



Spermatophytic Flora of the SBD Govt. College Campus, Sardarshahar, Churu Dist., Rajasthan State

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ABSTRACT

This study aimed to document the diversity of seed-bearing plants in the campus of S.B.D. Govt College, Sardarshahar, Churu. The documentation revealed 75 plant species representing 67 genera and 37 families, with 72 species classified as angiosperms and only 2 genera with 3 species as Gymnosperm. Fabaceae was the most species-diverse family (13), followed by Apocynaceae (08) Asparagaceae (05), and Euphorbiaceae, Rutaceae, Myrtaceae, Solanaceae (03 each) and Lythraceae, Bignoniaceae, Poaceae and Moraceae (02 each). The remaining families collectively contributed to the rest of the species. Many plant species in the study area hold significant ecological and economic importance, serving as medicinal plants, edible fruits, timbers, fuelwood, and more. The findings contribute to understanding the overall ecological conditions of plant diversity and emphasize their proper utilization and conservation. Notably, the flora of S.B.D. Govt College, Sardarshahar, Churu, has not been previously documented, making this paper a valuable exploration of the campus's floral diversity.

KEYWORDS: Conservation, Economic Use, Floristic analysis, Documentation.

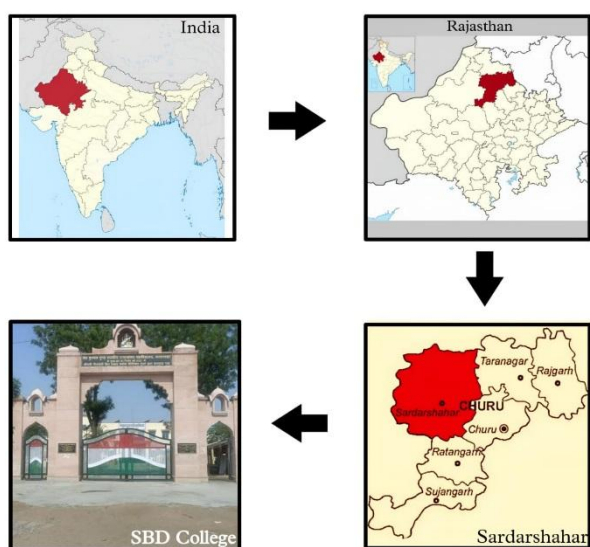
1. INTRODUCTION

Plant diversity faces serious threats to various anthropogenic factors, leading to the disappearance of many plant species, some even before their discovery. The urgency of conserving this diversity is paramount. Floristic diversity, the variety and variability of plants in given region, spans various levels from global diversity to gene within an individual. This survey focuses on the floristic diversity of SBD Govt college campus, specifically addressing the number of individual species in the area. The paper aims to highlight the vast plant

resources of the college campus from a conservation perspective, with a focus on spermatophytes. Spermatophytes, known as seed plants, include gymnosperms and angiosperms. Although lower plant groups (pteridophytes, lichens, bryophytes) significantly contribute to floristic diversity, they are excluded from this discussion. The study provides firsthand data and a checklist of different plant species in the area, serving as a baseline for future research.

2. STUDY AREA

Rajasthan, the largest state in the country, boasts diverse physiographic and climatic conditions, harboring a rich variety of plants in different habitats. Prior studies have reviewed and documented the floristic diversity of Rajasthan [1-5]. The Churu district, located in the northeastern part of Rajasthan within the Rajasthan desert, has been subject to exploration regarding its floristic diversity [6-10]. Sardarshahar is situated in the heart of the Thar Desert, in the Churu district of Rajasthan. SBD Govt college is situated in the prime location of the Sardarshahar city. Till this date, there is no data available of this location. The present study was designed to record the floristic composition of SBD Govt college. Despite the extreme climate—hot summers, cold and dry winters, high wind velocity, low relative humidity, and scanty rainfall—the study area exhibits significant floristic diversity, including various terrestrial plants.



3. METHODOLOGY

Plants were observed throughout all seasons of the year 2022-23. Field observations, along with plant photographs and voucher specimens, were collected. These specimens underwent standard taxonomic methods of drying and mounting. Identification was facilitated using regional floras, and the specimens were preserved in the herbarium of the Department of Botany, S.B.D. Government College, Sardarshahar. The study area's various plants are enumerated in Tables 1 and 2, providing the botanical names, families, and local names.

