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Floristic Composition and Distribution Pattern of Tree Species at Mewar Campus in Rajasthan, India

Vijay Upadhyay[1], Sonam Rajput[2]

[1]Department of forestry, Mewar University Gangrar, Chittorgarh (Rajasthan), India

[2]Research Scholar, Department of Silviculture and Agroforestry, College of Forestry, Dr. YSP University, Nauni, Solan (H.P.), India

Abstract: ***The present study aimed was characterized the floristic diversity and distribution pattern of plant communities at Mewar campus in Rajasthan. In the present study an attempt has been to ascertain the current status of plant species which provide major forest products and minor forest product also. The study site was categorized in five plant communities' viz., Timber tree species, Ornamental tree species, Fruit yielding tree species, shrub species and medicinal plants. A total 1685 individuals were recorded in the study which belonged to thirty-six tree species in fourteen families. Maximum diversity of plant community was found of timber tree species (96.99 percent) which followed by medicinal plants (90.37 per cent) in this study. The dominant tree species was Bauhinia variegata which belonged to fabaceae family. During the study, maximal tree species were belonged to fabaceae (52.36 per cent), apocynaceae (52.72 per cent), rutaceae (19.63 per cent) and myrtaceae, arecaceae (13.09 per cent each) and minimal tree species which occurred under following families meliaceae, rubiaceae, moringaceae, moraceae and proteaceae (6.54 per cent each) respectively.***

Keywords: Tree species; Family; Community; Diversity

1. Introduction

The Mewar hills of Rajasthan harbor vast diversity of vegetation. It includes subtropical evergreen forests of *Boswellia serrate*, *Dendrocalamusstrictus* and *Tectonagrandis*. These forests are inhabited by the major tribes of the state, viz. Bhils, Garasias, Damors, and Kathodias. These tribes are the custodians of local indigenous knowledge. The surrounding plants from an integral part of their culture and the information about plants gets passed on from generation to generation only through oral folk-lore although many times kept secret.

In Rajasthan, the hilly topography in Aravalli mountain ranges provides a wide variety of microhabitats which support rich biodiversity of plant species. However, many tropical forests are under great anthropogenic pressure and require management intervention to maintain the overall biodiversity, productivity and sustainability. Understanding species diversity and distribution patterns is important for helping managers evaluate the complexity and resources of these forests[1].

The tropical dry deciduous forest in Rajasthan have a dense layer of herbaceous vegetation during the rainy season which plays an important role in nutrient conservation and as a source of food for herbivores. Anthropogenic disturbances have adversely affected the composition of herbaceous vegetation; it is, therefore, imperative to conserve the herbaceous vegetation of these forests. Recently some efforts have been made to understand the plant community structure of the Sariska Tiger Project [2,3].

2. Materials and Methods

The study was carried out from Mewar University Campus Chittorgarh Rajasthan, India. The University campus is situated in the vicinity of the scenic Aravali ranges, and it is spread over sprawling 30 acres at Gangrar of Chittogarh District (Rajasthan), just 18 km away from the city of Chittorgarh. There are three distinct seasons in a year; winter (November to February), summer (March to mid June), and a rainy season (mid June to October). The climate is tropical with a maximum of 43.3 °C and a minimum of 28.8 °C during summers. The average annual rainfall is 61 cm occurring during June to September. Personal observation were carried out surrounding the campus by the visiting the selected study sites. The study was conducted in five different plant communities' viz., Timber tree species, Ornamental tree species, Fruit yielding tree species, shrub species and medicinal plants. The survey has been done within following month's viz., march, april, may, june and july 2019.

3. Result and Discussion

Table 1: Diversity of regenerated tree species at mewar university

Sr.No.	Tree species	Common name	Family
1.	*Azadirachtaindica*	Neem	Meliaceae
2.	*Anthocephaluskadamba*	Kadamba	Rubiaceae
3.	*Moringaoleifera*	Drum Stick	Moringaceae
4.	*Ficusreligiosa* *Artocarpusheterophyllus* *Morus alba* *Ficusbenjamina*	Peepal Jackfruit Mulberry Pukar	Moraceae
5.	*Acacia nilotica* *Albezialebbeck* *Dalbergiasissoo* *Prosopisjuliflora* *Cassia fistula* *Saracaasoca* *Delonixregia* *Bauhinia variegate*	Desi Babul Siris Shisham JungleeKikar IndianLaburnum Ashoka Gulmohar Kachnar	Fabaceae
6.	*Terminaliaarjuna* *Terminaliachebula*	Arjun Harad	Combretaceae
7.	*Polyalthialongifolia*	Ashapala	Annonaceae
8.	*Elaeocarpusganitrus*	Rudrax	Elaeocarpaceae
9.	*Roystonearigia* *Phoenix dactylifera*	Royal Palms Date Palms	Arecaceae

