

Floristic Study of Shivaji Udyan from Jalgaon City of Maharashtra

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ABSTRACT

Home-gardens of India are diverse and species rich. The history of gardens in India is as old as its civilization. The Aryans of the Vedic period were the great lovers of tree and flowers. The association of different trees with life of lord Buddha, emperor Asoka Lord Krishna and several Mughal emperor is well known, however importance of gardening is not understood well in India, therefore present investigation is undertaken. Several visits are made to the Shivaji Udyan. It is situated at the bank of Mehrun Lake to the western side of Jalgaon city, Maharashtra having area of 188460 sq.m areas. It is one of the oldest and largest garden in the city. Diversity of plants with local uses were analyzed. Although, 64 plant species representing 55 Genera belonging to 32 families and 3142 individuals were encountered. Various ornamental, edible, as well as plants of medicinal values are present in garden. *Morinda citrifolia* L., *Santalum album* L., *Pterocarpous marsupium*, *Putranjiva roxburghii* endangered species, were reported from the garden. Trees are dominant in the garden of which *Polyalthia longifolia* (sonner).Thw BL, *Cassia siamea* Lamk., *Eucalyptus globules* L., *Cassia fistula* L. are present in abundance. The high floristic diversity and presence of many species in the garden reflects the ways how to utilize and conserve plant diversity. Therefore, studies on floristic diversity of endangered species in cultivated gardens are required. So that potential of gardens for their conservation can be assessed.

I. INTRODUCTION

“The garden is a planned space usually outdoors set aside for the display, cultivation and enjoyment of plants and other forms of nature. It can incorporate both natural and man-made materials.” Garden design is the art and process of designing and creating plans

for layout and planting of gardens and landscapes. Garden design may be done by the garden owner by themselves, or by professionals of varying levels of experience and expertise. Most professional garden designers have some training in horticulture and the principle of design, and some are also landscape architects. The history of garden in India is as old as

its civilization. The first recorded history of civilization in India dates back to 2500 B.C., before the Aryans came.

The importance of gardening is also not understood in India. The people should be educated to realize the importance of garden by providing good parks and gardens in cities for a large population to relax and enjoy the beauty of nature. The role of garden in human welfare cannot be overlooked. Even in India people do not live by bread alone. They also need finer things of life. It is a great tragedy that most of our children in big cities do not have any open space to play and see colorful flowers, birds, butterflies. It is moral duty of our government through the municipalities, corporations, and such other bodies to provide citizens with spacious parks having beautiful trees and flowers where they can relax, find the peace of mind, and breathe fresh air after day's hard work. The wealth of any nation is linked with the health of its people unless we can ensure the healthy development of our citizens especially the younger generation by providing the open breathing places through bio aesthetic planning and landscape gardening. We can expect to build up a healthy society and a prosperous nation.

Hence there is a vital need for greater diversification of techniques of management and utilization of garden species, which warrants further research commitment.

II. REVIEW OF LITERATURE:

The present study deals with the floristic survey of garden. Floristic study in Maharashtra dates back from the work of Theodor cook (1950) however, flora of Maharashtra, Kartikeyn *e. al.* 2000 (vol 1, 2 & 3) gives detail account of plant present in Maharashtra state. Jalgaon is a district comes under Maharashtra state floristic study of Jalgaon has been carried out by Dr. S. R. Kshirsagar and published his flora of Jalgaon district (2008). However, separate floristic studies of garden have not been done earlier. The importance of

gardening is also not understood in India. The people should be educated to realize the importance of garden by providing good parks and gardens in cities for a large population to relax and enjoy the beauty of nature.

III. STUDY AREA

The study area is a garden called "Shivaji Udyan". It is situated at the bank of Mehrun Lake, to the western side of the city on Shirsoli road at C.T.S. no. 539, 418, 419 having 1, 88,460 sq. m. area. The entrance of garden is high lightened by the statue of brave king SHIVAJI.

It is one of the oldest and largest gardens in the city. The garden has "Smruti Udyan" and a Royal park. Smruti Udyan was established on 15th August 1992. Here people donate amount for planting of trees in the memory of their beloved ones. The Climate is typical tropical having hot and humid summers (39°C during June-July and cool winters) (9°C during December – January). Annual average rainfall of Jalgaon district is 120 – 140 mm respectively.

IV. METHODOLOGY

Field visits

The present study is a floristic survey. It needs regular visits to the garden for that, garden is visited often during the month of June to November.

Identification

For this various text books of Botany and various floras like (Flora of Maharashtra, Flora of Nagpur, Flora of Presidency of Bombay by Theodore Cooke, Flora of Marathwada by V. N. Naik) are used.

Photography

The photographs of observed plants species are taken from the garden using digital camera (Model No. Xperia C). The localities of garden are also shown by the photographs.

