Ethnobotanical assessment of woody flora of district Kasur (Punjab), Pakistan

Muhammad Waheed, Fahim Arshad, Muhammad Iqbal, Kaniz Fatima and Kaneez Fatima

Databases and Inventories

Abstract

Background: An ethnobotanical survey of woody flora comprising of trees was conducted from district Kasur, Punjab, Pakistan.

Materials and Methods: The data was collected by interviewing native people through a semi-structured questionnaire.

Results: A total of 78 tree plant species belonging to 63 genera and 27 families were explored from the study area. The ethnobotanical results revealed that 21 species had medicinal importance, 11 species were used as fodder, 16 species as fuel wood, 10 species for making agriculture tools, 19 species in furniture, 33 species were ornamentals, fruits or flowers of 7 species were cooked as vegetable, 04 species were utilized as hedge, 6 species for shade purpose and 7 species had multifarious perspectives. The inhabitants of studied area utilized 21 tree species out of 78 against various ailments *viz.;* cough (33.3%), asthma (23.8%), diabetes (23.8%), sexual tonics (28.5%), liver problems (9.5%), skin disorders (23.8%), wounds healing (9.5%), blood purifier (9.5%), kidney problems (4.7%), piles (19%), digestive disorders (28.5%), jaundice (4.7%), fever and flu (28.5%), menstrual problems (9.5%) and toothache (14.2%).

Conclusions: The ethnobotanical utilization trend observed was most prevalent amongst the rural communities of the studied area.

Keywords: Ethnobotany, Woody flora, Indigenous knowledge, Kasur.

خلاصہ:

پس منظر: پنجاب ، پاکستان ، ضلع قصور میں درختوں پر مشتمل نباتاتی پودوں کا مطالعہ کیا گیا۔

مواد اور طریقے کار: یہ اعداد و شمار نیم ساختہ سوالنامے کے ذریعے مقامی لوگوں کے انٹرویو کےذریعے جمع کیے گئے۔

نتائج: علاقے سےمجموعی طور پر٦٣ نسلوں اور ٢٧ خاندانوں سےتعلق رکھنے والے ٧٨ درختوں کا مطالعہ کیا گیا۔ نباتاتی مطالعہ کے نتائج سے یہ بات سامنے آئی ہے کہ ٢١ پودوں کو دواؤں کی اہمیت حاصل ہے ، ١١ پودوں کو چارہ کے طور پر استعمال کیا جاتا ہے ، ایندھن کی لکڑی کے طور پر ١٦ پودوے ، زراعت کے اوزار بنانے کے لئے ١٠ پودوے ، فرنیچر میں ١٩پودوے ، ٣٣ پودوں کو زیبائش کے لئے ، ٠٧ پودوں کے پھول یا پھل کو سبزی کے طور پر پکایا گیا تھا ٠٤ پودوں کو رکاوٹ کے طور پر ، ٠٦ پودوں کو سایہ کے مقصد کے لئے اور ٠٧ پودوں کو متعدد نقطہ نظر سے استعمال کیا گیا تھا. زیرِ مطالعہ علاقے کے باشندوں نے ٧٨ میں سے ٢١ درختوں کو مختلف بیماریوں میں استعمال کیا جیسا کہ؛ کھانسی (٣٣٪) ، دمہ (٨٪٢٣) ، ذیابیطس (٨٪٢٣) ، جنسی ٹانک (٥٪٢٨) ، جگر کے مسائل (٥٪٩) ، جلد کے امراض (٨٪٢٣) ، زخموں کی شفا (٥٪٩) ، بلڈ پیوریفائر (٥٪٩) ، گردے کی پریشانی (٧٪٤) ، بواسیر (١٩٪) ، باضمے کی خرابی (٥٪٢٨) ، یرقان (٧٪٤) ، بخار اور فلو (٥٪٢٨) ، ماہواری کے مسائل (٥٪٩) اور دانت میں درد (٢٪١٤) شامل ہیں۔

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اخذ شدہ نتیجہ: مطالعہ شدہ علاقے کی دیہی برادریوں میں پودوں کے استعمال کا رجحان سب سے زیادہ پایا جاتا ہے۔

