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Floristic Diversity of South Travancore Hindu College (S. T. Hindu College) Campus, Kanyakumari District (Tamilnadu) India

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Abstract

This paper deals with the list of flowering plants from the S.T. Hindu College, (South Tavancore Hindu Collge), Nagercoil. The campus which harbours part of the natural vegetation of Nagercoil city, Tamilnadu, India. A total of 238 taxa have been recorded comprising 47 trees, 42 shrubs, 125 herbs and 24 climbers that are distributed in 192 genera, represented in 67 families, 9 super orders and 30 orders as per the APG III classification. Superorder Lamids account for about 31% of the taxa. The family Poaceae was the most species-diverse (29), followed by Acanthaceae (18), Apocynaceae and Euphorbiaceae (14), Malvaceae (12), Lamiaceae and Poaceae (11each), the other families sharing the rest of the species. Most plant species of the study area are of considerable ecological and economic importance, useful as bioresources to wild fauna and human beings. Of the total 238 wild/naturalized plant species, most are economically useful as medicinal plants, and others are valuable as edible fruits, timbers, fuelwood, etc. The results of this study provide insights into the importance of urban green space and greatly help inurban conservation planning and management.

INTRODUCTION

Biodiversity reflects variety and variability within and among living organisms, their associations and habitat-oriented ecological complexes. All types of flora and fauna are elements of biodiversity and influenced by various climatic conditions such as temperature, availability of moisture in the form of humidity and precipitation, and variation in physiographical conditions – soil, altitude, slope, etc. (Ghildiyal and Juyal, 2012; Arul *et al.*, 2013; Ben *et al.*, 2013; Suba *et al.*, 2014;Sukumaran and Parthipan, 2014). The great wealth of biological diversity in tropical regions is due to the myriad environmental conditions existing there. Interest in biodiversity has recently increased in response to

the damage caused to ecosystems by anthropogenic activities (Merigot et al., 2007). It is well known that floristic composition is determined by environmental factors (Ayyappan and Parthasarathy, 1999); however, the composition influences biodiversity patterns at regional scales and further reflects both anthropogenic and natural disturbances (Pollock, 1997; Ward, 1998). Therefore, floristic characteristics and biodiversity patterns are often influenced by environmental factors and anthropogenic disturbances (Hong, 1999; Liu et al., 2009). Conservation of biodiversity is essential for the proper functioning of ecosystems and for the maintenance of the environmental services they provide (Lopez-del-Toro et al., 2010). However, high rates of tropical deforestation and habitat destruction frequently cause the local extinction of plant and animal species. India, blessed with high biological diversity, is one of the 12 megadiverse countries and lodges two of the eight hottest hotspots of global biodiversity. Major wilderness areas include the Western Ghats, EasternGhats, tropical dry evergreen forests of peninsular India and Eastern Himalayas (Parthasarathy et al., 2010; Suba et al., 2014; Sukumaran and Parthipan, 2014).

Urbanization is one of the major reasons for the destruction of the natural vegetation. This ongoing growth of urban agglomerations leads to far-reaching changes in biodiversity, including the loss of forests and other natural areas (Kumar et al., 2010; Von der Lippe and Kowarik, 2007; 2008). Urbanized areas can also harbour a high number of threatened species (Sodhi et al., 2010). Nagercoil city, a fast-growing urban space in the southernmost district of peninsular India, still harbours some patches of tropical dry evergreen forests. It is necessary to document the floristic wealth and also to identify those plant species that are in urgent need of conservation, as Nagercoil city is highly disturbed by habitat alteration. Moreover, before implementing any conservation strategy it is of utmost necessity to understand the existing vegetation profile and to select the appropriate species for urban greening. Various floras from campus were already reported by institutional various workers (Giles-Lal and Livingstone, 1978., Gopi, 2008; Natarajan and Gopi, 2010., Parthasarathy et al., 2010., Udayakumar, et al. 2011., Rekha and Paneerselvam, 2014., Rekha et al. 2014., Rajendran, et al., 2014 and Irwin et al. 2015).

However, perusal of literature reveals that only one report was available on vascular plants of Scott Christian College, Nagercoil (Sarasabai, et al. 2015). Except this, there remains no comprehensive floristic account of the floristic diversity of various College campuses in Nagercoil, particularly on the plants of the S.T. Hindu College campus of Nagercoil. Hence, the present study was indented to assess the floral resources and prepare a floral inventorying of S.T. Hindu College campus.

MATERIALS AND METHODS Description of the Study Area

The present study was carried out in South Travancore Hindu College Campus, Nagercoil in Agastheeswaram Taluk of Kanyakumari District. Location of the Kanyakumari District is bounded between 77°05' and 77°35' of the Eastern longitude and 8°0 5 ' and 8°35' of the Northern latitude. The elevation of the district from sea level to 1.829 mts.

Geology of the District:

The Kanyakumari District has mainly four types of lands i.e., Kurunji (Hilly tract), Mullai (Forest), Marutham (Agricultural land) and Neidal (Sea-shore). The Northern and Western part of the district are hilly tracts and forests. In the South-Eastern and middle parts, the districts have agricultural had, traditionally, known as the Nanjil Nadu (the Land of Plough). The Southern border of the district has a long sea-shore.

Archaean gneiss covered by reddish soil on coastal area and younger sedimentary rocks elsewhere. Many mineral deposit of economic value, such as limestone, gypsum, beach sand with rare metals, graphite, clay, mica, precious metals etc., have been recorded.

