, cuddalore district, IUCN red list, naturalized species

### 1. Introduction

Flora is an indigenous native plant life in a particular region, time, period, climate and specific environment and the word comes from Latin word 'Floris-Flower' (Iezzi *et al.*, 2019, Johnson *et al.*, 2002, Starliper., *et al.*, 1997) [6, 8, 9]. Flora is higher, middle, lower plant species; they are widely used for food, fodder, forage, fuel, fibre, oil, herbs, spices and industrial purpose for human and animal (Heywood 1992) [5]. Flora threatened by natura activity like (competition, depredation, little ecological plasticity, droughts, rock falls, fires, storms flood, landslides, volcanic activity and avalanches and poor reproductive strategy), artificial activities like (urbanization, etc.) and human action like (roads network, construction of new roads and housing development, etc.) (Fédoroff *et al*, 2005) [3]. The present survey was done to assess the floral distribution through line transect method in CAS marine biology campus, Parangipettai, Cuddalore district, Tamil Nadu state at India.

### 2. Materials and Methods

The present study was carried out in the coastal environment of CAS in Marine Biology campus, Annamalai University (Porto Novo), Tamil Nadu at India (Figure, 1). The study area is located on the north bank of Vellar river mouth. Latitude and longitude of Study area correspond to 11°29'28.67"N and 79°45'55.34"E. The full study was we employed the line transect sampling method to assess the macro flora distribution (Buckland *et al.*, 1993) [2]. The macro-floral survey was carried out from May 2017 to March 2019. The plant survey covered the entire area of CAS in Marine Biology, which includes Mangroves, Sand dunes, Salt marsh, and Latex plants etc. The survey was carried out after sunrise and before sunset for clear identification. Plant species are identified as insitu and

exsitu in CAS in Marine Biology. The habit of the identified plant species was classified into trees, shrubs, herbs and climbers. The plant species that were producing latex families were also surveyed and listed (USDA, 2019) [11]. The present study was evaluated the plant species with IUCN red list categories of (extinct, extinct in the wild, critically endangered, endangered, vulnerable, nearby threatened, least concern, data deficiency, not evaluated) (IUCN, 2019). The recorded plant species was further investigated their origin e.g. alien invasive/ naturalized species (Sudhakar *et al.*, 2008; GISD, 2019) [10, 4].

### 3. Results

There are 110 of plant species distributed in CAS Marine Biology, Annamalai University, Parangipettai, Cuddalore district, Tamilnadu state at India (Table 1). These 110 plant species are coming under 48 families. Fabaceae (9), Euphorbiaceae (7), Malvaceae (5), Apocynaceae (5), Solanaceae (4), Phyllanthaceae (4), Lamiaceae (4), Caesalpiniaceae (4), Amaranthaceae (4) and others are 3, 2 and 1 families' wise numbers of plant species distributed in CAS Marine Biology (Table1; Fig.3). Fabaceae (8), Euphorbiaceae (7), Apocynaceae (5), Caesalpiniaceae (4) and others are 3, 2 and 1 families' wise numbers of plant genus distributed in CAS Marine Biology (Table 1; Fig.4). Halophytes, Hydrophytes, Xerophytes, Mangrove, etc were witnessed from the study area. Genus 78, species 95 are dicotyledons and genus 14, species 15 are monocotyledons. Latex producing 20 plant species of 5 families was distributed from the study area. Herbs 8 species, trees 3 species, shrubs 2 species and climbers 2 species are monocotyledons and Herbs 40 species, trees 33 species, shrubs 12 species and climbers 10 species are dicotyledons (Table 1; Fig.2). According to IUCN red list categories there

are 25 species least concern and 68 species not found are dicotyledons and 1 species of least concern, 1 species of threatened and 13 species not found are coming under monocotyledons. IUCN red list includes Halophytes, hydrophytes, xerophytes and mangroves (Table 1; Fig.5). The study area occupied Naturalized/alien invasive dicotyledon of 1 species from Australia; 25 species from Europe, America, Mexico, West Indies, Brazil and Peru; 1 species from Madagascar; 4 species from Mediterranean and Africa; 1 species from West Asia and monocotyledon of 3 species from Europe, America, Mexico, West Indies, Brazil and Peru; 1 species from Mediterranean and Africa (Table 1; Fig 6).

#### 4. Discussion

4, 65,668 species was distributed in world, it includes 47,513 species from India followed by 17,672 from Tamilnadu and 110 species from CAS in Marine Biology. The study area has different types of habitat like mangroves, salt marshes, sand dunes, xerophytes, hydrophytes, etc. In the present study, there are 110 plant species belongs to 48 families was recorded from CAS in Marine Biology, southeast coast of India. There is no such previous study present from the CAS Marine Biology. Arulmoorthy and Srinivasan., (2017) <sup>[1]</sup> studied coastal sand dune floral diversity in Cuddalore district, southeast coast of India and reported plant species of 32 sand dune species belongs to 20 families through line transect method.