کلیدی الفاظ: ایتھنوبوٹنی ، ووڈی فلورا، دیسی علم ،قصور

Background

Plants play an imperative role in humans lives more than animals chiefly due to the collection of different groups of biochemicals with a range of natural actions (Cotton 1996). Plants perform various functions in daily commodities such as they provide shelter, food, medicine, fodder, cosmetics, shadow, fuel, fencing and dyes etc. (Mehwish *et al.* 2019). Woody flora is important component of every terrestrial ecosystem and plays significant role for the maintenance of ecosystem, water conservation, decreased soil erosion, reduction of severity of floods, avalanches and drought, carbon sequestering and removal of harmful pollutants from the air as well as water resources (Nowak *et al*. 2007).

Herbal remedies derived from plants have been used for treating various ailments since times antiquities. Despite of rapidly vanishing of traditional knowledge of medicinal and wild edible plants across the world, plants continue to play key role in daily life activities (Pieroni *et al.* 2014). The relationship between people and plants usually examines the extent of traditional botanical knowledge of the native population and uses such knowledge to exploit plants for a variety of perspectives (Arshad *et al.* 2014). Traditional knowledge has been essential in developing commercial products and in finding therapeutic remedies. Presently, main focus on ethnobotanical research has been increased considerably in therapeutics, cultural and commercial ethnobotany (Egbe *et al*. 2012).

Ethnobotanical knowledge on plants and their uses by traditions aboriginal is helpful not only in saving of folk cultures and plants diversity, but also for the health care of people and medicine improvement. Thus modifying the drug made by the local community over a longer period of time may be having an allopathic use (Farnsworth 1993).

The district Kasur (Pakistan) possesses distinctive plant biodiversity that has not been explored before. The reliance of native people of the Kasur district towards the utilization of natural resources as basic commodities of life is an imperative of conducting research in such perspectives. Therefore, the main objective of the study was to evaluate the ethnobotanical information from the local inhabitants, documentation of commercial utilization of woody flora by the aboriginals and assessment of role of woody species in improving the livelihood of people of district Kasur.

Materials and Methods

District Kasur is 150 to 200 meters above the sea level, located southeast to Lahore at latitude $31^{0}12$" N and longitude $74^{0}44$" E. The total area of district Kasur is 3995 km^2 and surrounded by Rivers Sutlej and Ravi (Fig.1).

