

AN ANALYSIS OF THE FLORA OF JHALAWAR (SOUTH-EAST RAJASTHAN)

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The flora of Jhalawar comprises 629 species of angiosperms belonging to 387 genera of 108 families. The ratios, of monocots to dicots is 1:41 for families, 1:307 for genera, and 1:28 for species. Only 7 families have been recorded so far containing 10 or more genera. Besides, 75 cultivated species have been recorded from the area belonging to 67 genera and 37 families. The ten dominant families of the area have been compared with those occurring in some adjacent areas as well as upper gangetic plain of India.

Keywords—Species; Family; Genera; Dominant; Area; Ratio; Percentage.

Introduction

The town of Jhalawar is located in the South-East of Rajasthan near the rivers Kalisindh, Ahu and Chandra-bhaga. It is situated with in 76°05'–76°15' E, longitudes and 24°30'–24°40' latitudes. Average annual rainfall in the area recorded is 925 mm, the temperature fluctuates between 4.9°C (during winters) to 47.5°C (in summer season). The soil varies gravel to sandy loam or black cotton soil, very much fertile with higher water holding capacity.

There are earlier reports on the hydrophytes (Singh, 1979), grasses (Shringi, 1981), and taxonomical and phytosociological studies of Jhalawar (Sharma, 1986). In the

present communication an analysis of the flora of Jhalawar district (South-East Rajasthan) is reported.

Material and Methods

Studies were made during the plant collection trips from 1971 to 1985. Six hundred and twenty nine species were collected and preserved in the Herbarium, Botany Deptt. University of Rajasthan, Jaipur.

Results

The information regarding total number of various taxa and their percentages is summarized in Table 1. Of the 167 species of monocots, 124 belong to two dominant families, i.e., Poaceae (88) and Cyperaceae (36). Among the dicots, out of the

Table 1. Total number of various taxa and their percentage.

S. No.	Dicots		Monocots		Total	
	Number	%	Number	%		
1	Families	87	80.7	21	19.3	108
2	Genera	291	75.2	96	24.8	387
3	Species	462	73.5	167	26.5	629

462 species, 242 belong to nine dominant families in the following order : Leguminosae (72), Asteraceae (40), Euphorbiaceae (26), Acanthaceae (22), Malvaceae (21); Convolvulaceae (18), Asteraceae (15 each) and Scrophulariaceae (13). The dominant families of the area have been compared with those of adjacent areas as well as upper gangetic plain and India. The ratio of monocots to dicots is roughly 1:4 for families, 1:3 for genera and 1:3 for species. Of the 10 dominant families given in Table 2, Poaceae tops the list in Jhalawar and its adjoining areas with 88 species, followed by Leguminosae (72) and Asteraceae (40).

Thirty six families are represented each by a single species only, while 12 families are monogeneric, but comprise more than one species. Thirty eight families are having 2 or more but less than 5 genera; 13 families with 5-9 genera and 7 families have got 10 or more genera (Table 3). Thus it has been obser-

ved that out of the 108 families, 62 are with one or two species each. This might be the reason for such small number of species inspite of the representation of a fairly large number of families in the area. Of the total number of species reported from the area, about 56% were represented by annual herbs, 5% perennial herbs and under shrubs, 12% shrubs and 14% trees. True hydrophytes constituted 13% of the flora. Exact number of weeds in cultivated fields was found to be 135, approximately 21.5% of the flora.

As a result of exhaustive field surveys and plant collection trips certain plants were recorded which were not reported earlier from Rajasthan. These were :—*Ranunculus muricatus*, *Polygala resmarinifolia*, *Neptunia plena*, *Sesili diffusum*, *Campanula fulgens*, *Phyllanthus scabrifolium*, *Arusaema tortuosum*, *Cyperus polystachos*, and *Leptochloa panicea*.

The dominant species of the area were *Anogeissus pendula*, *Butea*

Table 2. A comparative statement of first 10 families.

