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Floristic study of Karwi District with special emphasis to dominant family

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Abstract
The present paper focused on Floristic Study of Karwi District with Special Emphasis to Dominant Family conducted during 2019-2020 a total 92 families have been recorded from Karwi district (M.P.) during tenure. Out of these, 10 dominant families were compared to earlier flora such as flora of Banda and flora of Uttar Pradesh. It has some hilly tracks covered with luxuriant vegetation along with the forest area is represented by mixed deciduous forest. Taxonomical investigation were undertaken to explore the floristic status of the ten dominant families. The updated data based on DELTA (description language for taxonomy) software with new advancement.

Keywords: Karwi district, Floristic study, Dominant families, digital database

Introductions
Karwi district lies between the latitude 24°53' and 25°23' north and 80°44' and 81°34' east longitudes. The northern boundary of the district is formed by the river Yamuna, across which lie districts of Fatehpur and Kaushambi. In the east the district borders with Allahabad and the state of Madhya Pradesh and on its Westside lies the mother district Banda. The southern boundary of the district consists of Vindhyan plateau across which lie districts Satna and Rewa of Madhya Pradesh state. Most of the sacred places of Chitrakoot religious complex are in fact in the state of Madhya Pradesh.

Northern part of the district is a flat expanse and southern part is mainly the Vindhyan plateau, which is full of hills and forest cover. On the plains of the district Karwi lies at about 120-125m., Rajapur and Mau at 100-105m. Above the level of sea each. As usual in rest of U.P., the lowland in the district is made of alluvium deposited by many streams coming down from southern hills and flowing into Yamuna. Paisuni is the chief stream among these. The lowland formed is uneven in nature and riversides full of ravines.

Out of the total 4,20,000 flowering plants reported from the world (Govaerts, 2001) [8]. The "Flora of Banda" studied earlier by Sinha and Verma (1996) [15]. Thenceforward, publication of Flora of Banda several research works have been done Singh *et al.* (2016) [11], Chaudhary, *et al.* (2016) [4], Bhatt and Bhargava (2006) [2]. However, recent urbanization and industrialization has affected the flora of Banda and its surroundings a lot. So, the main focused on comprehensive taxonomic biodiversity and conservation point of view, because it very necessary to explore existing floristic structure of Karwi district update and revise the earlier data. This work has been done by using DELTA (Descriptive Language for Taxonomy) software (Dallwitz, 1980, 2000 & 2002) [5-7].

Material and Methods
Field visits were undertaken to different localities of Karwi district throughout the year (various seasons) and collected the digital photographs in natural habitat and plant specimens for observation, identification and data preparation in the laboratory during the study period.

The plant species were identified with help of different floras viz., Flora of Banda district (Sinha & Verma, 1996); Contribution to the flora of Banda district (U.P.) Sinha (1990) [16], Sinha and Shukla, (2004) [12], Sinha and Verma, (1986a & 1992) [13-14]; Flora of Flora of Uttar Pradesh (Singh *et al.* 2016) [11]. The digital electronic herbarium was constructed and the whole data of plant specimens were fed in the DELTA software with more than 192 morphological characters. The digital images were attached to the respective plant descriptions in the database.

The traditional herbarium method also adopted from Santapau (1961) [10], Jain and Rao (1976) [9] and the prepared herbarium specimens was confirmed at B.S.I. Allahabad (U.P.). Various experts were also consulted for identification, their systematic position and nomenclature of the species, genera and families and other literatures.

Results and discussion

The present outcome of the study undertaken during the years 2019 to 2020. It includes the floristic study of rich diversity of Karwi district. The main focused on ten families belonging to different taxa of Angiosperms have been given in this work.

The ten dominant families in order of their species content were made for the flora of Banda district (Sinha and Verma, 1996) [15] the result of which are given viz., Leguminosae (I), Gramineae (II), Asteraceae (III), Euphorbiaceae (IV), Acanthaceae (V), Scrophulariaceae (VI), Malvaceae (VII), Labiatae (VIII), Convolvulaceae (IX) and Verbenaceae (X) respectively.

Similarly ten dominant families in order of their species content were made for the flora of Bhopal (Sinha and Shukla, 2004) [12]. The result of which are given viz., Leguminosae (I), Asteraceae (II), Gramineae (III), Acanthaceae (IV), Euphorbiaceae (V), Scrophulariaceae (VI), Verbenaceae (VII), Labiatae (VIII), Malvaceae (IX) and Convolvulaceae (X) respectively.