**Table 1:** List of macro floral distributed in CAS in Marine Biology campus

Sl.No	Family	Scientific Name	Common Names	Habit	IUCN list	Invasive species
1	Acanthaceae	<i>Avicennia marina</i> (Forssk.) Vierh.	Grey Mangrove, white mangrove, Kanna, Venkandan	T	LC	N
2	Acanthaceae	<i>Avicennia officinalis</i> L.	Indian Mangrove, White Mangrove, Venkanthal	T	LC	N
3	Agavaceae	<i>Dracaena fragrans</i> (L.) Ker-Gawl.	Corn plant	S	N	N
4	Amaranthaceae	<i>Achyranthes aspera</i> L.	Prickly chaff flower, chaff-flower, crocus stuff, crokars staff, devil's horsewhip, Nayuruvi, Shiru-kadaladi	H	N	N
5	Amaranthaceae	<i>Aerva lanata</i> (L.) JUSS. EX SCHULT.	Mountain knot grass, Ciru-pulai / ulinai	H	N	N
6	Amaranthaceae	<i>Amaranthus spinosus</i> L.	Prickly amaranth, edlebur needle burr, spiny amaranth, thorny amaranth, Mullukkeerai	H	N	N
7	Amaranthaceae	<i>Amaranthus viridis</i> L.	Green amaranth, pigweed, prince of wales feather, slender amaranth, tropical green amaranth, Kuppai-k-kirai	H	N	N
8	Annonaceae	<i>Artabotrys odoratissimus</i> R.Br.	Ylang Ylang Vine, Climbing lang-lang, Tail grape, Ilang-ilang, Hari champa, Madanmast, Manorangini, Chini champra, Kalomuro, Kanthalichampa, Manoranjanihu, Hirva chapha, Manoranjitham, Chibhad Champo, Aku sampenga	T	N	N
9	Annonaceae	<i>Polyalthia longifolia</i> (Sonn.)	Ashok, false ashok, mast tree, sita ashok, Vansulam	T	N	N
10	Apocynaceae	<i>Allamanda cathartica</i> L.	Golden trumpet vine, allamanda vine	C	N	B2
11	Apocynaceae	<i>Catharanthus roseus</i> (L.) G.Don.	Periwinkle, Madagascar periwinkle, rosy periwinkle, vinca	H	N	B4
12	Apocynaceae	<i>Cryptostegia grandiflora</i> (Roxb.) R.Br.	Rubber vine, Palai	C	N	B3
13	Apocynaceae	<i>Nerium oleander</i> L.	Oleander, arali	S	LC	B5
14	Apocynaceae	<i>Rauvolfia tetraphylla</i> L.	Wild snake root, devil pepper, be still tree, American serpentwood, be still tree, devil root, milkbush, Pampukaalaachchedi, Paambukkala	S	N	B2
15	Aponogetonaceae	<i>Aponogeton natans</i> (L.) Engl. & K.Krause.	Floating lace plant, drifting sword plant, Kotti kizhangu, kotti	H	LC	N
16	Araceae	<i>Caladium bicolor</i> K.van Bourgondien.	Fancy leaf caladium, artist pallet, caladium, elephant's ear, heart of jesus	H	N	B2
17	Araceae	<i>Caladium rosebud</i> K.van Bourgondien.	Angel wings, heart of jesus, elephant ear	H	N	N
18	Araceae	<i>Epipremnum aureum</i> (Linden & André) G.S.Bunting	Money plant, golden pothos, Ceyloncreeper, hunter's robe, ivy arum, silver vine	C	N	N
19	Arecaceae	<i>Cocos nucifera</i> (L.)	Coconut, Thennai	T	N	B2
20	Arecaceae	<i>Dyopsis lutescens</i> (H.Wendl)	Golden can palm, areca palm, butterfly palm, Madagascar palm	T	TH	N
21	Arecaceae	<i>Phoenix spp.</i>	Wild date palm, date sugar palm, Indian wild date, Indian winepalm, silver date palm, sugar date palm, sugar palm, Inthupaanai, kaattinchu, icham	T	LC	B2
22	Asclepiadaceae	<i>Calotropis gigantean</i> (L.) Ait.	Crown flower, Erukku	S	N	B4
23	Asclepiadaceae	<i>Hemidesmus indicus</i> (L.) R.Br.	Indian sarsaparilla, Nannaari, sugandipala	C	N	N
24	Asclepiadaceae	<i>Pergularia daemia</i> (Forsk.)	Pergularia, Uttamani, seendhal kodi	C	N	N
25	Asparagaceae	<i>Asparagus racemosus</i> Willd.	Satawari, buttermilk root, climbing asparagus, water root, wild asparagus, wild carrot, Thanneer-Vitaan	C	N	N
26	Asparagaceae	<i>Dracaena reflexa</i> Lam.	Song of India	S	N	N
27	Asparagaceae	<i>Sansevieria trifasciata</i> Prain.	Snake plant, mother in law's tongue	H	N	B4
28	Asteraceae	<i>Sphagneticola trilobata</i> (L.) Pruski.	Yellow dots, creeping daisy, wedelia	H	N	N
29	Asteraceae	<i>Tridax procumbens</i> L.	Tridax daisy, coat buttons, Mexican daisy, Kenathuppoandu, Vettukkaaya-Thalai	H	N	B2
30	Asteraceae	<i>Xanthium strumarium</i> L.	Common cocklebur, broad bur, burdock datura, clotbur, rough cocklebur, Marul-umattai	H	N	B2

