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Biodiversity of the Bharathiar university campus, India: A floristic approach

Rajendran, A.*, Aravindhan, V. and Sarvalingam, A.

Plant Systematics Laboratory, Department of Botany, Bharathiar University, Coimbatore-641 046, Tamil Nadu, India.

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A total of 335 vascular plant species represented by 222 genera belonging to 67 different families were recorded, of which only one species was represented by gymnosperms. The Poaceae, Fabaceae, Mimosaceae, Caesalpiniaceae and Amaranthaceae were the dominant families of the vascular floristic composition of the study region. The occurrence of invasive alien species is detrimental as they have started invading the campus flora. Though the exotic species should be allowed to grow, introducing and adding new species should be avoided in the campus as they are affecting the survival of the native plant diversity.

Key words: Floristic diversity, exotic plants, habitat destruction, Bharathiar University, Tamil Nadu.

INTRODUCTION

Biodiversity is the total variety of life on earth. It includes all genes, species and ecosystems. In short it reflects the totality of genes, species and ecosystems in a region (FES, 2010). The studies of biodiversity have now assumed greater significance as ecologists try seriously to document global biodiversity in the face of unprecedented perturbations, habit loss and extinction rates.

To understand and assess richness of the biodiversity, a taxonomic study of the flora and forests is very much essential. Floristic surveys are the only means by which we can achieve this goal. The floristic studies are considered as the backbone of the assessment of phytodiversity, conservation management and sustainable utilization (Jayanthi and Rajendran, 2013).

The flora are helpful in providing clues of changing floristic patterns, new invasions, current status, rare, endemic and threatened taxa (RET) in a phytogeographical area. They also form a vital component of any resource management and planning activities at the local, regional and global levels. It is essential to prepare local floras of urban areas where there is severe threat to natural vegetation due to identification of species that are in different stages of vulnerability (Padalia et al., 2004) as well as the various factors that influence the existing vegetation in any region (Parthasarathy, 1999). Knowledge of vegetation and flora of any region is essential for the study of its biodiversity and environment. Today there is a pressing need for detailed surveys of plant resources, both exotic and indigenous for the development of rural as well as urban economy of a region. Preparation of the flora of smaller areas like districts, protected areas, unexplored areas, etc. is not only a pre-requisite for the revision of the flora of the vast country like India, but also for understating the ecosystem function and its conservation. Hence,

*Corresponding author. E-mail: arajendran222@yahoo.com.

floristic studies form a vital component of any natural resource management and planning activities at the local, regional and global levels.

Several studies have been conducted to analyze the floristic composition of the wall habitats in India and abroad (Brandes, 1995; Krigas et al., 1999; Altay et al., 2010; Bilge, 2001; Ocak and Ture, 2001; Ture and Bocuk, 2001; Turgut, 1996; Harshad, 2008). The Bharathiar University campus has rich and diverse ecological communities performing a variety of functions. This diversity has been modified at times and has tried to sustain itself in changing circumstances. Several academicians have found the campus a very informative and practical laboratory to study several floral aspects. However, the drawback is the lack of proper documenttation of the several components of the natural history on the campus.

To understand the significance of the existing biodiversity it is necessary to understand what is valued of the place and what are the benefits it provides and its relevance for the future. Hence, the present study was conducted to examine the vascular plant diversity in the Bharathiar University Campus (Tamil Nadu), India. The outcome of the study can be used constructively in planning sustainability of both man and natural environment.

MATERIALS AND METHODS

Study area

The Bharathiar University Campus is situated at the foot hills of Maruthamalai Hiils, at an elevation of 410 m altitude above mean sea level (MSL). With a campus of over 1000 acres, the Bharathiar University is considered as one of the green educational institution in Coimbatore with a rich floral and faunal diversity. The campus is known for its excellence in education, in addition the entire campus has a fairly diverse ecological setting. It is geographically located at 76° 52' 44° 64' longitude and 11° 02' 24° 38' N latitude. The campus is located in habitats of scarce vegetation due to dry weather prevailing in it. According to Champion and Seth (1968), the vegetation of the Maruthamalai hills comes under the dry deciduous thorn forests.

Floristic analysis

This study was carried out between the periods 2008 - 2010. Periodical survey was made for the identification and collection of plant species followed by botanical name, family, habitat, uses and anthropogenic disturbances to the natural vegetation in campus. During the course of study, field visits were made to every nook and corner of the University Campus in search of vascular plant species occurring in the region. The plants were freshly collected and their digital photographs were also taken. The collected plant specimens have been identified using taxonomic literatures (Gamble and Fischer, 1915-1936; Matthew, 1983; Nair and Henry, 1983; Henry et al., 1987, 1989; Chandrabose and Nair, 1988). Further, their identification was confirmed by matching with authentic specimens in the Madras Herbarium (MH), Botanical Survey of India, Southern Circle, Coimbatore, India. The voucher specimens were deposited at the Herbarium of Department of Botany, Bharathiar University, Coimbatore for future reference.

RESULTS AND DISCUSSION

On the basis of field survey conducted in the campus area, 335 species belonging to 67 families were collected, identified and listed (Table 1) excluding the lichens, Pteridophytes, bryophytes and mycoflora which was not possible during the present study. Out of the identified plant species, 334 belong to the angiosperms which include 238 species of Dicotyledons and 96 species of Monocotyledons and the remaining one species belong to Gymnosperm (Figure 1). When floral elements were examined based on family, it was determined that Poaceae contained the most species with 72, Fabaceae were represented with 27 species, Mimosaceae were represented with 14 species, Caesalpiniaceae and Amaranthaceae were represented with 12 species each and Acanthaceae represented with 11 species (Figure 2).

