

RESEARCH ARTICLE

DOCUMENTATION OF ARBOREAL FLORA OF NIRMALA COLLEGE CAMPUS, COIMBATORE

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ABSTRACT

The present study was carried to document the Arboreal Flora of Nirmala College Campus, Coimbatore. In the present documentation different tree species were identified ranging from small to large tree type in the college campus. Totally there are 37 different types of tree species belonging to 39 genera with 22 families of which 38 species are angiosperms, where only one species is represented as Gymnosperm. This documentation study will help in the identification of species with its traditional economic use, monitoring the tree species to evaluate the qualitative changes in the species and to know the phenology of various plants located in the campus for their proper utilization and conservation.

Keywords: Conservation, Economic Use, Floristic analysis, Documentation

1. INTRODUCTION

Trees in particular are an essential component of every community. Since the dawn of time, trees have given us two necessities of life: food and oxygen. In addition to this, they offered other essentials like healthcare, medicine, architecture, sound barriers, engineering services and tools. By enhancing the climate, conserving water, protecting soil, and fostering animals, trees benefit their surroundings and maintaining low amounts of carbon dioxide, they also lower air temperatures and lessen the greenhouse effect's intensity of heat. Tree species can be utilized for a variety of purposes, including paper pulp, shade, furniture production, nitrogen fixation, interior decoration, fuel production, the manufacture of agricultural equipment, ornamentation, and livestock feed. The majority of medications derived from trees have been replaced by more powerful synthetic versions; nonetheless, some drug components still come from trees. Many plants have antibacterial properties and are used to treat a variety of diseases [1] highlighting the importance of using natural cures from plants. Interestingly, over the past ten years, research on extracts and physiologically active substances derived from plant species utilized in natural herbal therapy has been more intensive[7]. Deforestation in India has increased recently due to

excessive industrial exploitation, clearance of land for agriculture, and harvesting of firewood and medicinal plants [2]. For the protection of the environment and financial gain, trees are planted along road sides and on damaged terrain. For sustainable management and plant conservation, knowledge of each region's biodiversity is crucial. The first step in the conservation process is to create a species inventory. For the optimal use and protection of different plants, we must be fully informed about their physiology, habitat, frequency, distribution, and phenology.

The protection, preservation, management or restoration of plants and other natural resources, such as forests and water is known as conservation. The existence of numerous species and habitats that are under danger owing to human activity can be secured through biodiversity conservation. Securing priceless natural resources for future generations and preserving the functions of eco-systems are two further justifications for biodiversity conservation. Resources found in plants are the result of both natural evolution and human intervention [3]. The preservation of habitats, species and ecosystems where they naturally occur is a component of *in-situ* biodiversity conservation. *Ex-situ* conservation of genetic diversity, includes the preservation of native species and landraces, is the practice of conserving key elements of biodiversity outside of their natural

habitats. This practice is more prevalent in the Western Ghats, northern Himalayas, southern plateau, central India, and North Western Himalayas [4].

2. METHODOLOGY

2.1. Study Area

Nirmala College for Women in Coimbatore, Tamil Nadu, India is a 75 years old Catholic institution for Higher Education of women founded in the year 1948. The land area was occupied by the institution is 16 acres.

2.2. Arboreal Floristic Survey

The natural vegetation on campus was the focus of a periodic survey for identification and collection of plant species, followed by botanical name, common name, family, cyclicity and its uses. In order to find various plant species that are native to the area, field visits were made to every single corner of the college campus during the duration of the study. The local flora was used to assist the identification of the dried plant specimens after they had been collected. The collected plant specimens were identified with the help of the local floras, Flora of British India (Hooker,1875-2006); flora of the presidency of Madras (Gamble and Fischer,1915-1936); flora of Tamil Nadu (Nair and Henry, 1983; Henry *et al.* 1987; an excursion flora of Central Tamil Nadu, India (Mathew,1991); Flora of Tamil Nadu Carnatic, 1983.

