



Research Article

ISSN 2320-4818

JSIR 2015; 4(5): 207-212

© 2015, All rights reserved

Received: 23-05-2015

Accepted: 19-10-2015

C.K. Renukarya

Department of Studies in Biotechnology, Microbiology & Biochemistry, Pooja Bhagavat Memorial Mahajana Education Centre, PG wing of SBRR Mahajana First Grade College, K.R.S. Road, Metagalli, Mysore-570 016, Karnataka, India

H.N. Krishna Kumar

Department of Studies in Biotechnology, Microbiology & Biochemistry, Pooja Bhagavat Memorial Mahajana Education Centre, PG wing of SBRR Mahajana First Grade College, K.R.S. Road, Metagalli, Mysore-570 016, Karnataka, India

Jyoti Bala Chauhan

Department of Studies in Biotechnology, Microbiology & Biochemistry, Pooja Bhagavat Memorial Mahajana Education Centre, PG wing of SBRR Mahajana First Grade College, K.R.S. Road, Metagalli, Mysore-570 016, Karnataka, India

Correspondence:

H.N. Krishna Kumar

Department of Studies in Biotechnology, Microbiology & Biochemistry, Pooja Bhagavat Memorial Mahajana Education Centre, PG wing of SBRR Mahajana First Grade College, K.R.S. Road, Metagalli, Mysore-570 016, Karnataka, India

Studies on the flora of Mahajana PG campus

C.K. Renukarya, H.N. Krishna Kumar*, Jyoti Bala Chauhan

Abstract

In the present investigation, a total of 152 species representing 131 genera belonging to 55 families have been recorded. Among these, 43 families, 99 genera and 118 species are dicotyledons. The monocotyledons represent 9 families, 32 genera and 34 species. The genus species ratio is 1:1.2 and the ratio of monocotyledons to dicotyledons is 1:3.5. Of the 55 families collected, the most dominant family is Euphorbiaceae with 13 species. In the collected 131 genera 17 are dominant with more than 2 species. The availability and distribution of individual plant species has been scrutinized carefully for its future sustainable utilization. The study found that majority of the plants recorded from the campus area are having medicinal value.

Keywords: PG campus, Flora, Dicotyledons, Monocotyledons, Angiosperm.

INTRODUCTION

Mysore is the third largest city in the state of Karnataka, India, which is located at 12.30°N 74.65°E and has an average altitude of 770 meters. It is spread across an area of 128.42 km² at the base of the Chamundi Hills in the southern region of Karnataka. Mysore has a tropical savanna climate. The summer season from March to end of May is followed by the south-west monsoon lasting up to September end. The area has the record of receiving an average of 761.9 mm rainfall ^[1]. The highest temperature recorded in Mysore was 38.5 °C and the lowest was 7.7 °C ^[2].

Mysore is situated in the angular area where the Eastern and Western Ghat ranges converge into the Nilgiri hills. Physio-graphically, the region in which the districts are situated may be classified as partly *maidan* (plains) and partly *semi-malnad* (hilly). The vegetation is described as thorn-scrub ^[3, 4] and non-forest habitat due to prolonged disturbance of deciduous forest over a long period. Dry deciduous trees scattered amid the stretches of shrub, herb and grass undergrowth is common. The area covered by forest is 4,126.45 sq. km, 34.52 per cent of the total area, of which 3,875.6 sq. km, are reserved forest. Mysuru has two types of forests and they are moist deciduous where the rainfall is 900-1100 mm and dry deciduous where the rainfall is 700 – 900 mm. Mysuru district is the third richest in forest wealth in the State. The forest belt in the district begins from the western part of Hunsur taluk, spreads along the border of Kerala and Tamil Nadu into the south and east. The thickest and richest forest areas are in H D Kote. The Principal species of trees in the forests are teak, honne, rosewood, dindiga, eucalyptus and sandalwood. The soil of the district can be broadly classified as the laterite, red loam, sandy loam, red clay and black. Mysore area flora is quite rich and diverse with 1601 species of flowering plants belonging to 170 families and 778 genera ^[4].

Mahajana Post Graduate wing is an exclusive PG wing of SBRR Mahajana First Grade College. The centre happens to be the largest PG wing affiliated to University of Mysore. Mahajana Post Graduate wing is a higher end limb of Mahajana Education Society, which was started in October 1999 to offer Post Graduate Programs of direct relevance and value to the current generation of students. The centre offers 14 important PG courses viz., MCA, M.Com., MBA, M.Sc. Biotechnology, M.Sc. Microbiology, M.Sc. Biochemistry, MSW, M.Sc. Computer Science, MFM, M.Sc. Chemistry, MA Economics, MBA in Corporate Social Responsibility, MTA and Master of Air Travel Management. The Post graduate campus is around 8 kms away from the city. The total area of the campus is 16 acres. The campus harbours many exotic plants. They have been very useful in high wind breaking and cooling the buildings. The campus has a rich diversity of plant species, which includes herbs, shrubs, trees and climbers. The objective of this study was to evaluate the diversity of plant species in Mahajana PG campus.

