International Journal of Research in Science and Technology
(IJRST) 2012, Vol. No. 2, Issue No. IV, Oct-Dec
http://www.ijrst.com
ISSN: 2249-0604

FLORISTIC STUDIES OF FIROZABAD DISTRICT

Deshdeep[1], Mrs. Shweta Pathak[2], Dr A.K.Sharma[3]

1 and 3: Dept. of Botany. M.M.College, Modinagar. Meerut University2: Dept. of Applied Science .GNIOT Gr.Noida

ABSTRACT

A floristic study documents all the plant species found within a specific geographical area. Some ambitious and large-scale floristic projects involve development of keys, detailed descriptions, and illustrations of the plants, while some may produce a simple list of species found in an area. Firozabad is a very interesting place with regard to the scientific as well as geographical point of view. A concise and diagnostic description has been given, which includes more important characters necessary for identification. To bring accuracy in description, measurements and other characters have been provided. Habit, Habitat, abundance, ecological aspects and other prominent morphological characters have been mentioned after the description. Field notes are followed by flowering and fruiting periods. Vernacular names have been given in all those cases where they could be ascertained properly. A total of 609 species belonging to 384 genera assigned to 103 families have been collected .Out of 609 species,469 species belonging to 307 genera and 86 families are dicotyledons and 140 species belonging to 77 genera and 17 families are monocotyledons. The ratio of species belonging to monocotyledons and dicotyledonsis 1:3.35 that of genera is 1:3.98 and that of families is 1:5.05 .The ratio of genera to species is 1:1.58.

***Keywords**: Floristic studies, Firozabad, Gramineae, Poaceae, Cucurbitaceae etc.*

INTRODUCTION

Geographical Position: Firozabad is situated in north central India, in western Uttar Pradesh, 40 Km. away from Agra and around 200 Km. away from Delhi, at the 27° 09' North latitude and 78°24' East longitude. The height above sea level is 164 meters (540 ft.) and total area of Firozabad district is 2361 square Km. It has a wide range of habitats, which provides ecological diversity for plants. Establishment of large scale industries, road construction and similar urbanization programmers are influencing the vegetation. A floristic study documents all the plant species found within a specific geographical area. Some ambitious and large-scale floristic projects involve development of keys, detailed descriptions, and illustrations of the plants, while some may produce a simple list of species found in an area. Firozabad is a very interesting place with regard to the scientific as well as geographical point of view.

http://www.ijrst.com
ISSN: 2249-0604

The district is well connected by rail and bus routes to the major cities. The Yamuna River makes its southern boundary. The area of the district is about 0.8% of total area of Uttar Pradesh and 1.1 % population of the state's total population. There are four tehsils in Firozabad district. These are Firozabad, Shikohabad, Tundla and Jasrana.

Soil: The soil of the district is alluvial except for residual soils which occur in a narrow strip. The alluvial north of the river Yamuna belongs to Indo Gangetic system. Recent alluvial soil is found in the river in tract of Yamuna with a ribbon-like pattern. Every year the fertility of the soil is renewed through periodic flooding and silting. The colour is grey to ashy, the texture coarse and sandy. Soluble salts vary from average to high. Low land areas are found in isolated patches in Tundlatehsil. There appears to be a fairly high degree of salinity in these areas. The colour of soilis grey to dark grey due to severe humid conditions.

Climate: The climate of the district is semi-xerophytic due to the marked differences in the temperature, the high saturation deficit and moderate low rainfall. Dryness with an increasing hot summer and cold winter are associated with a sweep of air. The extreme summer heat alternating with extreme winter cold with the prevalence of air of continental character (i.e. hot during summer and cold during winter) is unfavorable for the growth of luxuriant vegetation. The oceanic air prevails only in the months of July, August and September. Moderately low rainfall, high saturation; the marked differences of temperature are the factors which make the climate of a semiarid nature. The sweep of air from the westerly or north westerly is responsible for dryness and extremely hot summer and extremely cold winter. The sweep of air from the easterly or south easterly directions is responsible for increased humidity, cloudiness and precipitation. On the basis of general meteorological conditions of the region's the year can be broadly classified into three seasons' namely rainy, winter and summer seasons. In between these three major divisions transition periods are observed.

