OPEN ACCESS

Int. Res. J. of Science & Engineering, 2019; Vol. 7 (6): 161-165. http://www.irjse.in
ISSN: 2322-0015

ORIGINAL ARTICLE

Diversity of Leguminous plants in Bhandara district (MS), India

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Manuscript Details

Received: 16.11.2019
Accepted: 20.12.2019
Published: 30.12.2019

ISSN: 2322-0015

Cite this article as:
Humane Pitambar. Diversity of Leguminous plants in Bhandara district (MS), India, *Int. Res. Journal of Science & Engineering,* 2019, 7 (6): 161-165.

ABSTRACT

Bhandara district is an eastern part of Vidarbha region of Maharastra state in between 20.39 to 21.38 degree North Latitude and 70.27 to 80.42 degree East longitudes and the river Vainganga flows from the middle of the district. During floristic exploration of the district from 2005 to 2011, total 906 plants species of angiosperms were collected and studied. Of these 691 species were from dicotyledons and 215 species from monocotyledons. The present paper deals with 117 species of Leguminous plants studied in the district which includes, 78 species from Papilionaceaee, 25 species from Caesalpiniaceae and 14 from Mimosaceae family. Most of the leguminous plants are distributed in over the areas of the district while some of the species were recorded from the particular regions.

Keywords: Bhandara District, Leguminous plants, Papilionaceae, Caesalpiniaceae, Mimosaceae.

1. INTRODUCTION

Bhandara district has an undulating topography with an altitude range from 150 to 600 m with geographical area over 4217 Sq. Kms. which is about 1.37% of the total area of Maharashtra State [1]. More than one-third of the district lies under forest, which yields gum, medicinal fruit and nuts, edible fruits, lac, honey and the blossoms of the 'moha' tree, which are eaten by the poorer classes, and used for the manufacture of a kind of spirit or liquor in villages of the district. Geographically, the district lies entirely within the Wainganga basin. Three major tributaries of the Wainganga-the Bagh, the Bawanthari and the Chulband drain the district [2], [3].

The district is rich in floristic biodiversity and 906 angiosperm species were studies. Of these 691 species belongs to dicotyledons and 215 from monocotyledons. Out of the plants studies during

floristic exploration of the district 117 plant species were recorded from leguminous plants. The plants bearing the fruit 'legume' are known as leguminous plants and all these plants were kept in family Leguminosae. In earlier classification, the family Leguminousae includes three sub-families named as Papilionoidae, Caesalpinioidae and Mimosoidae. Later on the name leguminosae was replaced by Fabaceae which also includes all these three sub-families. But, now in recent classifications, all these three families are treated as individual families. This method of classification as three individual families is considered in present paper [4], [5].

2. METHODOLOGY

To study the members of the said family extensive and intensive visits were arranged to various regions of the district in different seasons. The plants were observed in their natural habitat and the phenological data were collected and recorded in the field diary. The multiple specimens of plants in flowering and fruiting stage were collected, preserved and their herbarium sheets were prepared. The field notes were incorporated with the specimens on the herbarium sheets.

The digital photographs of some unique plants were taken with their unique characteristics that can help in identifying the plants in the natural habitat. Attempts have been made to use recent names and the list that follows the genera and species are arranged alphabetically. Artificial keys are prepared for the genera and species for the specimens collected for this study. All the specimens of the taxa have been deposited in the herbarium of Department of Botany, Dharampeth M. P. Deo Memorial Science College, Nagpur.

3. RESULTS AND DISCUSSION

The leguminous plants studied [6], includes family Papilionaceae with 41 genera and 78 species, Caesalpiniaceae with 07 genera and 25 species and Mimosaceae with 07 genera and 14 species (Figure 1).

On the basis of habit of the leguminous plants, they are classified as herbs, shrubs, trees and climbers (including twiners and lianas) [7]. The family papilionaceae includes, 37 herbs, 17 shrubs, 10 trees and 14 climber species; caesalpiniaceae with 6 herbs, 6 shrubs, 10 trees and 3 climbers and mimosaceae with 3 shrubs and 11 trees (Figure 2).