MATERIALS AND METHODS

The Flora is prepared based on repeated seasonal collections of plant specimens from the campus, either in the flowering or fruiting stage. Regular field visits were made during the year 2013-2015 in different seasons to explore the various plant species. All the plant specimens available in the study areas were collected for authenticity and the herbarium specimens are prepared by following the method of Jain and Rao [6]. The collected plant specimens were authentically identified with the help of standard floras [4, 7, 8]. All the studied plant species have been arranged alphabetically, along with their family, binomial and vernacular names. To facilitate easy reference regional names were also gathered for many of the taxa. The campus harbors both exotic and indigenous species. The families are arranged according to Bentham and Hooker's system of classification [5].

RESULTS

In the present investigation, a total of 152 species representing 131 genera belonging to 55 families have been recorded. Among these, 43 families with 78.2%, 99 genera with 75.6% and 118 species with 77.6% are dicotyledons. The monocotyledons represent 9 families (16.4%), 32 genera with 24.4% and 34 species with 22.4%. The genus species ratio is 1:1.2 and ratio of monocotyledons to dicotyledons is 1:3.5. Of the 55 families, the most dominant family is Euphorbiaceae with 13 species, followed by Asteraceae (12 species), Poaceae (9 species), Araceae (8 species), Arecaceae (7 species), Apocyanaceae (6 species), Acanthaceae, Amaranthaceae, Liliaceae with 5 species and remaining families with 1-4 species (Table 1). In the collected 131 genera 17 are dominant with more than 2 species which includes *Amaranthus*, *Annona*, *Plumaria*, *Anthurium*, *Calamus*, *Calotropis*, *Tagetes*, *Tabebuia*, *Acalypha*, *Euphorbia*, *Phyllanthus*, *Albizia*, *Ficus*, *Boerhavia*, *Jasminum*, *Oxalis* and *Solanum* (Table 1).

The research area covers an area of about 16 acres in the city of Mysore. 152 taxa belonging to 55 families were identified. The ratio of genus to species is 1:1.2 which is low because of small pocket of area of study. However, this figure is very close to genus species ratio 1:1.7 for India which indicates that area is studied intensively. In terms of preserving the floral biodiversity, it is very important to set up a botanical garden in the confines of the campus and cultivate these plants, and protect the ones that grow naturally on the grounds. The study found that the plants recorded from the campus area are economically very important. Some of them are medicinal value; some are ornamental value and few are edible. The documentation of plant is the only way to preserve the fundamental knowledge of the plant resources and it will be useful to the campus students for further research.

DISCUSSION

In the present study, the availability and distribution of individual plant species has been scrutinized carefully for its future sustainable utilization. Majority of these plants are used as an important medicine for major diseases. There are many herbs which are predominantly used to treat cardiovascular problems, liver disorders, central nervous system, digestive and metabolic disorders. Herbal remedies play a fundamental role in traditional medicine where the plants often used as therapeutic agents as antiseptic, anti-inflammatory and in treatment of infections, diseases including candidiasis and dermatophytes [9]. It has been suggested that fruits, vegetables, natural plant products contain a large variety of substance called phytochemicals are the main source of antioxidant in the diet, which could decrease the potential stress caused by reactive oxygen species [10, 11]. The local use of natural plants as primary health remedies, due to their pharmacological properties, is

quite common in Asia, Latin America and Africa [12]. Traditional medicine using plant extracts continues to provide health coverage for over 80% of the world's population, especially in the developing world [13]. Concurrently, many people in developed countries have begun to turn to alternative or complementary therapies including medicinal herbs [14]. In India, medicinal plants are widely used by all sections of people either directly as folk remedies or in different indigenous system of medicine or indirectly in the pharmaceutical preparations [15]. Ayurveda and Siddha are the two Indian traditional systems of medicine practiced in India wherein many herbs were used as therapeutics. Few of the presently reported plant species are endangered. Strict conservational measures are to be taken to protect these plants species from becoming rare or endangered. This type of floral study is very essential to know the economic importance of plants. The undisturbed status of this campus biodiversity was clearly evidenced with well regeneration capacity of the species.