4. RESULT

Table 1 reveals that Asparagaceae and Fabaceae are the largest and dominant families among monocotyledons and dicotyledons, respectively. Fabaceae, the largest family of the 37 families, is represented by 12 genera and 13 plant species, while Asparagaceae is represented by 04 genera and 05 plant species in the study area. Table 2 reveals that only 2 genera and 3 plant species as Gymnosperm. The following plant species have been recorded from the study area:

Table 1: List of Angiosperm plants species of study area:

S. No.	Botanical name	Common name	Family
1	<i>Acacia nilotica (L.) Delile</i>	Desi babul	Fabaceae
2	<i>Albizia lebbek (L.) Benth.</i>	Siris	Fabaceae
3	<i>Ailanthus excelsa Roxb.</i>	Ardu/Aralu	Simaroubaceae
4	<i>Azadirachta indica A. Juss.</i>	Neem	Meliaceae
5	<i>Achyranthes aspera L.</i>	Lattziran/apamarg	Amaranthaceae
6	<i>Argemone mexicana L.</i>	Satyanasi	Papaveraceae
7	<i>Aloe barbadensis Mill.</i>	Aloe Vera/Ghee kumara	Asphodelaceae
8	<i>Aegle marmelos (L.) Correa</i>	Bael	Rutaceae
9	<i>Agave americana L.</i>	Century Plant	Asparagaceae
10	<i>Asparagus racemosus Willd.</i>	Shatavari	Asparagaceae
11	<i>Araucaria columnaris (G.Forst.) Hook.</i>	Cristmas tree	Araucariaceae
12	<i>Barleria prionitis L.</i>	Bajradanti	Acanthaceae
13	<i>Bougainvillea spectabilis Willd.</i>	Bougainvillea	Nyctaginaceae
14	<i>Bryophyllum pinnatum (Lam.) Oken</i>	Patherchata	Crassulaceae
15	<i>Bauhinia variegata L.</i>	Kachnaar	Fabaceae
16	<i>Calotropis procera (Aiton) W.T.Aiton</i>	Aak (Oak)	Asclepiadaceae
17	<i>Canas spp.</i>	Canna Lily	Cannaceae
18	<i>Carica papaya L.</i>	Papaya	Caricaceae
19	<i>Catharanthus roseus (L.) G.Don</i>	Sadabahar	Apocynaceae
20	<i>Cestrum nocturnum L.</i>	Raatkiraani	Solanaceae

21	<i>Citrus limon</i> (L.) Osbeck	Nimboo	Rutaceae	52	<i>Punica granatum</i> L.	Anar	Lythraceae
22	<i>Citrullus colocynthis</i> (L.) Schrad.	Tumba	Cucurbitaceae	53	<i>Polyalthialongifolia</i> (Sonn.) Thwaites	Ashoka	Annonaceae
23	<i>Crinum latifolium</i> L.	Sudarshan	Amaryllidaceae	54	<i>Polianthes tuberosa</i> L.	Rajanigandha	Asparagaceae
24	<i>Cynodondactylon</i> (L.) Pers.	Bermuda Grass	Poaceae	55	<i>Psidium guajava</i> L.	Amrudh	Myrtaceae
25	<i>Dalbergia sissoo</i> Roxb.	Shisham	Fabaceae	56	<i>Quisqualis indica</i> L.	Jhumka bel	Combretaceae
26	<i>Datura stramonium</i> L.	Dhatura	Solanaceae	57	<i>Ricinus communis</i> L.	Castor plant	Euphorbiaceae
27	<i>Delonix regia</i> (Bojer) Raf.	Gulmohar	Fabaceae	58	<i>Rauwolfiaserpentina</i> (L.) Benth. ex Kurz	Sarp Gandha	Apocynaceae
28	<i>Emblica officinalis</i> Gaertn.	Amala	Phyllanthaceae	59	<i>Salvadora persica</i> L.	Pilu/Miswak	Salvadoraceae
29	<i>Eucalyptus globulus</i> Labill.	nilgiri tree	Myrtaceae	60	<i>Saccharum munja</i> Roxb.	Sarkanda/moonj	Poaceae
30	<i>Ficus religiosa</i> L.	Pipal	Moraceae	61	<i>Sansevieria cylindrica</i> Bojer ex Hook.	Snake plant	Asparagaceae
31	<i>Hardwickia binata</i> Roxb.	Anjan	Fabaceae	62	<i>Sansevieria trifasciata</i> Prain	Sasumakijeebh	Asparagaceae
32	<i>Hibiscus rosa-sinensis</i> L.	Gurhal	Malvaceae	63	<i>Senna alexandrina</i> Mill.	Senna	Fabaceae
33	<i>Jatropha pandurifolia</i> Andr.	Coral Plant	Euphorbiaceae	64	<i>Syzygium cumini</i> (L.) Skeels	Jamun	Myrtaceae
34	<i>Jatropha curcas</i> L.	Physic Nut/Ratanjot	Euphorbiaceae	65	<i>Tamarindus indica</i> L.	Imali	Fabaceae
35	<i>Jasminum officinale</i> L.	Chameli	Oleaceae	66	<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	Chandini	Apocynaceae
36	<i>Kigelia africana</i> (Lam.) Benth.	Sausage Tree/Balamkheera	Bignoniaceae	67	<i>Tecoma stans</i> (L.) Juss. ex Kunth	Yellow bells	Bignoniaceae
37	<i>Lawsonia inermis</i> L.	Mahendi	Lythraceae	68	<i>Thevetia peruviana</i> (Pers.) K. Schum.	Pelikaner	Apocynaceae
38	<i>Leptadenia pyrotechnica</i> (Forssk.) Decne.	Khimp	Apocynaceae	69	<i>Tinospora cordifolia</i> (Willd.) Miers	Neem giloy	Menispermaceae
39	<i>Leucaena leucocephala</i> (Lam.) de Wit	Safed babool/wild tamarind	Fabaceae	70	<i>Tylophora indica</i> (Burm.f.) Merr.	Dumbel	Apocynaceae
40	<i>Lilium</i> spp.	Lily	Liliaceae	71	<i>Withania somnifera</i> (L.) Dunal	Ashwagandha	Solanaceae
41	<i>Moringa oleifera</i> Lam.	Sahjan/Drumstick tree	Moringaceae	72	<i>Ziziphus mauritiana</i> Lam.	Ber	Rhamnaceae
42	<i>Murrayakoenigii</i> (L.) Spreng.	Meetha neem	Rutaceae				
43	<i>Morus alba</i> L.	Shahtut	Moraceae				
44	<i>Nerium indicum</i> Mill.	Kaner	Apocynaceae				
45	<i>Nerium oleander</i> L.	Kaner	Apocynaceae				
46	<i>Ocimum sanctum</i> L.	Tulsi	Lamiaceae				
47	<i>Parkinsonia aculeata</i> L.	Vilayatikikar	Fabaceae				
48	<i>Prosopis cineraria</i> (L.) Druce	Khejri (State tree)	Fabaceae				
49	<i>Prosopis juliflora</i> (Sw.) DC.	Jaanti	Fabaceae				
50	<i>Phoenix dactylifera</i> L.	khajoor	Arecaceae				
51	<i>Pongamia pinnata</i> (L.) Pierre	Karanja	Fabaceae				