2.3. Climate

Due to the presence of forests to the north and the cool winds coming through the Palghat gap on the Western Ghats; Coimbatore has a nice climate. The city has a tropical wet and dry climate according to the climatic classification, with the rainy season extending from October to December because of the northeast monsoon. The average maximum temperature is between 35.9°C (97°F) and 29°C (85°F), and the average minimum is between 24.5°C (76°F) and 19.8°C (68°F). The lowest temperature ever recorded was 11.7 °C, and the highest was 40.4 °C (105° F) (53.4°F)

Elevated areas of the city receive rain from June to August as a result of the south-West monsoon winds moving through the Palghat gap. The north east monsoon begins in October and lasts into early November after a warm and muggy September. The northeast and southwest monsoons each contribute 47% and 28% of the total annual precipitation, which is about 700 mm (Coimbatore

Corporation). This infrequent rainfall does not meet the city's year-round water needs, but water supply programs like Siruvani and Pillor help to meet those needs when it is not monsoon season.

3. RESULTS AND DISCUSSION

3.1. Presentation of Data

To gather nearly every species' whole flowering and fruiting materials at several locations throughout the college campus a number of field visits lasting between one and two days were made. The families were arranged during enumeration using the classification system developed by Bentham and Hooker (1862-1883). Each family's genera and species are listed in alphabetical order. Table 1 displays a comprehensive list of Plant data.

With the aid of the sources specified in the approach, numerous tree species were recognized in the current documentation. All plant species, from little trees to giant trees of various types, have their habits in the college campus. There are total of 39 different types of tree species that are divided among 22 families and 39 genera. According to the present study there are 39 species recorded from the study area, Dicotyledons are represented by 38 species with 37 genera belonging to 20 families of which polypetale are represented by 26 species belonging to 13 families and gamopetale are represented by 12 species belonging to 7 families and only one species of a single genera belonging to single family represented a monocotyledons. Most of the species from Fabaceae can nodulate and fix atmospheric nitrogen, although there are some important exceptions was reported in [8]. In the present documentation studies 16 families have single genus and single species, 3 families have genus, two species and one family, Fabaceae is represented by 11 genus and 11 species where; Bignoniaceae were represented by 4 genus and 4 species. Among Dictotyledons, Fabaceae was found to be dominant and largest family followed by Bignoniaceae; the second largest family with 4 genera and 4 species & the third largest families is Myrtaceae with 3 genera and 3 species and other families such as Annonaceae, Sapotaceae and Apocynaceae are represented by 2 genera and 2 species. Karunya University has altogether documented a total of 15611 ornamental plants belonging to 32 families (58 genera) and total 19175 trees belonging to 27 families (53 genera). The genus *Plumeria* (represented by 2 species) is recorded. In case of monocotyledons, Arecaceae was found to be only one genus and single species.

Among the 39 *Millingtonia hortensis*, *Delonix regia*, *Tamarindus indica*, *Cassia fistula*, *Millettia pinnata*, *Senna auriculata*, *Thespesia populnea*, *Azadirachta indica*, *Albizia indica*, *Albizia saman*, *Syzygium cumini*, *Manilkara zapota*, *Mimusops elengi* and *Tectona grandis* were commonly distributed trees in

the study area was documented by [5]. The threatened tree species of Nilgiris was studied and it was documented that Fabaceae and Lauraceae to be the dominant families as the results of survey was recorded by [6].

Table 1. Showing the Tree species at Nirmala College Campus, Coimbatore.