CONCLUSION

In terms of preserving the floral biodiversity, it is very important to set up a botanical garden in the confines of the campus and cultivate these plants, and protect the ones that grow naturally on the grounds. The study found that the plants recorded from the campus area are economically very important. Some of them are medicinal value; some are ornamental value and few are edible. Since in recent years the usage of plants for medicinal purpose is increasing, the knowledge of Ethno botany should be made available to all students and faculties. The documentation of plant is the only way to preserve the fundamental knowledge of the plant resources and it will be useful to the campus students and faculties for further research. Due to over exploitation and deforestation in the natural habitat, few of the presently reported plant species are endangered. Strict conservational measures are to be taken to protect these plants species from becoming rare or endangered.

Acknowledgements

The authors are thankful to Sri. R. Vasudevamurthy, President, Mahajana Education Society, Jayalakshimpuram, Mysore for facilities to carry out this research work.

References

1. Anon. Karnataka state gazetteer (Mysore district). Government Press, Bangalore. 1988; pp. 1-178.
2. Raman and Afried. Climate and clothing, Bangalore – Mysore, 1994; pp. 1-110.
3. Saldana C.J. Flora of Karnataka, Vol I, Oxford and IBH publishing Co., Mumbai, 1984; pp. 1-535.
4. Rao R.R., Razi B.A. A synoptic flora of Mysore district, Today & Tomorrow's printers and publishers, New Delhi, 1981; pp. 20- 22.
5. Bentham G., Hooker J.D. Genera Plantarum. Vols. 1-3. Reeve & Co., London, 1862-1883.
6. Jain S.K., Rao R.R. A hand book of field and herbarium methods. Today and Tomorrow's Printers and Publishers, New Delhi, 1977; pp. 1-157.
7. Hooker J.D. The flora of British India. 1872-1897; pp. 1-740.
8. Gamble J.S. Flora of the Presidency of Madras, Vol. 1-3. Adlard & Sons Ltd., London, 1915; pp. 1-577.
9. Shahidi Bonaj G.H. Asian Journal of Plant science. 2004; 3: 82-86.
10. Dell Agli M., Busciala A., Bosisio E. Vascular effects of wine polyphenols. Cardiovasc. Res., 2004; 63: 593-602.
11. Soorbrattee M.A., Neergheen V.S., Luximon-Ramma A., Aruoma O.L., Baharun T. Phenolics as potential antioxidant therapeutic agents: mechanism and actions. Mut. Res. 2005; 579: 200-213.
12. Bibitha B, Jisha V.K., Salitha C.V., Mohan S, Valsa A.K. Antibacterial activity of different plant extracts. Indian J. Microbiol. 2002; 42: 361-363.

13. WHO. Traditional Medicine: Growing Needs and Potential. WHO Policy Perspectives on Medicines. World Health Organization, Geneva. 2002; pp. 1-6.
14. Fransworth N.R., Soejarto D.D. Global importance of medicinal plants. Cambridge University Press, Cambridge. 1991; pp. 25-51.
15. Yoganarasimhan S.N. Medicinal plants of India. Vedams eBooks (P) Ltd., New Delhi, India .2000; 2: pp. 1-299.