Climate and Rainfall:

The climate of Kanyakumari district is warm and humid. Summer extends from March to May, which is followed by southwest monsoon from June to September. October and November are postmonsoon or retreating monsoon season with frequent thunderstorms. The northeast monsoon season extending from December to February is generally rainy and the other months are bright. The mean annual rainfall was 167.64 mm and varied from 70 mm (minimum during February) to 442 mm (maximum - October) during the period of study. No rainfall was recorded in the month of January. The mean monthly temperature varied from a maximum of 32.6°C in the month of May to a minimum of 22.5°C in December.

Geography

The District has only a few hill ranges. The Western Ghats which runs North-South forms one continuous block along the Western boundary of the Division. The entire area is distinctly hilly and in many places very steep with few prominent and rocky. The higher reaches are steep with few prominent peaks. The highest point is 1,829 m above MSL at the tri-junction of Mahendragiri, Kalakad and Veerapuli Reserve Forest (RF). Other important Peaks are Mahendragiri (1, 654.2 m) in Mahendragiri RF, Mottaichi Peak (1,590.4 m) and Varaittumudi (1, 426.2 m) in Kalamalai RF, the Golden Rock (1,437.7 m) and Vanamuttimalai in Kalamalai RFs. The valleys and flat lands between the spurs are accessible and certain valuable forests. At Muthukuzhi vayal there is a plateau of about 16

km long and 10 km broad at an evaluation of about 1,341 on MSL.The plateau and surrounding slopes and forest are rich with biodiversity.

Location of the College:

The S.T. Hindu College is located near Chettikulam Junction of Nagercoil Municipal limit. The total land area of the college is 30 acres. Of which total built area of this college is 19,8792 Sq.feet. The remaining area of this college is occupied by natural vegetation, play ground, banana plantations and coconut groves, etc.

Campus biodiversity

The varied topography, moderate rainfall and favourable agro-climatic conditions are responsible for the high species diversity in the campus. The medicinal garden, avenue trees along the road and ornamental plants on pathway of the campus. The west of the campus is harbours some medicinally important plants and teak plantations. The shade house is endowed with some of the rare, endemic and endangered medicinal plants of the Western Ghats. Large number of medicinal plants used in the traditional medicinal system of Kanyakumari district.

Data collection and analysis.

The task of inventorying the plant diversity of S.T. Hindu College campus was undertaken systematically and intensively from September 2014 to September 2015, to cover most species in flowering and fruiting stages and also to cover various seasons. Field observations were made and plants were photographed. Plant species were identified using regional floras (Gamble, 1957; Nair and Henry, 1983; Henry et al., 1987; 1989; Mathew, 1991). The collected materials were poisoned using standard herbarium techniques (Jain and Rao, 1977). The plant species are enumerated and arranged as per Angiosperm Phylogeny Group Ш Classification (APG III, 2009). The nomenclature of the species was checked using IPNI (2012). Well-preserved specimens with voucher numbers were deposited in the Herbarium of the P.G. Department of Botany and Research Centre, S.T. Hindu College, Nagercoil, Tamilnadu, India.

RESULTS AND DISCUSSION

The present study documents a total of 238 taxa (Table 1) distributed in 192 genera, representing 67 families as per APG III classification. These taxa are distributed in 9 superorders (Figure 1) and 30 orders. 31% of the taxa are reported from superorder Lamids, 26% from superorder Fabids,

21% Malvids and 9.6% from superorder Commelinids. Order Lamiales (39), Fabales (29), Malphigiales (22).Gentianales (20)and Caryophyllales (20) account for about 54.6% of the species in the S.T. Hindu College campus (Figure 2). Of the 238 taxa 125 herbs, 47 are trees, 42 shrubs and 24 climbers (Figure 3). The most diverse families in the campus include Fabaceae (29 species), Acanthaceae (18 species), Apocynaceae and Euphorbiaceae (14 species each), Malvaceae (12 species), Lamiaceae and Poaceae (11 species each) Amaranthaceae and Asteraceae (8 species each), whereas 36 families represented by a single species which include Aristolochiacaea, Araceae, Anacardiaceae. Begoniacae, Balsaminaceae. Colchicaceae etc., (Table 2). Family Fabaceae and Acanthaceae are represented by about 18% of the taxa. The genus Phyllanthus tops the list with five species, followed by Acalypha, Euphorbia and Solanum each with four species and Crotalaria, Cleome, Hibiscus, Sida, Ruellia and Ocimum three species each. The present study suggests that the campus of S.T. Hindu College campus is rich in vascular flora, though natural the floristic composition is dominated by angiosperms.

In the study, ethnobotanically used plants were also identified and are grouped in to medicinal (185sp.), ornamental (60sp.), exotic 47 sp , latex (25 sp.), aromatic (20 sp.), edible fruit (19 sp.), fodder (13sp.) and oil yielding (3 sp.) (Figure 4)

A good proportion of the exotic flora of this campus is represented by those which had their origin in the Mediterranean region. A higher proportion of the exotic flora of the college campus is represented by ornamental plants, which include Allamanda cathartica, Asparagus racemosus, Bougainvillea spectabilis, Callistemon lanceolatus, Catharanthus roseus, Coleus blumei, Delonix regia, Cesalpinia pulcherrima, Hibiscus rosa-sinensis, mimosifolia,Jatropha Jacaranda gossypifolia, Kalanchoe pinnata, Lantana camara, Lawsonia inermis, Millingtonia hortensis, Mirabilis jalapa, Plumeria rubra, Quisqualis indica, Enterolobium saman, and Tecoma stans. These plant species had been planted for the ornamentation of the college campus. Several of the exotics are edible fruitproducing plants of the college campus. These are represented by Annona squamosa, Carica papava, Manilkara zapota, Psidium guajava, Punica granatum and Ziziphus jujuba. The exotics grown as avenue plants in the college campus are represented by Acacia mangium, Peltophorum Swietenia pterocarpum, mahagonii and

