

A DOCUMENTATION ON SPECIES DIVERSITY OF HIGHER PLANTS OF PALIWAL PARK, AGRA (U.P.) INDIA

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Received : 15.02.17; **Accepted** : 13.04.17**ABSTRACT**

Agra is one of the largest districts of U.P. which is floristically very rich. In this region, there are many taxa which are not reported yet as in the form of floral documentations. The present study carried out on the flora of the Paliwal Park, Agra. It is spread over on area of around 70 acres (280,000 m²). In the present study a total of 76 plants species belong to 36 families have been recorded from this area. The most widely distributed plants were found in the family Moraceae (8), Caesalpiniaceae (7), Apocynaceae (5), Bignniaceae (5), Meliaceae (3) etc. There are 20 families representing only one genus and one species. The present information is important as it allows us to present or avoid the potential chance of biodiversity loss and to plan future policy for the protection of our environment.

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KEY WORDS : Agra, Biodiversity, Environment, Families, Paliwal Park

Introduction

Flora is basically a study of what plants grow and where. The products of flora work may be simple. Checklists of species that grow in given areas, or they may be booked called as "Floras" with much detail about the plants in given areas. It's often difficult to determine what names go with what species, although scientific names are applied in a precise, rule oriented way that's intended to ensure consistency. K.D. Paliwal Park is located in the heart of Agra, U.P. It is spread over an area of around 70 acres. It also has a small lake and vast variety of trees. Shri Krishna Datta Paliwal was the first finance minister of Uttar Pradesh.

Plants have been under keen observations of man from times immemorial for their multiple utility with the growing modern civilization; the ever increasing role of plants to human life has placed before us many fold tasks for understanding intimately the world of the plant and their

relationship with human being. This reversionary work was felt necessary as the area covered by the Hooker's work had undergone political transformation with the end of British rule. Ever since then human migrations, import of food grains, biotic interference, etc. have been responsible for great changes in the floristic composition of specially, the urban settlements. The boundaries of the country are no more same. A large number of taxa have become extinct from the scene. Worker⁸ emphasized the need for trained floristicians in execution of a number of research projects under the five year plans dealing with survey and availability of raw materials of vegetation origin collection of Ayurvedic and Unani Drugs and search of new sources of plants of potential economic value.

"The forest flora of North-West and Central India¹. "A Forest Flora of Chota Nagpur², "Forest Flora of Meghalaya³" "A Forest Flora of Pilibhit³", "Forest Flora of Chakrata⁶", forest flora of siwalk

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TABLE 1: List of the plants of Paliwal Park, Agra

S. No.	VERNACULAR NAME	BOTANICAL NAME	FAMILY	GROUPS	HABIT
1	Aam	<i>Mangifera indica</i>	Anacardiaceae	Dicot	T
2	Akash neem	<i>Millingtonia hortensis</i>	Bignoniaceae	Dicot	T
3	Amaltas	<i>Cassia fistula</i>	Caesalpiniaceae	Dicot	T
4	Amla	<i>Emblica officinalis</i>	Euphorbiaceae	Dicot	T
5	Amrood	<i>Psidium guajava</i>	Myrtaceae	Dicot	T
6	Arand (Castor)	<i>Ricinus communis</i>	Euphorbiaceae	Dicot	S
7	Arjun	<i>Terminalia arjuna</i>	Combretaceae	Dicot	T
8	Ashok	<i>Polyathia longifolia</i>	Annonaceae	Dicot	S
9	Bel, Bael	<i>Aegle marmelos</i>	Rutaceae	Dicot	T
10	Bakain	<i>Melia azedarach</i>	Meliaceae	Dicot	T
11	Balam khera	<i>Kigelia pinnata</i>	Bignoniaceae	Dicot	T
12	Bans or Vansh	<i>Bambusa arundiancea</i>	Poaceae	Monocot	S
13	Banyan Tree, Barged	<i>Ficus benghalensis</i>	Moraceae	Dicot	T
14	Barna	<i>Crataeva religiosa</i>	Capparidaceae	Dicot	T
15	Ber	<i>Zizyphus mauritiana</i>	Rhamnaceae	Dicot	T
16	Bistendu	<i>Diospyros cordifolia</i>	Ebenaceae	Dicot	T
17	Bottle brush	<i>Callistemon lanceolatus</i>	Myrtaceae	Dicot	T
18	Bougainvillea	<i>Bougainvillea glabra</i>	Nyctaginaceae	Dicot	S
19	Burmese pink cassia	<i>Cassia renigera</i>	Caesalpiniaceae	Dicot	S
20	Casuarina, Vilayti jhau	<i>Casuarina equisetifolia</i>	Casuarinaceae	Dicot	T
21	Champa	<i>Plumeria acutifolia</i>	Apocynaceae	Dicot	S
22	Pine, Chir	<i>Pinus roxburghi</i>	Pinaceae	Gymno.	T
23	Datura	<i>Datura alba</i>	Solanaceae	Dicot	H
24	Dhak	<i>Butea monosperma</i>	Papilionaceae	Dicot	T