Table 1: List of Plant species with family present in Mahajana PG campus

Family	Botanical name	Common name
Acanthaceae	<i>Barleria cristata</i>	Spatika
	<i>Crossandra infundibuliformis</i>	Kanakambara/ Fire cracker flower
	<i>Graptophyllum pictum</i>	Chocolate caricature plant
	<i>Pachystachys lutea</i>	
	<i>Thunbergia erecta</i>	
Amaranthaceae	<i>Achyranthes aspera</i>	Uttarani
	<i>Alternanthera pungens</i>	
	<i>Amaranthus spinosus</i>	Mullu keere soppu
	<i>Amaranthus viridis</i>	
	<i>Gomphrena celosioides</i>	
Anacardiaceae	<i>Mangifera indica</i>	Mavu/Mango
Annonaceae	<i>Annona reticulata</i>	Ramapala/ custard apple
	<i>Annona squamosa</i>	Seethapala
	<i>Polyalthia longifolia</i>	Kambadha mara/ Indian mast tree
Apocynaceae	<i>Catharanthus roseus</i>	Kashikanigale/Periwinkle
	<i>Adenium obesum</i>	
	<i>Nerium oleander</i>	Kanigale
	<i>Plumeria pudica</i>	
	<i>Plumeria rubra</i>	Devakanigale/ temple tree
	<i>Tabernaemontana divaricata</i>	Nandabattalu
Araceae	<i>Aglaonema commutatum</i>	Silver king
	<i>Alocasia odora</i>	giant upright elephant ear
	<i>Anthurium andraeanum</i>	Anthurium
	<i>Anthurium cubense</i>	Bird's Nest Anthurium
	<i>Caladium bicolor</i>	
	<i>Dieffenbachia amoena</i>	Dumbcane
	<i>Philodendron bipinnatifidum</i>	
	<i>Spathiphyllum wallisii</i>	Peace lily
Araucariaceae	<i>Araucaria heterophylla</i>	Christmas tree
Arecaceae	<i>Cocos nucifera</i>	Coconut
	<i>Dypsis lutescens</i>	butterfly palm
	<i>Rhapis excelsa</i>	
	<i>Roystonea regia</i>	royal palm
	<i>Trachycarpus latisectus</i>	Windamere palm
	<i>Calamus thwaitesii</i>	Handibetta/ Cane
	<i>Calamus vattayila</i>	Betha /Cane
Asclepiadaceae	<i>Asclepias curassavica</i>	Scarlet milkweed
	<i>Calotropis gigantea</i>	Ekka
	<i>Calotropis procera</i>	king's crown
Asteraceae	<i>Ageratum conyzoides</i>	
	<i>Chrysanthemum indicum</i>	Sevanthige/ Chrysanthemum
	<i>Cosmos sulphureus</i>	Yellow Cosmos

	<i>Crassocephalum crepidioides</i>	Fireweed
	<i>Dahlia pinnata</i>	Dere hoo
	<i>Emilia sonchifolia</i>	
	<i>Parthenium hysterophorus</i>	
	<i>Sphagneticola trilobata</i>	Creeping ox-eye
	<i>Synedrella nodiflora</i>	
	<i>Tagetes patula</i>	marigold
	<i>Tagetes minuta</i>	Small marigold
	<i>Tridax procumbens</i>	
Balsaminaceae	<i>Impatiens balsamina</i>	Karnakundala
Bignoniaceae	<i>Handroanthus impetiginosus</i>	Pink trumpet tree
	<i>Millingtonia hortensis</i>	Mara mallige/ Tree Jasmine
	<i>Tabebuia aurea</i>	Caribbean Trumpet Tree
	<i>Tabebuia heterophylla</i>	
Caesalpinaceae	<i>Acacia auriculiformis</i>	
	<i>Senna siamea</i>	Kassod tree
	<i>Tamarindus indica</i>	Tamarind
	<i>Delonix regia</i>	Gulmohar
Caricaceae	<i>Carica papaya</i>	Papaya
<u>Commelinaceae</u>	<i>Tradescantia pallida</i>	purple heart
<u>Convolvulaceae</u>	<i>Ipomoea coccinea</i>	
Cucurbitaceae	<i>Coccinia grandis</i>	Thondekai
	<i>Cucumis dipsaceus</i>	
<u>Cupressaceae</u>	<i>Cupressus macrocarpa</i>	Monterey cypress
Cycadaceae	<i>Cycas revoluta</i>	Sago palm
<u>Cyperaceae</u>	<i>Cyperus rotundus</i>	
<u>Euphorbiaceae</u>	<i>Acalypha indica</i>	
	<i>Acalypha wilkesiana</i>	
	<i>Codiaeum variegatum</i>	croton
	<i>Croton sparsiflorus</i>	
	<i>Euphorbia heterophylla</i>	
	<i>Euphorbia hirta</i>	Asthma-plant
	<i>Euphorbia milii</i>	crown of thorns
	<i>Euphorbia thymifolia</i>	
	<i>Jatropha integerrima</i>	Spicy Jatropha
	<i>Phyllanthus emblica</i>	Bettada nelli
	<i>Phyllanthus niruri</i>	Nelanelli
	<i>Ricinus communis</i>	Haralu/ castor oil plant
<i>Sauropus androgynus</i>		
Geraniaceae	<i>Pelargonium hortorum</i>	Geranium
<u>Lamiaceae</u>	<i>Mentha arvensis</i>	
	<i>Ocimum tenuiflorum</i>	Thulasi
	<i>Plectranthus amboinicus</i>	Doddapatre
Liliaceae	<i>Aloe vera</i>	Lole sara
	<i>Asparagus Racemosus</i>	

