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TREE SPECIES AND THEIR ASSOCIATED CONSERVATION ISSUES AT HAYATABAD TOWNSHIP, KHYBER PAKTHUNKHWA PESHAWAR, PAKISTAN

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ABSTRACT

The present studies were conducted to prepare inventory of wild and introduced ornamental tree species growing at Hayatabad Township. A total of 106 tree species belonging to 83 genera and 43 families of gymnosperms and angiosperms were recorded. In dicots Moraceae was the leading family with 3 genera and twelve (12) species and *Ficus* was the leading genus with eight (8) species. In monocots Arecaceae was the leading family with six (6) genera and seven (7) species. Apocynaceae was represented by 4 genera and 5 species, Caesalpinaceae was represented by 3 genera and 6 species. Mimosaceae (4 genera and 6 species), *Acacia* was the leading genus, Myrtaceae (5 genera and 6 species), Papilionaceae (6 genera and 6 species). Euphorbiaceae was represented by 5 genera and 5 species. Anacardiaceae, Bignoniaceae, Boraginaceae, Rhamnaceae, Rosaceae and Rutaceae were represented by 3 species each. Pinaceae, Cupressaceae, Magnoliaceae, Oleaceae, Salicaceae and Sterculiaceae were presented by 2 species each. The rest of the twenty three (23) families were presented by a single species each. Many of these species are exotic i.e. *Michelia champaca, Magnolia grandiflora* and *Cycas revoluta. Acacia modesta, A. nilotica, Prosopis juliflora, Tamarix aphylla, Zizyphus mauritiana* and *Z. nummularia* are limited to some very few localities due to heavy construction and natural habitat destruction. *Eucalyptus camaldulensis* is one of the invasive species. A single individual of *Eucalyptus cineria* was found in Bagh-e-Naran. It is recommended that Environmental Impact Assessment (EIA) must be carried out and before introducing exotic species which may cause severe threat to the naturally growing indigenous flora.

Key words: Alien invasive, dominant, Hayatabad Township, indigenous flora, mega projects, ornamentals, Peshawar Pakistan.

INTRODUCTION

Peshawar District lies between $71^0\ 25^/$ to $72^0 47^/$ E longitudes and $33^0\ 40^/$ to $34^0\ 31^/$ N latitudes. It is one of the most historic cities of Pakistan, located near the scenic route of the Khyber Pass, which is visited by a large number of tourists from abroad. Hayatabad Township is situated approximately 15km, south west of the main city centre spread over an area of 3360 acres. The project of Hayatabad Township was started in Oct 1978. There wasn't any existing population within the site of the Hayatabad Town. After the break-up of one unit the shortage of houses became even more acute, so the urge of residential sites increased. It was named after the then Chief Minister Hayat Muhammad Khan Sherpao. It is close to Khyber agency and is separated from by the hills at phase- VI and -VII. Hayatabad is the place of diverse cultures from all sorts of families from Khyber Pakhtunkhwa and also is a home for Afghani refugees for so many years since the start of cold war. Presently, it consists of seven phases i.e. Phase –I (523 acres), Phase-II (749 acres), phase –III (342 acres), phase- VI (326 acres), phase- V (307 acres) phase- VI (674 acres) and phase- VII (439 acres). Two tributaries of River Kabul are passing through the area naming Narai Khwar and Gandao Khwar. The public has been provided with facilities of parks including Bagh-e-Naran, Tatara Park, Shalman Park and Ladies Park.

The climate of Peshawar is tropical with a mean maximum temperature of 40 °C in summer (May-Aug) and 10 °C in winter (Nov-Mar). The relative humidity varies from 46% in June to 76% in August. The District is almost a fertile plain. The central part of the district consists of fine alluvial deposits. The cultivated tracts consists of a rich, light and porous soil, composed of a pretty even mixture of clay and sand which is good for cultivation. It is approximately 1173 feet (358 m) above sea level (Anonymous, 1998).

According to (Honu *et al*., 2009) Urbanization has resulted in the destruction of natural ecosystems, followed by conversion of the land into built up structures and other man made logical habitats such as lawns, gardens, parks etc. Previously wild trees were growing in this area but due to town establishment the number of these trees is considerably decreased due to cultivation of ornamental trees like *Sterculia diversifolia, Alastonia scholaris, Araucaria columnaris, Cupressus sempervirens* which are planted in all the parks, at road sides and in front of houses. Some of the trees like *Eriobotrya japonica, Mangifera indica, Prunus domestica* are introduced for the aesthetic as well as their fruit value. Trees like *Eucalyptus camaldulensis* are brought to enhance the aesthetic values of this site but now this tree has dominated as invasive species and growing vigorously in this area near the river/stream banks. *Acacia nilotica* and *Ziziphus nummularia* are indigenous tree species growing wildly along with the *Acacia modesta, Prosopis juliflora* are common in the area but the number has been considerably decreased.