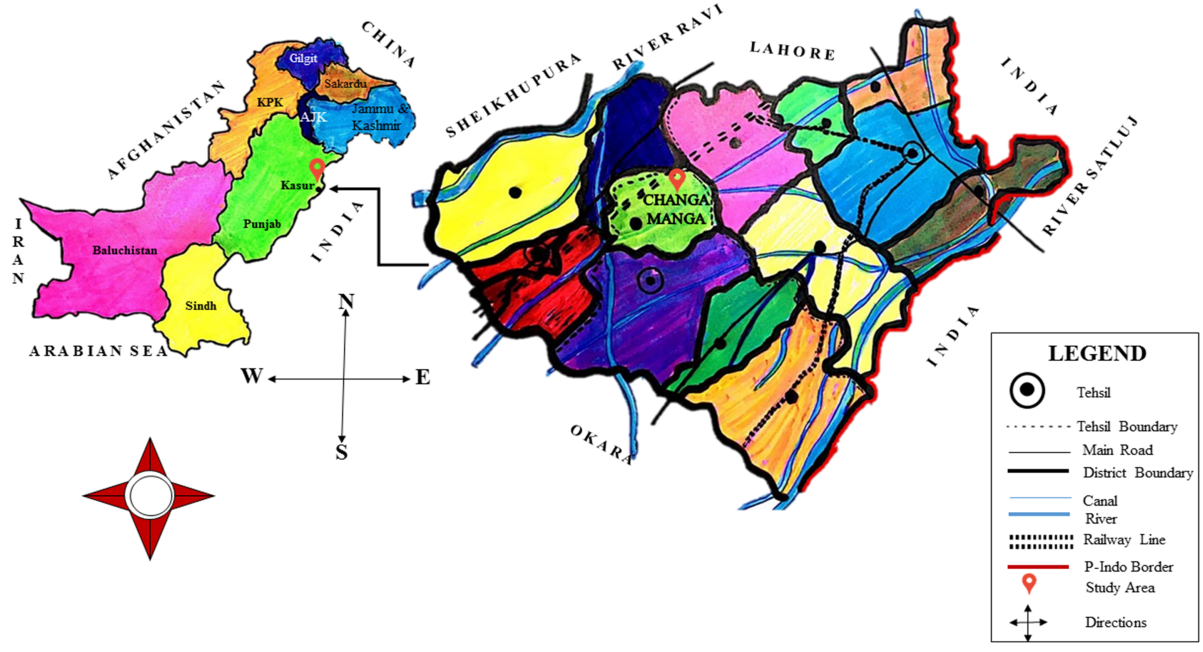

Figure 1. Map of the study area area (District Kasur).

Field surveys were conducted in district Kasur for the ethnobotanical exploration of trees from 2016-2018. Trees present in parks, along roads, canals, barren lands, housing schemes, agriculture fields, irrigated plantations as well as in government buildings were photographed and identified with the help of flora of Pakistan (Nasir & Ali 1970-1989, Ali & Nasir 1990-1992, Nasir & Rafiq 1995, Ali & Qaisar 1992-2010).

Ethnobotanical information was collected by interviewing the local inhabitants of study area through a semi-structured questionnaire. The local informants were belonging to various professions i.e. hakims, merchants, shepherds, nomads, woodcutters, baildaars, teachers, farmers and local healers and of different age groups. A total of 92 informants (77 men and 15 women) were interviewed during the survey. Informants age was ranged from 20 to 95 years old (16 were between 20-35 whereas 24 were 36-45 years old). Most of the informants (45) have more than 50 years age (Table 1).

Ethnobotanical data was also cross checked from already published literature (Ilahi 2008, Abbasi *et al.* 2010, Ajaib *et al.* 2010, Qureshi *et al.* 2011, Khan *et al.* 2011, Zareen *et al.* 2013, Kayani *et al.* 2014, Barkatullah *et al.* 2015).

Table 1. Demographic information of respondents.

Variables	Item	Total	%
Gender	Men	77	83.70
	Women	15	16.30
Occupation	Hakims	20	21.74
	Woodcutters	05	5.43
	Shepherds	06	6.52
	Baildaars	07	7.61
	Merchants	10	10.79
	Teachers	08	8.69
	Farmers	28	30.43
	Local healers	08	8.69
Age Group	>20	04	4.34
	20 to 35	16	17.39
	36 to 50	24	20.09
	51 to 65	41	44.56
	More than 65	07	7.61
Education level	Illiterate	15	16.30
	Primary	22	23.91
	Middle	25	27.17
	Higher secondary	19	20.65
	Graduate	11	11.96

Results

A total of 78 tree species belonging to 63 genera and 27 families were explored from the study area. All species were photographed, identified and their ethnobotanical importance was highlighted (Table 2). The observed arborescent flora was comprised of one monocot family (Araceae), 28 families were dicot and one family was attributed to gymnosperms. The dominant family observed was Fabaceae (21 species), followed by Moraceae (10 species), Meliaceae (5 species each), Bignoniaceae, Euphorbiaceae and Myrtaceae (4 species each), Apocynaceae and Arecaceae (3 species each), Sterculiaceae, Verbenaceae, Sapindaceae, Combretaceae and Boraginaceae included 2 species) each and remaining families had 1 plant species each (Fig. 2).