31	Bignoneaceae	<i>Spathodea campanulata Beauv.</i>	African tulip tree, fountain tree, Patadi	T	LC	N
32	Caesalpiniaceae	<i>Delonix regia (Boj. Ex. Hook)</i>	Flame tree, royal Poinciana	T	LC	B2
33	Caesalpiniaceae	<i>Peltophorum pterocarpum (DC.)K.Heyne.</i>	Copperpod, rusty shield bearer, peela gulmohar, Perunkonrai	T	N	N
34	Caesalpiniaceae	<i>Senna occidentalis (L.) Link.</i>	Coffee senna, coffeeweed, negro coffee, Nattamtakarai, Payaverai	H	N	N
35	Caesalpiniaceae	<i>Tamarindus Indica L.</i>	Tamarind, Pulia-Maram	T	LC	B2
36	Casuarinaceae	<i>Casuarina equisetifolia L.</i>	Whistling pine, casuarinas, common ironwood, beefwood, bull-oak, Savukku	T	LC	B1
37	Cleomaceae	<i>Cleome gynandra L.</i>	Wild spider flower, African spider flower, cat whiskers, bastard mustard, Taivelai, nalvelai, velai, acakanta	H	N	B2
38	Cleomaceae	<i>Cleome viscosa L.</i>	Asian spider flower, yellow spider flower, tick weed, Naikadduku	H	N	B2
39	Combretaceae	<i>Terminalia arjuna (Roxb.) Wight &amp; Arn.</i>	Arjun, Marutu	T	N	N
40	Combretaceae	<i>Terminalia catappa L.</i>	Indian almond, Nattuvadumai	T	N	N
41	Commelinaceae	<i>Commelina benghalensis L.</i>	Bengal dayflower, whiskered commelina, tropical spiderwort, Kanavazhai, Vuzhaipadathi, aduthinnathalai, kanan valai	H	LC	N
42	Commelinaceae	<i>Cyanotis axillaris (L.) D. Don ex Sweet.</i>	Creeping cradle plant, Vazhukai pul	H	LC	N
43	Convolvulaceae	<i>Evolvulus alsinoides L.</i>	Dwarf morning glory, slender Dwarf morning glory, Vishnukranthi	H	N	N
44	Convolvulaceae	<i>Ipomoea obscura (L.) Ker Gawl.</i>	Obscure morning glory, Chirutali, kuruguttai, sirudali	C	N	B4
45	Cucurbitacea	<i>Citrullus colocynthis (L.) Schrad</i>	Bitter apple, colocynth, bitter cucumber, egusi, vine of Sodom, Kumatti, pey-komatti	C	N	N
46	Euphorbiaceae	<i>Croton bonplandianus Baill.</i>	Ban tulusi, Kala Bhangra, Reilpoandu, Alpa bedhi soppu, Mirchaiya Jhaar	H	N	N
47	Euphorbiaceae	<i>Acalypha indica L.</i>	Indian copper leaf, Indian nettle, three seeded mercury, Kuppaimeni, koli-p-puntu	H	N	N
48	Euphorbiaceae	<i>Euphorbia hirta L.</i>	Asthma weed, common spurge, cats hair, Ammampaccharisi	H	N	B2
49	Euphorbiaceae	<i>Excoecaria agallocha L.</i>	Blinding Tree, Milky mangrove, Blind-your-eye mangrove, River poison tree, tillai	T	LC	N
50	Euphorbiaceae	<i>Jatropha gossypifolia L.</i>	Bellyache bush, cotton leaf physic nut, Siriaamanaku, Adalai	S	N	N
51	Euphorbiaceae	<i>Pedilanthus tithymaloides (L.) Poit.</i>	Devils's backbone, Japanese poinsettia, slipper spurge, redbird cactus, Christmas candle	H	N	N
52	Euphorbiaceae	<i>Ricinus communis L.</i>	Castor bean, cator oil plant, wonder tree, Aamanaku, vilakennai kottaimuttu	T	N	B4
53	Fabaceae	<i>Crotalaria retusa L.</i>	Rattleweed, shak-shak, Rattlebox, wedge-leaf, Ghughra, Ghunghunia, Guluguluppahalli, Matrghatini, Gagra, Kilukiluppai, Pottigilligichacha	H	N	B2