Some the endangered plants like *Cycas revoluta* (a living fossil) and *Magnolia grandiflora* are grown for aesthetic purposes in the parks and houses. *Brousonetia papyrifera* an allergy causing species has already introduced in the area which has now become alien invasive. Although many non-native plant species that has been introduced to Pakistan and has become problematic, *Broussonetia papyrifera* is listed amongst the six worst plants invaders of highly impact species in Pakistan (Khatoon and Ali, 1999). Although the number of plants of *Broussonetia papyrifera* is few but its introduction may cause high allergies in future. The introduction of such species is severely affecting the local flora on one side and destruction of habitat for establishment of housing schemes on the other side. The most alarming threat to the local plant Biodiversity is the introduction of such exotic and ornamental species which ultimately causing global homogenization of biota and eliminating indigenous flora. Further, the clearance of site for construction is causing severe loss to the local species therefore; there is a dire need of carrying environmental impact assessment (EIA) before launching such mega projects to conserve the indigenous flora of such important areas.

MATERIALS AND METHODS

To collect information regarding the tree species growing at Hayatabad Township regular study visits were arranged to different phases and several localities from March to June, 2013. Plant specimens including various parts i.e. branches, flowers and fruits were collected, pressed, documented and properly dried. Information related to the trees species including locality, sub locality, flower color, fruit type, shape and distribution in various phases and their impact on the indigenous flora were noted in the field note book. Photography of different parts of the tree species was carried out by using Canon Power Shot A-2200 (14.1 Mega Pixel) Camera. Identification was carried out with the help of Flora of Pakistan and other available literature i.e. (Qureshi and Khan, 1965-67 &1971; Stewart, 1972; Ali and Nasir, 1971-1989; Polunin and Stainton, 1990; Ali and Nasir 1989-1991; Iqbal, 1993; Nasir and Ali, 1991-1993; Sheikh, 1993; Nasir and Rafiq, 1995; Ullah *et al*., 2005; Ullah *et al*., 2006a&b and Ali and Qaiser, 1993-2013). The specimens were mounted on standard size Herbarium Sheets and voucher specimens were deposited in University of Peshawar Botanical Garden Herbarium (UPBG).

RESULTS AND DISCUSSIONS

One hundred and six species of trees were encountered during the present studies including angiosperms and gymnosperms. Among the 4 gymnosperms *Cycas revoluta* is known as a living fossil and is one of the common ornamental of parks and houses. Thirty nine (39) families of angiosperms were recorded and almost all the trees are cultivated and it is noted that very few are growing naturally. These trees are present in the parks, on road sides, on stream banks and in the streets. Trees in the parks are in good condition due to their regular looking after by the gardeners. Most of the trees are brought from different areas which are used for aesthetic purposes. These trees have invaded the flora as introduced species. For the purpose of construction huge area is cleared from the trees growing wild previously in this area. There is a little knowledge about the importance of local flora among the local residents, only the value of aesthetics is important for the elite class. Trees like *Eucalyptus camaldulensis* were brought at the time when this land was allotted to the people and is now the dominant tree in the area. *Araucaria columnaris, Alastonia scholaris, Bombax cieba, Heteropharagma adenophylum* are the most common road side plantation. *Acacia nilotica, Acacia modesta, Zizyphus nummularia* are the wildly growing trees. A nursery is developed in the Bagh-e-Naran Park from where the ornamental trees species are supplied to the Peshawar Development Authority (PDA) for beautification of the township. In order to enhance the beauty of the area ornamental plants are encouraged and the wilds have been neglected. The habitats of the wild trees have been shrinked and they are limited to very few localities and their population has been reduced enormously.

Tree species are important for the aesthetic and landscaping purpose of the townships but extreme care must be taken before introducing such species which may cause global homogeneity of biota and will ultimately interfere with the indigenous flora. It is feared that some of them may become alien invasive and also cause some health hazards. Due to over population, urbanization, industrialization, infra-structure building number of our native plants are fast disappearing. It is recommended that in the name of construction of buildings, cutting of wild trees should be stopped to save some of the remaining representatives of plant species, so as to conserve local plant biodiversity (Hussain *et al*., 2010). Before starting such housing projects Environmental Impact Assessment (EIA) has to be carried to reduce the chances of introducing environmental unfriendly species. As an integral component of green infrastructure, key street trees selection is crucial to successfully shaping a better urban environment. Here the term, street trees refer to the tree species, which are widely used on streets and form the style of street landscape (Jim, 1999; Kuruneri and Shackleton, 2011; Li *et al*., 2011 and Deb *et al*., 2013).