From the observed woody flora, 21 species had medicinal importance, 11 species were used as fodder, 16 species as fuel wood, 10 species were used for making agriculture tools, 19 species in furniture, 33 species were ornamentals, fruits or flowers of 7 species were cooked as vegetable, 04 species were utilized as hedge, 6 species were grown for shade purpose and 7 species had multifarious perspectives. Ethnomedicinal results of current study revealed that 5 species were used to treat asthma, 7 species for cough, 6 species as sexual tonic, 5 species for skin disorders, 2 species for wounds healing, 5 against diabetes, 2 species as blood purifier, 3 species were utilized in ethnoveterinary medicines, 1 species for kidney problems, 4 species for piles, 5 species for digestive problems, 1 species for jaundice, 6 species for fever and flue, 2 species for liver problems, 2 were used for menstrual disorders and 3 species were utilized for toothache (Fig. 3; Table 2).

Discussion

Pakistan is blessed with variety of plant diversity due to diversified climate and variety of soil types, the floral diversity is significant economically as well as medicinally (Zareen *et al.* 2013). People utilize plants in order to cope the daily domestic requirements such as medicines, food, household appliances, livestock fodder, ornamental, fences, housing, agriculture tools, wood, fuel, furniture, religious uses and protecting fields from erosion (Ahmad *et al.* 2014). The native people of district Kasur utilized 78 species of arborescent (woody) flora for various perspectives *viz.;* medicinal (16%), fodders (8%), fuel wood (12%), agriculture tools (7%), furniture (14%), ornamentals (25%), vegetables (5%), hedge (3%), shade purpose (5%) and of multifarious uses (5%) (Fig. 3).

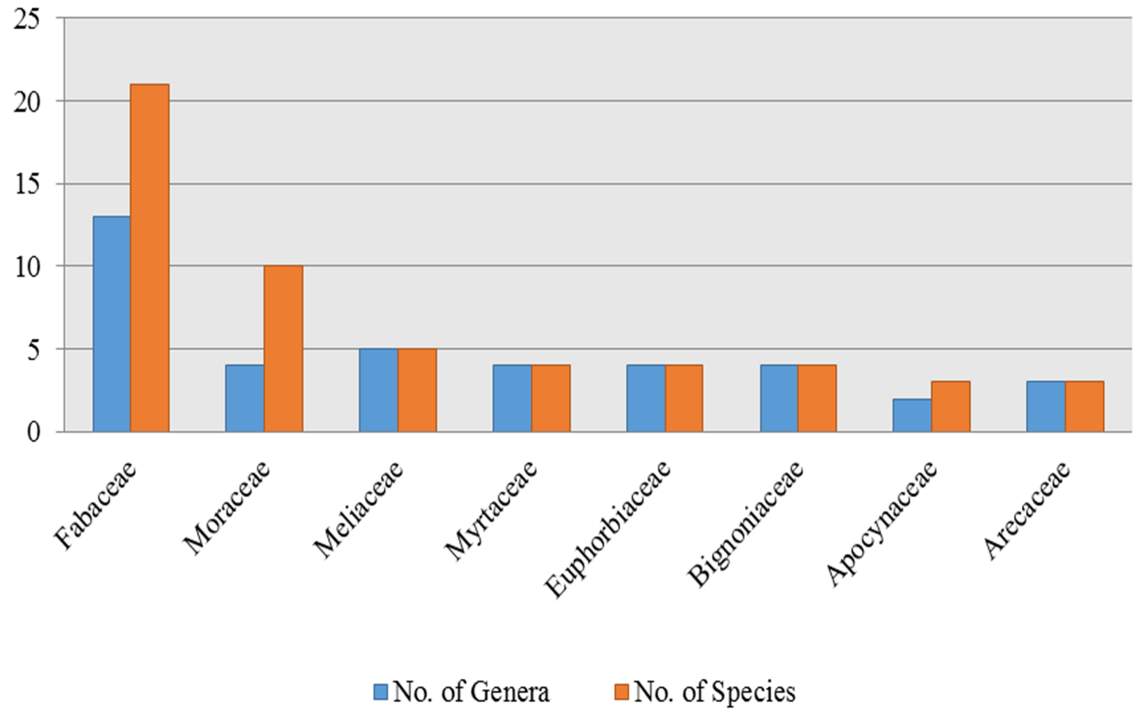

Figure 2 Distribution of most prevalent families containing genera and species observed from the studied area.