54	Fabaceae	<i>Crotalaria pallida var. pallida</i>	Smooth Rattlepod, salts rattlebox, smooth crotalaria, streaked rattlepod, striped crotalaria, ghantakarna, junjuniya, jhunjhuna, janglisana, kutkuti, shanaphula, gijigiji gida, kilukilukki, jungli tag chin-chine, katutikta, shana, shanapuspi, giligitcha, gijigiji dai	H	N	B2
55	Fabaceae	<i>Mimosa pudica L.</i>	Sensitive Plant, Touch-me-not, Chui-mui, Lajwanti, Manipuri: Kangphal ikaithabi, thottaccuringi, Tintarmani Nilajban, Lajjabati, Muttidare Muni, Muchchuga, Lajjaawatee, Buhaaree Jhaar, Bhuin Laharaa, Lajawantee Jhaar, Nidaaune Jhaar, Naanee Jhaar, Naanee Kaandaa	H	LC	B2
56	Fabaceae	<i>Pithecellobium dulce (Roxb.) Benth</i>	Manilla Tamarind, Madras Thorn, Sweet tamarind, Jangal Jalebi, Seeme hunase, Vilayatichinch, Kodukkappuli, Vilayati ambli	T	LC	B2
57	Fabaceae	<i>Butea monosperma (LAM).TAUB.</i>	Flame of the forest, bastard teak, battle of Plassey tree, Bengal kino, palas tree, parrot tree, Kincukam, palasam	T	N	N
58	Fabaceae	<i>Clitoria ternatea L.</i>	Butterfly pea, Sanku-Poo, kannikkodi	C	N	B2
59	Fabaceae	<i>Dalbergia sissoo LINN.</i>	Indian rose wood	T	N	N
60	Fabaceae	<i>Pongamia pinnata (L.) Pierre</i>	Pongam tree, indian beech tree, pongame oil tree, pungai	T	LC	N
61	Fabaceae	<i>Prosopis juliflora (Sw.) DC.</i>	Algarroba, mesquite, Seemaikaruvelam	T	N	B2
62	Lamiaceae	<i>Leucas aspera (Willd.) Link.</i>	Common leucas, Thumpai	H	N	N
63	Lamiaceae	<i>Ocimum americanum L.</i>	Hoary basil, wild basil, lemon basil, Nai thulasi	H	N	B2
64	Lamiaceae	<i>Ocimum basilicum L.</i>	Basil, sweet basil, Tirunittru thulasi, chankanirakkarrantai, chapachavitri	H	N	N
65	Lamiaceae	<i>Ocimum tenuiflorum L.</i>	Holy basil, Krishna Thulasi, Nallathulasi,	H	N	N
66	Linderniaceae	<i>Lindernia crustacea (L.) F. Muell.</i>	Malaysian lindernia, bittle false pimperl, Malaysian false pimperl	H	LC	N
67	Lythraceae	<i>Lawsonia inermis L.</i>	Henna, Marudaani	S	N	N
68	Lythraceae	<i>Punica granatum L.</i>	Pomegranate, Madulai	T	LC	B2
69	Malvaceae	<i>Abutilon indicum (L.) Sweet.</i>	Indian mallow, country mallow, abutilon, indian abutilon, Paniyarattuti	S	N	N
70	Malvaceae	<i>Sida acuta Burm.f.</i>	Common wireweed, morning mallow, common fanpetals, Palambasi	H	N	B2
71	Malvaceae	<i>Sida cordata Burm.f. Borss. Waalk.</i>	Long stalk sida, heart leaf sida, country mallow, flannelweed, heartleaf fanpetals, Kurunthotti, palampasi, mayir, manikkam	H	N	N
72	Malvaceae	<i>Sida cordifolia L.</i>	Heart leaf sida	H	N	N
73	Malvaceae	<i>Sida rhombifolia L.</i>	Cuban jute, jelly leaf, queensland hemp, Kurundotti	H	N	N
74	Meliaceae	<i>Azadirachta indica A.Juss.</i>	Neem, Veppai, sengumaru	T	LC	N
75	Mimosaceae	<i>Samanea saman (Jacq.) Merr.</i>	Rain tree, coco tamarind, acacia preta, French tamarind, monkey pod, saman, Amaivagai, thoongumoonji maram	T	N	N
76	Moraceae	<i>Ficus hispida L.</i>	Hairy fig, devil fig, opposite leaved fig tree, rough leaved fig, Peyatthi	T	N	N
77	Moraceae	<i>Ficus religiosa L.</i>	Peepal, holy fig tree, peepul, sacred fig tree, Arasa maram, pippalam	T	N	N
78	Myrtaceae	<i>Psidium guajava L.</i>	Guava, Koiya	T	LC	B2

