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A Study of diversity of woody plant species of Bundelkhand University, campus, Jhansi

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Abstract
The objective of the present study was to investigate the diversity of woody plant species in Bundelkhand University, Campus, Jhansi. In this study, 73 species of woody plants have been listed representing 64 genera and 32 families. Almost 24.66% of all woody species belong to the family Fabaceae (18sp.), Apocynaceae (7sp.), Rutaceae (5sp.), Moraceae (4sp.), Arecaceae, Combretaceae and Malvaceae with 3 species each, Annonaceae, Bignoneaceae, Lamiaceae, Myrtaceae and Nyctaginaceae with 2 species each, etc,. The largest genera are *Ficus* (03 sp.), *Prosopis* (03 sp.), and *Calotropis*, etc, The scientific and vernacular names, habits, and origin status of each species have been presented. Site No. 1 exhibited the maximum (59 sp.) number of woody species and the minimum (36sp.) number of woody species exhibited in Site No. 3. Site No. 2 was represented with (57sp.).

Keywords: Woody plants, vegetation analysis, dicots, monocots, gymnosperms, sites, Bundelkhand University

Introduction

Trees are essential components of forest ecosystems and play a vital role in maintaining ecological balance. They protect the environment, absorb pollutants, and provide a wide range of products beneficial to human life, including timber, fuel, fodder, food, medicines, charcoal, gum, resins, and rubber. However, the biological resources of our planet are increasingly under threat due to both natural and anthropogenic activities.

India, recognized as one of the world’s 12 "mega-diversity" regions, harbors approximately 45,000 plant species. Among these, around 15,000 are flowering plants, 1,676 species are algae, 1,940 are lichens, 12,480 are fungi, 64 are gymnosperms, 843 are bryophytes, and 1,012 are pteridophytes. Floristically, India can be divided into distinct regions such as the Deccan, Malabar, the Deccan plain, the Indus plain, the Gangetic plain, the Western Himalayas, and the Eastern Himalayas.

Plants provide immediate services such as food, medicine, fodder for domestic animals, and wood for construction and energy. At the same time, they perform vital regulating functions, including maintaining air quality, controlling floods, and preventing soil erosion.

The structural diversity of woody plant species is a major focus of Indian forest management. Research suggests that the diversity patterns of woody plant species can serve as indicators for predicting the overall diversity of plant species within forest ecosystems.

Uttar Pradesh, one of the largest states in northern India, covers a geographical area of 29.44 million hectares, accounting for nearly 9% of the country’s total land area. The state’s native flora is under pressure from both natural and biotic disturbances. Natural disturbances include inter-species competition, while biotic factors comprise fire, deforestation, overgrazing, nibbling, and lopping for fuel and fodder. Since plants respond similarly to both natural and human-induced disturbances, both are considered in vegetation assessments.

Materials and Methods

The Bundelkhand region is situated in southwestern part of Uttar Pradesh. It is lied between 23°49' to 29° 18' N Latitude and 78° 11' to 81° 31' E longitude having an area of 29416 sq. km. Bundelkhand is a geographical, cultural region and a mountain range in central and north India. The entire Bundelkhand comprises seven districts of Uttar Pradesh viz., Chitrakoot, Banda, Jalaun, Hamirpur, Lalitpur, Jhansi, and Mahoba and seven districts of Madhya

Pradesh viz., Datia, Tikamgarh, Niwari, Chhatarpur, Panna, Damoh, Sagar, and two sub-divisions i.e., Lahar and Bhander of Bhind and Gwalior district respectively. It is situated in a transitional zone between Upper Gangetic Plain and Central India and has an interesting floral diversity.

