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Floristic Diversity at Shri Krishna University, Chhatarpur, Madhya Pradesh

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ABSTRACT

Recently, there has been a lot of interest in floral studies. Numerous angiosperms are among the great biodiversity found in Chhatarpur. However, a lot of plants have been cut down and foreign species have been introduced in recent years as a result of urbanization. The goal of the current study was to gather and identify the flora that grows on the university campus through floristic expeditions. On the college campus, 69 species from 69 genera and 41 families were seen and recognized during these visits. There were a maximum of eleven species in the leading family Fabaceae, followed by four species in Euphorbiaceae, two species each in Asteraceae and Malvaceae, while the remaining families were monospecific on campus. Each plant's scientific name, family, medicinal significance, and behavior have been described.

KEYWORDS

Diversity, field survey, Shri Krishna University, Chhatarpur.

INTRODUCTION

An essential component of the natural equilibrium that interprets the impacts of the entire environment is floral riches. Billings (1952). Seasonal variations in floral composition occur repeatedly over the years in a successional manner, and the variations imply that each species population responds to the heat, moisture, and light that are now present as altered by the vegetation itself. Heady(1958). The pattern of species distribution in a community is altered when plant species diminish (Watt, 1964). Research on vegetation stress focuses on the composition, growth, geographic distribution and environmental interactions of plant communities (Legendre& Fortin, 1989; Kolasa & Rollo, 1991). Numerous researchers have examined the floristic diversity of this district (Khan, 1980; Khan, 1979; Muzafer, 2019). In this study, we aim to analyze the herbaceous flora of this campus with the intention of conservation and management.

STUDY AREA

Chhatarpur district is situated between latitudes 24.06°and 25.20° N and longitudes 78.59° and 80.26°E. The District encompasses an area of 8,687square kilometer. Chhatarpur district is bordered to the north by Uttar Pradesh, while it is surrounded by the Madhya Pradesh districts of

Panna to the East, Damoh to the south, Sagar to the southwest and Tikamgarh to the west. This district is part of the Sagar Division.

In Chhatarpur, the rainy season is stifling and predominantly overcast, while the dry season is generally clear, making it hot throughout the year. Chhatarpur experiences a temperate climate, with scorching summers and chilly winters. During the period from March to June, temperatures can reach as high as 45°C. Conversely, in winter, the temperature can drop to below 8°C. Compared to other regions of the state, there is relatively less variation in temperature.

The Chhatarpur district spans an area of 8,687 square kilometer, with 7,904 square kilometer being suitable for ground water recharge, while the remaining area consists of hilly and forested regions. Prominent rivers in the area include the Dhasan and Ken rivers. The predominant geological formation in the district is Bundelkhand Granite, with Bijawar, Vindhayan sandstones, and Deccan traps found in the southern part.

In the current research, an investigation was conducted to examine the floral diversity at Shri Krishna University, which was founded in 2018. The institution offers a variety of undergraduate and postgraduate programs aimed at equipping students with the necessary skills across multiple disciplines. The campus is home to a diverse range of species, including trees, herbs, shrubs, and various other plant types.

In this study, efforts were undertaken to explore the diverse plant life present at Shri Krishna University. Established in 2018,the University provides a wide array of undergraduate and postgraduate programs designed to equip students with competencies across multiple fields. The campus hosts a multitude of species, including trees, herbs, shrubs and various other forms of vegetation.

To preserve the biodiversity and greenery of this university campus, awareness programs are conducted annually, and students are actively encouraged to participate in planting activities aimed at sustaining a clean and pollution-free environment. Ongoing human activities, such as the removal of native plants and the introduction of various exotic species, including ornamental plants, have prompted the need for floristic and ecological studies. These studies are essential for understanding and quantifying the vegetation in the area, thereby facilitating effective conservation efforts.

Materials and Methods

Field trips to the University were conducted during the 2023-2024 period. The University was visited regularly throughout the summer, winter, and rainy seasons. All species of herbs were collected during their flowering season. The identification of all naturally occurring herbaceous flora within the University was carried out with the assistance of pertinent literature (Ommachan, 1977). Each identified species was thoroughly pressed using a plant press, followed by drying and mounting on herbarium sheets to protect the specimens from potential damage caused by various microorganisms, including fungi and insects.