79	Myrtaceae	<i>Syzygium cumini</i> (L.) Skeels.	Java plum, jamun, Nagai	T	N	N
80	Oleaceae	<i>Jasminum officinale</i> L.	Common jasmie, true jasmine, poet's jasmine	S	N	N
81	Passifloraceae	<i>Passiflora foetida</i> L.	Love in a mist, stinking passionflower, Siruppunaikkali	C	N	B2
82	Pedaliaceae	<i>Petalium murex</i> L.	Large caltrops, Yanai nerunjal	H	N	B2
83	Phyllanthaceae	<i>Phyllanthus acidus</i> (L.) Araneli	Star gooseberry	T	N	N
84	Phyllanthaceae	<i>Phyllanthus amarus</i> Schum. & Thonn.	Cary me seed, black catnip, child pick a back, gale of wind, gulf leaf flower, hurricane weed, shatterstone, stone breaker, Keelanelli, kizkaynelli	H	N	N
85	Phyllanthaceae	<i>Phyllanthus emblica</i> L.	Amla, indian gooseberry, Nelli	T	N	N
86	Phyllanthaceae	<i>Phyllanthus reticulatus</i> Poir.	Black honey shrub, black berried featherfoil, potato bush, netted leaved leaf flower, Civappu p pula, karu nelli, kattu kkila nelli, pula	S	N	N
87	Poaceae	<i>Bambusa vulgaris</i> Schrad.	Bamboo, common bamboo, Moongil	H	N	N
88	Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass, Arugu ; Aruvam-Pillu Mooyarpul	H	N	N
89	Poaceae	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Crowfoot grass, beach wiregrass, coast button grass, comb fringe grass, duck grass, Durban crowfoot, four finger grass	H	N	N
90	Portulacaceae	<i>Talinum fruticosum</i> (L.) Juss.	Ceylon spinach, water leaf, Surinam purslane, Philippine spinach, florida spinach, potherb fameflower, Kuththu-Pasalkeerai	H	N	N
91	Rhamnaceae	<i>Ziziphus mauritiana</i> Lam.	Indian jujube, indian plum, Elandhai	T	N	N
92	Rhizophoraceae	<i>Rhizophora annamalayana</i> Kathir	-	T	N	N
93	Rhizophoraceae	<i>Rhizophora apiculata</i> Bl.	Tall stilt mangrove, Cirugandal, kantal	T	LC	N
94	Rhizophoraceae	<i>Rhizophora mucronata</i> Lam.	Asiatic mangrove, Kandhal, peykkandal	T	LC	N
95	Rosaceae	<i>Rosa x damascene</i> Mill.	Damask rose, Pannir Roja	S	N	N
96	Rubiaceae	<i>Ixora coccinea</i> L.	Ixora, jungle geranium, rugmini, Vedchi	S	N	N
97	Rubiaceae	<i>Morinda citrifolia</i> (Noni).	Indian mulberry, great morinda, Nuna	T	N	N
98	Rutaceae	<i>Murraya koenigii</i> (L.) Spreng.	Curry leaf, Karivepillai	T	N	N
99	Sapindaceae	<i>Cardiospermum halicacabum</i> L.	Balloon vine, love in a puff, heart pea, heartseed, Mudakatthaan, Cancivimeti, kottavan	C	N	N
100	Scrophulariaceae	<i>Scoparia dulcis</i> L.	Sweet broom weed, sweed broom wort, Sarakotthini	H	N	B2
101	Solanaceae	<i>Datura metel</i> L.	Devils trumpet, horn of plenty, downy thorn apple, safed dhatura, Umatai, Umathan	H	N	B2
102	Solanaceae	<i>Physalis lagascae</i> R. and S.	Ground cherry, sun berry, Sodakkuthakkaali, Tholtakkali.	H	N	N
103	Solanaceae	<i>Solanum melongena</i> L.	Brinjal, aubergine, eggplant, Kattri	H	N	N
104	Solanaceae	<i>Solanum nigrum</i> L.	Black nightshade, black berry night shade, nightshade, poisonberry, Manatakkali	H	N	N
105	Sterculiaceae	<i>Melochia corchorifolia</i> L.	Chocolate weed, wire bush, redweed, Punnakkukkirai	H	N	B2
106	Tiliaceae	<i>Corchorus aestuans</i> L.	East indian mallow, jute, west African mallow	H	N	B2
107	Verbanaceae	<i>Clerodendrum inerme</i> (L.) Gaertn	Glory bower, indian privet, seaside clerodendrum, wild jasmine, sorcerers bush, Sankamkuppai, Coraputpam, Kuyapaciyam, Piccu-Vilatti	S	N	N
108	Verbanaceae	<i>Lantana camara</i> L.	Lantana, Unnchedi	S	N	B2
109	Vitaceae	<i>Cissus quadrangularis</i> L.	Veldt Grape, devil's Backbone, Perandai	S	N	N
110	Zygophyllaceae	<i>Tribulus terrestris</i> L.	Puncture vine, caltrop, yellow vine, goathead, Palleru mullu	C	N	N