One species which has taxonomic importance and is considered as a part of Magnoliod complex is *Magnolia grandiflora* which is very common tree and is grown in all the parks for its shiny and hard green leaves and beautiful fragrant flowers. Being majestic ornamental trees *Ficus bengalensis*, *Ficus benjamina*, *Ficus elastica* and *Ficus virens* are already planted in the parks and have large canopies (Table-1). Before launching such mega projects preparation of a checklist must be carried out to provide information regarding the indigenous flora of the area. Similarly, the local species must be encouraged to provide a natural gene pool of the local species. Further, some areas must be conserved naturally to provide baseline information for future plantation as indicator species.

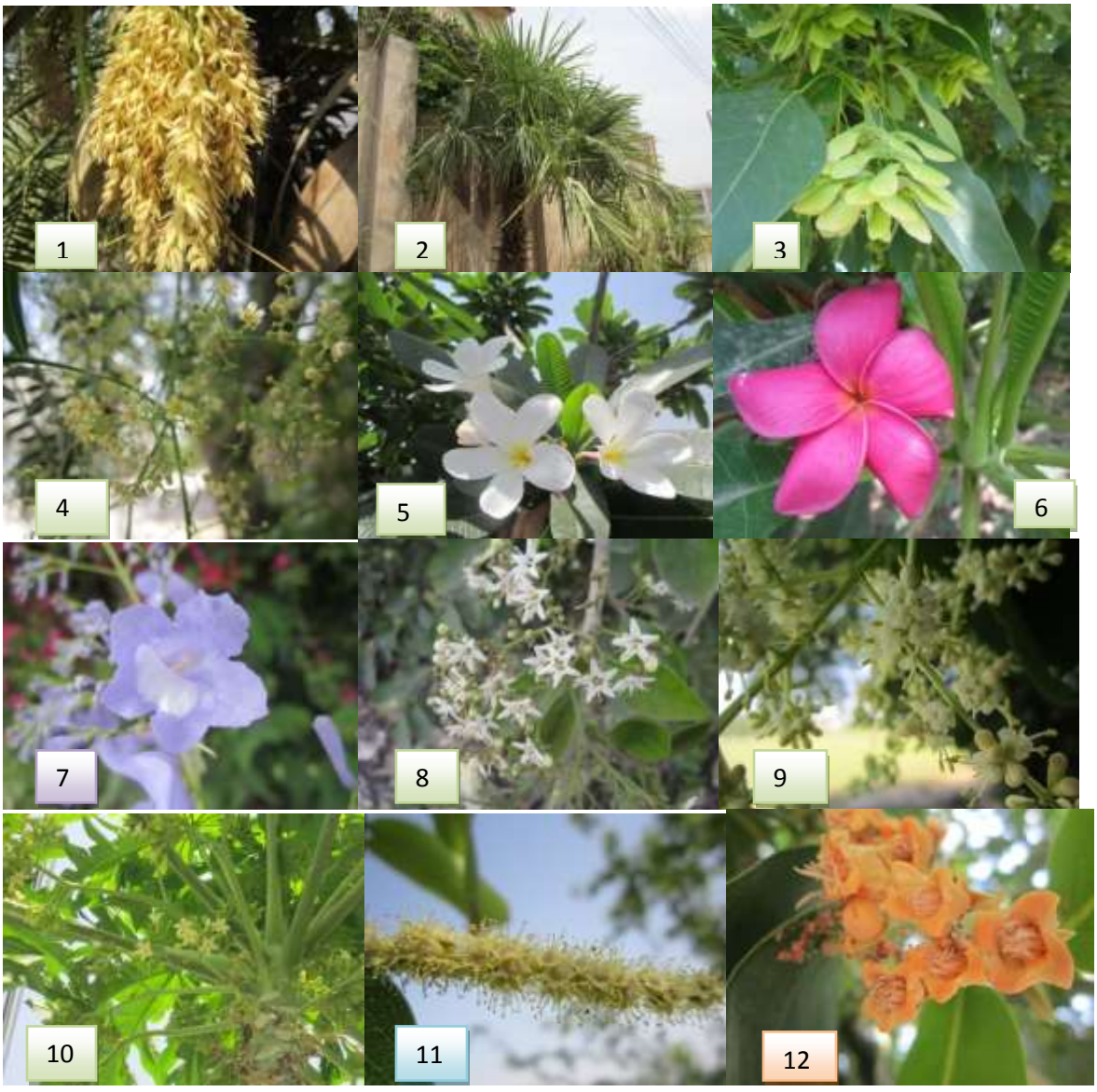

Plate-I. *Phoenix roebelenii* (1), *Trachycarpus fortunei* (2), *Acer oblongum* (3), *Schinus molle* (4), *Plumeria obtusa* (5), *Plumeria rubra* (6), *Jacaranda mimosifolia* (7), *Ehretia laevis* (8), *Ehretia serrata* (9), *Carica papaya* (10), *Terminalia arjuna* (11), *Diospyros embryopteris* (12).