10.	*Araucaria heterophylla*	Austrralian Pine	Araucariaceae
11.	*Aeglemarmelos* *Citrus Limon (L.)*	Bel Lemon	Rutaceae
12.	*Cordiasebestena*	Geiger Tree	Ehretiaceae
13.	*Cassia siamea*	Siamea Tree	Caesalpiniaceae
14.	*Plumeriarubra* *Alstoniascholaris* *Rauvolfia* *Nerium oleander* *Plumeria alba*	Pagoda Tree Devil Tree Sarpaganda Kaner White Champa	Apocynaceae
15.	*Grevillearobusta*	Silver Oak	Proteaceae
16.	*Emblicaofficinalis*	Amla	Euphorbiaceae
17.	*Mangiferaindica*	Mango	Anacardiaceae
18.	*Psidiumgujava* *Syzygiumcumini*	Guava Jamun	Myrtaceae
19.	*Ziziphusmauritiana*	Ber	Rhamnaceae
20.	*Pyrus spp.* *Rosa*	Pears, Naspati Rose	Rosaceae
21.	*Golden duranta* *Durantaerecta*	Duranta Golden Durant	Verbenaceae
22.	*Lawsoniainermis*	Mehndi	Lythraceae
23.	*Thujaoccisentalis*	White Cedar	Cupressaceae
24.	*Hibiscus rosa-sinensis*	China Rose	Malvaceae
25.	*Nyctanthes Arbor-Tristis*	Jasmine Harsingar	Oleaceae
26.	*BryophyllumPinnatum*	Patharchatta	Crassulaceae
27.	*OcimumTenuiflorum*	Tulsi	Lamiaceae
28.	*WithaniaSomnifera*	Ashwaganda	Solanaceae
29.	*LaunaeaSarmentosa*	Beach Launaea	Asteraceae
30.	*Aloe Barbadensis Mill.*	Aloe Vera	Asphodelaceae
31.	*CymbopogonCitratus*	Lemon Grass	Poaceae
32.	Achyranthesaspera	Chaff-Flower	Amaranthaceae
33.	*Trachyspermumammi*	Ajwain	Apiaceae
34.	*Andrographispaniculata*	Kalmegh	Acanthaceae
35	*Asparagus racemosus*	Satawar	Liliaceae
36	*Tinosporacordifolia*	Giloey	Menispermaceae

In this present, study we were observed 55 tree species which belong to 36 families. The maximum number of tree species which belong to fabaceae family such as *Acacia nilotica, Albezialebbeck, Dalbergiasissoo, Prosopisjuliflora, Cassia fistula, Saracaasoca, Delonixregia*and *Bauhinia variegate.*