Alien Invasive Species: N-No; B1- Australia; B2- Europe, America/Mexico/West Indies/Brazil/Peru; B3- Madagascar, B4- Mediterranean Area and Africa and B5- West Asia; IUCN red list species: N- No; LC- Least Concern and TH- Threatened; Habit of flora: T-Tree; S-Shrub; C-Climber and H-Herb





Figure 1. Map showing the study site of CAS in Marine Biology, Annamalai University, Parangipettai at southeast coast of Tamilnadu, India



Fig 2: Number wise contribution of floral habit from the CAS in Marine Biology campus

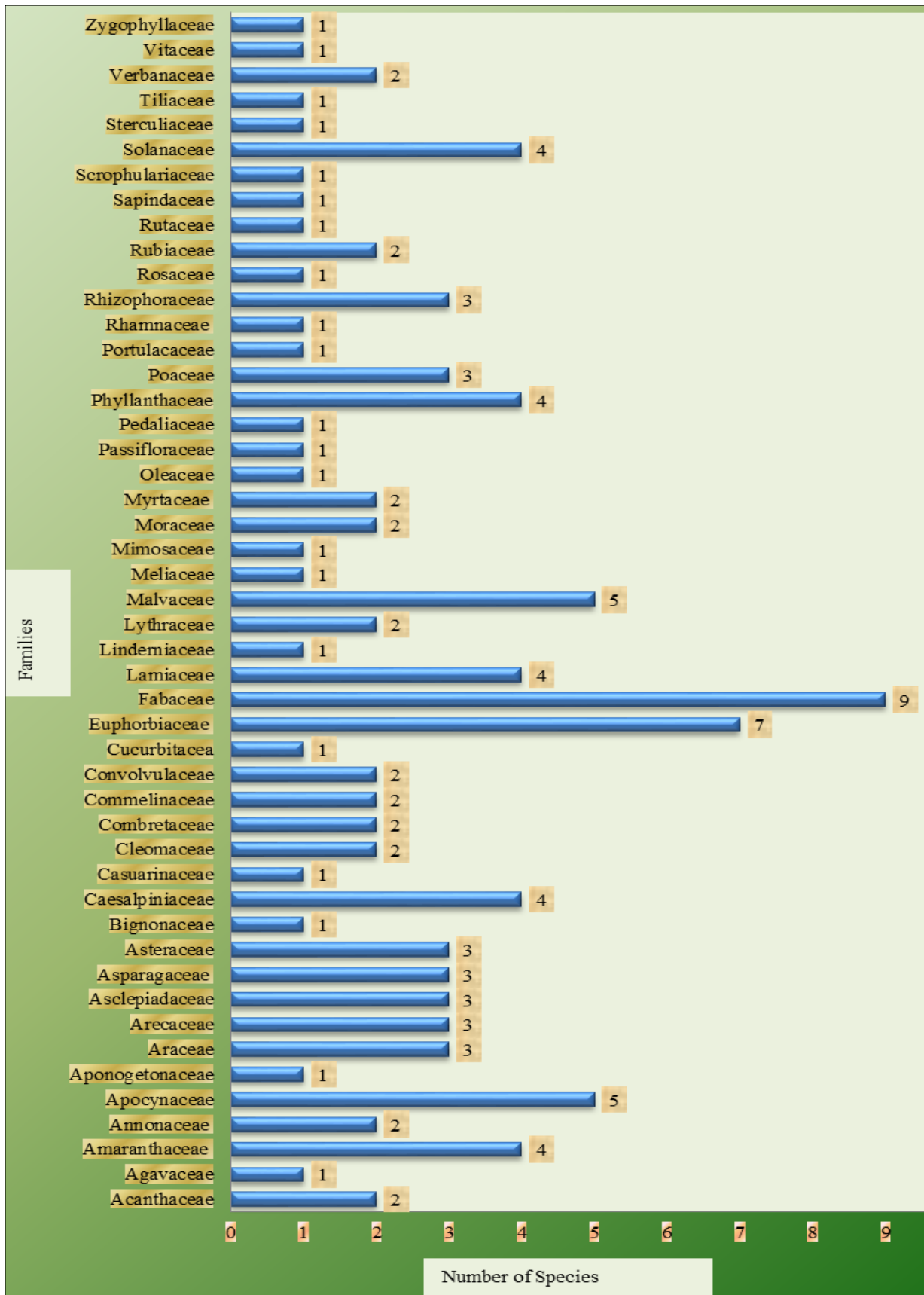


Fig 3: Number of Plant species distributed in family wise.