MATERIALS AND METHODS

Taking into consideration the detailed political map of the districts and physiographical information about it, collection localities were chalked out so as to cover maximum geographical and topographical range. During the collection drives observations on habit and habitat, flower colour and fragrance, besides dominance and sociability of the collected plants, were entered in field books. At least five tagged specimens were pressed on spot for preparing herbarium sheets and a bundle of a few plant specimens, tagged with same field number, was also collected in polythene bag for study at laboratory. Macroscopic and microscopic studies on collected specimens, determination of their identity and preparation of the herbarium specimens were performed.

Families are arranged according to the widely accepted system of Bentham and Hooker (1862-1883). All the keys are dichotomous and mostly based on macroscopic features and have been constructed to allow as easy identification as possible. The genera in each family and species in each genus is arranged in alphabetical sequence. All attempts have been made to adopt the most recent and correct nomenclature. Only verified citations have been mentioned.

RESULTS AND DISCUSSION

A concise and diagnostic description has been given, which includes more important characters necessary for identification. To bring accuracy in description, measurements and other characters have been provided. Habit, Habitat, abundance, ecological aspects and other prominent morphological characters have been mentioned after the description. Field notes are followed by flowering and fruiting periods. Vernacular names have been given in all those cases where they could be ascertained properly.

A total of 609 species belonging to 384 genera assigned to 103 families have been collected. Out of 609 species, 469 species belonging to 307 genera and 86 families are dicotyledons and 140 species belonging to 77 genera and 17 families are monocotyledons. The ratio of species belonging to monocotyledons and dicotyledonsis 1:3.35 that of genera is 1:3.98 and that of families is 1:5.05 .The ratio of genera to species is 1:1.58.

As regards the number of species per family the Gramineae occupy the first position (80 species); Papilionaceae, the next (52 species); and the third in the sequence are the Compositae (41 species).

Families that are represented in the area under survey by a single species are: Fumariaceae, Violaceae, Flacourtiaceae, Elatinaceae, Bombacaceae, Linaceae, Celastraceae, Vitaceae, Anacardiaceae, Moringaceae, Rosaceae, Myrtaceae, Trapaceae, Cactaceae, Sphenocleaceae, Primulaceae, Ebenaceae, Loganiaceae, Hydrophyllaceae, Orobanchaceae, Bignoniaceae, Martyniaceae, Phytolaccaceae, Aristolochiaceae, Piperaceae, Proteaceae, Urticaceae, Ulmaceae, Cannabinaceae, Casuarinaceae, Ceratophyllaceae, Amaryllidaceae, Agavaceae, Juncaceae,

Arecaceae, Typhaceae, Butomaceae, Eriocaulaceae and Zannichelliaceae. Of these 39 families, 31 belong to dicots and the remaining eight to monocots.

Families with more than one species in the single genus are: Ranunculaceae (2), Nymphaeaceae (2), Papaveraceae (2), Polygalaceae (2), Portulacaceae (2), Tamaricaceae (3), Rhamnaceae (2), Onagraceae (3), Oleaceae (3), Salvadoraceae (2) Lentibulariaceae (2), Nyctaginaceae (3). All these 12 families belong to dicots.

Leaving aside first three families, there are three families in which the number of species is more than 20: Convolvulaceae (21), Acanthaceae (25), Cyperaceae (33).

There are ten families, with the number of species ranging between 10 and 20. These constitute 9.07% of the total number of families represented in the area. These are: Malvaceae (16), Tiliaceae (10), Caesalpiniaceae (16), Mimosaceae (10), Cucurbitaceae (12), Boraginaceae (12), Scrophulariaceae (18), Labiatae (12), Amaranthaceae (18), Euphorbiaceae (19).

There are 10 families in which the number of species is between six to nine. These are Brassicaceae (7), Capparidaceae (7), Caryophyllaceae (7), Tiliaceae (8), Aizoaceae (8), Rubiaceae (8), Asclepiadaceae (8), Solanaceae (8), Polygonaceae (6), Moraceae (7).