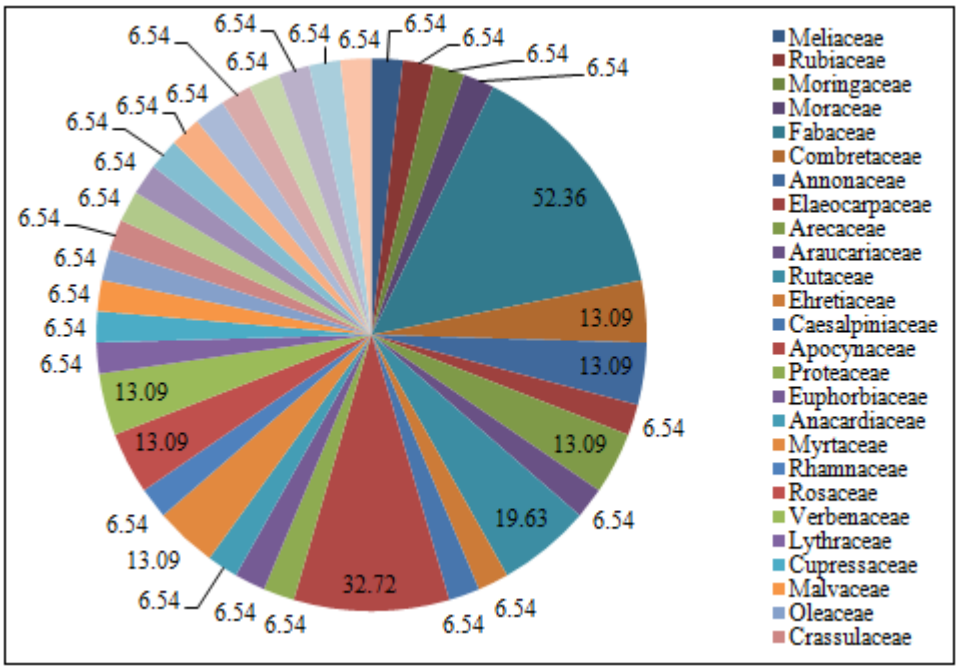

Figure 1: Family composition of regenerated tree species at Mewar University

This graph indicated the percentage of different families at the study area. The maximum part of study area covered by the fabaceae family (52.36 per cent) which followed by apocynaceae (32.72 per cent), rutaceae (19.63 per cent), and arecaceae, combretaceae, annonaceae, myrtaceae, rosaceae, verbenaceae (6.54 per cent each). The minimum percentage of the families viz., meliaceae, rubiaceae, moringaceae, elaeocarpaceae, araucariaceae, ehretiaceae, caesalpiniaceae, proteaceae, euphorbiaceae, anacardiaceae, rhamnaceae, lythraceae, cupressaceae, malvaceae, oleaceae, crassulaceae, lamiaceae, solanaceae, asteraceae, asphodelaceae, poaceae, amaranthaceae, apiaceae, acanthaceae, liliaceae and menispermaceae (6.54 per cent each) respectively.

The study area was categorized in to five different communities:- Timber tree species, Ornamental tree species, Fruit yielding tree species, shrub species and medicinal plants. The survey has been done in all these study sites with identification of each species which comes under the study area.

Timber tree species:- In this community, the maximum number of tree species were recorded from fabaceae (116.56 per cent) family which followed by meliaceae (68.98 per cent) and annonaceae (32.51 per cent) and the minimum number of tree species were recorded from apocynaceae (3.96 per cent), moraceae (4.75 per cent), and rubiaceae (6.34 per cent).

Ornamental tree species:-In this plant community, total 346 tree species were reported from 6 different families. The highest tree species were recorded from fabaceae (195.6 per cent) and