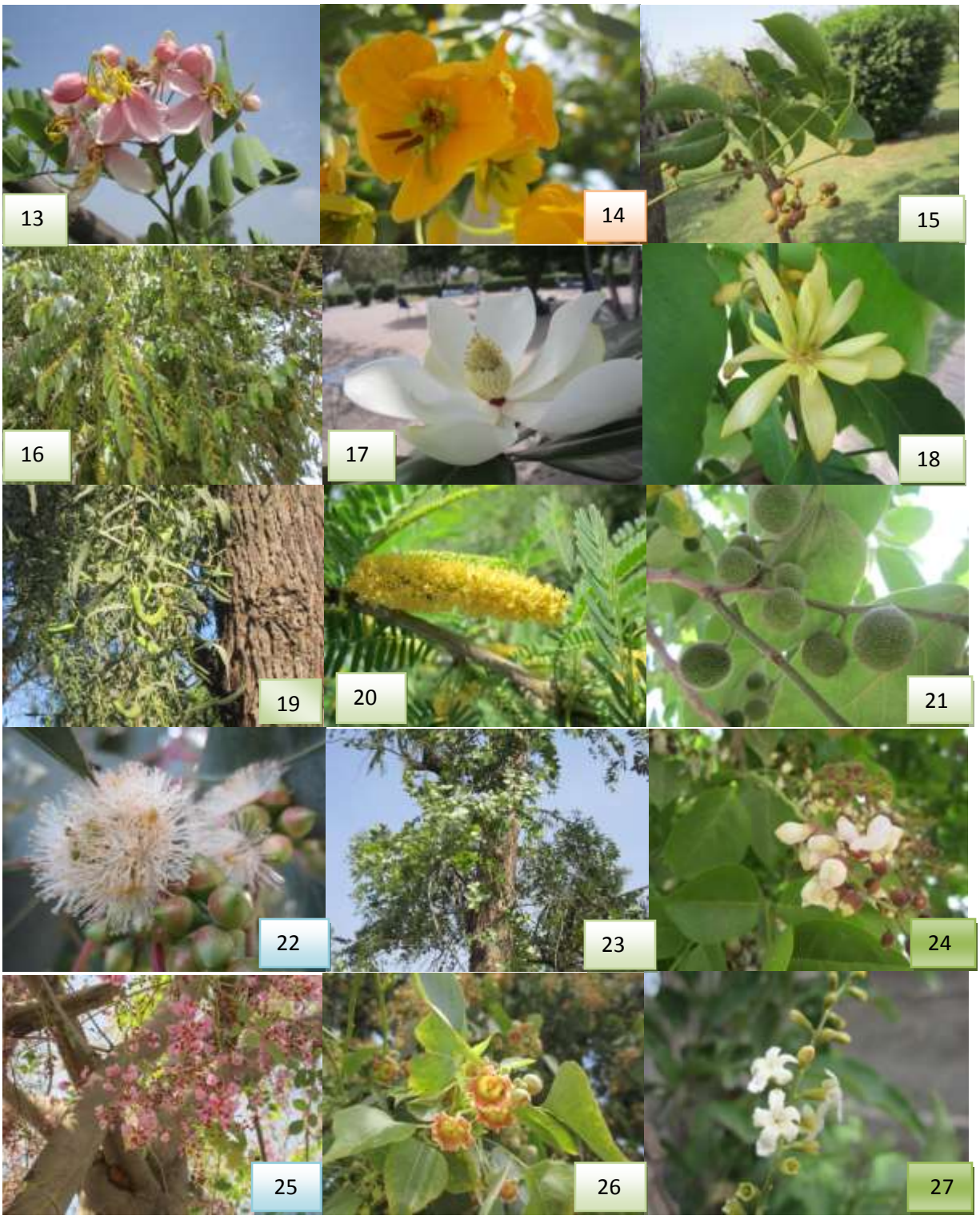

Plate-II**.** *Cassia javanica* (13), *Cassia surrattense* (14), *Bischofia javanica* (15), *Putranjiva roxburghii* (16), *Magnolia grandiflora* (17), *Michelia champaca* (18), *Acacia ampliceps* (19), *Prosopis juliflora* (20), *Brousonetia papyrifera* (21), *Eucalyptus camaldulensis* (22), *Eucalyptus cinerea* (23), *Pongamia pinnata* (24), *Robinia ambigua* (25), *Sterculia diversifolia* (26), *Citharexylum spinosum* (27).