All dried specimens underwent a preservation process involving immersion of the entire plant in a solution of mercuric chloride dissolved in ethyl alcohol (comprising 115 grams of mercuric chloride in 4.5 liters of ethyl alcohol, referred to as Kew Mixture). Once the specimens were thoroughly fixed, they were dried and adhered to mounting sheets measuring 28 cm by 42 cm (±1 cm) using Fevicol glue. The air-dried specimens were subsequently stored as part of the repository.

Results and Discussions

The objective of the study was to investigate the plant life within Shri Krishna University, located in the Chhatarpur district of Madhya Pradesh. To identify and gather the various floristic components present on the campus, multiple field visits were conducted throughout the years 2023-2024. These visits coincided with the flowering and fruiting periods. A total of 69 plant species, classified into 69 genera and belonging to 41 families, were collected and identified during these excursions. The most prevalent families observed on the campus, which exhibited the highest number of species, included Fabaceae (11 species), Asteraceae (2 species), Malvaceae (2 species), and Euphorbiaceae (4 species). The remaining families were represented by a single species each, which included Amaranthaceae, Thymelaeaceae, Paulowniaceae, Nyctaginaceae, Myrtaceae, Caricaceae, Caesalpiniaceae, Pieridae, Solanaceae, Costaceae, Cycadaceae, Cyperaceae, Poaceae, Verbenaceae, Rutaceae, Moraceae, Lamiaceae, Pandanaceae, Paulowniaceae, Phyllanthaceae, Rosaceae, Arecaceae, Polygonaceae, Santalaceae, Compositae, Cupressaceae, and Rhamnaceae.

Shri Krishna University boasts a rich biodiversity, with its campus serving as a habitat for numerous trees, herbs, and various species of shrubs that thrive naturally. However, in recent times, the ongoing construction and development activities have led to the removal of many tree species. This has significantly harmed the floristic diversity within the campus. Furthermore, numerous herbaceous plants have also diminished in number due to these human-induced activities.

Numerous species of exotic ornamental plants have been introduced to the campus for decorative and aesthetic purposes. However, this has led to disruptions in the natural floristic diversity present on the campus. Consequently, it is imperative to implement measures aimed at ecological restoration and the conservation of the various species residing in the area. Each plant has been documented with its scientific name, family classification, medicinal significance, and growth habit.

The biodiversity of this campus faces several threats, notably the indiscriminate removal of native trees and the introduction of non-native species. This study aims to assist in the identification of the flora present on the campus, facilitating the development of conservation policies and promoting the sustainable utilization of plant resources within the country.

Sr.No.	Name of Species	Family	Remark	Habit
1.	*Adesmia jilesiana*	Fabaceae	MV	Tree
2.	*Amaranthus tuberculatus*	Amaranthaceae	MV	Herb
3.	*Aquilaria malaccensis*	Thymelaeaceae	MV	Tree
4.	*Asclepias fascicularis*	Paulowniaceae	MV	Herb
5.	*Bauhinia variegata*	Fabaceae	MV	Shrub
6.	*Boerhavia diffusa*	Nyctaginaceae	MV	Herb
7.	*Bombax ceiba*	Malvaceae	MV	Shrub
8.	*Callistemon viminalis*	Myrtaceae	MV	Shrub
9.	*Carica papaya*	Caricaceae	MV	Tree
10.	*Cassia angustifolia*	Caesalpiniaceae	MV	Herb
11.	*Catopsilia florella*	Pieridae	MV	Herb
12.	*Cestrum nocturnum*	Solanaceae	MV	Tree
13.	*Costus pictus*	Costaceae	MV	Herb
14.	*Cycas revoluta*	Cycadaceae	MV	Shrub
15.	*Cyperus rotundus*	Cyperaceae	MV	Herb
16.	*Desmostachy bipinnata*	Poaceae	MV	Herb
17.	*Duranta erecta*	Verbenaceae	MV	Shrub
18.	*Emblica officinalis*	Euphorbiaceae	MV	Tree
19.	*Eucalyptus globules*	Myrtaceae	MV	Tree
20.	*Euphorbia tirucalli*	Euphorbiaceae	MV	Tree
21.	*Feronialimonia*	Rutaceae	MV	Tree