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25	Dhau	<i>Anogeissus pendula</i>	Combretaceae	Dicot	T
26	Eucalyptus	<i>Eucalyptus citriodora</i>	Myrtaceae	Dicot	T
27	Pefar	<i>Ficus retusa</i>	Moraceae	Dicot	S
28	Ficus tree	<i>Ficus nuda</i>	Moraceae	Dicot	S
29	Gilo, Giloy	<i>Tinospora cordifolia</i>	Menispermaceae	Dicot	S
30	Goolar	<i>Ficus glomerata</i>	Moraceae	Dicot	T
31	Gulhar	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Dicot	S
32	Gulmohar	<i>Delonix regia</i>	Caesalpiniaceae	Dicot	T
33	Hedge	<i>Clerodendrum inermis</i>	Verbenaceae	Dicot	S
34	Heens	<i>Capparis sepiaria</i>	Capparidaceae	Dicot	S
35	Hemp, Bhang	<i>Cannabis sativa</i>	Cannabaceae	Dicot	S
36	Imli	<i>Tamarindus indica</i>	Caesalpiniaceae	Dicot	T
37	Jacaranda	<i>Jacaranda mimosifolia</i>	Bignoniaceae	Dicot	T
38	Jamun	<i>Eugenia jambolana</i>	Myrtaceae	Dicot	T
39	Jangal zalebi	<i>Pithecellobium dulce</i>	Mimosaceae	Dicot	T
40	Jangli Khajur	<i>Phoenix sylvestris</i>	Arecaceae	Dicot	T
41	Jasmine	<i>Jasminum officinale</i>	Oleaceae	Dicot	T
42	Kachnar	<i>Bauhinia purpurea</i>	Caesalpiniaceae	Dicot	T
43	Kadam	<i>Mitragyna parviflora</i>	Rubiaceae	Dicot	T
44	Kaith	<i>Feronia limonia</i>	Rutaceae	Dicot	H
45	Kaner	<i>Nerium indicum</i>	Apocynaceae	Dicot	S
46	Karanj	<i>Pongamia pinnata</i>	Papilionaceae	Dicot	S
47	Karonda	<i>Carisa carandus</i>	Apocynaceae	Dicot	S
48	Katsagon	<i>Heterophragma adenophyllum</i>	Bignoniaceae	Dicot	T
49	Kikar, Black Babool	<i>Acacia nilotica</i>	Mimosaceae	Dicot	T
50	Lassora	<i>Cordia myxa</i>	Boraginaceae	Dicot	S

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51	Madar, Aak	<i>Calotropis procera</i>	Asclepiadaceae	Dicot	H
52	Mahogany	<i>Swietenia mahogany</i>	Meliaceae	Dicot	T
53	Mahua	<i>Madhuca indica</i>	Sapotaceae	Dicot	T
54	Makoy	<i>Solanum nigrum</i>	Solanaceae	Dicot	H
55	Maulsri	<i>Mimusops elengi</i>	Sapotaceae	Dicot	T
56	Mitha-neem	<i>Murraya koenigii</i>	Rutaceae	Dicot	S
57	Morpankhi	<i>Thuja orientalis</i>	Cupressaceae	Gymno.	S
58	Neem	<i>Azadirachta indica</i>	Meliaceae	Dicot	T
59	Paras Peepal	<i>Thespesia populna</i>	Malvaceae	Dicot	T
60	Papari, Chirol	<i>Holoptelea integrifolia</i>	Ulmaceaeae	Dicot	T
61	Parkinsonia	<i>Parkinsonia aculeate</i>	Caesalpinaceae	Dicot	T
62	Paker	<i>Ficus infectoria</i>	Moraceae	Dicot	T
63	Pilu	<i>Salvadora persica</i>	Salvadoraceae	Dicot	T
64	Pipal	<i>Ficus religiosa</i>	Moraceae	Dicot	T
65	Putranjiva	<i>Putranjiva roxburghii</i>	Euphorbiaceae	Dicot	S
66	Sadabahar	<i>Vinca rosea</i>	Apocynaceae	Dicot	H
67	Sagon	<i>Tectona grandis</i>	Verbenaceae	Dicot	T
68	Saijana	<i>Moringa oleifera</i>	Moringaceae	Dicot	T
69	Scholar Tree	<i>Alstonia scholaris</i>	Apocynaceae	Dicot	T
70	Simul	<i>Bombax ceiba</i>	Bombaceae	Dicot	T
71	Shehtut	<i>Morus alba</i>	Moraceae	Dicot	T
72	Shehtut	<i>Morus indica</i>	Moraceae	Dicot	T
73	Shisham	<i>Dalbegria sisoo</i>	Papilionaceae	Dicot	T
74	Siamea	<i>Cassia siamea</i>	Caesalpinaceae	Dicot	T
75	Siris	<i>Albizzia lebbek</i>	Mimosaceae	Dicot	T
76	Yellow Bells	<i>Tecoma stans</i>	Bignoniaceae	Dicot	S

Note: T= Tree, S= Shrub and H= Herb

and Jaunsar forest divisions of the united provinces of Agra and Oudh⁵ was carried out.