Table 1. Checklist showing information regarding families, botanical names, local names, height, flower color, flowering period, voucher number, locality, sub locality and habit of tree species growing at Hayatabad Township Peshawar.

S.#	Family/Botanical name	Local name/ Eng. Name	Height	Flower color	Flowering Period	Voucher number	Locality	Sub locality	Habit etc.
			A. Gymnosperms						
1.	**Araucariaceae** 1. *Araucaria columnaris* (Forster) Hook.F.	Araucaria	60m	Green cones	Cone maturation take 4 years	J-01	Phase 4	Near FCA school	Cultivated
2.	**Cupressaceae** 1. *Cupressus sempervirens* L. 2. *Thuja orientalis* L.	Sarwa Morpankh	20m 6m	Green cone Green cones	Mar.-April Sept.-Oct	J-02 J-03	Phase 1 Phase 1	Bagh-e-Naran Bagh-e-Naran	Cultivated Cultivated
3.	**Cycadaceae** 1. *Cycas revoluta* Thunb	Kangi palm	4m	-	Feb.-May	J-04	Phase 5	Khyber park	Cultivated
4.	**Pinaceae** 1. *Pinus roxburghii* Sargent	Nakhtar	21-33m	Cone color yellow/brown	Cones get matured in three years	J-05	Phase 1	Bagh-e-Naran	Cultivated
	2. *Pinus halepensis* Miller	Quetta pine	12-27m	Cone color yellow/brown	Cone get matured in three years	J-06	Phase 2	Near sports complex	Cultivated
			B. Angiosperms (monocot(s)						
1.	**Agavaceae** 1. *Beaucarnea recurvata* Lem.	Pony Tail Palm	4-5m	White	Mid summer	J-08	Phase 4	Sector N-4	Cultivated
2.	**Palmae/Arecaceae** 1. *Carpeta urens* L. 2. *Livistona chinensis* (N.J Jacquin) R. Brown ex Martius	Fish Tail Palm Fan Palm	12m 13m	Greenish white White and green	April-May Feb-March	J-09 J-10	Phase 1 Phase 3	Bagh-e-Naran Near Yousufzai Market	Cultivated Cultivated
	3. *Phoenix dactylifera* L. 4. *Phoenix roebelenii* O'Brien 5. *Roystonea regia* (H.B and K) O. F.Cook 6. *Trachycarpus fortunei* (Hookser) H. Wendland 7. *Washingtonia filifera* (L. Linden) H.Wendl.	Khajoor Pygmy Date Palm Bottle Palm China palm Desert Fan Palm	30-35m 1-3m 40m 3-6m 24m	White Yellow White Yellowish green White	Mar.-April May Entire Year Early summer Mar.-June	J-11 J-12 J-13 J-14 J-15	Phase 5 Phase 2 Phase 4 Phase 7 Phase 2	Khyber park Inwar bazaar Sector N-2 Sector E-4 Near Ghani Bagh	Cultivated Cultivated Cultivated Cultivated Cultivated
			C. Angiosperms (Dicots)						
1.	**Aceraceae** 1. *Acer oblongum* Wall.	Kirmola	12-15m	Yellowish green	Feb.-April	J-16	Phase 1	Bagh-e-Naran	Cultivated
2.	**Anacardiaceae** 1. *Mangifera indica* L. 2. *Pistacia chinensis* Bunge 3. *Schinus molle* L.	Aam Chinese Pista Kali Mirch	12-21m 17m 7m	Greenish yellow Yellow and red White	Feb.-April Mar.-May April-May	J-17 J-18 J-19	Phase 3 Phase 5 Phase 4	Near Rohilia Market Khyber Park FYA School	Cultivated Cultivated Cultivated
3.	**Annonaceae** 1. *Polyalthia longifolia* (Sonnerat.) Thwait	Ashok Tree	13m	Yellowish and green	Mar.-May	J-20	Phase 2	Near Inwar bazaar	Cultivated
4.	**Apocynaceae** 1. *Alstonia scholaris* (L.)R.Br. 2. *Plumeria obtusa* L. 3. *Plumeria rubra* L.	Alastonia Galchin Galchin	20m 3-8m 3-8m	Whitish green White Red	Dec.-Jan May-July May-Sept	J-21 J-23 J-24	Phase 5 Phase 1 Phase 2	PDA Sector D-1 Sector D-1	Cultivated Cultivated Cultivated