The genera represented by the highest number of taxa in the study are as follows: *Eragrostis* is represented by 11 taxa, *Brachiaria* by 8 taxa, *Cyperus* by 7 taxa, *Accacia* and *Ficus* by 6 taxa each and *Jasminum* by 5 taxa. Of the total plant species observed, based on the habit, herbs were represented by 51%, followed by 24% of trees, 13% of shrubs and 12% of climbers (Figure 3). Furthermore, of the 335 species found, 64 species are considered as introduced species to the campus and they were found solely in disturbed areas such as roadsides and early succession fields. However, some are widespread through much of the forests.

A large number of alien species were reported from the campus of Bharathiar University which includes *Ageratum conyzoides* L., *Alternanthera pungens* Kunth., *Alternanthera sessilis* (L.) R. Br., *Argemone mexicana* L., *Bidens pilosa* L., *Borassus flabellifer* L., *Calotropis gigantean* R. Br., *Catharanthus roseus* (L.) G. Don, *Chromolaena odorata* (L.) King & H. Rob., *Cleome viscosa* L., *Crotalaria retusa* L., *Croton bonplandianum* Baill., *Cuscuta reflexa* Roxb., *Cyperus difformis* L., *Datura metel* L., *Digera muricata* (L.) Mart., *Echinochloa colona* (L.) Link., *Euphorbia cyathophora* Murr., *Euphorbia hirta* L., *Evolvulus alsinoides* L., *Ipomoea eriocarpa* R. Br., *Lantana camara* L., *Leonotis nepetifolia* (L.) R. Br., *Malvastrum coromandelianum* (L.) Garc., *Martynia annua* L., *Melia azedarach* L., *Mirabilis jalapa* L., *Ocimum americanum* L., *Parthenium hysterophorus* L., *Passiflora foetida* L., *Pedalium murex* L., *Portulaca oleracea* L., *Spermacoce hispida* L., *Stachytarpheta jamaicensis* (L.) Vahl, *Tribulus lanuginosus* L., *Tridax procumbens* L., *Turnera ulmifolia* L. and *Waltheria indica* L. This is clearly indicated as disturbances to the natural setting in the vegetated areas.

The grasslands of the campus comprises the grasses like *Apluda mutica* L., *Cymbopogon caesius* Stapf., *Heteropogon contortus* L., *Rottboellia cochinchinensis* Lour., *Vetiveria zizanioides* (L.) Nash, *Chloris inflata* Link, *Cynodon dactylon* L., *Tragus roxburghii* Panigrahi, *Dactyloctenium aegyptium* L. *Eragrostis indica* L., *E.*

Table 1. List of plants in the Bharathiar University campus, India.

Botanical name	Family	Habit
Abrus precatorius Wall.	Fabaceae	Climber
Acacia auriculiformis L.	Mimosaceae	Tree
Acacia ferruginea DC.	Mimosaceae	Tree
Acacia holosericea L.	Mimosaceae	Shrub
Acacia lenticularis Buch.	Mimosaceae	Tree
Acacia leucophloea Roxb.	Mimosaceae	Tree
Acacia planifrons Wight & Arn.	Mimosaceae	Tree
Acalypha indica L.	Euphorbiaceae	Herb
Achyranthes aspera L.	Amaranthaceae	Herb
Adenanthera pavonina L.	Mimosaceae	Tree
Aerva lanata (L.) A.L. Juss.	Amaranthaceae	Herb
Aerva monsoniae (Retz.) Mart.	Amaranthaceae	Herb
Agave americana L.	Agavaceae	Shrub
Ageratum conyzoides L.	Asteraceae	Herb
Albizia lebbeck L.	Mimosaceae	Tree
Albizia odoratissima L.f.	Mimosaceae	Tree
Allmania nodiflora (L.) R. Br.	Amaranthaceae	Herb
Alloteropsis cimicina (L.) Stapf.	Poaceae	Herb
Alternanthera pungens Nov.	Amaranthaceae	Herb
Alternanthera sessilis (L.) R.Br.	Amaranthaceae	Herb
Alysicarpus hamosus Edgew.	Fabaceae	Herb
Alysicarpus heyneanus Baker	Fabaceae	Shrub
Alysicarpus monilifer L.	Fabaceae	Herb
Amaranthus viridis L.	Amaranthaceae	Herb
Andrographis paniculata (Burm. f.) Wall.	Acanthaceae	Herb
Andropogon pumilus Roxb.	Poaceae	Herb
Aneilema montana Wight	Commelinaceae	Herbs
Anisochilus carnosus (L.f.) Wall.	Lamiaceae	Herb
Anisomeles malabarica (L.) R. Br.	Lamiaceae	Shrub
Annona squamosa L.	Annonaceae	Tree
Apluda mutica L.	Poaceae	Herb
Argemone mexicana L.	Papaveraceae	Herb
Aristida adscensionis L.	Poaceae	Herb
Aristida hystrix L.f.	Poaceae	Herb
Aristida setacea Retz.	Poaceae	Herb
Aristolochia indica L.	Aristolochiaceae	Climber
Artocarpus heterophyllus Lam.	Moraceae	Tree
Asparagus racemosus Willd.	Liliaceae	Climber
Asystasia gangetica (L.) T. And	Acanthaceae	Herb
Axonopus compressus (Sw.) P. Beauv.	Poaceae	Herb
Azadirachta indica A.	Meliaceae	Tree
Bambusa arundinacea (Retz.) Roxb.	Bambusaceae	Tree
Barleria buxifolia L.	Acanthaceae	Herb
Barleria cuspidata F. Heyne	Acanthaceae	Herb
Bauhinia purpurea L.	Caesalpinaceae	Tree
Bauhinia tomentosa L.	Caesalpinaceae	Shrub
Bidens pilosa L.	Asteraceae	Herb
Blepharis repens (Vahl) Roth	Acanthaceae	Herb
Boerhavia diffusa L.	Nytaginaceae	Herb
Boerhavia erecta L.	Nytaginaceae	Herb
Borassus flabellifer L.	Arecaceae	Tree

Table 1. Contd.