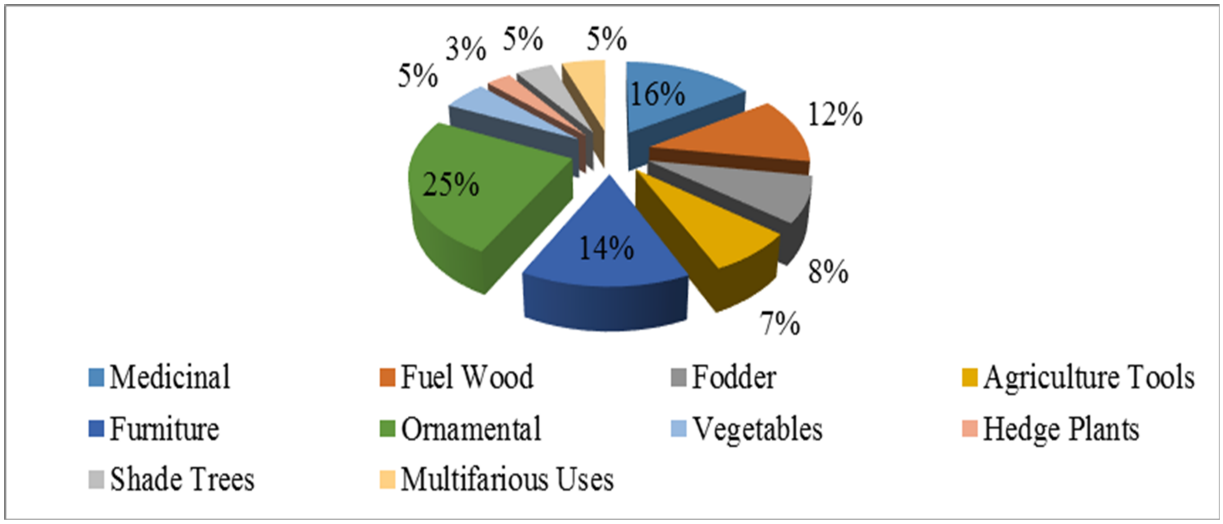

Figure 3 Percentage of studied woody flora utilized for various ethnobotanical perspectives.

The people of studied area utilized the fruits of various species i.e., *Zizyphus mauritiana, Syzygium cumini, Mangifera indica Morus alba, M. nigra, Ficus palmata* and *Cordia myxa* as reflected from Ibrar *et al.* (2007), Sher and Al-Yemni (2011), Zareen and Khan (2012) and Abbas *et al.* (2016). The observed woody flora was widely utilized for making agricultural implements were comprised of *Acacia modesta, A. nilotica, Dalbergia sissoo, Capparis decidua* and *Prosopis cineraria* and such studies were also accompanied by Zabihullah *et al.* (2006), Durrani *et al.* (2009) and Samreen *et al.* (2016). Present study also revealed the usage of tree species *viz.; Dalbergia sissoo* and *Tectona grandis* as high-quality timber for furniture industry while *Morus alba* and *M. nigra* were widely used for sport goods manufacturing. The wood of *Ehreia laevis* was first time reported in furniture making from the region as exacerbated from Sher *et al.* (2011) and Samreen *et al.* (2016).

People living in remote areas of Kasur district are poor and have less resources to accomplish daily needs. They are generally relying upon local

vegetation for fuel wood. A total of 16 tress species used as fuel including *Acacia farnesiana, A. modesta, A. nilotica, Dalbergia sissoo* and *Ehretia laevis.* The local flora has been utilized extensively by the local people because important woody plant species are over-exploited for medicinal, food, coal, timber and other uses. The rural communities mainly depend on livestock for survival, consequently exploited 11 woody species as fodder i.e. *Albizzia procera, Broussonetia papyrifera, Melia azedarach Morus alba* and *M. nigra* while *Prosopis cineraria P. juliflora* and *Zizyphus mauritiana* are some promising fodders during scarcities. The use of woody plants as fuel and fodder has also been documented by Durrani *et al.* (2009), Al-Yemni (2011), Sher *et al.* (2011) Zareen and Khan (2012) and Samreen *et al.* (2016).