	4.Tabernaemontana coronaria Wild.	Crape Jasmine	3-15m	White	April-Jun.	J-25	Phase 1	Bagh-e-Naran	Cultivated
	5.Thevetia peruviana (Pers.) Schum	Zard ganaira	6-7m	Yellow	Entire year	J-26	Phase 5	Sector B-3	Cultivated
5.	**Bignoniaceae** *1.Heterophragma adenophyllum* Seem. exBth.&Hk. f.	Sanp phalli	6-9m	Yellow	November	J-27	Phase 3	Phase 3 chowk	Cultivated
	2. Jacaranda mimosifolia D.Don	Jacaranda	12m	Light purple	Mar-April	J-28	Phase 5	ILM school	Cultivated
	3. Tecoma stans (L.) Juss.	Yellow bella	3-5m	Yellow	Entire year	J-29	Phase 1	Bagh-e-Naran	Cultivated
6.	**Bombacaceae** *1.Bombax cieba* L.	Sumbal	36m	Red	March	J-30	Phase 1	Bagh-e-Naran chowk	Cultivated
7.	**Boraginaceae** *1. Cordia myxa* L.	Lasura	5-15m	Yellowish brown	April-May	J-31	Phase 5	Khyber Park	Cultivated
	2. Ehretia laevis Roxb.	Chamror	9m	White	March	J-32	Phase 1	Sector E Park	Cultivated
	3. Ehretia serrata Roxb.	Puran	10-12m	White	April-May	J-33	Phase 1	Bagh-e-Naran	Cultivated
8.	**Caesalpiniaceae** *1. Bauhinia purpurea* L.	Kachnar	6-10m	Purple	Mar.-April	J-34	Phase 4	Sector P-1	Cultivated
	2.Bauhinia variegata L.	Safaid Kachnar	8-10m	White	Mar.-April	J-35	Phase 5	People's market	Cultivated
	3.Cassia fistula L.	Amaltas	5-9m	Bright yellow	May-July	J-36	Phase 3	Phase 4 pull	Cultivated and Wild
	4.Cassia javanica L.	Apple blosaom	20m	Pink	May-June	J-37	Phase 3	Phase 3 chowk	Cultivated
	5.Cassia surrattense (Koen. ex Roth) Baker.	Sunshine tree	6m	Yellow	May-June	J-38	Phase 1	Bagh-e-Naran	Cultivated
	6.Parkinsonia aculeata L.	Parkinsonia	5-9m	Yellow	May	J-39	Phase 4	Sector P-2	Cultivated
9.	**Caricaceae** *1.Carica papaya* L.	Papita	7-9m	White and yellow	Throughout the year	J-40	Phase 2	Near sports complex	Cultivated
10.	**Casurinaceae** *1.Casurina equisitifolia* L.	Casurina	10-30m	Red	Dec.-March	J-41	Phase 1	Sector D-1	Cultivated
11.	**Combretaceae** *1.Terminalia arjuna* (Roxb. ex DC.) Wight & Arn	Arjun	21-30m	Yellowish white	May	J-42	Phase 2	Itwar Bazar	Cultivated
12.	**Ebenaceae** *1. Diospyros embryopteris* Pers	Chab	8-12m	Yellowish brown	May-June	J-43	Phase 5	Khyber Park	Cultivated
13.	**Euphorbiaceae** *1.Bischofia javanica* Blume.	Irum	15-17m	Light green	March	J-44	Phase 1	Bagh-e-Naran	Cultivated
	2.Jatropha hastata Jacq.	Jatropha	4-6m	Red	Mar.-May	J-45	Phase 6	Shalman Park	Cultivated
	3.Putranjiva roxburghii Wall.	Putar Jiva	15m	Yellowish green	April-May	J-46	Phase 5	Khyber Park	Cultivated
	4.Ricinus communis L.	Arand	5m	Yellowish green	Summer-Fall	J-47	Phase 7	Sector –E 4	Wild
	5.Sapium sebiferum Roxb.	Chinese Tallow Tree	6-12m	Yellow	May-Oct.	J-48	Phase 2	Shalman Park	Cultivated
14.	**Lythraceae** *1.Lagerstroemia indica* L.	Lagerstroemia	2-3m	Red, Pink, Purple	May-June	J-49	Phase 3	Phase 3 Chowk	Cultivated
15.	**Magnoliaceae** *1.Magnolia grandiflora* L.	Magnolia	14-30m	White	April-May	J-50	Phase 5	Khyber Park	Cultivated
	2. Michelia champaca L.	Champa	9-24m	Yellow	April-May	J-51	Phase 1	Bagh-e-Naran	Cultivated
16.	**Malvaceae** *1. Hibiscus mutabilis* L.	Hibiscus	5-6m	Pink	April-June	J-53	Phase 4	Sector N-4	Cultivated