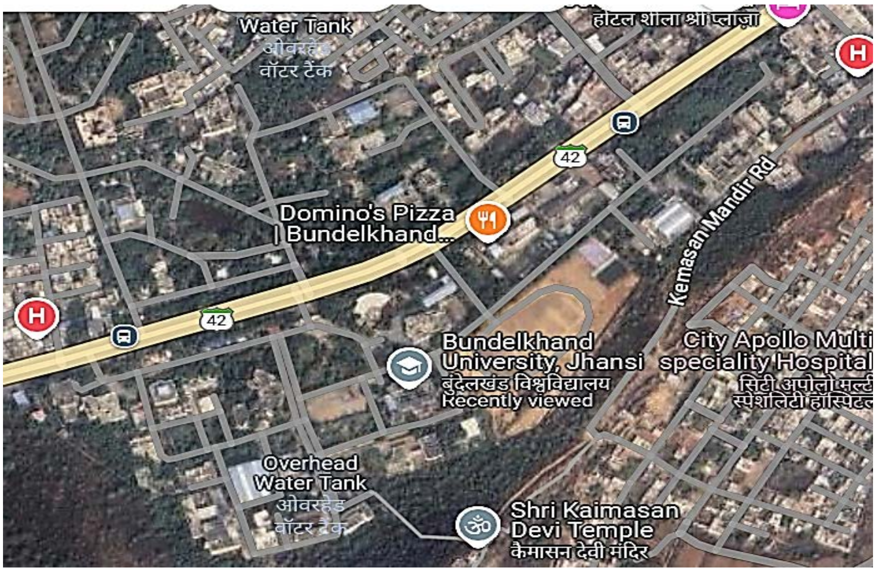
Jhansi district in Bundelkhand region lies between 25° 27' North latitude and 78° 35' East latitude and about 275 m, above sea level. Jhansi is located in the plateau of central India, an area dominated by rocky reliefs and minerals underneath the soil. The climate of Jhansi district is of typical Central Indian climate, with mild winters and hot summers. The temperature during summer goes up to 47 - 48°C. Average rainfall is 700 - 1000 mm. Bundelkhand University is a premier public university located in Jhansi, Uttar Pradesh, India. Established in 1975. It lies between 25° North latitude and 78.5° East longitude and about 285m, above sea level. Campus area is spread over 186 acres of land, surrounded by semi-arid terrain and green spaces. The university is located on the outskirts of Jhansi city, along the Jhansi-Kanpur Road (NH-27), making it easily accessible by road and rail.

Methodology consists of frequent visit of sites was done in all seasons of an year and inventory was prepared after identification of plants at their flowering stage with help of following references -:

- Forest Flora for Pilibhit, Oudh, Gorakhpur and
- Bundelkhand by Kanjilal (1982) [5]
- Flora of British India by Hooker (1875) [3]
- Silviculture of Indian trees by Troup (1921) [13]
- Indian medicinal plants by Kirtikar and Basu (1999) [6]

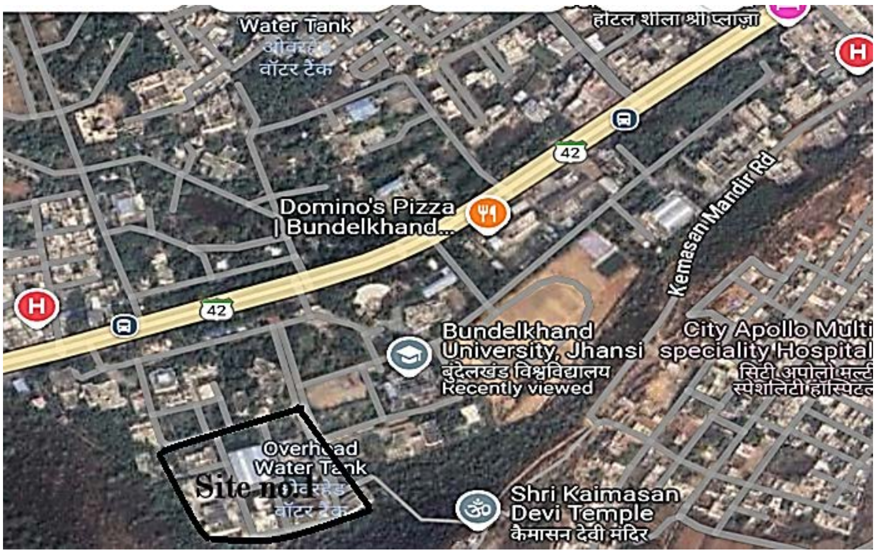
Study Sites

In the present study, the approach is vegetation analysis of woody plant species. After a preliminary assessment of the whole region, three sites stand were selected for quantitative analysis and other studies; details of these three sites are presented below.