Shows Fig. 1 the dominant families with respect to genera and species level. While, the table 1 data revealed that the comparison of relative dominance of ten large families of Angiospermic in respect to the number of species are also given viz., Papilionaceae stands in first position as far as number of species and genera are also included Poaceae (II), Asteraceae (III), Malvaceae (IV), Apocynaceae (V), Euphorbiaceae (VI) Apocynaceae (VII), Verbenaceae (VII), Solanaceae (VIII), Mimosaceae (IX) and in tenth positions three families were found in tenure viz., Caesalpiniaceae (Xa), Lamiaceae (Xb) & Moraceae (Xc) respectively.

Table 1: The table shows ten dominant families recorded during tenure (2019-2020) and their position with respect to genera and their species in Karwi district

S. No.	Family	Genera	Species	Position
1.	Papilionaceae	28	48	I
2.	Asteraceae	26	28	II
3.	Poaceae	18	26	III
4.	Malvaceae	8	16	IV
5.	Apocynaceae	11	13	V
6.	Euphorbiaceae	7	15	VI
7.	Verbenaceae	8	12	VII
8.	Solanaceae	6	11	VIII
9.	Mimosaceae	6	09	IX
10.	(a) Caesalpiniaceae	5	08	X
	(b) Lamiaceae	4	08	
	(c) Moraceae	3	08	

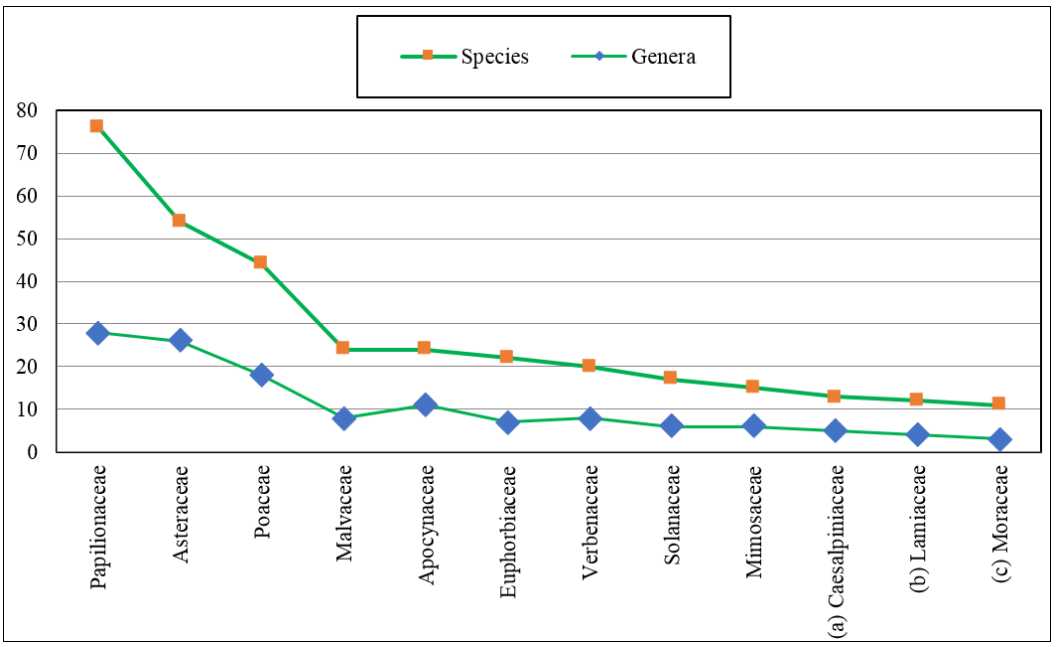

Fig 1: Graphics analysis of ten dominant families recorded during tenure (2019-2020) and their position with respect to genera and their species in Karwi district

Conclusion

In present study, a total 92 families have been recorded from Karwi district (M.P.) during tenure. Out of these, 10 dominant families were compared to earlier flora such as flora of Banda and flora of Uttar Pradesh. The study site indicates that is one of the biodiversity rich regions for medicinal and economically important of plants. Digital database preparation is technologically a step ahead in the

revision of the flora of Banda district with some advancement that is very useful for the future.

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