S. No	Botanical Name	Family	Tamil Name	Flowering & Fruiting	Distribution	Uses
1	<i>Annona squamosa</i> L.	Anonaceae	Seetha	April-August	Kerala, Coorg	Fruits:Edible Root:Dysentry
2	<i>Azadirachta indica</i> A.Juss	Meliaceae	Veppilai	February-August	India and China	Leaf Paste: To treat Small pox
3	<i>Albizia saman</i> F. Muell	Fabaceae	Thhongu munji maram	November-June	Native to South East Asia	Fruit Decoction: Sedative
4	<i>Butea monosperma</i> (Lam) Taun.	Fabaceae	Kaatu thii	January-May	Native to Tropical Africa	Ornamental
5	<i>Cycas Circinalis</i> L.	Cycadaceae	Madanakampu	Native to srilanka	December-February	Flour:made from seeds & is used in soup preparation
6	<i>Caesalpinia pulcherrima</i> L.	Fabaceae	Mayir-Konrai	November-March	Tropical America	Ornamental
7	<i>Cassia fistula</i> L.	Fabaceae	Kondrai	March-May	Native Indian Subcontinents	Fruit Pulp: Purgative
8	<i>Couroupita guianensis</i> Aubl.	Lecythidaceae	Nagalingam	Native to Rain forest	March-September	Sacred groove Tree
9	<i>Delonix regia</i> (Boj.ex Hook) Raj	Fabaceae	Panjadi	August-May	Native Zambia, Madagascar	Ornamental Tree
10	<i>Jacaranda mimosifolia</i> d.Don	Bignoniaceae	Neela Kandal	South America	February-june	Ornamental Tree
11	<i>Murraya konigii</i> Spr.	Rutaceae	Karuveppilai	March-May	India, Thailand	Leaves:Eaten for relieving vomiting & Dysentry
12	<i>Majidea zangubarica</i> J. Krik.	Sapindaceae	Karupu muthu	Throughout the year	Native to South Africa	Wood: for local use & for trade
13	<i>Magnifera indica</i> L.	Anacardiaceae	Maa	January-March	Indo-Malesia	Fruits edible
14	<i>Moringa olifera</i> Lam	Moringaceae	Murunga	Throughout the year	India, Malaysia	Leaves, Flowers, fruits edible
15	<i>Millettia pinnata</i> (L.) Panigrahi	Fabaceae	Pungai	March- April	Native to Bangladesh, India, Myanmar	Landscaping Purposes, windbreak, for shade due to large canopy
16	<i>Melaleuca citrina</i> (Curtis) Dum. Cours	Myrtaceae	Kayaputi	Endemic to Western Australia	November-December	Ornamental

17	<i>Mimusops elengi</i> L.	Sapotaceae	Magizham	Tamil Nadu,	December- August	Flowers: To cure ulcer
18	<i>Manilkara zapota</i> (L.) P.Royen	Sapotaceae	Sapota	Native to yucatan	November- May	Fruits
19	<i>Millingtonia hortensis</i> L.	Bignoniaceae	Maramalli	Native to South Asia	October- December	Wind breaker
20	<i>Nyctanthes arbor- tristis</i>	Oleaceae	Pavizhamalli	Sub- Himalayan Region	Throughout the year	Ornamental
21	<i>Plumeria rubra</i> L.	Aocynaceae	Nela Sampangi	Native to mexico	May- August	Ornamental
22	<i>Plumeria alba</i>	Apocynaceae	Nela sampangi	Native to Tropica America	June- November	Ornamnetal
23	<i>Peltophorum ptero carpum</i> (DC.) K. Heyne	Fabaceae	Copper rod	Throughout the year	Tropical South Eastern Asia	Ornamental tree
24	<i>Pithecellobium dulce</i> (Roxb.) Benth	Fabaceae	Kodukkapppuli	February- May	Native to mMexico	Fruits Edible
25	<i>Pimenta dioica</i> (L.) Merr	Myrtaceae	All spice	West indies,	July-November	Used as Flavouring Agent
26	<i>Psidium gujava</i> L.	Myrtaceae	Koyya	Native Tropical America	August- February	Fruits
27	<i>Punica granatum</i> L.	Myrtaceae	Madulam	Native of West Asia	July-March	Fruits
28	<i>Phyllanthus acidus</i> (L.) Skeels	Phyllanthaceae	Aranelli	South America	February-June	Fruits
29	<i>Senna auricalata</i> (L.) Roxb.	Fabaceae	Avarai	India, Myanmar	Throughout the year	Ornamental
30	<i>Sesbania grandiflora</i> (L.) Poiret	Fabaceae	Agati	Malaysia to North Australia	November-May	Ornamental
31	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Naval	Throughout india	March-August	Fruits
32	<i>Spathodea campanulata</i> P. Beav	Bignoniaceae	Patadi	Native to Kenya	August-May	Ornamental Tree
33	<i>Santalum album</i> L.	Santalaceae	Sandanam	Peninsular india	November- December	Timber
34	<i>Tamarindus indica</i> L.	Fabaceae	Puli	Native to Central African Republic	July-October	Fruit Pulp Edible
35	<i>Tectona grandis</i> L.	Verbenaceae	Thekku	Native to South East Asia	June- August	Timber
36	<i>Tabebuia rosea</i> DC.	Bignoniaceae	Indian mahonay	Central America	Throughout the year	Ornamental