Table 1. List of angiosperm taxa recorded from the S.T. Hindu College campus, Nagercoil, arranged
according to the Angiosperm Phylogeny Group Classification III

Super order/Order	Family / Species	Habit	Flowering season	Vouch No
MAGNOLIDS				
Piperales	Aristolachiaceae			
	Aristolochia bracteolataLam.	Cl	July-Sep	3772
	Piperaceae			
	Peperomia pellucida(L.) Kunth	Н	Aug-Feb	3660
	Piper longumL.	Cl	July-Mar	3811
Laurales	Lauraceae			
	Cassytha filiformis L.	Cl	Aug-Dec	3813
Magnoliales	Annonaceae			
	Annona squamosaL.	Т	March-July	3758
	Polyalthia longifolia(Sonn.). Thwaites	Т	Mar-	3718
	Magnoliaceae			
	Magnolia chambaca(L.) Baill.ex Pierre	Т	Feb-July	3822
MONOCOTS				
Alismatales	Araceae			
	Caladium bicolor(Aiton)Vent	Н	Throughout the year	3853
Liliales	Colchicaceae			
	Gloriosa superba L.	Cl	Oct-Jan	3870
	Liliaceae			
	Kalanchoe pinnata (Lam.) Pers.	Н	Jan-April	3760
Asparagales	Amaryillidacea			
	Amarylils reticulata L. Her.	Н	Mar-April	3735
	Crinum latifolium L.	Н	July-Sep	3804
	Hippeastrum hypridum (L.) H.	Н	June-March	3789
	Zephyranthes citrinaBaker	Н	Nov-June	3762
	Asparagaceae			
	Asparagus racemosusWilld.	Cl	July-Nov	3703
	<i>Sansevieria roxburghiana</i> Schultes & Schultes f.	Н	Sep-April	3713
	Sansevieria trifasciata Prain	Н	Throughout the year	3888
COMMELINIDS			<u>U</u>	
Arecales	Arecaceae			
	Caryota urensL.	Т	Feb-Nov	3751
	Cocus nucifera L.	Т	Throughout the year	3826
	Dypsis lutescens (H. Wendl.)Beentji &J.Dranst.	Т	June-Nov	3864
Poales	Poaceae	1		
	Apluda mutica L.	Н	Sep - Jan	3848
	Aristida setacea Retz.	Н	Sep - May	3850
	Brachiaria ramosa (L.)Stapf.	Н	Sep - Jan	3851
	Brachiaria setigera (Retz.) Hubb.in Hook.f.	Н	Throughout the year	3852
	Chloris barbataSW.	Н	Aug-Dec	3783
	Cynodon dactylon (L.) Pers.	Н	Aug - Dec	3860
	Dactyloctenium aegyptium(L.) Willd.	Н	July-Jan	3657
	Echinochloa colona (L.) Link	Н	Throughout the year	3865
	Isachne globosa (R.Br.) Trin.	Н	June - Nov	3873
	Paspalidium flavidum (Retz.)A.Camus	H	June - Nov	3881
	Setaria barbata (Lam.) Kunth	H	Throughout the year	3840
	Cyperaceae		introughout the year	5070
	Cyperus rotundus L.	Н	Oct - Jan	3861
	Kyllinga monocephalaRottb.	H	June-Dec	3791