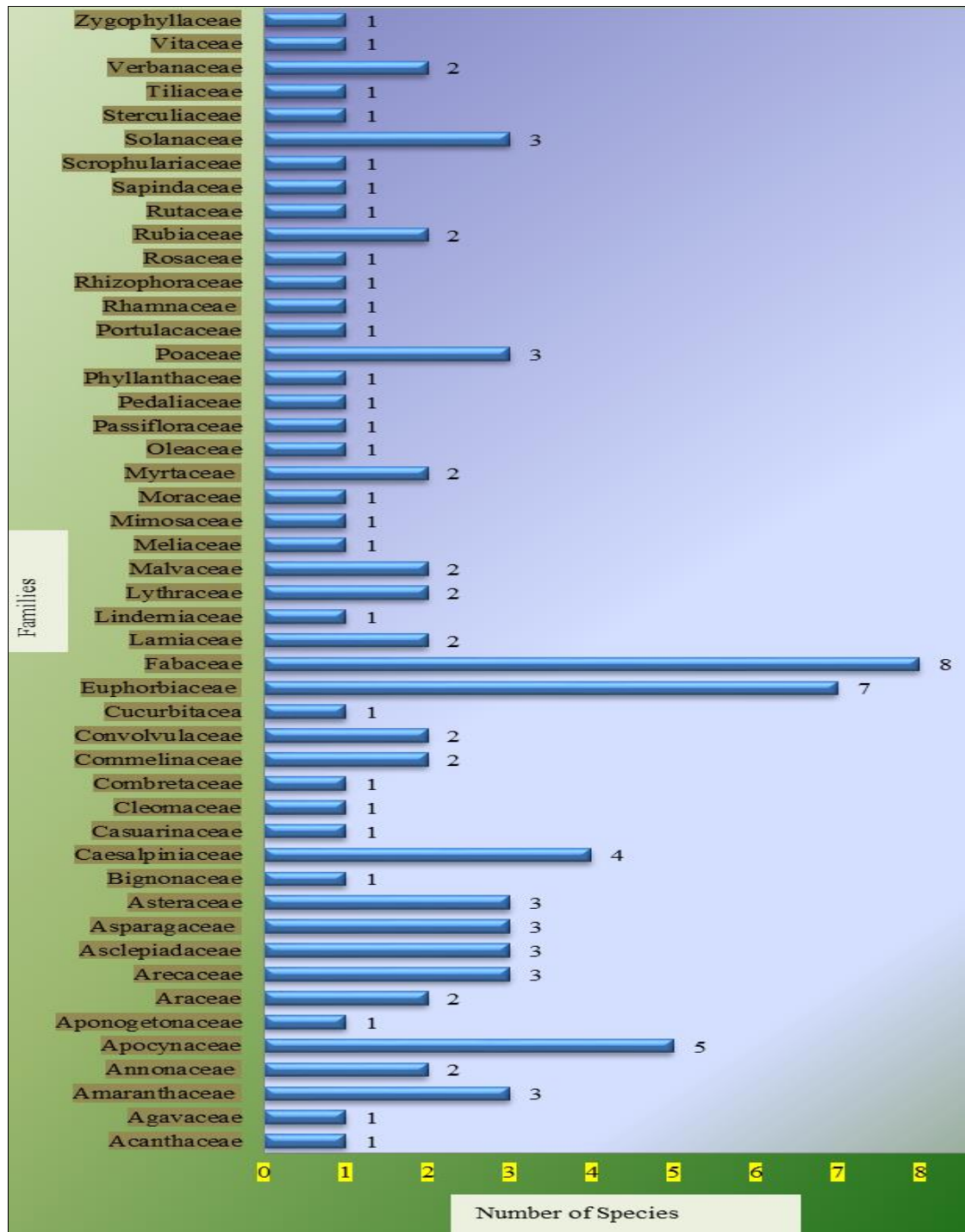


Fig 4: Number of Plant genus distributed in family wise

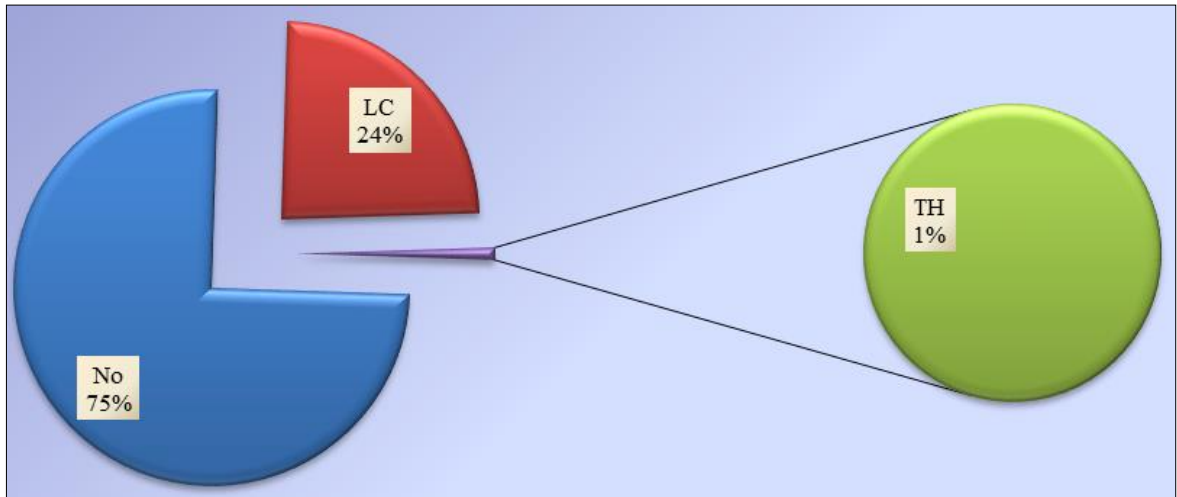


Fig 5: Percentage of IUCN red list species distributed in CAS in Marine Biology campus