Recording of data

Collected plant specimens are recorded in the observation table by applying botanical names, family, common names, etc. Total number of genera and species are recorded in the observation table with their purpose of cultivation (i.e. ornamental, medicinal, edible or hedge plants).

Analysis of Garden structure, Species Diversity and Composition

Whole Shivaji Udyan of Jalgaon city was studied during the month of June to November. This garden

was divided into several parts. Plant species were identified on the basis of Vernacular names, Floras and consulting available herbaria of the region.

Economically important plants were then classified into several use categories such as fruit, Miscellaneous, Medicinal, Ornamental, timber, vegetable etc.

V. OBSERVATION

Table No. 01: List of Herbs presents in Shivaji Udyan, Jalgaon City

Sr. No.	Botanical Name	Common Name	Family	Uses	No. of Plants
1.	<i>Acalypha indica</i> L.	Khalifa	Euphorbiaceae	Ornamental	12
2.	<i>Acalypha hispida</i> L.	Khalifa	Euphorbiaceae	Ornamental	5
3.	<i>Chrysanthemum indicum</i> L.	Shevanti	Asteraceae	Fragrance	6
4.	<i>Jasminum sambac</i> (L.) Aiton	Mogra	Oleaceae	Fragrance	10
5.	<i>Lavendula bipinnata</i> L.	Lavender	Asteraceae	Fragrance	5
6.	<i>Nephrolepis sps.</i> Schott	Neder	Polypodiaceae	Ornamental	5
7.	<i>Rosa indica</i> L.	Desigulab	Rosaceae	Fragrance	10
8.	<i>Tagetes erecta</i> L.	Marigold	Asteraceae	Fragrance	8
Total					61

Table No. 02: List of Shrubs presents in Shivaji Udyan, Jalgaon City

Sr. No.	Botanical Name	Common Name	Family	Uses	No. of Plants
1.	<i>Barleria cristata</i> L.	Kate koranti	Acanthaceae	Medicinal	7
2.	<i>Calotropis procera</i> R.Br.	Rui	Asclepidaceae	Medicinal	10
3.	<i>Duranta repens</i> L.	Mehendi	Verbenaceae	Ornamental	29
4.	<i>Lantana camera</i> L.	Tantani	Verbenaceae	Ornamental	1
Total					47

Table No. 03: List of Climbers presents in Shivaji Udyan, Jalgaon City

Sr. No.	Botanical Name	Common Name	Family	Uses	No. of Plants
1.	<i>Bougainvillea spectabilis</i> A.L.	Boganvelia	Nyctaginaceae	Ornamental	9
2.	<i>Coccinea cordifolia</i> L.	Tondali	Cucurbitaceae	Edible	1
3.	<i>Quisqualis indica</i> L.	Madhumalti	Combretaceae	Ornamental	26
Total					36

Table No. 04: List of Trees presents in Shivaji Udyan, Jalgaon City

Sr. No.	Botanical Name	Common Name	Family	Uses	No. of Plants
1.	<i>Acacia auriculiformis</i> Griseb	Australian Babool	Mimosaceae	Avenue & Ornamental	12
2.	<i>Acacia catechu</i> Willd	Khair	Mimosaceae	Medicinal	2
3.	<i>Acacia ferruginea</i> D C.	Babool	Mimosaceae	Medicinal	1
4.	<i>Acacia nilotica</i> L.	Babul	Mimosaceae	Medicinal	129
5.	<i>Albezzia lebbeck</i> L.	Kala Shirish	Mimosaceae	Avenue tree	21
6.	<i>Albezzia procera</i> Roxb.	Pandhra Shirish	Mimosaceae	Fodder	22
7.	<i>Annona reticulate</i> L.	Ramfal	Annonaceae	Edible	4
8.	<i>Annona squamosa</i> L.	Custard apple	Annonaceae	Edible	75
9.	<i>Azadirachta indica</i> A.	Neem	Meliaceae	Medicinal	435
10.	<i>Bambusa arundinaceae</i> Willd.	Spiny Bamboo	Poaceae	For building	75
11.	<i>Bambusa vulgaris</i> L.	Bamboo	Gramineae	Ornamental	11
12.	<i>Bombax ceiba</i> L.	Kate Savar	Bombacaceae	Stuffing use	2
13.	<i>Butea monosperma</i> (Lamk.) Taub	Palash	Papilionaceae	Medicinal	30
14.	<i>Callistemon lanceolatus</i> R.br	Bottle brush	Myrtaceae	Ornamental	14
15.	<i>Cassia fistula</i> L.	Bahava	Caesalpinaceae	Medicinal	32
16.	<i>Cassia siamea</i> Lamk.	Kashid	Caesalpinaceae	Ornamental	255
17.	<i>Casurina equisetifolia</i> L.	Suru	Casurinaceae	Ornamental, Medicinal	25
18.	<i>Cedrela toona</i> Roxb.	Mahaneem	Meliaceae	Avenue, Medicinal	6
19.	<i>Cesalpina pulcherrima</i> L.	Shankasur	Caesalpinaceae	Ornamental	5
20.	<i>Citrus limon</i> Burm.	Lemon	Rutaceae	Edible	3
21.	<i>Cocos nucifera</i> L.	Coconut	Palmae	Religious, Edible	7
22.	<i>Cordia myxa</i> L.	Bhokhar	Bombacaceae	Medicinal	20
23.	<i>Cycas</i> sps.	Cycas	Cycadaceae	Ornamental	13
24.	<i>Dalbergia latifolia</i> L. Roxb	Sesam	Papilionaceae	Ornamental	180
25.	<i>Delonix regia</i> Raf.	Gulmohar	Caesalpinaceae	Ornamental	17
26.	<i>Eucalyptus globules</i> L.	Nilgiri	Myrtaceae	Ornamental, Medicinal	240
27.	<i>Ficus benghalensis</i> L.	Vad	Moraceae	Religious	2
28.	<i>Ficus glomerata</i> L. Roxb.	Umbar	Moraceae	Religious, Edible	2
29.	<i>Ficus religiosa</i> L.	Peepal	Moraceae	Religious	1
30.	<i>Gardenia florida</i> L.	Anant	Rubiaceae	Ornamental	2
31.	<i>Hardwickia binata</i> Roxb.	Anjan	Caesalpinaceae	Fodder	1
32.	<i>Kigelia pinnata</i> DC.	Cucumber tree	Bignoniaceae	For building	10
33.	<i>Leucana leucocephala</i> Lamk.	Subabul	Mimosaceae	Ornamental	16
34.	<i>Livistona rotundifolia</i> Mart	Fan palm	Palmae	Ornamental	52