Commelinales	Commelinaceae			
	Commelina benghalensis L.	Н	Throughout the year	3661
	Commelina longifolia Lam.	Н	June-Sep	3777
	Tradescantia pallida (Rose) D.R. Hunt	Н	Dec-June	3666
	Tradescantia spathacea Sw.	Η	Nov-July	3705
Zingiberales	Cannaceae			
-	Canna indica L.	S	Throughout the year	3854
	Musaceae			
	Musa paradisiacaL.	Η	Throughout the year	3815
	Zingiberaceae			
	Costus speciosus (Koen.) Smith	Н	July - Sep	3859
ROSIDS				
Vitales	Vitaceae			
	Cissus quadrangularis L.	Cl	Throughout the year	3856
FABIDS				
Zygophyllales	Zygophyllaceae			
	Tribulus terrestris L.	Н	Mar - Dec	3837
Oxalidales	Oxalidaceae			
	Oxalis corniculata L.	Н	Mar-Dec	3786
Malphigiales	Euphorbiaceae	1		
	Acalypha amentacea Roxb.	S	Throughout the year	3843
	Acalypha hispida Burm. f.	S	Oct - Nov	3844
	Acalypha fruticosaForssle.	S	Aug-Feb	3702
	Acalypha indicaL.	Н	Oct-Feb	3683
	Croton bonplandianusBaill.	Н	Throughout the year	3667
	Codiaeum variegatum (L.)Rumph.ex A. Juss.	S	Thoughout the year	3888
	Euphorbia hirtaL.	Н	Throughout the year	3658
	Euphorbia heterophyllaL.	Н	Throughout the year	3770
	Euphorbia milliDess Moul.	S	Throughout the year	3712
	Euphorbia thymifolia L.	Н	Oct - March	3867
	Jatropha glanduliferaRoxb.	S	Throughout the year	3805
	Jatropha hastataJacq.	S	Throughout the year	3694
	Manihot esculantaCrantz.	S	Feb-June	3818
	Ricinus communisL.	S	Throughout the year	3803
	Passifloraceae	-		
	Passiflora foetidaL.	Cl	Oct-Feb	3782
	Phyllanthaceae			
	Phyllanthus amarusSchum & Thonn.	Н	Throughout the year	3659
	Phyllanthus acidus(L.) Skeels	T	Throughout the year	3790
	Phyllanthus debilis Klein ex Willd.	H	Sep - Feb	3884
	Phyllanthus emblica L.	T	Mar-Oct	3714
	Phyllanthus maderaspatensisL.	H	Throughout the year	3774
	Malpighiaceae	<u> </u>		
	Galphimia glaucaCav.	S	May-Dec	3746
	Violaceae	1		2.10
	Hybanthus enneaspermus(L.) F. Muell.	Н	Throughout the year	3778
Fabales	Fabaceae			5110
	Acacia mangium Willd.	Т	Dec - July	3824
	Albizia lebbeck (L) Willd.	T	Throughout the year	3829
	Alysicarpus vaginalis(L.) DC.	H	Nov-June	3690
	Cassia bifloraMill.	T	Dec-May	3731
	Cassia fistulaL.	T	Feb-Aug	3725
	Cassia occidentalisL.	H	Throughout the year	3723
	Cassia occidentatisL. Centrosema pubescens(DC.)Benth.	П Cl	Dec-March	3647
	Centrosenia pubescens(DC.)Dellul.			3047
	Cesalpinia pulcherrima(L.) SW.	S	May-Sep	3771
	<i>Cesalpinia pulcherrima</i> (L.) Sw. <i>Clitoria ternatea</i> L.	Cl	Throughout the year	3692
			·	
	Crotolaria junceaL.	Н	Oct-May	3798

	Crotolaria medicagineaLam.	Н	July-Dec	3809
	Crotolaria verrucosaL.	H	July-Feb	3740
	Delonix regia(Bojer ex Hook.) Raf.	T	April-Oct	3780
	Desmodium gangeticum(L.) DC.	S	Oct-March	3654
	Desmodium triflorum (L.)DC	H	Throughout the year	3664
	Erythrina indica L.	T	March - July	3866
	Enterobolium saman Jacq. Merr.	T	June - Nov	3828
	Indigofera linnaeiAli	H	July-Feb	3669
	Leucaena latisiliqua (L.) Gillis	T	Throughout the year	3874
	Mimosa pudica L.	H	Throughout the year	3860
	Peltophorum pterocarpum(DC.) Baker ex K.	T	Dec-May	3698
	Heyne	1	Dee May	5070
	Pongamia pinnata(L.) Pierre	Т	Oct-March	3788
	Pseudarathria viscida (L.) Weight & Arn.	Η	Aug - Dec	3885
	Prosopis chilensis (SW. DC.)	Т	Throughout the year	3886
	Rhynchosia minima(L.)DC.	Cl	Oct-April	3808
	Saraca asoca(Roxb.) Willde.	Т	Dec-July	3752
	Stylosanthes fruticosa(Retz.) Alston	Н	Nov-March	3799
	Tamarindus indica L.	Т	April - Feb	3833
	<i>Tephrosia pupurea</i> (L.) Pers.	H	Throughout the year	3653
Rosales	Rosaceae	1		-
	Rosa centifolia L.	S	Throughout the year	3841
	Moraceae		,	
	Ficus religiosa L.	Т	March - April	3868
	Rhamanaceae		1	
	Zizipus jujuba L. Gaertn. NonMiller	Т	Sep - Feb	3827
Cucurbitales	Cucurbitaceae	-		
	Anisomeles indica (L.) Kuntz	Н	Nov - March	3847
	Coccinia grandis(L.)Voigt	Cl	Sep-Jan	3766
	Diplocyclos palmatus (L.) C. Jeffery	Cl	Nov - Feb	3863
	Mukia maderas patana (L.) M. Roem.	Cl	Throughout the year	3877
	Begoniaceae	01		0011
	Begonia flociferaBedd.	Н	March-April	3730
Fagales	Casuarinaceae			
	Casuarina equisetifoliaL.	Т	Sep-Dec	3724
MALVIDS		-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0,2.
Myrtales	Combretaceae			
ivi y i tuico	Quisqualis indicaL.	Cl	Throughout the year	3747
	Terminalia catappa L.	T	Feb - Aug	3835
	Myrtaceae	1	100 1145	5055
	Callistemon lanceolatus(Sm.)Sweet	Т	Throughout the year	3644
	Psidium guajavaL.	T	Throughout the year	3706
	Syzigium cumini(L.) Skeels	T	March-Aug	3816
	Lythraceae	-		5010
	Lawsonia inermisL.	Т	Dec-April	3709
Sapindales	Anacardiaceae	-		5107
Sapinaato	Mangifera indicaL.	Т	Feb-July	3678
	Manggera marcal. Meliaceae	-	100 5419	3070
	Azardiracta indicaAdr. Juss.	Т	March-July	3722
	Swietenia mahagoni (L.) Jacq.	T	April-Nov	3831
	Rutaceae	1		5051
	Murraya koenigii (L.) Spreng.	Т	Throughout the year	3711
		1	i mougnout the year	3/11
	Sapindaceae	Cl	Throughout the second	3745
Malvalaa	Cardiopsermum helicacabumL.	Cl	Throughout the year	3745
Malvales	Malvaceae	II	Through out the second	2014
	Abutilon indicum(L.) Sweet	H T	Throughout the year	3814
	Ceiba pentandra(L.) Gaertn.	-	Dec-April	3704
	Corchorus acutangulus L.	Η	Dec - March	3858