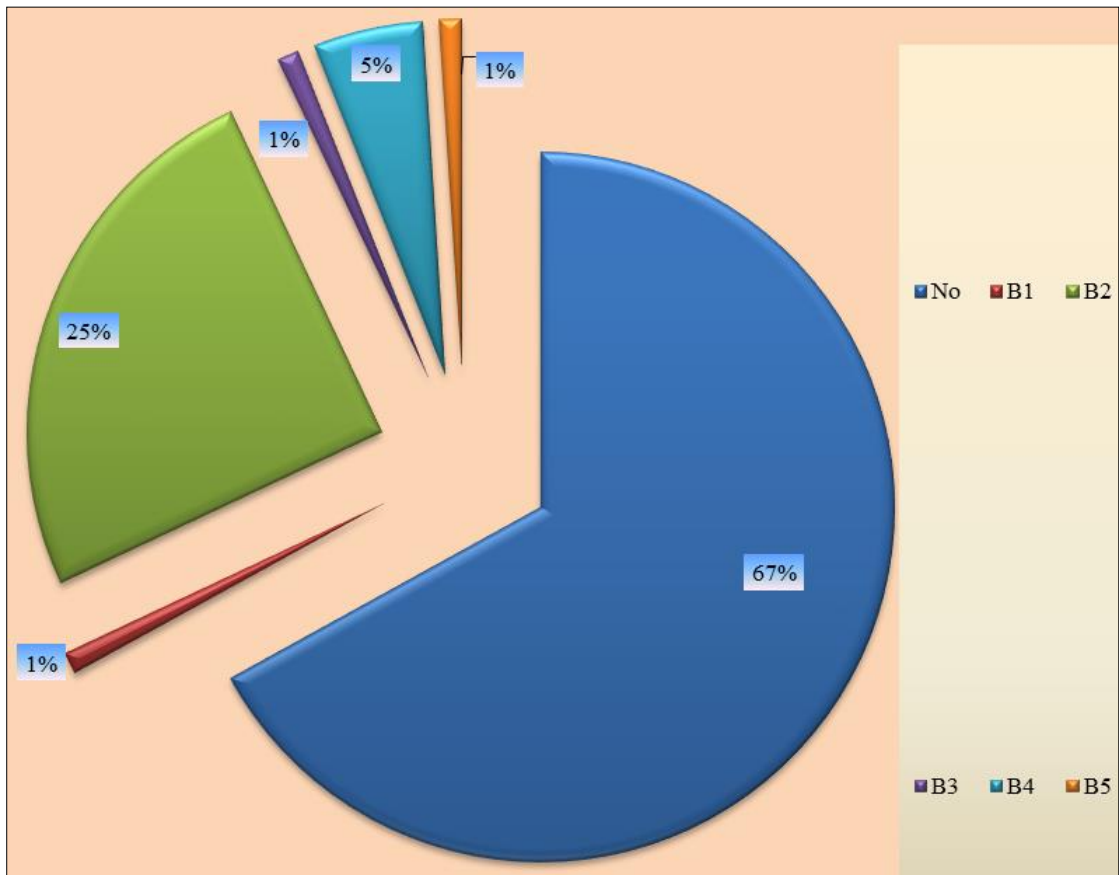


Fig 6: Percentage of Naturalized/alien invasive species of flora from CAS in Marine Biology campus

**5. Conclusion**

CAS Marine Biology is one of the important coastal research centres in South India as it contains many IUCN red list plant species it may be depleted due to the natural calamities, alien invasive species and anthropogenic activities. Care must be taken to protect these rare species and also to control the spreading of alien invasive species from the study area. The study will be useful to identify the flora distribution and it will be helpful for field visitors, book and guide makers, local people, forest department, NGO, policymakers, urban developers, researchers from same centre & outsiders and government authority. This work will also be useful to compare the distribution of species with previous distribution.

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**7. Reference**

1. Arulmoorthy MP, Srinivasan M. Coastal Sand Dune Floral Diversity in Cuddalore Coastal Areas, Southeast



- Coast of India. Asian Journal of Plant Science and Research. 2017; 7(3):60-64.
2. Buckland ST Anderson, Dr Burnham KP, Laake J. Distance Sampling: Estimating Abundance of Biological Populations, 1993. <http://www.fao.org/library/library-home/en/>
  3. Fédoroff É, Ponge JF, Dubs F, Fernández-González F, Lavelle P. Small-scale response of plant species to land-use intensification. Agriculture, ecosystems & environment. 2005; 105(1-2):283-290.
  4. Global Invasive Species Database (GISD), 2019. <http://www.iucngisd.org/gisd>
  5. Heywood VH, Stuart SN. Species extinctions in tropical forests. Tropical deforestation and species extinction, 1992, 91-117.
  6. Iezzi G, Cremonesi E, Majno PE. Pro-tumoral role of gut bacteria: sabotaging immune cell recruitment. Annals of translational medicine, 2019, 7(3).
  7. International Union for Conservation of Nature and Natural Resources. IUCN Global Species Programme Red List Unit, 2019. <https://www.iucn.org/>
  8. Johnson LR. The freshwater algal flora of the British Isles: an identification guide to freshwater and terrestrial algae. Cambridge University Press, 2002.
  9. Starliper CE. Sampling the bacterial flora of freshwater mussels (No. 97-007, pp. 0-3). US Geological Survey, Biological Resources, 1997.
  10. Sudhakar Reddy C, Bagyanarayana G, Reddy KN, Vatsavaya S Raju. Invasive alien flora of India. National Biological Information Infrastructure, US Geological Survey, USA, 2008.
  11. United State department of Agriculture (USDA), 2019. <https://www.fs.fed.us/wildflowers/ethnobotany/latex.shtm>  
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