Thirty - six families have the number of species between two and five. Those with five species are Rutaceae, Lythraceae, Verbenaceae, Chenopodiaceae, Commelinaceae, those with four species are Menispermaceae, Sterculiaceae, Oxalidaceae, Gentianaceae, those with three species are Tamaricaceae, Meliaceae, Combretaceae, Onagraceae, Oleaceae, Nyctaginaceae, Hydrocharitaceae, Liliaceae, Lemnaceae. Twenty families are with two species each.

It can he observed, that out of the 103 families, 60 families are with one or two species each and this is the reason for a small number of species in spite of the representation of a fairly large number of families in the area.

The present study records 73 trees belonging to 35 families. Of these 37 are mesophanerophytes i.e. they attain a height of eight to 30 metres ; the rest are all small trees, microphanerophytes reaching a height of eight metres. There is not a single tall tree or megaphanerophyte in this area. Nineteen families are represented by trees exclusively viz. Flacourtiaceae, Tamaricaceae, Simaroubaceae, *Bombacaceae, Meliaceae, Celastraceae, Anacardiaceae, Moringaceae, Myrtaceae, Sapotaceae, Ebenaceae, Salvadoraceae, Bignoniaceae, Proteaceae, Ulmaceae, Moraceae, Casuarinaceae, Salicaceae,* Palmae.

Forty-six species, distributed over 10 families occur as climbers. Of these CuscutareflexaRoxb.is a total parasite, while the rest are all woody climbers, either twining over the plants or climbing with the help of spiny outgrowths e.g. Asparagus racemosusWilld.

Families showing all the habit forms viz. trees, shrubs, climbers and herbs are just two in number, namely, Capparidaceae and Papilionaceae. Those which are represented by herbs, shrubs and trees are Capparidaceae, Malvaceae, Rutaceae, Papilionaceae, Caesalpiniaceae, Mimosaceae, Verbenaceae.

Some of the families that altogether lack trees and are represented in this area by more than 10 species are Cucurbitaceae, Compositae, Convolvulaceae, Scrophulariaceae, Acanthaceae, Labiatae, Amaranthaceae, Euphorbiaceae, Cyperaceae, Gramineae. There are 40 families that are exclusively represented by herbs, but the total number of species in each of them is under 10.

Twenty-four hydrophytic species are distributed over 14 families, eleven of which are represented exclusively by Hydrophytes viz. Nymphaeaceae, Trapaceae, Lentibulariaceae, Ceratophyllaceae, Hydrocharitaceae, Pontederiaceae, Lemnaceae, Alismataceae, Butomaceae, Potamogetonaceae, Zannichelliaceae. Lentibulariaceae is an insectivorous family.

REFERENCES

- *Banerjee, S. K., A. J. Williams, S. C. Biswas, R. B. Manjhi& T. K. Mishra. (1996). Dynamics of natural eco restoration in coal mine overburden of dry deciduous zone of M.P. India. Ecology, Environment & Conservation 2: 97-104.*
- *Chaulya, S. K., R. S. Singh, M. K. Chakraborty& B. K. Tewary. (2000). Bioreclamationof coal mine overburden dumps in India. Land Contamination &Reclamation 8: 189-199*
- *H.A. Mosallam Comparative study on the vegetation of protected and non-protectedareas, Sudera, Taif, Sauidi Arabia. Int. J. Agric. Biol., 9 (2007), pp. 202–214*
- *Hooker JD (1872-1897).The Flora of British India, London 7.*
- *Jain SK (1964). Grasses of Upper Gangetic Plain (Panicoideae) - II. Indian Forest Records 5 149 - 159.*
- *Orshan, (1986) G. Orshan. The desert of the Middle East. M. Evenari, I. Noy-Meir, D.W. Goodall (Eds.), Ecosystems of the World, 12 B, Hot Deserts and Arid Shrublands,Elsevier, Amsterdam (1986).*