	Hibiscus rosa-sinensisL.	S	Throughout the year	3675
	Hibiscus rosa-sinensisL. Hibiscus schizopetalous (Dyer.) Hook.f.	S	Throughout the year	3756
	Hibiscus viritifolius L.	H	Throughout the year	3685
	Pavonia zeylanica(L.) Cav.	H	Throughout the year	3775
	Sida acutaBurm. f.	H	Throughout the year	3627
	Sida cordata(Brum. f.) Borss. Waalk.	H	Aug-March	3674
	Sida cordifoliaL.	H	Throughout the year	3801
	<i>Thespesia populnea</i> (L.) Sol. ex Correa	T	Throughout the year	3761
	Waltheria indica L.	H	July - Feb	3839
	Mutingiaceae	11	July - 100	3639
	Muntingia calaburaL.	Т	Throughout the year	3652
Brassicales	Caricaceae	1		3032
DI assicales	Carica papayaL.	Т	Throughout the year	3648
	Cleomaceae	1		50+0
	Cleome gynandraL.	Н	Throughout the year	3767
	Cleome gynanaraL. Cleome rutidospermaDC.	H	March-April	3738
	Cleome viscosaL.	H	Throughout the year	3733
	Moringaceae	11		5755
	Moringa oleiferaLam.	Т	Throughout the year	3817
Santales	Santalaceae	1		3017
Salliars	Santalaceae Santalum albumL.	Т	Nov-April	3665
Caryophyllales	Aizoaceae	1		3003
Car yophynales	Gisekia pharnaceoides L.	Н	Throughout the year	3869
	Trianthema portulacastrumL.	Н	June-Aug	3768
	Molluginaceae	п	June-Aug	5708
	Mollugo pentaphylla L.	Н	Throughout the year	3876
	Amaranthaceae	п	Throughout the year	3870
		Н	Dec - March	3846
	Amaranthus spinosus L.	H		3781
	Achyranthes asperaL.	H	Throughout the year Oct-Feb	3781
	Aerva lantana(L.) Juss.ex Schult.	H		3700
	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC. <i>Amaranthus viridis</i> L.	H	Sep-March	3082
			Sep-March Sep-March	
	Digeria muricata(L.) Mart.	H		3672
	Gomphrena celosioidesMart.	H	Throughout the year	3776
	Gomphrena globosaL.	Н	Throughout the year	3684
	Portulacaceae		LD	2757
	Portulaca oleraceaL.	H	Jan-Dec	3757
	Portulaca quadrifidaL.	Н	June-Aug	3792
	Nyctaginaceae	T T	TT1	0.051
	Boerhavia diffusaL.	H	Throughout the year	3651
	Boerhavia erectaL.	H	Throughout the year	3736
	Nytagina spectabilisWilld.	S	Aug-Jan	3668
	Mirabilis jalabaL.	Н	Throughout the year	3721
	Phytolaccaceae		Man 1 T 1	27.0
	Rivinia humilisL.	Н	March-July	3769
	Talinaceae The second secon		1 1 1 1	0764
	Talinum fruticosum(L.) Juss.	Н	Throughout the year	3764
	Cactaceae			0505
	Mammillaria baumiiBoed.	Н	June-July	3797
ASTRIDS				
Ericales	Balsaminaceae			0700
	Impatiens balsamina L.	Η	July-Dec	3729
	Sapotaceae			
	Madhuca longifolia (J.Kpnig ex L.) Macbr.	Т	Mar-June	3820
	Manilkara zapota (L.) P. Royen	Т	Feb-March	3720
	Mimusops elengi L.	Т	Feb - May	3834
LAMIDS				
Gentianales				