17.	**Meliaceae**	Bakain	6-12m	Purple and white	March-May	J-54	Phase 5	Khyber Park	Cultivated
18.	**Mimosaceae**	Acacia	5-8m	White	May-Aug	J-55	Phase 5	PDA complex	Cultivated
	1. *Acacia amplicaps* Maslin.								
	2. *Acacia modesta* Wall.	Palosa	3-9m	Yellow	Mar.-May	J-56	Phase 5	Khyber Park	Wild
	3. *Acacia nilotica* (L.) Willd. ex Delile	Kikar	20m	White	June-Aug.	J-57	Phase 5	Sector C-3	Wild
	4. *Albizia lebbek* (L.) Benth.	Sirikh	12-30m	Yellow	April-May	J-58	Phase 4	Near HMC	Cultivated
	5. *Leucaena leucocephala* (Lam.)		5-20m	White	April-June	J-59	Phase 4	Sector P-1	Wild
	6. *Prosopis juliflora* (Swartz) DC.	Mesquite	10m	Yellow	Mar.-June	J-60	Phase 7	Sector E-4	Wild
19.	**Moraceae**	Gul Toot	3-12m	Orange red	May-Aug.	J-61	Phase 4	Sector N-4	Wild, Invasive
	1. *Broussonetia papyrifera* (L.) L.								
	2. *Ficus bengalensis* L.	Barh	20-25m	Red	April onwards	J-62	Phase 5	Khyber Park	Cultivated
	3. *Ficus benjamina* L.	Ficus	8-10m	Green	April-July	J-63	Phase 5	Khyber Park	Cultivated
	4. *Ficus carica* L.	Inzar Fig	5-9m	Green	April-July	J-64	Phase 5	PDA Complex	Cultivated
	5. *Ficus elastica* Roxb.	Rubber plant	30m	Yellowish	Mar.-April	J-65	Phase 5	Khyber Park	Cultivated
	6. *Ficus microcarpa* L.	Hawaii ficus	15-20m	Green	Aug.-Dec.	J-66	Phase 1	Bagh-e-Naran	Cultivated
	7. *Ficus palmata* Forssk.	Inzar	10m	Green	May-Nov.	J-67	Phase 3	Phase 3 Quarters	Cultivated
	8. *Ficus religiosa* L.	Pegpal	15-20m	Green	Mar.-Oct.	J-68	Phase 3	Sector K-2	Cultivated
	9. *Ficus virens* Dryand.	White Fig	15-20m	Yellow	Oct.-Mar.	J-69	Phase 5	Khyber Park	Cultivated
	10. *Morus alba* L.	SpeenToot	9-15m	Greenish	Feb.-April	J-70	Phase 5	Peoples market	Cultivated
	11. *Morus nigra* L.	Toor Toot	10m	Black S	Mar.-July	J-71	Phase 5	Near peoples market	Cultivated
	12. *Morus laevigata* Wall.ex Brandis	Shah Tut	10m	Light green	Mar.-April	J-72	Phase 5	Near peoples market	Cultivated
20.	**Myrtaceae**								Cultivated
	1. *Callistemon viminalis* (Solander) Cheel.	Bottle Brush	8m	Red	May and onwards	J-73	Phase 5	Khyber Park	
	2. *Eucalyptus camaldulensis* Dehnhardt	Lachi	30-40m	White	Mar-May	J-74	Phase 6	Shalman Park	Wild, Invasive
	3. *Eucalyptus cinerea* F.Muller ex Bentham	Eucalyptus, Silver Dollar Tree	30-40	White	May-Jun	J-75	Phase 1	Bagh-e-Naran	Cultivated
	4. *Eucalyptus torelliana* F. Mueller.	Eucalyptus	30m	White	May-Jun	J-76	Phase 1	Bagh-e-Naran	Cultivated
	5. *Psidium guajava* L.	Guava, Amrood	10m	White	Mar-April	J-77	Phase 4	Near FCA school	Cultivated
	6. *Syzygium cumini* (L.) Skeels.	Jamun	40m	White	May-Jun	J-78	Phase 1	Near Super Market	Cultivated
21.	**Oleaceae**	Kuri	10m	White	Aug-Oct	J-79	Phase 5	Khyber Park	Cultivated
	1. *Nyctanthes arbor-tristis* L.								
	2. *Olea europea* L.	Zaitoon/Olive	7m	Whitish	April-May	J-80	Phase 3	Near Yousufzai Market	Cultivated
22.	**Papilionaceae**	Butea; Flame of the forest	12-15m	Red	Mar-April	J-81	Phase 1	Bagh-e-Naran	Cultivated
	1. *Butea monosperma* (Lain.) Taubert								
	2. *Dalbergia sissoo* Roxb.	Shawa	15-30m	Yellow	Mar-May	J-82	Phase 4	Near FCA school	Cultivated