The knowledge about curing various ailments through utilizing plant resources is very traditional and has been transferred practically and orally from generation to generations (Hassan *et al.* 2017). The medicinal significance of woody flora by the local inhabitants for curing various ailments was considerably observed (Fig. 4). For instance, bark of *Acacia modesta* was used for asthma and cough and gum was effective for male sexual dysfunctions while dried pods of *Acacia nilotica* were employed as folk remedies for kidney pain, male sexual problems and diabetes. Seeds of *Acacia indica* were utilized against piles and constipation. Leaves and fruits of *Eucalyptus camaldulensis* and *Cordia myxa* were effective for headache, cough, flue and jaundice also revealed from the studies of Shah *et al.* (2015), Ahmad *et al.* (2019) and Wali *et al.* (2019).

The studied area was embraced with ethnomedicinally and commercially important plants species. The native people have much ethnobotanical information about plant utilization for treating various ailments. Several important woody plants are endangered due to overexploitation and deforestation. The indigenous people used plants for curing various diseases but despite of Utilizing trees were unfamiliar with proper collection methods. The overall ethnobotanical utilization trends were mostly prevailed amongst the rural communities of the studied area.

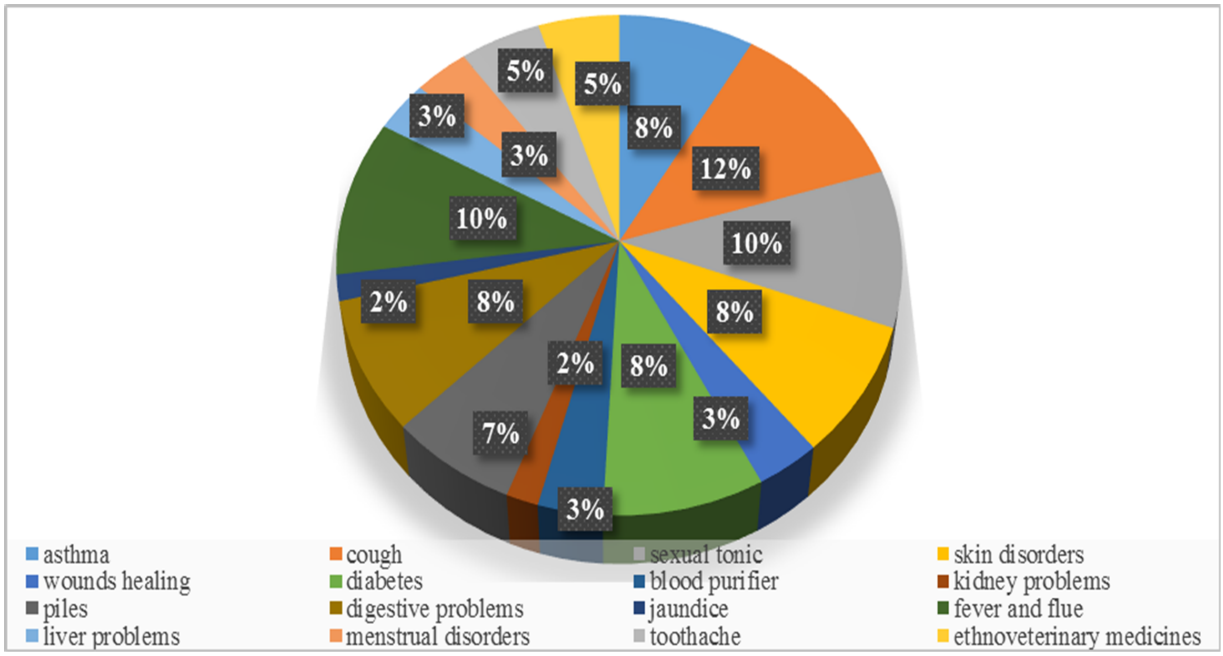

Figure 4. Percentage of studied woody flora utilized for various medicinal perspectives.