	Allamanda catharticaL.	S	July-Nov	3645
	Allamanda longifolia Pohl.	S	Throughout the year	3710
	Calotropis gigantea(L.) Dryand.	S	Throughout the year	3726
	Cathranthus pussillus(Mur.) G. Don	H	Aug-March	3813
	Cathranthus roseus(L.) G. Don.	Н	Throughout the year	3693
	<i>Cryptostegia grandiflora</i> Roxb. ex R. Br.	S	Throughout the year	3807
	Hemidesmus indicus (L.) R. Br.ex Schult.	Cl	June - Feb	3871
	Nerium oleander L.	S	Throughout the year	3878
	Pergularia daemia (Forssk.) Chiov.	Cl	Aug - April	3882
	Plumeria rubraL.	S	Aug-Feb	3748
	Rauvolfia tetrophyllaL.	S	Feb-Oct	3800
	Tabernaemontana divaricata (L.) R.Br. ex	S	Most part of the year	3755
	Roem. & Schult.		Jan Para Jan	
	Tylophora indica(Burm. f.) Merr	Cl	May-Sep	3749
	Watkaka volubilis (L.f.) T. Cooke	Cl	April - Nov	3838
	Rubiaceae			
	Ixora coccineaL.	S	Throughout the year	3679
	Morinda pubescensSmith.	T	July-Sep	3754
	Mussaenda frondosaL.	S	Most part of the year	3787
	Oldenlandia corymbosaL.	H	July-Dec	
	Spermacoce hispidaL.	H	Nov-March	3795
	Spermococe ocymoides Burm.f.	H	Throughout the year	3773
Solanales	Convulvulaceae			0110
Johanares	Cuscuta reflexaRoxb.	Cl	June-Aug	3779
	Evolvulus alsinoidesL.	H	Throughout the year	3673
	Evolvulus nummularisL.	h	Throughout the year	3689
	Ipomea pes-tigridisL.	Cl	Sep-June	3796
	<i>Ipomea sepiaria</i> Koenig ex Roxb.	Cr	Nov-Feb	3697
	Merremia dissecta(Jacq.) Hallier f.	Cl	Aug-Jan	3765
	Merremia tridentata(L.) Hallier f.	Cl	Sep-Feb	3806
	Solanaceae			5000
	Datura metel L.	S	Throughout the year	3862
	Physalis minima L.	H	Sep - Jan	3883
	Solanum nigrumL.	H	Nov-Feb	3819
	Solanum surattenseBurm. f.	H	Oct-April	3715
	Solanum torum Sw.	S	Feb-Nov	3695
	Solanum tolum Sw.	S	Oct-Feb	3821
Lamiales	Acanthaceae	5	000-100	3021
Laimales	Adhatoda zeylanicaMedikus	S	Aug-Nov	3763
	Andrographis echioidesL. Nees	H	April-July	3785
	Andrographis echicitatesL. Nees	Н	Nov-April	3783
	Anarographis paniculata(Burm. 1.) Nees Asystasia chelonoidesNees	н Н	Oct-March	3688
	Barleria prionitisL.	н Н	July-Oct	3688
	Crossandra infundbuliformis (L.) Nees	H H	Throughout the year	3691
		H H		3708
	Dicliptera paniculata(Forssk.) I. Darbysh.		June-July	
	Dipteracanthus prostratus (Poiret) Nees	H S	July-Feb	3649
	Ecbolium viride (Forssk.) Alston		March-June	3743
	Hemigraphis alternata(Burn. f.) T. Anderson	H	Nov-April	3742
	Justicia simplexD.Don	H	Throughout the year	3701
	Justicia tranquebariensis L.	H	June-Aug	3794
	Pseuderanthemum laxiflorum(A.Gray) F. T. Hubb. ex L.H. Bailey	S	Nov-Dec	3681
	Rhinacanthus nasutus(L.) Kurg.	Н	Feb-Oct	3716
	Ruellia patulaJacq.	Н	Nov-July	3728
	Ruellia tuberosaL.	Н	Sep-Jan	3732
	Ruellia tweedianaGriseb	Н	April-Aug	3686
		S	Throughout the year	3663
	Thunbergia erecta (Benth.)T.Anderson	3	Throughout the year	5005

	Clerodendrum inerme (L.) Gaertner	S	Jan - April	3857
	Clerodendrum speciosimum Drapiez.	S	Nov-Aug	3650
	Coleus blumeiBenth	Н	July-April	3810
	Hyptis suaveolens (L.) Poit	Н	Oct - March	3872
	Lantana camara L.	S	Jan-Dec	3643
	Leucas aspera(Willd) Link.	Н	Oct-Feb	3707
	Ocimum canum L.	Н	Throughout the year	3879
	Ocimum tenuiflorumL.	Н	Oct-Feb	3696
	Orthosiphon spiralis(Roth) Slessen	Н	Sep-Dec	3741
	Orthosiphon thymiflorus (Roth) Slessen	Н	Oct-May	3687
	Tectona grandis L.f.	Т	May-Mar	3677
	Bignoniaceae			
	Crescentia cujeteL.	Т	April-May	3753
	Jacaranda mimosifolia D. Don	Т	Throughout the year	3825
	Millingtonia hortensis L.f.	Т	Aug - March	3830
	Podranea brycei(N.E.Br.)Sprague	S	Dec-May	3646
	Tecoma stans(L.) Kunth	S	Throughout the year	3656
	Tecomaria capensis(Thunb.) Lindley	S	Throughout the year	3662
	Scrophulariaceae			
	Russelia equisetiformisSchltdl. & Cham	Н	Throughout the year	3699
	Oleaceae			
	Jasminum sambac (L.) Aiton	S	Jan-May	3759
	Verbenaceae			
	Duranta erecta L.	S	Nov-March	3737
	Stachytapheta jamaicensis (L.) Vahl.	Η	July - Jan	3836
Boraginales	Boraginaceae			
	Heliotropium indicum(L.)	Η	Throughout the year	3719
CAMPANULIDS				
Asterales	Asteraceae			
	Ageratum conyzoides L.	Η	Aug - Feb	3845
	Blainvillea acmella (L.) Philipson	Н	Dec-April	3812
	Kleinia grandiflora(Wallich ex Dc.) N. Rani	Н	Aug-May	3734
	Parthenium hysterophorus L.	Н	Jan-Dec	3671
	Syndrella nodiflora(L.) Gaertn.	Н	July-Dec	3717
	Tridax procumbensL.	Н	Throughout the year	3739
	Vernonia cinerea(L.) Less	Н	Throughout the year	3655
	Wedelia chinensis(L) Merr.	Η	Throughout the year	3793