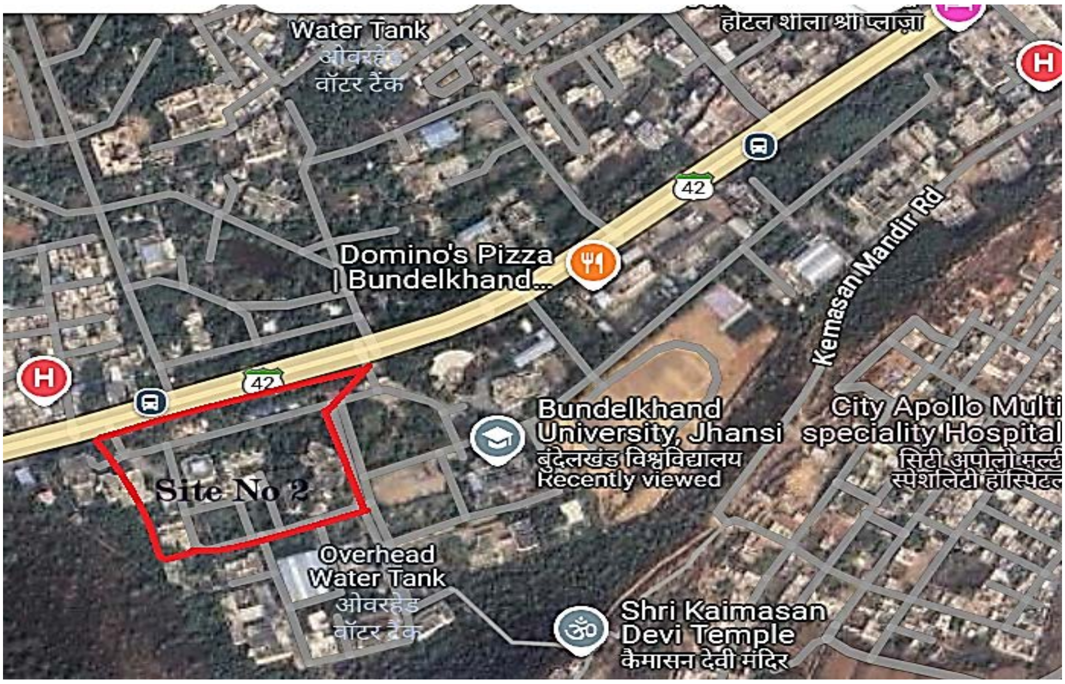
Following 3 Sites are

Site 1: This site has Bundelkhand University Central Library, Nakshatra Vatika, Ram Vatika, Downstairs of Kaimasan Devi temple, Dr. A.P.J. Abdul Kalam Institute of Forensic Science, Vigyan Bhavan, a park Infront of Vigyan Bhavan, Institute of Farmacy, Institute of Earth Science, Institute of Engineering and Technology, Institute of Architecture and Town Planning, Institute of Food Technology.



Geographical study of site no. 1

Site 2: This site has Institute of Microbiology, a park Infront of Microbiology Department, Institute of Economics and Finance, Dr. S.R. Rangnathan Institute of Library and Information Science to Canteen area, till Parking area in it.



Geographical study of site no.2

Site 3: This Site has Main Gate (Gate No.1) of BU Campus, a park Infront of Main Gate, a park along side of Main Gate, Gandhi Auditorium, Administrative Block, till Lord Buddha Boys Hostel in it.

Results

All the plants whether their economic value is known or not, are important in ecosystem. They may be dominant or rare but their exits a definite relation between different species occurring in a community. Each species has not only its own ecological value but also has a particular relation to environment and to the associated species. These interactions among the species with their environment result in different vegetation types in different areas.

4.1: An Assessment on Diversity of Woody Species -:

The present research was mainly concentrated on Woody species of Bundelkhand University Campus, Jhansi. A brief account on floristic diversity of woody species is presented below.