On the basis of occurrence of leguminous plants, they are classified into frequent or common, infrequent or occasional and rare. The family papilionaceae includes, 48 freqent, 20 infrequent and 10 rare plant species, the family caesalpiniaceae includes 13 frequent, 8 infrequent and 4 rare and the family mimosaceae includes 10 frequent and 4 infrequent species as shown in Figure 3.

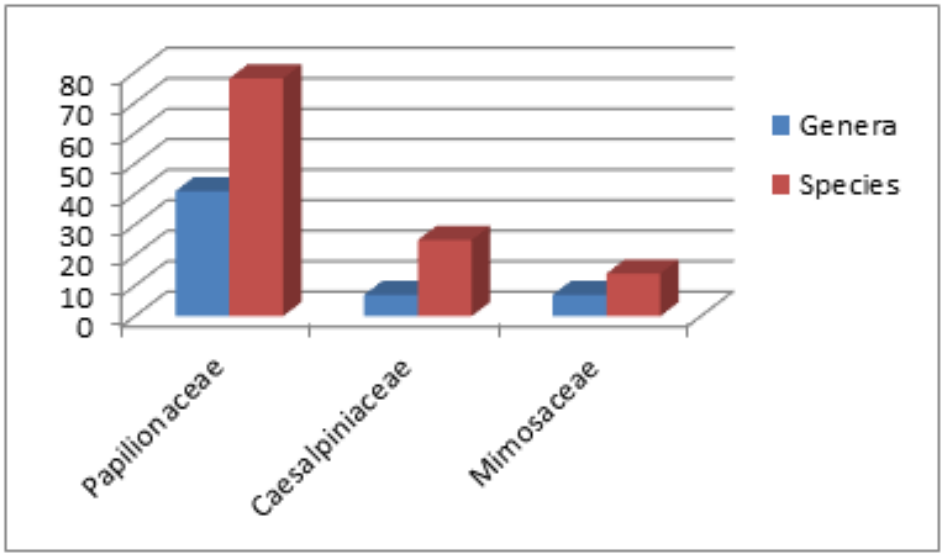

Figure 1: Distribution of genera and species in Leguminous families.