Bothriochloa compressa Hook. f.	Poaceae	Herb
Bothriochloa insculpta Hochst.	Poaceae	Herb
Bothriochloa pertusa (L.) A. Camus.	Poaceae	Herb
Bougainvillea spectabilis Willd.	Nyctaginaceae	Shrub
Brachiaria distachya (L.) Stapf.	Poaceae	Herb
Brachiaria ramosa (L.) Stapf.	Poaceae	Herb
Brachiaria mutica (Forssk.) Stapf.	Poaceae	Herb
Brachiaria reptans L.	Poaceae	Herb
Brachiaria semiundulata Stapf.	Poaceae	Herb
Brachiaria semiverticillata Rottl.	Poaceae	Herb
Brachiaria subquadripara Trin.	Poaceae	Herb
Brachiaria eruciformis (Sm.) Griseb.	Poaceae	Herb
Brassica juncea L.	Brassicaceae	Herb
Bulbostylis barbata Rottb.	Cyperaceae	Herb
Bulbostylis puberula Poir.	Cyperaceae	Herb
Caesalpinia pulcherrima (L.) Sw.	Caesalpinaceae	Shrub
Callistemon citrinus Curtis	Myrtaceae	Tree
Calotropis gigantea L.	Asclepidaceae	Shrub
Canthium parviflorum Lam.	Rubiaceae	Shrub
Caralluma bicolor L.	Asclepidaceae	Herb
Caralluma diffusa Wight	Asclepidaceae	Herb
Cardiospermum canescens L.	Sapindaceae	Climber
Cardiospermum halicacabum L.	Sapidaceae	Climber
Cassia absus L.	Caesalpinaceae	Shrub
Cassia fistula L.	Caesalpinaceae	Tree
Cassia roxburghii DC.	Caesalpinaceae	Tree
Cassia siamea Lam.	Caesalpinaceae	Tree
Cassia spectabilis DC.	Caesalpinaceae	Tree
Casuarina equisetifolia J.R	Casurinaceae	Tree
Catharanthus roseus (L.) G. Don.	Apocynaceae	Herb
Ceiba pentandra (L.) Gaertn	Bombacaceae	Tree
Celosia cristata L.	Amaranthaceae	Herb
Cenchrus biflorus Roxb.	Poaceae	Herb
Cenchrus ciliaris L.	Poaceae	Herb
Cenchrus pennisetiformis Hochst	Poaceae	Herb
Cenchrus setigerus Vahl.	Poaceae	Herb
Chloris bournei Rang. & Tadul.	Poaceae	Herb
Chloris inflata Link	Poaceae	Herb
Chloris montana Roxb.	Poaceae	Herb
Chromolaena odorata (L.) K & R	Asteraceae	Herb
Chrysopogon aciculatus Retz.	Poaceae	Herb
Chrysopogon fulvus Spreng.	Poaceae	Herb
Chrysopogon orientalis Desv.	Poaceae	Herb
Cissampelos pareira L.	Menispermaceae	Climber
Cissus quadrangularis L.	Vitaceae	Climber
Citrullus colocynthis L.	Cucurbitaceae	Climber
Cleome burmanni Wight & Arn.	Cleomaceae	Herb
Cleome viscosa L.	Cleomaceae	Herb
Clitoria ternatea L.	Fabaceae	Herb
Coccina grandis (L.) Voigt	cucurbitaceae	Climber
Cocos nucifera L.	Arecaceae	Tree
Cocculus hirsutus L.	Menispermaceae	Climber

Table 1. Contd.