Among the woody vegetation, a total of 73 species belonging to 64 genera and 32 families have been recorded in different study sites (Table 3.1 and 3.2). Out of 32 families, 25 families were belonging to dicotyledons, 4 families were belonging to monocotyledons, and 3 to gymnosperms. Overall floristics analysis showed that out of 73 woody species, 64 species belonged to dicots, 3 to gymnosperms and 6 to monocots. (Table 3.3)

Depending upon the number of inclusion of species, Fabaceae (16 genera, 18 species) was the dominant family followed by Apocynaceae (6 genera, 7 species), Rutaceae (3genera, 5 species), Malvaceae and Arecaceae are present with 3 genera and 3 species each, Combretaceae (2 genera, 3 species), Moraceae (2 genera, 4 species), Annonaceae, Bignoneaceae, Lamiaceae and Myrtaceae are present with 2 genera and 2 species, Nyctaginaceae (1 genera, 2 species), Anacardiaceae, Araceae, Boraginaceae, Casuarinaceae, Cupressaceae, Cycadaceae, Magnoliaceae, Meliaceae, Moringaceae, Musaceae, Oleaceae, Phyllanthaceae, Pinaceae, Poaceae, Putranjivaceae, Rhamnaceae, Rubiaceae, Sapotaceae, Ulmaceae, Verbenaceae are present with 1 genera and 1 species each.

Table 3.1: An enumeration of woody species recorded in different study sites of Bundelkhand University Campus, Jhansi

S.N0.	Botanical Name	Habit	Common Name	Family
1	*Acacia leucophloea* (Roxb.) Wild.	Tree	Safed Babul	Fabaceae
2	*Aegle marmelos* (L.) Corr.	Tree	Bel	Rutaceae
3	*Albizia lebbeck* (L.)Benth.	Tree	Kali Siris	Fabaceae
4	*Alstonia scholaris* (L.) R. Br.	Tree	Saptaparni	Apocynaceae
5	*Amorphophallus paeoniifolius* (Dennst.) Nicolson.	Tree	Suran	Araceae
6	*Annona squamosa* L.	Shrub	Seetafal	Annonaceae
7	*Anogeissus pendula* Edgew.	Tree	Kardhai	Combretaceae
8	*Azadirachta indica* A. Juss.	Tree	Neem	Meliaceae
9	*Bambusa vulgaris* Schard. Ex J.C.Wendl.	Tree	Bambboo	Poaceae
10	*Baugainvillea alba*	Shrub	White Paper Flower	Nyctaginaceae
11	*Baugainvillea glabra Choisy*	Shrub	Paper flower	Nyctaginaceae