AIMS OF STUDY

Taxonomy and systematics today are applied to the solution of human and social problems, especially in the health science, human food resources, utilizable natural resources and the rapidly growing concern for the quality of the environment (ecological impact assessment, listing or rare and endangered species, pollution indicators).

Materials and Methods

Regular field observation were undertaken in Agra in the year 2014-2015. The time of flowering and fruiting and ecological notes were recorded. Herbarium of plants were prepared and deposited in the campus. The plants were identified by referring the flora of Delhi⁷, Flora of Agra District⁹ and flora of North East Rajathan¹⁰.

Result and Discussion

The observations of the present study have been discussed on the taxonomic description of important plants and their uses recorded in the Paliwal Park at Agra. This Park is situated in the middle of Agra city and riched by large number of trees, herbs, shrubs and climbers. In the present study have been 76 plants species of dicots, monocots and gymnosperm recorded belonging of 36 families. The statistical analysis of families,

genera and species of dicotyledones, gymnosperm and monocotyledons (Table-1). These plants have medicinal as well as ethnobotanical uses.

The purpose of the study is to compare the vegetation pattern on Paliwal Park and to analyze and interpret the impact of plant communities on different exposure, and to gather first hand information about the vegetation this unexplored and floristically rich area. Present study was basically focused on the tree diversity of the region. It has shown that insecticides made from natural botanical sources are less toxic as compared to synthetic origin. Hence, it is safer to use insecticides prepared from natural raw materials since they have little or no adverse effects on human health and also on the environment.

The percentage of families of dicotyledones, gymnosperms and monocotyledons were 88.90, 5.55 and 5.55, respectively and the species were 94.74, 2.63 and 2.63, respectively (Table- 2).

On the basis of number of species belonging to a family, Apocynaceae (5), Bignniaceae (5), Caesalpiniaceae (7), Moraceae (8) Meliaceae (3) etc. There are 20 Families representing only one genus and one species (Table-3).

Most plants are used as multiple purposes. Common diseases like fever, asthma, and other skin diseases are treated locally. Snake bite and wound healing are also treated by local plant (*Cassia*, *Aegle*, *Tamarindus*, *Bombax* etc.) medicines. Most of the plants are eaten or their

TABLE-2 : Families, Genera and Species of Paliwal Park, Agra

Groups	Families		Genera		Species	
	No.	%	No.	%	No.	%
Dicotyledones	32	88.89	64	94.15	72	94.74
Monocotyledones	2	5.55	2	2.94	2	2.63
Gymnosperms	2	5.55	2	2.94	2	2.63
Total	36	100.00	68	100.00	76	100.00

TABLE- 3 : Families representing genus and species in the Paliwal Park.

S. No.	Family	Genera	Species
DICOTYLEDONES			
1.	Anacardiaceae	1	1
2.	Bignoniaceae	5	5
3.	Caesalpinaceae	5	7
4.	Euphorbiaceae	3	3
5.	Myrtaceae	4	4
6.	Combretaceae	2	2
7.	Annonaceae	1	1
8.	Rutaceae	3	3
9.	Meliaceae	3	3
10.	Moraceae	2	8
11.	Capparidaceae	2	2
12.	Rhamnaceae	1	1
13.	Ebenaceae	1	1
14.	Nyctaginaceae	1	1
15.	Casuarinaceae	1	1
16.	Apocynaceae	5	5
17.	Solanaceae	2	2
18.	Papilionaceae	3	3
19.	Menispermaceae	1	1
S. No.	Family	Genera	Species
20.	Malvaceae	2	2
21.	Verbenaceae	2	2
22.	Cannabaceae	1	1
23.	Mimosaceae	3	3
24.	Oleaceae	1	1
25.	Rubiaceae	1	1
26.	Boraginaceae	1	1
27.	Asclepiadaceae	1	1
28.	Sapotaceae	2	2
29.	Ulmaceae	1	1
30.	Salvadoraceae	1	1
31.	Moringaceae	1	1
32.	Bombaceae	1	1
MONOCOTYLEDONES			
33.	Poaceae	1	1
34.	Areaceae	1	1
GYMNOSPERMS			
35.	Pinaceae	1	1
36.	Cupressaceae	1	1

extract or decoction is prepared for the treatment of diseases. Some are applied externally especially in case of skin diseases. Usually herbs are used

as medicines. Some species have come under the endangered category. As human interaction with the natural environment is increasing immensely and day by day, we need to refocus ecology towards research that ensures a future in which natural

systems and the humans they include coexist on a more sustainable planet.

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