H- Herb; S- Shrub; T- Trees; Cl- Climber

Table 2 Family wise distribution of plant species in the campus

Family	Genus	Species
Acanthaceae	14	18
Aizoaceae	2	2
Amaranthaceae	6	8
Amaryillidacea	4	4
Anacardiaceae	1	1
Annonaceae	2	2
Apocyanaceae	12	14
Araceae	1	1
Arecaceae	3	3
Aristolachiaceae	1	1
Asparagaceae	2	3
Asteraceae	8	8
Balsaminaceae	1	1
Begoniaceae	1	1
Bignoniaceae	6	6

Devering	1	1
Boraginaceae	1	1
Cactaceae	1	1
Cannaceae	1	1
Caricaceae	1	1
Casuarinaceae	1	1
Cleomaceae	1	3
Colchicaceae	1	1
Combretaceae	2	2
Commelinaceae	2	4
Convulvulaceae	4	7
Cucurbitaceae	4	4
Cyperaceae	2	2
Euphorbiaceae	7	14
Fabaceae	24	29
Lamiaceae	8	11
Lauraceae	1	1
Liliaceae	1	1
Lythraceae	1	1
Magnoliaceae	1	1
Malpighiaceae	1	1
Malvaceae	8	12
Meliaceae	2	2
Molluginaceae	1	1
Moraceae	1	1
Moringaceae	1	1
Musaceae	1	1
Mutingiaceae	1	1
Myrtaceae	3	3
Nyctaginaceae	3	4
Oleaceae	1	1
Oxalidaceae	1	1
Passifloraceae	1	1
Phyllanthaceae	1	5
Phytolaccaceae	1	1
Piperaceae	2	2
Poaceae	10	11
Portulacaceae	1	2
Rhamanaceae	1	1
Rosaceae	1	1
Rubiaceae	5	6
Rutaceae	1	1
Santalaceae	1	1
Sapindaceae	1	1
Sapotaceae	3	3
Scrophulariaceae	1	1
Solanaceae	3	6
Talinaceae	1	1
Verbenaceae	2	2
Violaceae	1	1
Vitaceae	1	1
Zingiberaceae	1	1
Zygophyllaceae	1	1
		•

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Sr.	Name of the Campus	No. of	Reference
No.		species	
	Madras Christian College, Tamparam	458	Giles-Lal and Livingstone, 1978
	Guru Nanak College, Chennai	162	Gopi, 2008; Natarajan and Gopi, 2010
	Pondicherry University Campus, Puducherry	499	Parthasarathy et al., 2010
	Indian Institute of Technology, Chennai including Guindy National Park	300	Daniels, 2008.
	Pachaiyappa's College, Chennai	256	Udayakumar et al., 2011
	Scott Christian College, Nagercoil	670	Brintha et al., 2015
	Bharathiyar University campus, Coimbatore	335	Rajendran et al., 2014
	Theosophical Society capus, Chennai	449	Irwin et al., 2015
	S.T. Hindu College, Nagercoil	238	Present study

Table 3. Comparison of the other institution campus floras in Tamilnadu

Figure:1 Distribution species in super order as per APG III

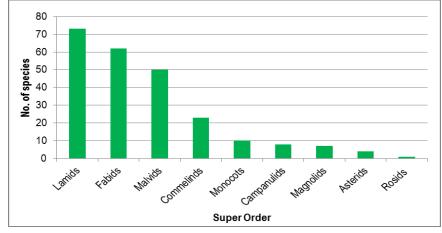


Figure: 2 Distribution of species in each order as per APG III

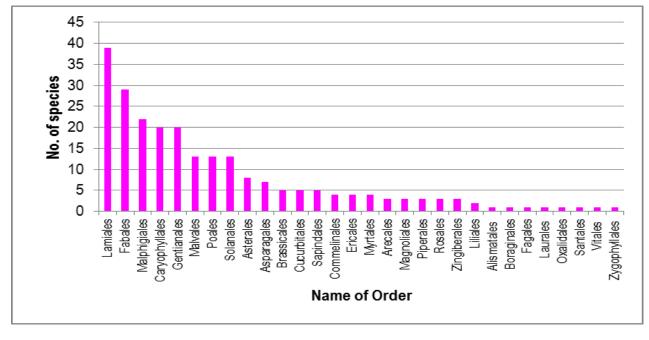
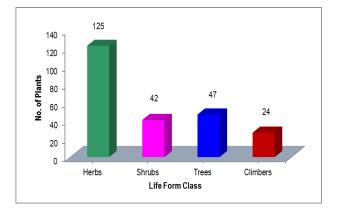


Figure: 3 Life form class of angiosperm collected from S.T Hindu College Campus Nagercoil



Tamarindus indica. Several of the exotics are weeds. These include Ageratum convzoides, Amaranthus spinosus, Cassia occidentalis, Corchorus acutangulus, Croton bonplandianum, Cynodon dactylon, Cyperus rotundus, Eclipta prostrata, Eragrostis tenella, Euphorbia hirta, Euphorbia thymifolia, Oxalis corniculata, Parthenium hysterophorus, Physalis minima. Portulaca oleracea, Stylosanthes fruticosa and Tridax procumbens. These exotic floras are naturalized to Indian conditions and hence grow successfully without any human assistance. Of the total plant species reported from the campus of S.T. Hindu College campus, Parthenium hysterophorus was observed to be harmful to native flora. This American flora has spread very fast in the last couple of decades in the campus, infesting all types of terrestrial habitats and posing a threat to the biodiversity of the campus. Exotics are referred to as biological pollutants due to their destructive effects on natural and man-managed ecosystems (Westbrooks, 1991). Serious ecological effects of the fast-spreading introduced flora have been reported (Di Castri et al., 1990; D' Antonio and Vitousek, 1992; Hobbs and Huenneke, 1992; Punalekar et al., 2010) and non-indigenous plant species are considered a major threat to biodiversity (Mooney, 1988; Lodge, 1993; Huston, 1994; McGeoch et al., 2006 and Arul et al., 2013).