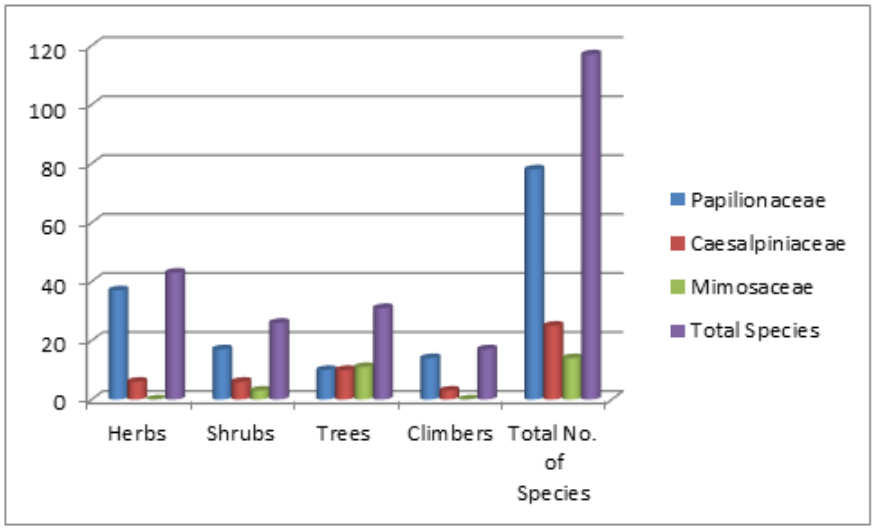

Figure 2: Distribution of species according to habit

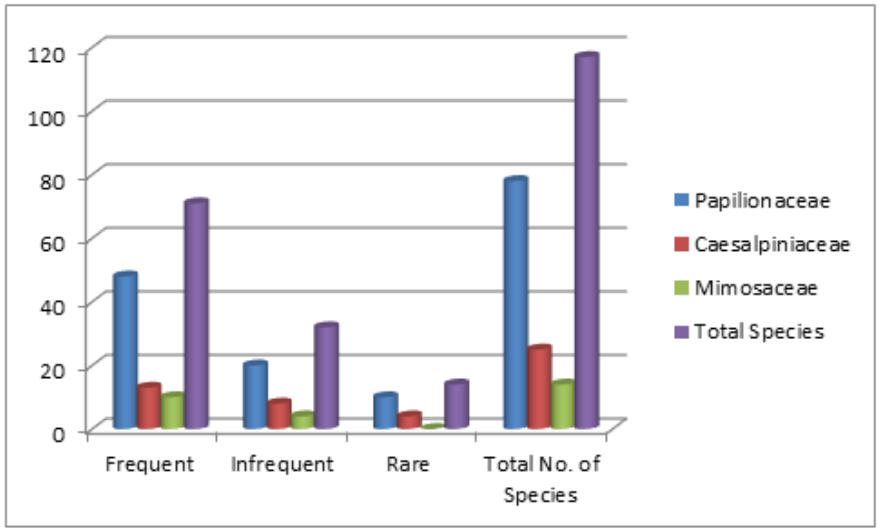

Figure 3: Distribution of species according to occurrence

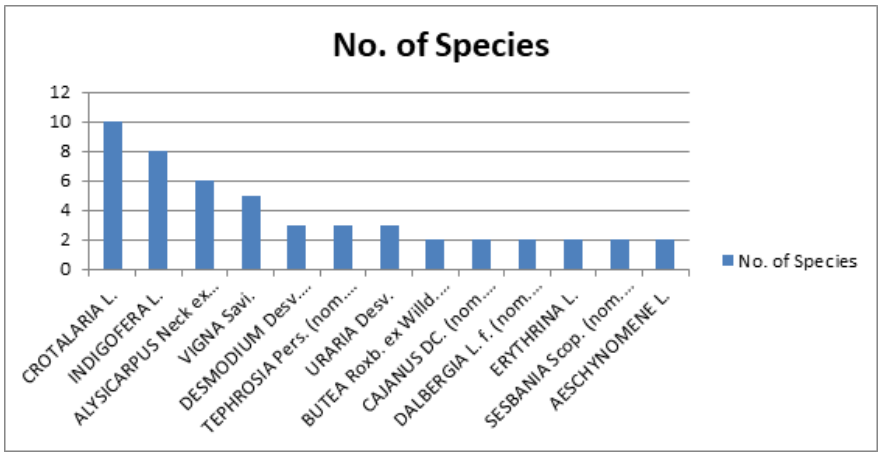

Figure 4: Distribution of species in different genera of Papilionaceae

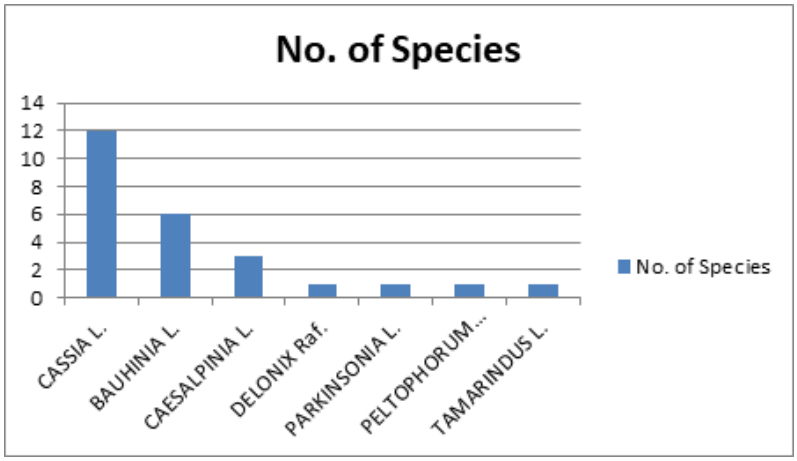

Figure 5: Distribution of species in different genera of Caesalpiniaceae

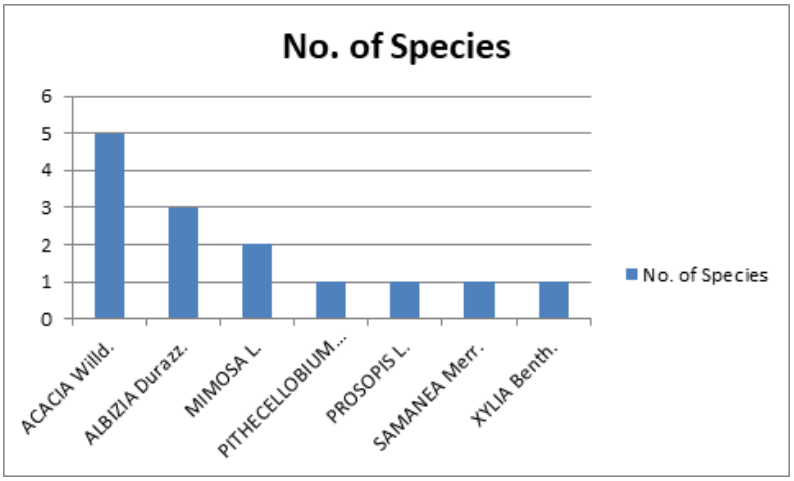

Figure 6: Distribution of species in different genera of Mimosaceae

The family papilionaceae is the largest family among families of the leguminous plants and includes 41 genera and 78 species. In this family, the genus Crotalaria is the largest genus and includes 10 species, while Indigofera includes 8 species, Alysicarpous with 6 species and Vigna with 5 species. The genera Desmosidum, Tephrosia and Uraria include 3 species each, while Butea, Cajanus, Dalbergia, Erythrina, Sesbania and Aeschynomene include 2 species each. Remaining 28 genera are with single species each (Figure 4).

In family Papilionaceae, *Abrus precatorius* L., *Aeschynomene americana* L., *Alysicarpus bupleurifolius* (L.) DC., *Cajanus scarabaeoides* (L.) du-Petit-Thours, *Crotalaria hebecarpa* (DC.) Rudd, *Eleiotis monophylla* (Burm f.) DC., *Indigofera astragalina* DC., *Indigofera cassioides* Rottl. ex DC., *Smithia conferta* J. E. Sm., *Uraria lagopus* DC., *Zornia gibbosa* Span. were found frequent or infrequent in the district. The rarely found species of this family includes *Alysicarpus vaginalis* (L.) DC., *Butea superba* Roxb. ex Willd., *Crotalaria hirta* Wild., *Crotalaria verrucosa* L., *Erythrina stricta* Roxb., *Medicago polymorpha* L., *Paracalyx scariosus* (Roxb.) Ali, *Tephrosia senticosa* (L.) Pers., etc.