12	*Bauhinia variegata* L.	Tree	Jallaur	Fabaceae
13	*Bombax ceiba* L.	Tree	Saimal	Malvaceae
14	*Butea monosperma* (Lam.)Taubert.	Tree	Plaas	Fabaceae
15	*Calliandra harrisii* (Lindl.) Benth.	Shrub	Powder Puff	Fabaceae
16	*Calotropis gigantea* (L.) Dryand.	Shrub	Akaua(Purple)	Apocynaceae
17	*Calotropis procera* (Aiton) W.T. Aiton	Shrub	Akaua	Apocynaceae
18	*Cassia fistula* L.	Tree	Kiloe	Fabaceae
19	*Casuarina equisetifolia* Linn.	Tree	Jungali Saru	Casuarinaceae
20	*Catharanthus roseus* (L.) G. Don	Shrub	Bara Masi	Apocynaceae
21	*Citrus aurantium* L.	Shrub	Bitter Orange	Rutaceae
22	*Citrus limon* (L.) Burm.f.	Shrub	Nibua	Rutaceae
23	*Clereodendrum spp.* L.	Shrub	Arnee	Lamiaceae
24	*Cycas revoluta*	Tree	Cycas	Cycadaceae
25	*Dalbergia sissoo* DC.	Tree	Seesam	Fabaceae
26	*Delonix regia* (Bojer ex Hook.) Raf.	Tree	Gulmohar	Fabaceae
27	*Ehretia laevis* Roxb.	Tree	Chamror	Boraginaceae
28	*Fernando adenophylla* (Wall. ex G.Don) Steenis	Tree	Dhopa-phali	Bignoniaceae
29	*Ficus benghalensis* L.	Tree	Banyan	Moraceae
30	*Ficus religiosa* L.	Tree	Peepal	Moraceae
31	*Ficus virens* Aiton var.	Tree	White Fig	Moraceae
32	*Hibiscus rosa sinensis* L.	Shrub	Gudhal	Malvaceae
33	*Holoptelea integrifolia* (Roxb.) Planch.	Tree	Chirol	Ulmaceae
34	*Jasminum sambac* (L.) Aiton	Shrub	Chameli	Oleaceae
35	*Lantana camara* L.	Shrub	Katmani	Verbenaceae
36	*Leucaena leucocephala* (Lam.) de Wit.	Tree	Subabul	Fabaceae
37	*Licuala grandis* (T.Moore) H.Wendl.	Tree	Taad	Arecaceae
38	*Madhuca indica* J.F. Gmel.	Tree	Mahua	Sapotaceae
39	*Mangifera indica* L.	Tree	Mango	Anacardiaceae
40	*Michelia champaca* Linn.	Tree	Chempaka	Magnoliaceae
41	*Millettia pinnata* (L.) Panigrahi	Tree	Kranj	Fabaceae
42	*Morinda lucida* Benth.	Tree	Umar	Rubiaceae
43	*Moringa oleifera* Lam.	Tree	Sahjan	Moringaceae
44	*Morus alba* L.	Tree	Sahtut	Moraceae
45	*Murraya koenigii* (L.) Spreng	Shrub	Kadi Patta	Rutaceae
46	*Murraya paniculata* (L.) Jack	Shrub	Kamini	Rutaceae
47	*Musa paradisiaca L.*	Shrub	Banana	Musaceae
48	*Nerium oleander* L.	Shrub	Red Kaner	Apocynaceae
49	*Palma africana*	Tree	Palm	Arecaceae
50	*Peltophorum pterocarpum* (DC.) Baker ex K. Heyne	Tree	Yellow Gulmohar	Fabaceae
51	*Phoenix sylvestris* L. Roxb.	Tree	Date Palm	Arecaceae
52	*Phyllanthus emblica* L.	Tree	Amla	Phyllanthaceae
53	*Pinus roxburghii* Sarg.	Tree	Pinus	Pinaceae
54	*Pithecellobium dulce* (Roxb.) Benth.	Tree	Jungle Jalebi	Fabaceae
55	*Plumeria alba* L.	Tree	White Frangipani	Apocynaceae
56	*Polyanthia longifolia* (Sonn.) Benth. & Hook.f.ex Thwaites	Tree	False Ashok	Annonaceae
57	*Prosopis cineraria* (L.) Druce	Tree	Khejdi	Fabaceae
58	*Prosopis juliflora* (Sw.) DC.	Tree	Kikar	Fabaceae
59	*Prosopis laevigata* (Humb. & Bonpl. ex Willd.)	Tree	Smooth Mesquite	Fabaceae
60	*Psidium guajava* L.	Tree	Amrood	Myrtaceae
61	*Putranjiva roxburghii* Wall.	Tree	Kuduru	Putranjivaceae
62	*Saraca ashoka* (Roxb.) De Wilde.	Tree	Ashok Tree	Fabaceae
63	*Sesbania sesban* (L.) Merr.	Tree	Katurai	Fabaceae
64	*Sterculia oblongata* R.Br.	Shrub	Kalumpang	Malvaceae
65	*Syzigium cumini* L.	Tree	Jamun	Myrtaceae
66	*Tamarindus indica* L.	Tree	Imli(Tamarind)	Fabaceae
67	*Tecoma stans* (L.) Juss. ex Kunth	Tree	Pilia(ginger Thomas)	Bignoneaceae
68	*Tectona grandis* L. f.	Tree	Sagaun	Lamiaceae
69	*Terminalia arjuna* (Roxb.) ex DC.	Tree	Arjun Tree	Combretaceae
70	*Terminalia bellirica* (Gaertn.) Roxb.	Tree	Bahera	Combretaceae
71	*Thuja occidentalis* L.	Shrub	Thuja	Cupressaceae
72	*Wrightia tinctoria* (Roxb.) R. Br.	Tree	Safed Dudhi	Apocynaceae
73	*Ziziphus jujube* Mill.	Shrub	Ber	Rhamnaceae

Table 3.2: Details of families with the number of genera and species recorded at different study sites of Bundelkhand University Campus, Jhansi.