Commelina benghalensis L.	Commelinaceae	Herb
Commelina ensifolia R.Br.	Commelinaceae	Herb
Commelina forskaolii Vahl.	Commelinaceae	Herb
Corchorus aestuans L.	Tiliaceae	Herb
Corchorus trilocularis L.	Tiliaceae	Herb
Cordia sebestena L.	Boraginaceae	Tree
Crescentia cujete L.	Bignoniaceae	Tree
Croton bonplandianum Baill.	Euphorbiaceae	Herb
Crossandra infundibuliformis (L.) Nees	Acanthaceae	Herb
Crotalaria mysorensis Roth.	Fabaceae	Herb
Crotalaria pallida Dryand.	Fabaceae	Shrub
Crotalaria retusa L.	Fabaceae	Shrub
Crotalaria verrucosa L.	Fabaceae	Herb
Cucumis dipsaceus Ehrenb.	Cucurbitaceae	Climber
Cucumis trigonus Roxb.	Cucurbitaceae	Climber
Cuscuta campestris Yun.	Cuscutceae	Climber
Cuscuta reflexa Roxb.	Convolvulaceae	Climber
Cyanotis axillaris (L.) D. Don	Commelinaceae	Herb
Cyanotis cristata (L.) D. Don	Commelinaceae	Herb
Cycas circinalis L.	Cycadaceae	Tree
Cyclea peltata (Lam.)	Menispermaceae	Climber
Cymbopogon caesius Nees	Poaceae	Herb
Cynodon dactylon (L.) Pers.	Poaceae	Herb
Cyperus brevifolia Rottb.	Cyperaceae	Herb
Cyperus compressus L.	Cyperaceae	Herb
Cyperus difformis L.	Cyperaceae	Herb
Cyperus pangorei Rottb.	Cyperaceae	Herb
Cyperus rotundus L.	Cyperaceae	herb
Cyperus stoloniferus Retz.	Cyperaceae	Herb
Cyperus triceps (Rottb.) Endl.	Cyperaceae	Herb
Dactyloctenium aegyptium (L.) Willd.	Poaceae	Herb
Dalbergia sissoo Roxb.	Fabaceae	Tree
Datura metel L.	Solanaceae	Herb
Delonix regia Boj.	Caesalpinaceae	Tree
Desmodium dichotomum Willd.	Fabaceae	Herb
Desmodium laxiflorum DC.	Fabaceae	Shrub
Dichrostachys cinerea L.	Mimosaceae	Tree
Digera muricata (L.) Mart.	Amaranthaceae	Herb
Digitaria bicornis Lam.	Poaceae	Herb
Digitaria ciliaris (Retz.) Koel.	Poaceae	Herb
Diplocyclos palmatus L.	Cucurbitaceae	Climber
Dipteracanthus patulus (Jacq.) Nees	Acanthaceae	Herb
Dodonaea viscosa L.	Sapindaceae	Shrub
Echinochloa colonum (L.) Link	Poaceae	Herb
Echinochloa picta J. Koenig	Poaceae	Herb
Eleusine indica (L.) Gaertn.	Poaceae	Herb
Enneapogon schimperanus Hochst.	Poaceae	Herb
Eragrostiella bifaria (Vahl) Bor.	Poaceae	Herb
Eragrostiella brachyphylla (Stapf.)	Poaceae	Herb
Eragrostis amabilis (L.)Wight & Arn.	Poaceae	Herb
Eragrostis aspera (Jacq.) Nees	Poaceae	Herb
Eragrostis japonica (Thunp.) Trin.	Poaceae	Herb

Table 1. Contd.

Eragrostis maderaspatana Bor	Poaceae	Herb
Eragrostis minor Host.	Poaceae	Herb
Eragrostis nigra Nees *ex* Steud.	Poaceae	Herb
Eragrostis nutans (Retz.)	Poaceae	Herb
Eragrostis riparia (Willd.)Nees	Poaceae	Herb
Eragrostis viscosa (Retz.) Trin.	Poaceae	Herb
Eremopogon foveolatus (Del.) Stapf.	Poaceae	Herb
Eucalyptus tereticornis Sm.	Myrtaceae	Tree
Euphorbia cyathophora Murr.	Euphourbiaceae	Shrub
Euphorbia hirta L.	Euphorbiaceae	Herb
Evolvulus alsinoides L.	Convolvulaceae	Climber
Evovulus nummularius L.	Convolvulaceae	Climber
Ficus amplissma J.E. Sm.	Moraceae	Tree
Ficus bengalensis L.	Moraceae	Tree
Ficus elastica Roxb.	Moraceae	Tree
Ficus hispida L.f.	Moraceae	Tree
Ficus microcarpa L.f.	Moraceae	Tree
Ficus religiosa L.	Moraceae	Tree
Filicium decipiens Wight & Arn.	Sapindaceae	Tree
Fimbristylis ovata Burm. f.	Cyperaceae	Herb
Gmelina arborea Roxb.	Verbenaceae	Shrub
Gloriosa superba L.	Liliaceae	Climber
Gomphrena celosioides Mart.	Amaranthaceae	Herb
Gomphrena globosa L.	Amaranthaceae	Herb
Guaiacum officinale L.	Zygophyllaceae	Tree
Hedyotis aspera Heyne	Rubiaceae	Herb
Hedyotis puberula G. Don	Rubiaceae	Herb
Helicteres isora L.	Sterculiaceae	Shrub
Heliotropium subulatum (DC.) Vatke	Boraginaceae	Herb
Hemidesmus indicus L.	Asclepidaceae	Climber
Heteropogon contortus L.	Poaceae	Herb
Hibiscus lunarifolius Wild.	Malvaceae	Herb
Hibiscus ovalifolius (Forskal) Vahl.	Malvaceae	Herb
Holoptelea integrifolia (Roxb.) Pl.	Ulmaceae	Tree
Hybanthus ennaspermus L.	Violaceae	Herb
Hybanthus puberulus Mill.	Violaceae	Herb
Indigofera colutea Burm. f.	Fabaceae	Herb
Indigofera linnaei Ali.	Fabaceae	Herb
Indigofera longeracemosa Boiv.	Fabaceae	Shrub
Ipomoea eriocarpa R. Br.	Convolvulaceae	Climber
Ipomoea obscura (L.) Ker-Gawl.	Convolvulaceae	Climber
Ipomoea pes-caprae (L.) R. Br.	Convolvulaceae	Climber
Ipomoea qumoclit L.	Convolvulaceae	Climber
Ixora coccinea L.	Rubiaceae	Shrub
Ixora finlaysoniana Wall.	Rubiaceae	Shrub
Jacaranda mimosifolia DC.	Bignoniaceae	Tree
Jasminum angustifolium (L.) Willd.	Oleaceae	Climber
Jasminum auriculatum Vahl	Oleaceae	Climber
Jasminum cuspidatum Rottl.	Oleaceae	Climber
Jasminum grandiflorum L.	Oleaceae	Climber
Jasminum trichotomum Heyne	Oleaceae	Climber
Jasminum wightii Clarke	Oleaceae	Climber

Table 1. Contd.