The family Caesalpiniaceae includes 7 genera and 25 species and Cassia is the largest genus of this family with 12 species and Bauhinia and Caesalpinia includes 6 and 3 species respectively. The remaining genera, Delonix, Parkinsonia, Peltophorum and Tamarindus include 1 species each (Figure 5). Some of the important species of this family are *Bauhinia purpurea* L., *Bauhinia vahlii* Wight & Arn., *Caesalpinia decapetala*(Roth) Alst., *Cassia purpurea* Roxb. ex. Lindl., *Cassia uniflora* Mill., *Parkinsonia aculeata* L., *Peltophorum pterocarpum* (DC.) Baker ex K. Heyne, etc.

while *Bauhinia semla* Wunderlin, *Bauhinia tomentosa* L., ***Bauhinia candida*** sp., *Cassia kleinii* Wight & Arn., etc. are rarely observed in the district.

4. CONCLUSION

Total 117 plant species belongs to leguminous plants were studied in the district. This indicates 12.91% of total flora of the district i.e., 906 plant species. The leguminous plants of the district include 43 herbs, 26 shrubs, 31 trees and 17 climbers / twiners / lianas. Of these 71 species were recorded as common or frequent, 32 species as occasional or infrequent and 14 species were rarely found in the district.

Conflict of interest

No conflict of interest influenced in this research.

5. REFERENCES

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