	3. *Erythrina suberosa* Roxb.	Gadri-Nishter	13-17m	Red	March-April	J-83	Phase 7	Sector E-5	Cultivated
	4. *Sophora secundiflori* (Ortega) DC.	Mesval Bean	3-5m	Purple	March	J-84	Phase 5	PDA building	Cultivated
	5. *Pongamia pinnata* (L.) Pierre	Sukh Chain	25m	Violet and Pink	April-May	J-85	Phase 4	Near HMC	Cultivated
	6. *Robinia ambigua* Poir.	Purple robe	15m	Purple and pink	Apr-May	J-86	Phase 1	Bagh-e-Naran	Cultivated
23.	**Platanaceae**	Chinar	20-25m	Slight yellow	Apr-May	J-87	Phase 5	Khyber Park	Cultivated
	1. *Platanus orientalis* L.								
24.	**Proteaceae**	Reshmi Oak	12-20m	Orange yellow	May-June	J-88	Phase 5	Khyber Park	Cultivated
	1. *Grevillea robusta* A. Cunn.								
25.	**Punicaceae**	Anar, Pomegranate	2-5m	Orange red	April-June	J-89	Phase 4	Sector N-4	Cultivated
	1.*Punica granatum* L.								
26	**Rhamnaceae**	Unnab Beera	10m	Yellow	Jun-July	J-90	Phase 4	Sector N-4	Cultivated
	1. *Ziziphus jujuba* Mill								
	2. *Ziziphus mauritiana* Lam.	Bada Beera	12m	Yellow	April-Sept	J-91	Phase 2	Tuwar Bazar	Wild
	3. *Ziziphus nummularia* (Burm. f.) Wight & Arn	Wild Jujube	6-8m	Yellow	Mar-Jun	J-92	Phase 2	Tuwar Bazar	Wild
27.	**Rosaceae**	Loquat	10m	White and brown	Jul-Aug	J-93	Phase 5	Khyber Park	Cultivated
	1. *Eriobotrya japonica* L.								
	2. *Pyrus communis* L.	Pear, Nashpati	7-9m	White	Dec-Jan	J-94	Phase 7	Sector F-8	Cultivated
	3. *Prunus domestica* L.	Plum, Alocha	9-15m	White	Dec-Jan	J-95	Phase 7	Sector F-8	Cultivated
28.	**Rubiaceae**	Fire bush	3-4m	Orange red	May	J-96	Phase 4	Tatara Park	Cultivated
	1.*Hamelia patens* Jacquin								
29	**Rutaceae**	Naranj	7-8m	White	Mar-April	J-97	Phase 5	Khyber Park	Cultivated
	1. *Citrus aurantium* L.								
	2. *Citrus limon* L.	Lemon, Nimbo	3-6	White	Aug-Nov	J-98	Phase 4	Sector N-4	Cultivated
	3. *Murraya paniculata* (L.) Jack.	Orange Jessamine	3-4m	White	Mar-Sept	J-99	Phase 3	Near Rohila Market	Cultivated
30.	**Salicaceae**	Sufaida	35m	Brownish	Apr-May	J-100	Phase 3	Sector K-2	Cultivated
	1. *Populus nigra* L.								
	2. *Salix acmophylla* Boiss.	Kitarwala	9m	Yellow	Feb-April	J-101	Phase 4	Tatara Park	Cultivated
31.	**Sapindaceae**	Ghuraskay	5m	Yellowish green	Jan-Mar	J-102	Phase 3	Sector K-5	Cultivated
	1. *Dodonea viscosa* (L.) Jacq.								
32.	**Sinnurubaceae**	Angreizi Bakayan	6-10m	Yellow	April-June	J-103	Phase 2	Front of sports complex	Cultivated
	1. *Ailanthus altissima* (Mill.) Swingle								
33.	**Solanaceae**	Angel's Trumpet	3-5m	White	April-May	J-104	Phase I	Bagh-e-Naran	Cultivated
	1. *Brugmansia arborea* (L.) Sweet								
34.	**Sterculiaceae**	Kanack Champa	30m	Rusty brown and white	April-May	J-105	Phase 4	Sector P-1	Cultivated
	1.*Pterospermum acerifolium* (L.) Willd.								
	2. *Sterculia diversifolia* G Don.	Sterculia, Bottle tree	9-15m	Tea pink and white	April-Jun	J-106	Phase 3	Sector K-6	Cultivated
35.	**Strelitziaceae**	Traveler's Palm	7-10m	Creamy white		J-107	Phase 2	Front of Shalman park	Cultivated
	1.*Ravenala madagascariensis* Sonnerat.								
36.	**Tamaricaceae**	Ghaz	10-18m	White	Jul-Aug	J-108	Phase 3	Stream Bank	Wild
	1. *Tamarix aphylla* (L.) Karst								
37.	**Verbenaceae**	Fiddle wood	15m	White	May-Jun	J-109	Phase 1	Bagh-e-Naran	Cultivated
	1. *Citharexylum spinosum* L.								

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