Jatropha gossypifolia L.	Euphorbiaceae	Shrub
Justicia prostrata (Clarke) Gamble	Acanthaceae	Herb
Kedrostis foetidissima (Jacq.) Cogn.	Cucurbitaceae	Climber
Kigelia pinnata (Jacq.) DC.	Bignoniaceae	Tree
Lagascea mollis Jacq.	Asteraceae	Herb
Lantana camara L.	Verbenaceae	Climber
Leonotis nepetifolia (L.) R. Br.	Lamiaceae	Herb
Leucas aspera (Willd.) Link.	Lamiaceae	Herb
Macrotyloma ciliatum Willd.	Fabaceae	Shrub
Macrotyloma uniflorum Lam.	Fabaceae	Climber
Malvastrum coromandelianum L.	Malvaceae	Herb
Mangifera indica L.	Anacardiaceae	Tree
Manilkara achras (Mill.) Fosb.	Sapotaceae	Tree
Martynia annua L.	Martyniaceae	Herb
Melia azedarach L.	Meliaceae	Tree
Melinis repens Willd.	Poaceae	Herb
Merremia quinquefolia (L.) Hall. f.	Convolvulaceae	Climber
Merremia tridentata (L.) Hall.	Convolvulaceae	Herb
Michelia champaca (L.) Baill.	Magnoliaceae	Tree
Millingtonia hortensis L.f.	Bignoniaceae	Tree
Mimosa pudica L.	Mimosaceae	Herb
Mirabilis jalapa L.	Nytaginaceae	Herb
Momordica charantia L.	Cucurbitaceae	Climber
Morinda coreia Buch.	Rubiaceae	Tree
Moringa pterosperma Gaertn	Moringaceae	Tree
Mukia maderaspatana L.	Cucurbitaceae	Climber
Mundulea sericea Willd.	Fabaceae	Tree
Muntingia calabura L.	Elaeocarppaceae	Tree
Murraya koenigii L.	Rutaceae	Tree
Nerium indicum Mill.	Apocynaceae	Shrub
Nyctanthes arbor-tristis L.	Nyctanthaceae	Tree
Ocimum americanum L.	Lamiaceae	Herb
Ocimum basilicum L.	Lamiaceae	Herb
Oxalis corniculata L.	Oxalidaceae	Herb
Panicum curviflorum Hornem.	Poaceae	Herb
Panicum maximum Jacq.	Poaceae	Herb
Panicum psilopodium Trin.	Poaceae	Herb
Parkia biglandulosa Wight & Arn.	Mimosaceae	Tree
Parthinium hysterophorus L.	Asteraceae	Herb
Paspalidium flavidum Retz.	Poaceae	Herb
Passiflora edulis Sims	Passifloraceae	Climber
Passiflora foetida L.	Passifloraceae	Climber
Pedalium murex L.	Pedaliaceae	Herb
Peltophorum pterocarpum DC.	Caesalpinaceae	Tree
Pennisetum hohenackeri Hochst.	Poaceae	Herb
Pennisetum pedicellatum Trin.	Poaceae	Herb
Pennisetum polystachion (L.) Schult.	Poaceae	Herb
Pergularia daemia Forssk.	Asclepidaceae	Climber
Peristrophe bicalyculata (Retz.) Nees	Acanthaceae	Herb
Perotis indica (L.) Kuntz.	Poaceae	Herb
Phyllanthus acidus (L.) Skeels	Euphorbiaceae	Tree
Phyllanthus emblica L.	Euphorbiaceae	Tree

Table 1. Contd.

