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Research article

ASSESSMENT OF URBAN TREE DIVERSITY OF KADAPA CITY, ANDHRA PRADESH

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ABSTRACT: Trees in urban ecosystem are very important as they protect the environment and maintain the ecological balance by reducing air and noise pollution. The purpose of avenue trees in urban areas is as ornamentals, shade giving, aesthetic and medicinal value. A small study has been undertaken to assess the avenue and other amenity tree species in the urban areas of Kadapa city of Andhra Pradesh, India. Totally 58 species belonging to 51 genera and 27 families are inventoried which are grown as avenue trees, ornamentals, shade plants etc. All these species are grown in different areas of the city. They are mainly grown in the road dividers, along road sides, premises of government offices and educational institutions, temple yards, house yards etc.

Key words: Kadapa, Urban tree diversity, avenue trees.

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INTRODUCTION

It has been estimated that by about 2025 AD about 80% of the people of developed countries will live in cities and that throughout the world, only 40% will live in rural areas [1]. Hence urban and peri urban biodiversity play a major and increased role in human activities. With more and more urbanization, this will be the only kind of biodiversity to occupy a major part in most human life. [2]. Trees in urban areas play a vital role to maintain the ecological balance of their proximity by reducing the pollution from vehicular emissions. Trees in urban ecosystem play a very significant role in environmental protection by checking air and noise pollutions, abating wind and handling many other functions. [3]. They are of timber, fuel, fodder, fruits, medicinal and aesthetic value. Along the road sides trees provide shade and give shelter to many road side vendors. Trees have important cultural or historic significance to individual and local communities. They have been used as land marks and meeting places for long time. The trees are considered as nature's air conditioners and they reduce the annual energy use for cooling by 10% to 50% and electricity use by 23% in California [4].

STUDY AREA AND METHODOLOGY

Kadapa is a small city and headquarters of YSR district of Andhra Pradesh, India. It is situated within 13^0-43 and 15^0-14 northern latitudes and 77^0-55 and 79^0-28 eastern longitude. Day temperature reaches maximum 46^0C in the month of May and minimum 31^0C in December. Average annual rainfall is 700mm. Kadapa city covers the area of 164.08 sq Km and its population is 3, 44,809. Kadapa is a growing city with many developmental activities. Because of the activities like building construction road widening, industries, increasing vehicular emissions vegetation cover is severely affected. This kind of changes may severely affect the species distribution, composition and genetic structure and even extinction of many useful plants [5].

The diversity of trees in urban areas of Kadapa city was studied with the objective of preparing a record of diversity of avenue and other amenity trees. The study has been carried out by frequent field trips in the months of January to March of 2015. Field trips were conducted covering all areas of city and avenue and other amenity trees are recorded and species are identified with the help of Trees of Andhra Pradesh [6].

An inventory of trees is prepared and their local names, family and their uses are tabulated.

RESULTS AND DISCUSSION

Totally 58 trees and shrubs species are recorded. They are all used as medicinal, shade giving, ornamental and avenue trees. An inventory of trees is prepared and their local names, family and their uses are tabulated. Some species are deposited in the herbarium, maintained by Dept.of Botany, Yogi Vemana University, Kadapa. Table -1.Total 58 tree and big shrub species including Three Gymnosperms are recorded. They are all used variously such as avenue purpose shade giving ,medicinal, ornamental and aesthetic, out of these 38 are native species 20 are exotic species Arecaceae and Mimosaceae families are dominant with eight species each Bignoniaceae and Myrtaceae are represented by five species each and Fabaceae and Moraceae by three species and other families are represented by either single or two species as showing in (Table-1) *Azadirachta indica* is the dominant Indian tree species and it has been grown almost all areas of the city like road sides, house gardens and premises of educational institutions and government offices. *Conocarpus erectus* is the dominant exotic species and is found all over the city on road sides, road dividers, premises of various offices and schools. It is one of the fast growing trees particularly grown for its shade and beauty.