S. No.	Families	No. of genera	No. of species
1	Anacardiaceae	1	1
2	Annonaceae	2	2
3	Apocynaceae	6	7
4	Araceae	1	1
5	Arecaceae	3	3
6	Bignoneaceae	2	2
7	Boraginaceae	1	1
8	Casuarinaceae	1	1
9	Combretaceae	2	3
10	Cupressaceae	1	1
11	Cycadaceae	1	1
12	Fabaceae	16	18
13	Lamiaceae	2	2
14	Magnoliaceae	1	1
15	Malvaceae	3	3
16	Meliaceae	1	1
17	Moraceae	2	4
18	Moringaceae	1	1
19	Musaceae	1	1
20	Myrtaceae	2	2
21	Nyctaginaceae	1	2
22	Oleaceae	1	1
23	Phyllanthaceae	1	1
24	Pinaceae	1	1
25	Poaceae	1	1
26	Putranjivaceae	1	1
27	Rhamnaceae	1	1
28	Rubiaceae	1	1
29	Rutaceae	3	5
30	Sapotaceae	1	1
31	Ulmaceae	1	1
32	Verbenaceae	1	1
	Total	64	73

Table 3.3: A brief floristic account on woody vegetation of different study sites.

Category	Dicots	Monocots	Gymnosperms	Total
Family	25	04	03	32
Genera	55	06	03	64
Species	64	06	03	73

Aegle marmelos, *Alstonia scholaris*, *Azadirachta indica*, *Bombax ceiba*, *Bougainvillea glabra*, *Catharanthus roseus*, *Cassia fistula*, *Dalbergia sissoo*, *Delonix regia*, *Ficus benghalensis*, *F. religiosa*, *F. virens*, *Holoptelea integrifolia*, *Lantana camara*, *Leucaena leucocephala*, *Mangifera indica*, *Michellia champaca*, *Millettia pinnata*, *Nerium oleander*, *Plumeria alba*, *Polyalthia longifolia*, *Psidium guajava*, *Saraca asoca*, *Syzigium cumini*, *Tamarindus indica*, *Tectona grandis*, *Thuja occidentalis*, *Ziziphus jujube* were present in each site (Table 3.4). *Ficus* is the dominant genus with 03 species i.e., *Ficus benghalensis*, *F. religiosa* and *F. virens* followed by *Prosopis* with 03 species and other *Calotropis*, *Terminalia*, *Bougainvillea*, *Citrus* and *Murraya* with 02 species each. Site No. 1 exhibited the maximum (59 species) number of woody species, while the minimum (36 species) number of woody species exhibited in Site No. 3. While Site No. 2 was represented with 57 species (Table 3.4).

Table 3.4: The occurrence of woody species in selected sites of B.U. Campus Jhansi.

S.N0.	Botanical Name	Habit	Common Name	Family	site-1	Site-2	Site-3
1	*Acacia leucophloea* (Roxb.) Wild.	Tree	Safed Babul	Fabaceae	+	-	+
2	*Aegle marmelos* (L.) Corr.	Tree	Bel	Rutaceae	+	+	+
3	*Albizia lebbeck* (L.)Benth.	Tree	Kali Siris	Fabaceae	+	+	-
4	*Alstonia scholaris* (L.) R. Br.	Tree	Saptaparni	Apocynaceae	+	+	+
5	*Amorphophallus paeoniifolius* (Dennst.) Nicolson.	Tree	Suran	Araceae	+	-	-
6	*Annona squamosa* L.	Shrub	Seetafal	Annonaceae	+	-	-
7	*Anogeissus pendula* Edgew.	Tree	Kardhai	Combretaceae	+	-	-
8	*Azadirachta indica* A. Juss.	Tree	Neem	Meliaceae	+	+	+
9	*Bambusa vulgaris* Schard. Ex J.C.Wendl.	Tree	Bambboo	Poaceae	+	+	-
10	*Baugainvillea alba*	Shrub	White Paper Flower	Nyctaginaceae	-	+	-
11	*Baugainvillea glabra Choisy*	Shrub	Paper flower	Nyctaginaceae	+	+	+
12	*Bauhinia variegata* L.	Tree	Jallaur	Fabaceae	+	+	-
13	*Bombax ceiba* L.	Tree	Saimal	Malvaceae	+	+	+