Phyllanthus reticulates Poiret,	Euphorbiaceae	Tree
Phyllanthus virgatus Forst.	Euphorbiaceae	Herb
Pithacellobium dulce Roxb.	Mimosaceae	Tree
Plumbago zeylanica L.	Plumaginaceae	Herb
Plumeria alba L.	Apocynaceae	Tree
Plumeria rubra L.	Apocynaceae	Tree
Polyalthia longifolia Sonn.	Annonaceae	Tree
Polycarpaea corymbosa L.	Caryophyllaceae	Herb
Polygala jacobii Chandrabose	Polygalaceae	Herb
Polygala rosmarinifolia Wight & Arn.	Polygalaceae	Herb
Polygala wightiana Wall.	Polygalaceae	Herb
Pommerulla cornucopiae L. f.	Poaceae	Herb
Pongamia pinnata L.	Fabaceae	Tree
Portulaca oleracea L.	Polygalaceae	Herb
Priva cordifolia L.f.	Verbinaceae	Herb
Psidium guajava L.	Myrtaceae	Tree
Pterocarpus marsupium Roxb	Fabaceae	Tree
Ptrocarpus sandalinus L. f.	Fabaceae	Tree
Pupalia lappacea L. A.L.	Amaranthaceae	Herb
Rhynchosia cana DC	Fabaceae	Climber
Rhynchosia minima L.	Fabaceae	Climber
Rottboellia cochinchinensis Lour.	Poaceae	Herb
Roystonea regia H.B.K.	Arecaceae	Tree
Samanea saman Jacq.	Mimosaceae	Tree
Santalum album L.	Santalaceae	Tree
Sesbania grandiflora L.	Fabaceae	Tree
Setaria intermediata Roem. & Schult.	Poaceae	Herb
Setaria pumila (Poir.)	Poaceae	Herb
Setaria verticillata (L.) P. Beauv.	Poaceae	Herb
Sida cordata Burm. f.	Malvaceae	Herb
Sida cordifolia L.	Malvaceae	Herb
Sida rhombifolia L.	Malvaceae	Herb
Solanum surattense Burm.	Solanaceae	Shrub
Spathodea campanulata P. Beauv.	Bignoniaceae	Tree
Spermacoce hispida L.	Rubiaceae	Herb
Spermacoce villosa Sw.	Rubiaceae	Herb
Sporobolus coromandelianus Retz.	Poaceae	Herb
Sporobolus indicus (L.) R.Br.	Poaceae	Herb
Sporobolus maderaspatanus Bor	Poaceae	Herb
Stachytarpheta jamaicensis (L.) Vahl	Verbinaceae	Herb
Stenotaphrum dimidiatum L.	Poaceae	Herb
Striga densiflora (Benth.) Com.	Scorphulariaceae	Herb
Stylosanthes fruticosa (Retz.)	Fabaceae	Herb
Syzygium cumini (L.)	Myrtaceae	Tree
Tabebuia aurea Benth. & Hook.	Bignoniaceae	Tree
Tabebuia pallida (Lindl.) Miers	Bignoniaceae	Tree
Tabebuia rosea (Berol.) DC.	Bignoniaceae	Tree
Talinum portulacifolium Forskl.	Polygalaceae	Herb
Tamarindus indica L.	Caesalpinaceae	Tree
Tecoma stands (L.) Kunth.	Bignoniaceae	Tree
Tectona grandis L. f.	Verbinaceae	Tree
Tephrosia hookeriana Wight & Arn.	Fabaceae	Shrub

Table 1. Contd.

Tephrosia purpurea L.	Fabaceae	Herb
Terminalia catappa L.	Combrataceae	Tree
Thespesia populnea L.	Malvaceae	Tree
Thunbergia fragrans Roxb.	Acanthaceae	Climber
Thunbergia grandiflora Roxb.	Acanthaceae	Climber
Tinospora cordifolia Willd.	Menispermaceae	Climber
Toddalia asiatica L.	Rutaceae	Climber
Trachys muricata (L.) Pers.	Poaceae	Herb
Tragus roxburghii Panigrahi	Poaceae	Herb
Trianthema decandra L.	Aizoaceae	Herb
Tribulus lanuginosus L.	Zygophyllaceae	Herb
Trichodesma indicum L.	Boraginaceae	Herb
Tridax procumbens L.	Asteraceae	Herb
Turnera ulmifolia L.	Turneraceae	Herb
Tylophora indica Burm. f.	Asclepidaceae	Climber
Urochloa mosambicensis Hack.	Poaceae	Herb
Urochloa panicoides P.Beauv	Poaceae	Herb
Vernonia cinerea (L.) Less.	Asteraceae	Herb
Vetiveria zizanioides (L.) Nash	Poaceae	Herb
Vitex negundo L.	Verbinaceae	Tree
Waltheria indica L.	Sterculiaceae	Herb
Wrightia tinctoria L.	Apocynaceae	Tree
Ziziphus mauritiana Lam.	Rhamanaceae	Tree
Ziziphus oenoplia L.	Rhamanaceae	Tree

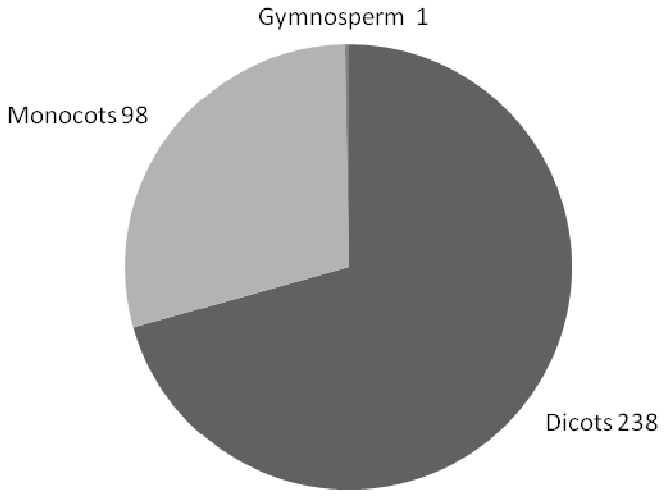

Figure 1. Systematic groups of the plants in the campus area.

aspera Jacq., *Eragrostiella bifaria* Vahl, *Eleusine indica* L., *Axonopus compressus* (Sw.), *Brachiaria distachya* L., *B. repenta* L., *Cenchrus ciliaris* L., *Digitaria bicornis* Lam., *D. ciliaris* Retz., *Echinochloa colonum* L., *Melinis repens* Willd., *Panicum maximum* Jacq., *Setaria maximum* Jacq., *S. pumila* Poir. and *S. verticillata*.