Sr. No.	Botanical Name	Common Name	Family	Uses	No. of Plants
35.	<i>Mangifera indica</i> L.	Mango	Anacardiaceae	Edible	10
36.	<i>Millingtonia hortensis</i> L.	AkashNeem	Bignoniaceae	Avenue	350
37.	<i>Morinda citrifolia</i> L.	Noni	Rubiaceae	Medicinal	85
38.	<i>Moringa oleifera</i> Lamk.	Shevga	Moringaceae	Edible	10
39.	<i>Phoenix dactylifera</i> L.	Khajur	Arecaceae	Medicinal, Edible	1
40.	<i>Phoenix sylvestre</i> L.	Palm tree	Arecaceae	Ornamental	70
41.	<i>Pithecolobium dulce</i> Benth.	Vilayati Chinch	Mimosaceae	Edible	30
42.	<i>Polyalthia longifolia</i> (Sonner).Thw BL	Ashok	Caesalpinaceae	Ornamental	450
43.	<i>Pterocarpus marsupium</i> Roxb.	Raktchandan	Papillionaceae	Medicinal	1
44.	<i>Putrangiva roxburghii</i> Wall.	Putranjiva	Euphorbiaceae	Medicinal	17
45.	<i>Santalum album</i> L.	Chandan	Santalaceae	Medicinal	105
46.	<i>Syzygium cumini</i> L.	Jamun	Myrtaceae	Medicinal, Edible	23
47.	<i>Tecoma stans</i> (L.)H.B.&K	Tecoma	Biognoniaceae	Hedge Plant	1
48.	<i>Tectona grandis</i> L.	Sag	Verbenaceae	Ornamental	52
49.	<i>Terminalia catapa</i> L.	Badam	Combretaceae	Ornamental, Edible	2
50.	<i>Thevetia nerifolia</i> L.Juss.exsturd	Kaner	Apocynaceae	Ornamental	9
51.	<i>Zizyphus jujuba</i> Lamk.	Bor	Rhamnaceae	Edible	60
Total					2998

VI. RESULTS AND DISCUSSION

The exhaustive and extensive floristic survey of Shivaji Udyan reveals presence of 3142 plants belonging to 55 genera. The garden reflects good floristic wealth, as 32 families of flowering plants are present. Around 3142 plants are present in Shivaji Udyan, of these Dicotyledons are maximum represented by 3115 number belonging to 52 genera. Total number of trees are 2998, representing 41 genera, however around 47 shrubs, belonging to 4 genera are reported. The dominant trees of garden are *Polyalthia longifolia* (Sonner).Thw BL, *Cassia siamea* Lamk, *Eucalyptus globules* L., *Cassia fistula* L., etc. Shivaji Udyan is marked out by some rare interesting plants of good medicinal potential. These are *Pterocarpus marsupium* Roxb, *Morinda citrifolia* L., *Santalum album* L., *Cordia myxa* L., *Putranjiva*

roxburghii Wall, etc. This kind of study gives up to date knowledge of trees and herbs present in the garden. The data generated by such work will be useful for further researchers, gardeners, florist, horticulturist or any student of botany who wish to study the plants.

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