14	*Butea monosperma* (Lam.)Taubert.	Tree	Plaas	Fabaceae	+	-	+
15	*Calliandra harrisii* (Lindl.) Benth.	Shrub	Powder Puff	Fabaceae	+	-	-
16	*Calotropis gigantea* (L.) Dryand.	Shrub	Akaua(Purple)	Apocynaceae	+	-	-
17	*Calotropis procera* (Aiton) W.T. Aiton	Shrub	Akaua	Apocynaceae	+	-	-
18	*Cassia fistula* L.	Tree	Kiloe	Fabaceae	+	+	+
19	*Casuarina equisetifolia* Linn.	Tree	Jungali Saru	Casuarinaceae	-	+	-
20	*Catharanthus roseus* (L.) G. Don	Shrub	Bara Masi	Apocynaceae	+	+	+
21	*Citrus aurantium* L.	Shrub	Bitter Orange	Rutaceae	-	+	-
22	*Citrus limon* (L.) Burm.f.	Shrub	Nibua	Rutaceae	+	+	-
23	*Clereodendrum spp.* L.	Shrub	Arnee	Lamiaceae	-	+	-
24	*Cycas revoluta*	Tree	Cycas	Cycadaceae	-	+	-
25	*Dalbergia sissoo* DC.	Tree	Seesam	Fabaceae	+	+	+
26	*Delonix regia* (Bojer ex Hook.) Raf.	Tree	Gulmohar	Fabaceae	+	+	+
27	*Ehretia laevis* Roxb.	Tree	Chamror	Boraginaceae	+	+	-
28	*Fernando adenophylla* (Wall. ex G.Don) Steenis	Tree	Dhopa-phali	Bignoniaceae	-	+	-
29	*Ficus benghalensis* L.	Tree	Banyan	Moraceae	+	+	+
30	*Ficus religiosa* L.	Tree	Peepal	Moraceae	+	+	+
31	*Ficus virens* Aiton var.	Tree	White Fig	Moraceae	+	+	+
32	*Hibiscus rosa sinensis* L.	Shrub	Gudhal	Malvaceae	+	+	-
33	*Holoptelea integrifolia* (Roxb.) Planch.	Tree	Chirol	Ulmaceae	+	+	+
34	*Jasminum sambac* (L.) Aiton	Shrub	Chameli	Oleaceae	+	-	+
35	*Lantana camara* L.	Shrub	Katmani	Verbenaceae	+	+	+
36	*Leucaena leucocephala* (Lam.) de Wit.	Tree	Subabul	Fabaceae	+	+	+
37	*Licuala grandis* (T.Moore) H.Wendl.	Tree	Taad	Arecaceae	+	+	-
38	*Madhuca indica* J.F. Gmel.	Tree	Mahua	Sapotaceae	+	+	-
39	*Mangifera indica* L.	Tree	Mango	Anacardiaceae	+	+	+
40	*Michelia champaca* Linn.	Tree	Chempaka	Magnoliaceae	+	+	+
41	*Millettia pinnata* (L.) Panigrahi	Tree	Kranj	Fabaceae	+	+	+
42	*Morinda lucida* Benth.	Tree	Umar	Rubiaceae	+	-	+
43	*Moringa oleifera* Lam.	Tree	Sahjan	Moringaceae	+	+	-
44	*Morus alba* L.	Tree	Sahtut	Moraceae	+	+	-
45	*Murraya koenigii* (L.) Spreng	Shrub	Kadi Patta	Rutaceae	+	-	-
46	*Murraya paniculata* (L.) Jack	Shrub	Kamini	Rutaceae	-	+	+
47	*Musa paradisiaca L.*	Shrub	Banana	Musaceae	+	+	-
48	*Nerium oleander* L.	Shrub	Red Kaner	Apocynaceae	+	+	+
49	*Palma africana*	Tree	Palm	Arecaceae	+	+	-
50	*Peltophorum pterocarpum* (DC.) Baker ex K. Heyne	Tree	Yellow Gulmohar	Fabaceae	+	+	-
51	*Phoenix sylvestris* L. Roxb.	Tree	Date Palm	Arecaceae	-	+	-
52	*Phyllanthus emblica* L.	Tree	Amla	Phyllanthaceae	+	+	-
53	*Pinus roxburghii* Sarg.	Tree	Pinus	Pinaceae	-	+	-
54	*Pithecellobium dulce* (Roxb.) Benth.	Tree	Jungle Jalebi	Fabaceae	+	+	-
55	*Plumeria alba* L.	Tree	White Frangipani	Apocynaceae	+	+	+
56	*Polyanthia longifolia* (Sonn.) Benth. & Hook.f.ex Thwaites	Tree	False Ashok	Annonaceae	+	+	+
57	*Prosopis cineraria* (L.) Druce	Tree	Khejdi	Fabaceae	-	+	-
58	*Prosopis juliflora* (Sw.) DC.	Tree	Kikar	Fabaceae	+	-	-
59	*Prosopis laevigata* (Humb. & Bonpl. ex Willd.)	Tree	Smooth Mesquite	Fabaceae	+	-	-
60	*Psidium guajava* L.	Tree	Amrood	Myrtaceae	+	+	+
61	*Putranjiva roxburghii* Wall.	Tree	Kuduru	Putranjivaceae	-	+	+
62	*Saraca ashoka* (Roxb.) De Wilde.	Tree	Ashok Tree	Fabaceae	+	+	+
63	*Sesbania sesban* (L.) Merr.	Tree	Katurai	Fabaceae	+	+	-
64	*Sterculia oblongata* R.Br.	Shrub	Kalumpang	Malvaceae	+	-	-
65	*Syzigium cumini* L.	Tree	Jamun	Myrtaceae	+	+	+
66	*Tamarindus indica* L.	Tree	Imli(Tamarind)	Fabaceae	+	+	+
67	*Tecoma stans* (L.) Juss. ex Kunth	Tree	Pilia(ginger Thomas)	Bignoneaceae	+	-	-
68	*Tectona grandis* L. f.	Tree	Sagaun	Lamiaceae	+	+	+
69	*Terminalia arjuna* (Roxb.) ex DC.	Tree	Arjun Tree	Combretaceae	-	-	+
70	*Terminalia bellirica* (Gaertn.) Roxb.	Tree	Bahera	Combretaceae	-	+	+
71	*Thuja occidentalis* L.	Shrub	Thuja	Cupressaceae	+	+	+
72	*Wrightia tinctoria* (Roxb.) R. Br.	Tree	Safed Dudhi	Apocynaceae	-	+	-
73	*Ziziphus jujube* Mill.	Shrub	Ber	Rhamnaceae	+	+	+