The ground flora here is comparatively sparse, but fairly rich in undisturbed areas. The species *Acalypha indica* L., *Achyranthes aspera* L., *Aerva lanata* (L.) A. Juss., *Alternanthera pungens* Kunth, *Argemone mexicana* L., *Alysicarpus monilifer* L., *Boerhavia diffusa* L., *Cleome viscosa* L., *Crotalaria verrucosa* L., *Croton bonplandianum* Baill., *Datura metel* L., *Dipteracanthus patulus* (Jacq.) Nees, *Euphorbia hirta* L., *Hibiscus ovalifolius* (Forssk.) Vahl, *Indigofera linnaei* Ali, *Lagascea mollis* Cav., *Malvastrum coromandelianum* (L.) Garc., *Peristrophe bicalyculata* (Retz.) Nees, *Polycarpaea corymbosa* (L.) Lam., *Priva cordifolia* (L.f.) Druce, *Tephrosia purpurea* (L.) Pers., *Tribulus lanuginosus* L., *Vernonia cinerea* (L.) Less., *Tridax procumbens* L., *Ageratum conyzoides* L., *Parthinium hysterophorus* L. The species *Argemone mexicana* L., *Talinum portulacifolium* Frosskl, *Hibiscus ovalifolius* (Forsskl.) Vahl, *Malvastrum coromandelianum* (L.) Garcke., *Waltheria indica* L., *Tephrosia purpurea* (L.) Pers., *Turnera ulmifolia* L., *Plumbaga zeylanica* L., *Datura metel* L., *Striga densiflora* Benth. and *Achyranthes aspera* L. are some of the common herbs in the campus.

Some of the common climbers found among the shrubs are *Cissampelos pareira* L. (Buch. - Ham. *ex* DC.) Forman, *Cocculus hirsutus* (L.) Diels, *Cyclea peltata* (Lam.) Hook. f. & Thoms., *Tinospora cordifolia* (Willd.) Miers *ex* Hook. f., *Toddalia aisatica* (L.) Lam., *Cissus*

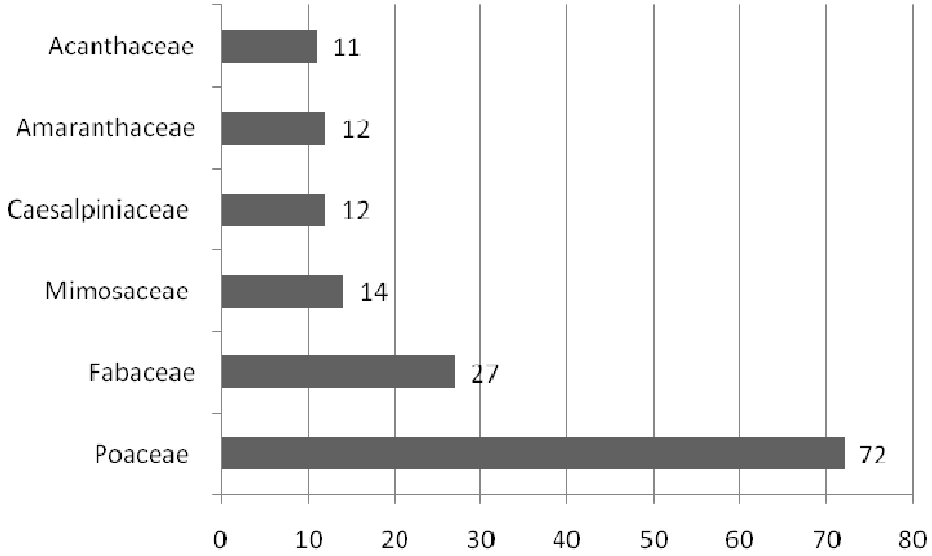

Figure 2. Plant families with higher number of species in the campus area.

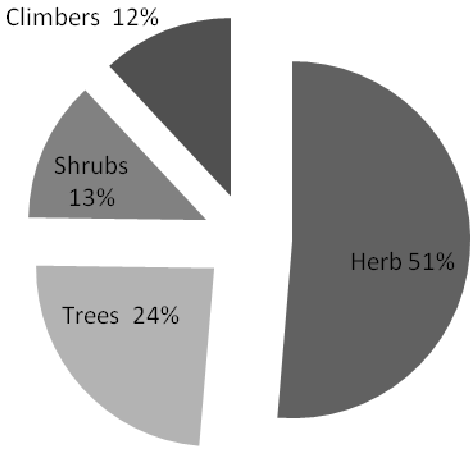

Figure 3. Analysis of habit-wise distribution of plant species in the campus area.

quadrangularis L., *Cardiospermum helicacabum* L., *Abrus precatorius* Wall. *ex* Thw., *Clitoria ternatea* L., *Macrotyloma uniflorum* (Lam.) Verdc. *Passiflora edulis* Sims., *P. foetida* L., *Citrullus colocynthis* (L.) Schrader, *Coccinia grandis* (L.) Voigt, *Mukia maderaspatana* (L.) M.Soem., *Jasminum angustifolium* (L.) Willd., *J. auriculata* Vahl., *J. cuspidatum* Rottl., *J. grandiflorum* L., *J. trichotomum* Heyne *ex* Roth, *Hemidesmus indicus* (L.) R.Br., *Pergularia daemia* (Forssk.) Chiov. and *Tylophora indica* (Burm. f.) Merr.