	<i>Beaucarnea stricta</i>	
	<i>Cordyline fruticosa</i>	Cabbage Palm
	<i>Dracaena marginata</i>	
Lythraceae	<i>Cuphea hyssopifolia</i>	false heather
	<i>Punica granatum</i>	Dalimbe/pomegranate
<u>Magnoliaceae</u>	<i>Magnolia champaca</i>	Sampige/champak
<u>Malvaceae</u>	<i>Abutilon indicum</i>	
	<i>Hibiscus rosa-sinensis</i>	China rose
	<i>Malvastrum coromandelianum</i>	
	<i>Sida acuta</i>	
<u>Meliaceae</u>	<i>Azadirachta indica</i>	Bevu/Neem
	<i>Swietenia macrophylla</i>	Mahogany
	<i>Melia dubia</i>	Kaadu bevu
<u>Menispermaceae</u>	<i>Cocculus hirsutus</i>	
	<i>Tinospora cordifolia</i>	Amrutha balli
<u>Mimosaceae</u>	<i>Albizia saman</i>	Male mara/rain tree
	<i>Albizia lebbek</i>	Bhagemara
	<i>Leucaena leucocephala</i>	Subabul
	<i>Mimosa pudica</i>	touch-me-not
<u>Moraceae</u>	<i>Artocarpus heterophyllus</i>	Halasu/jackfruit
	<i>Ficus benamina</i>	weeping fig
	<i>Ficus benghalensis</i>	Alada mara/banyan tree
	<i>Ficus racemosa</i>	Fig
<u>Moringaceae</u>	<i>Moringa oleifera</i>	<i>Nugge kai</i> /drumstick
Musaceae	<i>Musa paradisiacal</i>	Balehannu/Banana
<u>Myrtaceae</u>	<i>Corymbia citriodora</i>	Eucalyptus tree
	<i>Psidium guajava</i>	Seebe/guava
<u>Nyctaginaceae</u>	<i>Boerhavia diffusa</i>	
	<i>Boerhavia erecta</i>	
	<i>Bougainvillea spectabilis</i>	Bougainvillea
	<i>Mirabilis jalapa</i>	Sanjemallige/ Four O'clock plant
<u>Nymphaeaceae</u>	<i>Nymphaea nouchali</i>	Kamala/star lotus
<u>Oleaceae</u>	<i>Jasminum multiflorum</i>	Kakada/ Winter Jasmine
	<i>Jasminum sambac</i>	<i>Dundu Mallige/ jasmine</i>
<u>Oxalidaceae</u>	<i>Oxalis corniculata</i>	
	<i>Oxalis latifolia</i>	
<u>Papaveraceae</u>	<i>Argemone Mexicana</i>	
<u>Papilionaceae</u>	<i>Millettia pinnata</i>	<i>Honge</i>
<u>Phytolaccaceae</u>	<i>Rivina humilis</i>	Bloodberry
<u>Piperaceae</u>	<i>Piper betle</i>	
<u>Poaceae</u>	<i>Bambusa bambos</i>	Bidiru
	<i>Cynodon dactylon</i>	Garike/Bermuda grass
	<i>Dactyloctenium aegyptium</i>	
	<i>Dichanthelium dichotomum</i>	
	<i>Eleusine indica</i>	Indian goosegrass
	<i>Melinis repens</i>	Rose Natal grass

	<i>Panicum repens</i>	Torpedograss
	<i>Pennisetum alopecuroides</i>	Foxtail fountain grass
	<i>Thyrsostachys siamensis</i>	Thai bamboo
Proteaceae	<i>Grevillea robusta</i>	Silver oak
Rosaceae	<i>Rosa indica</i>	Gulabi/Rose
<u>Rubiaceae</u>	<i>Hamelia patens</i>	Firebush
	<i>Ixora coccinea</i>	
Rutaceae	<i>Murraya koenigii</i>	Karibevu
Santalaceae	<i>Santalum album</i>	Gandhadhamara/sandalwood
Sapindaceae	<i>Cardiospermum halicacabum</i>	
Sapotaceae	<i>Manilkara zapota</i>	Sapota
Solanaceae	<i>Datura inoxia</i>	Ummathi
	<i>Solanum lycopersicum</i>	Tomato
	<i>Solanum nigrum</i>	black nightshade
	<i>Solanum seaforthianum</i>	Brazilian Nightshade
<u>Strelitziaceae</u>	<i>Strelitzia reginae</i>	Bird of Paradise
<u>Verbenaceae</u>	<i>Duranta erecta</i>	golden dewdrop
	<i>Lantana camara</i>	Lantana
	<i>Stachytarpheta jamaicensis</i>	
	<i>Tectona grandis</i>	Teak
Zingiberaceae	<i>Chamaecostus cuspidatus</i>	Insulin plant
<u>Zygophyllaceae</u>	<i>Tribulus terrestris</i>	Goathead