22.	*Ficus benghalensis*	Moraceae	MV	Tree
23.	*Ficus benjamina*	Moraceae	MV	Tree
24.	*Gmelina arborea*	Lamiaceae	MV	Tree
25.	*Graptophyllum pictum*	Acanthaceae	MV	Shrub
26.	*Helianthus annus*	Asteraceae	MV	Shrub
27.	*Hemidesmus indicus*	Apocynaceae	MV	Shrub
28.	*Hieracium sabaudum*	Asteraceae	MV	Herb
29.	*Hibiscus rosa- sinensis*	Malvaceae	MV	Shrub
30.	*Holoptelea integrifolia*	Ulmaceae	MV	Tree
31.	*Hordeum vulgare*	Poaceae	MV	Herb
32.	*Ipomoea purpurea*	Convolvulaceae	MV	Herb
33.	*Jatropha curcas*	Euphorbiaceae	MV	Shrub
34.	*Listea monopetala*	Lauraceae	MV	Tree
35.	*Madhuca longifolia*	Sapotaceae	MV	Tree
36.	*Mangifera indica*	Anacardiaceae	MV	Tree
37.	*Manihot esculenta*	Euphorbiaceae	MV	Shrub
38.	*Manilkara hexandra*	Sapotaceae	MV	Tree
39.	*Murraya koenigii*	Rutaceae	MV	Tree
40.	*Neolamarckia cadamba*	Rubiaceae	MV	Tree
41.	*Nicotiana tobaccum*	Solanaceae	MV	Tree
42.	*Nyctanthes arbor-tristis*	Oleaceae	MV	Shrub or small tree
43.	*Ocimum tenuiflorum*	Lamiaceae	MV	Shrub
44.	*Pandanus amaryllifolius*	Pandanaceae	MV	Shrub
45.	*Paulownia tomentosa*	Paulowniaceae	MV	Tree
46.	*Peuraria montana*	Fabaceae	MV	Tree
47.	*Phyllanthus niruri*	Phyllanthaceae	MV	Herb
48.	*Pongamia pinnata*	Fabaceae	MV	Tree
49.	*Prosopis cineraria*	Fabaceae	MV	Tree
50.	*Prosopis juliflora*	Fabaceae	MV	Shrub or small tree
51.	*Prunus mahaleb*	Rosaceae	MV	Tree
52.	*Psidium guava*	Myrtaceae	MV	Tree
53.	*Pterocarpus santalinus*	Fabaceae	MV	Tree
54.	*Rosarubiginosa*	Rosaceae	MV	Shrub
55.	*Rottboellia cochinchinensis*	Poaceae	MV	Herb
56.	*Roystonea regia*	Arecaceae	MV	Palm tree

57.	*Rumex obtusifolius*	Polygonaceae	MV	Herb
58.	*Santalum album*	Santalaceae	MV	Tree
59.	*Saraca indica*	Fabaceae	MV	Shrub or tree
60.	*Senna alexandrina*	Fabaceae	MV	Shrub
61.	*Syzgium cumini*	Myrtaceae	MV	Tree
62.	*Tagetes erecta*	Compositae	MV	Shrub
63.	*Tamarindus indicus*	Fabaceae	MV	Tree
64.	*Tectona grandis*	Lamiaceae	MV	Tree
65.	*Thuja orientalis*	Cupressaceae	MV	Shrub
66.	*Vetiveria zizanoides*	Poaceae	MV	Herb
67.	*Vigna mungo*	Fabaceae	MV	Herb
68.	*Xanthium strumarium*	Asteraceae	MV	Herb
69.	*Ziziphus nummularia*	Rhamnaceae	MV	Shrub

Table.1. Checklist of plants found in the Shri Krishna University, Chhatarpur M.P.

MV=Medicinal value

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