Some of the most striking plant species of the campus include the deciduous wild edible fruit tree *Syzygium cuminii* and the endemic herb *Sansevieria roxburghiana*. Some of the common climbers found among the collected plants from the campus were *Aristolochia bracteolate*, *Asparagus*

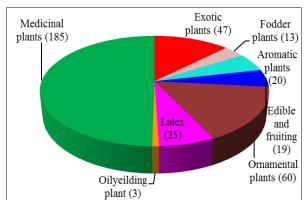


Figure:4 Economically important plants collected to the study area

racemosus, Cardiopsermum helicacabum, Cassytha filiformis, Cissus quadrangularis, Clitoria ternatea, Coccinia grandis Cuscuta reflexa ,Gloriosa superba, Hemidesmus indicus, Ipomea pes-tigridis, Ipomea sepiaria, Merremia tridentata, Mukia maderaspatana, Passiflora foetida, Pergularia daemia, , Tylophora indica and Watkaka volubilis. Grasses contributed to herbaceous ground flora, totaling to 11 species. Among them Aristida setacea Apluda mutica, were collected from and undisturbed areas of the campus.

Many species of plants enumerated in the campus are medicinally valuable resources. The important medicinal plants growing in the campus of S.T. Hindu College include Abutilon indicum, Achyranthes aspera, Adhatoda zeylanica, Albizia lebbeck, Azadirachta indica, Bauhinia purpurea, Boerhaavia diffusa, Calotropis gigantea, Cassia fistula, C. occidentalis, Clerodendrum inermis, Commelina Coccinia grandis, benghalensis. Cynodon dactylon, Datura metel, Desmodium gangeticum, Eclipta alba, Evolvulus alsinoides, Ficus religiosa, Hyptis suaveolens, Hemidesmus Ocimum indicus. Moringa oleifera, canum. corymbosa, Oldenlandia **Oxalis** corniculata, Phyllanthus amarus, Physalis minima, Pongamia pinnata, Sida acuta, Solanum nigrum, S. trilobatum , Syzygium cuminii, Tephrosia purpurea, Terminalia cataba, Trianthema portulacastrum, and Tribulus terrestris . Albizia lebbeck, Azadirachta indica, Tamarindus indica, Tectona grandis, Sweitenia mahoghani and Syzygium cuminii are the important timber-yielding tree species.

Comparison of Campus Flora of S.T. Hindu College with that of Different Institutional

Plate 1: Study Area and List of plants collected from the S.T. Hindu College Campus, Nagercoil



Satellite Map of S.T. Hindu College



Magnolia chambaca



Clerodendrum speciosum

Clitoria ternatea

Aristolochia bracteolata

Layout of S.T. Hindu College

Jatropha hastata

Cassia biflora



Tylophora indica



Solanum nigrum



Setaria intermedia

Podranea brycei



Carica papaya





Plumeria rubra

Ganapathy Temple

Jacarandra mimosifolia





Hypanthus ennaespermus

Parthipan et al.,

Plate 1: Continued.....



Madhuca longifolia



Polyalthia longifolia



Caryota urens



Albizia lebbeck



Azadirachta indica



Ceiba pentandra





Casuarina equisetifolia



Crescentia cujeta



Saraca asoca



Acacia mangium



Mimusops elengi





Manihot esculanta



Tamarindus indica



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Campuses in TamilNadu viz., Indian Institute of Technology - Chennai, Madras Christian College, Thambaram, Chennai, Pachaiyappa's College and Guru Nanak College - Chennai, Pondicherry University - Puducherry, Theosophisical Society campus, Chennai, Bharathiyar University campus, Coimbatore and Scott Christian College campus, Nagercoil, such a comparison places the campus flora of S.T. Hindu college is less number but moderately diverse. The plant diversity of this campus is greater than those of the Guru Nanak College, Chennai (Table 3). Even though the floras of the present study area have moderate floral diversity the total number of taxa in S.T. Hindu College is less when compared to the same geographically positioned Scot Christian College Nagercoil (Sarasabai et al., 2015). The main reason behind this was may be due to many anthropogenic activities made in the campus such as construction of new buildings and undisturbed area of the campus was converted in to the new play ground. So this is the right time to the floristic studies in the campus are considered as the backbone of the assessment of phytodiversity, conservation, management and sustainable utilization (Jayanthi and Rajendran, 2013). The campus flora of an institution is a unique opportunity as an outdoor botanical and ecological learning for the campus community.

In conclusion the natural beauty of S. T. Hindu College campus, with its native plant diversity, introduced ornamentals and cultivated plant species with great aesthetic value, ecological uniqueness and resource importance. Thus, taking a walk around the campus would enrich the botanical knowledge, ecological consciousness and conservation values, not only of the academia but also the common people. The S. T. Hindu College campus environment, with its diversity of native plant species and the beautiful, cultivated ornamental plants, provides a unique opportunity for learning as an outdoor classroom exercise.

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