Table 2: List of Gymnosperm plants species of study area

1	<i>Cycas revoluta</i>	Sago palm
2	<i>Cycas circinalis</i>	Queen sago
3	<i>Ephedra foliata</i>	Leafless jointfir

5. DISCUSSION

In this study, a meticulous examination of the availability and distribution of individual plant species has been conducted, emphasizing their potential for sustainable utilization in the future. A significant proportion of these plants holds medicinal value, particularly in addressing major diseases. Traditional medicine relies heavily on herbal remedies, employing

plants as therapeutic agents with roles such as antiseptic, anti-inflammatory, and infection treatment, including candidiasis and dermatophytes [11]. It is noteworthy that fruits, vegetables, and natural plant products contain phytochemicals, serving as a primary source of antioxidants in the diet. These substances play a crucial role in reducing potential stress caused by reactive oxygen species [12]. The local utilization of natural plants as primary health remedies, based on their pharmacological properties, is widespread in Asia, Latin America, and Africa [13]. In India, medicinal plants are extensively employed across all segments of the population, either directly as folk remedies, within various indigenous medical systems, or indirectly in pharmaceutical preparations [14]. Ayurveda and Siddha, two traditional Indian systems of medicine, incorporate numerous herbs as therapeutics. However, it is crucial to acknowledge that some of the plant species reported in this study are currently endangered. Implementing strict conservation measures is imperative to prevent these species from becoming rare or endangered. Such floral studies are essential for understanding the economic importance of plants. The undisturbed status of the campus biodiversity is evident in the well-demonstrated regeneration capacity of the species.

FUTURE SCOPE AND CONCLUSION

Floristic diversity serves as a valuable resource for various essentials like food, fodder, tannin, gum, resin, and medicine. It is imperative to conserve this diversity for the well-being of humanity and future generations. Establishing a botanical garden within the campus to cultivate and safeguard these plants is crucial for preserving floral biodiversity. The study highlights the economic significance of plants in the campus area, ranging from medicinal and ornamental to edible. Given the increasing use of plants for medicinal purposes, spreading knowledge of Ethnobotany among students and faculty is essential. Documenting plant information is vital to preserving fundamental knowledge, aiding further research by campus members. Some plant species face endangerment due to over-exploitation and deforestation, necessitating stringent conservation measures. This study aims to enhance understanding of the floristic composition in the SBD Govt College area, located in Sardarshahar, Churu district, Rajasthan.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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