Table 2. Showing the floristic analysis of study species.

Floristic analysis	Families	Genera	Species
Angiosperm	20	37	38
Dicotyledons	13	26	26
Polypetale	-	-	-
Gamopetale	7	11	12
Monocotyledon	1	1	1
Gymnosperm	1	1	1
Total	22	39	40

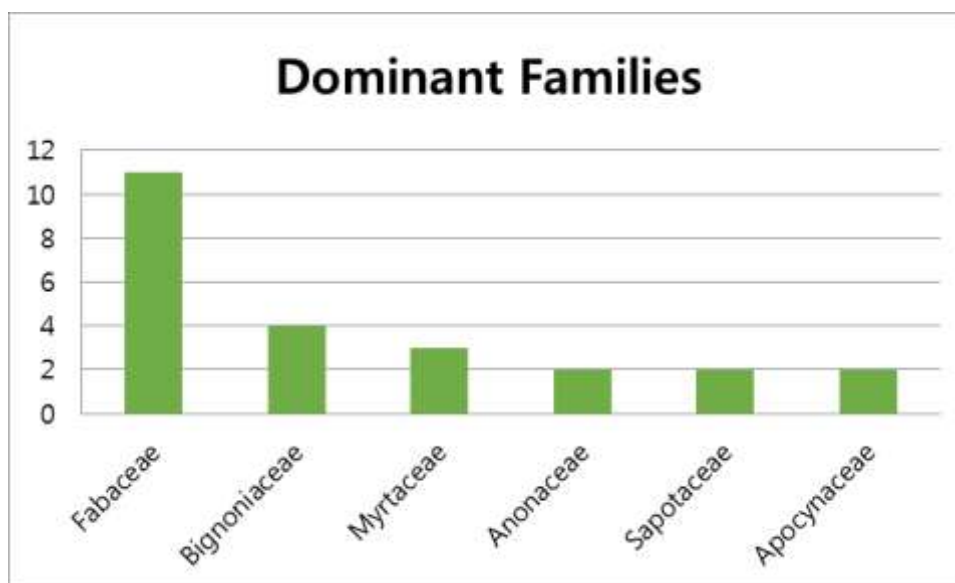


Fig. 1. Representation of Data Showing the Dominant Families.

4. CONCLUSION

The present study was undertaken to document the Arboreal Flora of Nirmala College for women, Campus, Coimbatore. A total of 40 tree species were collected and identified during the field investigation, which belong to 39 genera belong to 22 families of the present study of which 39 species were Angiosperms one species represented by Gymnosperms. The different plants from the study

area are used for preparation medicine, in many timber industry and also used as wind breakers.

Conflict of interest

The author declares no conflict of interest.

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