In the study, ethnobotanically used plants were also identified and are grouped into ornamental (20 species), economic (24 species), edible fruit (17 species), medicinal (22 species), aromatic (six species) and fodder (19 species) (Figure 4). The important medicinal plants growing in the Campus of Bharathiar University includes *Asystasia gangetica* (L.) T. And*., Cardiospermum halicacabum* L., *Catharanthus roseus* (L.) G. Don., *Coccina grandis* (L.) Voigt., *Mukia madraspatana* (L.) M. Roem., *Ocimum americanum* L., *Oxalis corniculata* L., *Trichodesma indicum* (L.) R. Br., *Azadirachta indica* A. Juss, *Dichrostachys cinerea* (L.), *Ficus bengalensis* L., *Jatropha gossypifolia* L., *Wrightia tinctoria* (Roxb.), *Ziziphus mauritiana* Lam., *Cyanodon dactylon* L., *Vetiveria zizanioides* (L.) Nash*, Commelina benghalensis* L.*, Cyperus rotundus* L.*, Cyanotis axillaris* (L.) D. Don*, Asparagus racemosus* L. and *Gloriosa superba* L.

The only plantation on the campus is made of *Acacia auriculiformis* A. Cunn.*, A. ferruginea* DC.*, Crescentia cujete* L.*, Cycas circinalis* L.*, Kigelia pinnata* (Jacq.) DC. and *Markhamia platycalyx* (Baker) Sprague. There are several avenues on the campus made of trees such as *Bauhinia purpurea* L., *Callistemon citrinus* (Curt.) Stapf*, Cassia fistula* L.*, C. siamea* Lam.*, Casuarina equisetifolia* J.R. & G. Forst.*, Delonix regia* (Boj. *ex* Hook.) Raf.*, Eucalyptus tereticornis* Sm.*, Guaiacum officinale* L.*, Parkia biglandulosa* Wight. & Arn.*, Polyanthia longifolia* Sonn.*, Peltophorum pterocarpum* (DC.) K. Heyne*, Pterocarpus marsupium* Roxb.*, Samanea saman* F. Muell.*, Santalum album* L.*, Thesesia populnea* (L.) Sol. *ex* Correa and *Roystonea regia* (Kunth) O.F. Cook.

Some of the species are utilized as fruit-yielding like *Annona squamosa* L. (Seetha), *Artocarpus heterophyllus* Lam. (Pala), *Mangifera indica* L. (Maa), *Moringa petrygosperma* Gaertn. (Murungai), *Phyllanthus acidus* L. Skeels (Ara-Nelli), *Phyllanthus emblica* L. (Nelli), *Psidium guajava* L. (Koyya) and *Syzygium cumini* (L.) Skeels

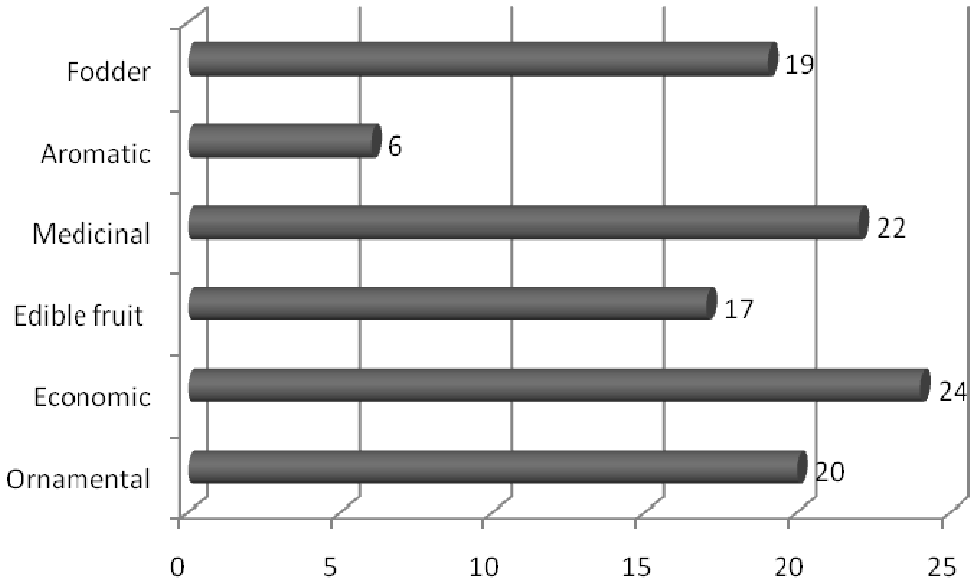

Figure 4. Ethnobotanical usage categories of the plants in the campus area.

(Naval). Species such as *Cordia sebestena* L., *Jacaranda mimosifolia* D.Don., *Millingtonia hortensis* L.f., *Plumeria alba* L., *P. rubra* L., *Tabubia rosea* DC., *Tecoma stans* (L.) Juss. *ex* Kunth are also utilized for their attractive flowers.

Most of the species found are common in the campus, some of the species *Cucumis dipsaceus* C.G. Ehrenb. *ex* Spach, *Caralluma bicolor* Ramach, S. Joseph, H. A. John & C. Sofiya, *Hybanthus puberulus* M. Gilbert are rare species. Some endemic grass species like *Andropogon pumulus* Roxb., *Bothriochlora compressa* (Hook. f.) Henrard, *Chloris bournei* Rang. & Tadul., *Panicum psilopodium* Trin. and *Perotis indica* (L.) O. Kuntz. also occur in the campus. The study suggests that the Campus of Bharathiar University is rich in natural vascular flora, though the floristic composition is dominated by angiospermic plant species.

Conclusion

The biodiversity of the campus is important as it is vital that native and endemic species of flora are conserved. Though there are many more life-forms that need to be identified up to species level, the biodiversity of the campus holds a lot of potential in terms of conservation. The vegetated areas identified during the present study can be accorded special attention and if any development is planned in these areas, it should be reconsidered.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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