Abbreviations: ‘+’ Presence of species; ‘-’ Absence of species

Discussion

The objective of the present study was to conduct an ecological review of Bundelkhand University Campus, Jhansi, Uttar Pradesh, India.

In the three study sites of Bundelkhand University Campus, Jhansi, a total number of 73 woody species within 64 genera and 32 families have been identified. The proportion of dicot, monocot and gymnosperm species is 87.67% and 8.2% and 4.1% respectively. The total number of trees and shrubs encountered during vegetation sampling at the study sites were recorded as 53 species and 20 species respectively. Therefore, the study indicates that trees dominate the woody vegetation of B.U. Campus, Jhansi.

Fabaceae is conventionally divided into three sub-families i.e., Caesalpiniaceae, Mimosaceae, and Fabaceae (Papilionaceae), each of which was formerly considered a separate plant family. In present study, survey was mainly focused on woody plant species. Among these families, Fabaceae was the dominant family followed by Apocynaceae, Arecaceae and Malvaceae.

Conclusions

The study of Bundelkhand University Campus of Jhansi district of Uttar Pradesh consists of phytosociological approaches. The woody vegetation under investigation is divided into two strata: trees and shrubs. The study area had a total of 73 woody species representing the two strata. Some of the trees and shrubs were monospecific, which is common in B.U. Campus, Jhansi.Analysis of the three distinct study sites in the forest region revealed that there are 53 tree species and 20 shrub species. According to a floristic survey of the areas, *Azadirachta indica, Ficus virens, Nerium oleander, Saraca asoca and Cassia fistula* were the most abundant woody species in the study sites.

On the basis of the quantitative study of the woody species *Azadirachta indica* was exhibited to be the most dominating tree species in tree study sites. The most dominating family was Fabaceae having 16 genera and 18 species.Among 73 woody species there are 64 dicot species, 06 monocot species and 03 gymnosperm species with the percentage of 87.67%, 8.2% and 4.1% respectively.

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