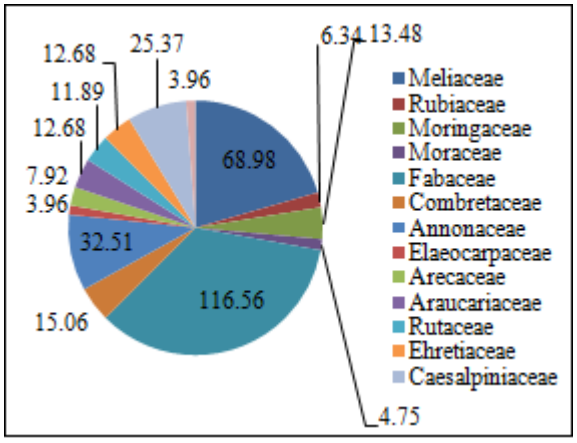

Figure 2: Family composition of timber tree species

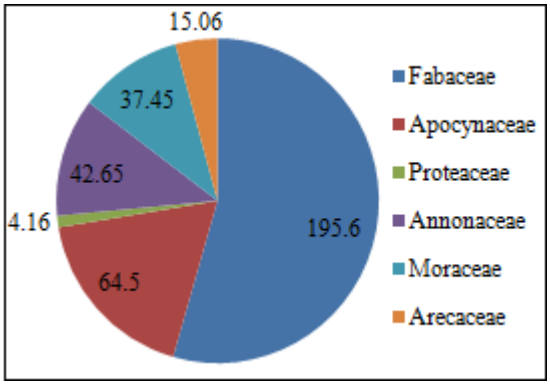

Figure 3: Family composition of ornamental tree species

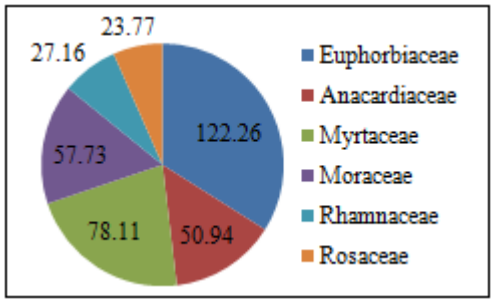

Figure 4: Family composition of fruit yielding tree species

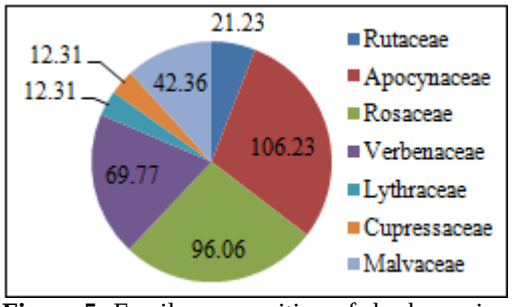

Figure 5: Family composition of shrub species

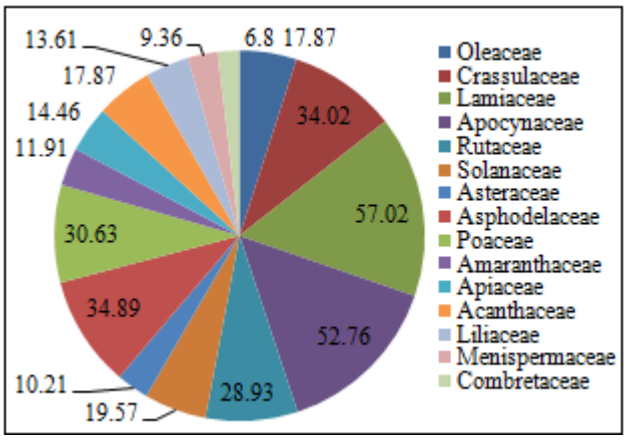

Figure 6: Family composition of medicinal plants

apocynaceae (64.5 per cent) while the least species were reported from proteaceae (4.16 per cent), which followed by arecaceae (15.06 per cent) respectively.

Fruit yielding tree species:-The highly tree species were found in fruit yielding community from euphorbiaceae (122.26 per cent) and myrtaceae (78.11 per cent) whereas, minimum tree species were found from rosaceae (23.77 per cent) which followed by rhamnaceae (27.16 per cent).

Shrub species:-The extremely tree species were evident from apocynaceae (106.23 per cent) and rosaceae (96.06 per cent) while least number of tree species were found from lythraceae, cupressaceae (12.31 per cent) and rutaceae (21.23 per cent).

Medicinal plants:-In this plant community, total 423 tree species were reported from different families. The maximum number of tree species were reported from lamiaceae (57.02 per cent) which followed by apocynaceae (52.76 per cent). The minimum number of tree species were recorded from combretaceae (6.8 per cent) which followed by menispermaceae (9.36 per cent) respectively.

4. Conclusion

In this present survey, we were examined the total 1685 tree species which belonged to 36 families. The most abundant family was fabaceae (52.36 per cent) whereas, apocynaceae (19.63 per cent) was as co-dominant family. A total 454 individuals tree species were recorded from timber tree species, 346 tree species from ornamental tree species, 106 species from fruit yielding community, 356 tree species from shrub community and 423 tree species were observed from medicinal plant community. The highest species richness was found at timber tree community. In all five plant communities, the highest percentage was found of timber tree species (96.99 per cent) which followed by medicinal Plants (90.37 per cent) and the minimum percentage were reported of fruit yielding tree species (22.64 per cent) which followed by ornamental tree species (73.92 per cent) respectively.

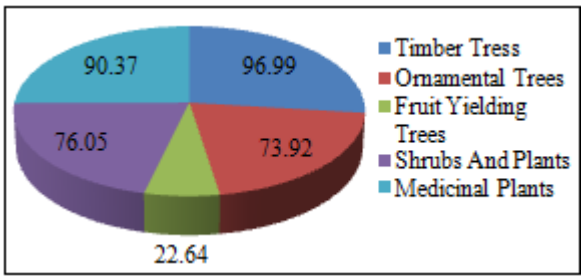

Figure 7: Distribution structure of different plant communities

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