S. No.	India (Hooker, 1908)	Upper Gangetic Plain Duthie (1903-29)	N.E. Rajasthan (Sharma & Tiagi, 1979)	Banswara (Singh, 1983)	Present Work
1	Orchidaceae	Poaceae	Poaceae	Poaceae	Poaceae
2	Leguminosae	Leguminosae	Leguminosae	Leguminosae	Leguminosae
3	Poaceae	Cyperaceae	Asteraceae	Asteraceae	Asteraceae
4	Rubiaceae	Asteraceae	Cyperaceae	Acanthaceae	Cyperaceae
5	Euphorbiaceae	Scrophulariaceae	Acanthaceae	Euphorbiaceae	Euphorbiaceae
6	Acanthaceae	Malvaceae	Euphorbiaceae	Malvaceae	Acanthaceae
7	Asteraceae	Acanthaceae	Boraginaceae	Convolvulaceae	Malvaceae
8	Cyperaceae	Euphorbiaceae	Malvaceae	Amaranthaceae	Convolvulaceae
9	Lamiaceae	Convolvulaceae	Amaranthaceae	Scrophulariaceae	Scrophulariaceae
10	Urticaceae	Lamiaceae	Scrophulariaceae	Asclepiadaceae	Asclepiadaceae

Table 3. Comparative statement of families showing number of genera.

Families with 1 Genus and the species	Families with 1 Genus (more than one species)	Families with 2-4 genera	Families with 5-9 genera	Families with 10 or more genera
Nelumbonaceae	Ranunculaceae	Annonaceae	Sterculiaceae	Malvaceae
Fumariaceae	Nymphaeaceae	Manispermaceae	Lythoraceae	Leguminosae
Violaceae	Cleomaceae	Papaveraceae	Cucurbitaceae	Asteraceae
Flacourtiaceae	Polygalaceae	Brassicaceae	Rubiaceae	Scrophulariaceae
Portuacaceae	Rhmnaceae	Capparidaceae	Apocynaceae	Acanthaceae
Tamaricaceae	Cuscutaceae	Caryophyllaceae	Asclepiadaceae	Euphorbiaceae
Elatinaceae	Lentibulariaceae	Tiliaceae	Gentianaceae	Poaceae
Bombacaceae	Aristolochiaceae	Oxalidaceae	Solanaceae	
Balsaminaceae	Dioscoreaceae	Rutaceae	Verbenaceae	
Celastraceae	Arecaceae	Simaroubaceae	Lamiaceae	
Onagraceae	Potamogetomaceae	Bursaceae	Amaranthaceae	
Trapaceae	Alismataceae	Meliaceae	Liliaceae	
Passifloraceae		Vitaceae	Cyperaceae	
Cacteaceae		Sapindaceae		
Aizoaceae		Anacardiaceae		
Alangiaceae		Rosaceae		
Plumbaginaceae		Molluginaceae		
Primulaceae		Apiaceae		
Ebanaceae		Combretaceae		

(Table Contd. page 83)

(Cont. Table 3)

Families With 1 genus and the species	Families With 1 genus (More than one species)	Families with 2-4 genera	Families with 5-9 genera	Families with 10 or more genera
Salvadoraceae		Campanulaceae		
Menyanthaceae		Sapotaceae		
Orobanchaceae		Nyctanthaceae		
Martyniaceae		Ehertiaceae		
Nyctaginiaceae		Boraginaceae		
Piperaceae		Bignoniaceae		
Santalaceae		Pedaliaceae		
Ulmaceae		Periplocaceae		
Ceratophyllaceae		Convolvulaceae		
Orchidaceae		Chenopodiaceae		
Juncaceae		Polygonaceae		
Pandanaceae		Moraceae		
Typhaceae		Hydrocharitaceae		
Aponogetonaceae		Pontederiaceae		
Zannichaliaceae		Amaryllidaceae		
Eriocaulaceae		Commelinaceae		
		Araceae		
		Lemnaceae		

monosperma, *Diospyros melanoxylon*, *Lantana camara*, *Ziziphus nummularia*, *Oropetium thomaeum* and *Evolvulus alsinoides* etc. While 67 species were recorded which are found to be rare and threatend in the area. Some of them were :— *Boswellia serrata's* *Commiphora mukul*, *Schlechera oleosa*, *Sterculia urens*, *Buchanania lanzan*, *Pterocarpus marsupium*, *Bauhinia variegata*, *Lagerstroemia parviflora*, *Adina cordifolia* and *Dendrocalamus strictus*.

Orchidaceae, the first dominant family in India (Hooker, 1908), has got very poor representation in the area; only one species has been recorded. This is probably due to denudation of the natural vegetation. Moreover, moist forest beds and epiphytic conditions, most favourable for orchids, are scarce in the area under study.

It is interesting to note that the flora of the area is much similar to that of Bhopal (Oomachan, 1977), North-East Rajasthan (Sharma and Tiagi, 1979) and Banswara (Singh, 1983). The position of the first four families in all these works is also similar. This similarity in floristic patterns in all these areas can be

attributed to the geographical continuity and similar climatic conditions.

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