Table-1: Herbarium species

S.No	Name of The species	Family	Local Name	Native/ Exotic	Economic Importants
1	*Acacia leuophloea*	Mimosaceae	Tellatumma	Native	Avenue, Medicinal
2	*Albizia amara*	Mimosaceae	Chigara	Native	Shade
3	*Albizia lebback*	Mimosaceae	Diresena	Native	Shade
4	*Albizia odoratissima*	Mimosaceae	Kondachigara	Native	Timber,Shade
5	*Alstonia scholaris*	Apocynaceae	Palagarudu	Native	Shade,Timber
6	*Azadirachta indica*	Meeliaceae	Vepa	Native	Shade,Timber
7	*Bauhinia racemosa*	Fabaceae	Aare	Native	Shade
8	*Borassus flabellifer*	Arecaceae	Thhati	Native	Edible
9	*Bougainvillea spectabilis*	Nyctaginaceae	Kagithamupulu	Native	Ornamental
10	*Callistemon citrinus*	Myrtaceae	Battlebrush	Native	Medicinal
11	*Carica papaya*	Caricaceae	Bhoppaya	Exotic	Edible
12	*Cariyota urens*	Arecaceae	Gilugu	Exotic	Ornamental
13	*Ceiba pentandra*	Bombacaceae	Buruga	Native	Shade
14	*Chysalidocarpus-lutescens*	Arecaceae	Butterflypalm	Exotic	Ornamental
15	*Cocus nucifera*	Arecaceae	Kobbari	Exotic	Edible
16	*Conocarpus erectus*	Combretaceae	-	Exotic	Shade
17	*Cordia dichitoma*	Cordiaceae	Bankeera	Native	Shade
18	*Delonix regia*	Caesalpiniaceae	Yerrasunkesulu	Exotic	Shade
19	*Eucalyptus -citriodara*	Myrtaceae	Nilagiri	Native	Medicinal
20	*Eucalyptus tereticornis*	Myrtaceae	Bluegum	Native	Medicinal
21	*Ficus benjamina*	Moraceae	Javafig	Native	Shade
22	*Ficus hispida*	Moraceae	Bramhamedi	Native	Shade
23	*Ficus religiosa*	Moraceae	Raavi	Native	Shade
24	*Limonia acidissima*	Rutaceae	Velaga	Native	Medicinal
25	*Millingtonia -hortensis*	Bignoniaceae	Ponnaga	Native	Ornamental
26	*Mimusops coreia*	Rubiaceae	-	Native	Shade,Timber
27	*Moringa oleifera*	Moringaceae	Munaga	Native	Edible
28	*Murraya koenigii*	Rutaceae	Karepaku	Native	Edible

29	*Neolamarckia - cadamba*	Rubiaceae	-	Exotic	Shade
30	*Parkia biglandulosa*	Mimosaceae	-	Exotic	Shade
31	*Peltophorum - perocarpum*	Caesalpiniaceae	Pachhasunkesulu	Exotic	Edible
32	*Phoenix sylvestris*	Arecaceae	Eeetha	Exotic	Edible
33	*Polyalthia longifolia*	Mimosaceae	Naramaamidi	Native	Ornamental
34	*Pongamia pinnata*	Fabaceae	Kaanuga	Native	Medicinal
35	*Pritchardia*	Arecaceae	-	Native	Shade
36	*Prosophis cineria*	Mimosaceae	Jammi	Native	Timber
37	*Prosophis Juliflora*	Mimosaceae	Sarcarutumma	Native	Timber
38	*Psidium guajava*	Myrtaceae	Jaama	Native	Edible
39	*Ravenala - madagascariensis*	Musaceae	Traveeller'spalm	Exotic	Ornamental
40	*Roylstonea regia*	Arecaceae	Royalpalm	Exotic	Ornamental
41	*Salvadora persica*	Salvadoraceae	Chekkara chettu	Native	Timber
42	*Samanea saman*	Mimosaceae	-	Exotic	Shade
43	*Sapindus -emarginatus*	Sapindaceae	Kunkudu	Native	Medicinal
44	*Steriospermum - chelonoide*	Bignoniaceae	Thamrapushpi	Exotic	Ornamental
45	*Syzigium cumini*	Myrtaceae	Neredu	Native	Edible
46	*Tabebuia argentia*	Bignoniaceae	-	Exotic	Ornamental
47	*Tabebuia rosea*	Bignoniaceae	-	Exotic	Ornamental
48	*Tecoma stans*	Bignoniaceae	Gantapulu	Exotic	Ornamental
49	*Tamarindus indica*	Caesalpiniaceae	Chintha	Native	Edible
50	*Tectina grandis*	Verbinaceae	Teaku	Native	Timber
51	*Terminalia arjuna*	Combretaceae	Tellamaddi	Native	Timber
52	*Terminalia catappa*	Combretaceae	Badham	Exotic	Edible
53	*Thespesia populnea*	Malvaceae	Gangaraavi	Native	Medicinal
54	*Wrightia tinctoria*	Apocynaceae	Palavereni	Native	Medicinal
55	*Ziziphus mauritiana*	Rhamnaceae	Regu	Native	Edible

GYMNOSPERMS

S.No	Name of The species	Family	Local Name	Native/Exotic	Economic Import ants
1	*Araucaria heterophylla*	Aracuriaceae	Christmas Tree	Exotic	Ornamental
2	*Cycas beddomi*	Cycadaceae	Peritha	Native	Ornamental
3	*Thuja occidentalis*	Cupressaceae	Thuja	Exotic	Ornamental

No. of Species Family Wise

Family	Genera	Species
Apocynaceae	2	2
Arecaceae	7	8
Bignoniaceae	4	5
Bombacaceae	1	1
Caesalpiniaceae	2	2
Caricaceae	1	1
Causuarinaceae	1	2
Combretaceae	2	1
Cordiaceae	1	1
Fabaceae	3	3
Malvaceae	1	1
Meliaceae	1	1
Mimosaceae	6	8
Moraceae	1	3
Moriangaceae	1	1
Musaceae	1	1
Myrtaceae	4	5
Nyctaginaceae	1	1
Rhamnaceae	1	1
Rubiaceae	2	2
Rutaceae	2	2
Salvodaraceae	1	1
Sapindaceae	1	1
Verbinaceae	1	1
Araucariaceae	1	1
Cycadaceae	1	1
Cupresaceae	1	1

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