Conclusions

The current ethnobotanical survey provides information about 78 woody species belonging to 29 families, commonly utilized by native inhabitants for various perspectives (medicinal, fodder, fuel wood, agricultural tools, furniture, ornamentals vegetables, hedges, shade trees as well as multifarious uses). Such economic usage was mostly observed amongst the rural communities of the studied area. The woody flora of the district Kasur is disastrously replenishing because of over exploitation of these resources as well as modernization thus decimating the traditional knowledge from the natives of the studied area. It is necessary to conserve such vital knowledge of locals and possible effective strategies should be adopted for the conservation of plant resources. The present paper is an attempt to preserve the traditional knowledge and folk remedies about utilization of woody flora by the local population of District Kasur and adjoining areas.

Table 2. Ethnobotanical illustrations of observed arborescent flora from the studied area.

Family	Botanical Name	Common Name	Voucher no.	Locality	Ethnobotanical Uses
Anacardiaceae	*Mangifera indica* L.	Aam	AFK-01	KR, PH, KP.	Un-ripened fruit is used for making pickle. Fruit is edible. Wood used in low quality furniture.
Annonaceae	*Polyalthia longifolia* Benth, & Hook. f.	UltaAshok	AFK-02	CM, KR, PT.	Ornamental
Apocynaceae	*Alstonia scholaris* (L.) R. Br.	Shaitan	AFK-03	KR, CM, PT	Plant possesses dense branching system that provides a beautiful landscape thus grown as ornamentals in garden and avenues.
	Plumeria obtusa L.	Gul-a-Cheen	AFK-04	CM, KR, PT	Bark is used for joint disorders, while leaves are applied against asthma. Grown as an ornamental.
	*Plumeria rubra*L.	Gul-a-Cheen	AFK-05	CM, KR, PT.	Ornamental; young branches used as miswak for toothache. Leaves and flowers are also applied for cough, fever, diarrhoea and piles.
Arecaceae	*Trachycarpus fortunei* (Hook.) H. Wendl.	Windmill Palm	AFK-06	CM	Ornamental plant.
Bignoniaceae	*Heterophragma adenophylla* (Wall. ex G. Don) Dop	Naag Palli	AFK-07	CM	Ornamental, Shade tree.
	Jacaranda ovalifolia R. Br.	Gul e Neelam	AFK-08	CM, KR	Ornamental, Shade tree.
	Kigelia africana (Lam.) Benth.	Gul-e-Fanoos	AFK-09	CM	Ornamental, Shade tree.
	Oroxylum indicum (L.) Kurz	Ulti Talwaar	AFK-10	CM	Ornamental, Shade tree
Bombacaceae	*Bombax ceiba* L.	Simbal	AFK-11	KR, KRK, PT, CM, RJ, PH, DS, KK, KP.	Young roots are used as vegetable and for enhancing sexual power. Fibers obtained from seed were utilized for stuffing mattress and pillows. Flowers are usually grazed by cows. Wood is used in furniture and paper industry.
Boraginaceae	*Cordia myxa* L.	Lasoora	AFK-12	PT, CM, KR.	Un-ripened fruit is used for making pickle while ripened fruit is eaten as it is sweet in taste. Leaves and fruit are utilized for treating cough, flue and jaundice. Wood is used for making agricultural tools.
	Ehretia laevis Roxb.	Gondi	AFK-13	PT, CM	Leaves are used as fodder. Fruit is edible. Wood is used as fuel and for making furniture.

Capparidaceae	*Cappari. decidua* (Forssk.) Edgew.	Karir	AFK-21	CH, KR,CM	Plant is effective against diabetes, toothache, asthma and skin problems. Wood is used for making agriculture tools. Fruits are used in pickles and utilized by the inhabitants commonly.
Combretaceae	*Conocorpus. erectus* L.	Conocarpus	AFK-22	KR, CM, PT. KRK, PH.	Ornamental. It is grown as hedge plant and to make green belts along the roads.
	Terminalia. arjuna (Roxb. Ex DC) Wt. & Arn.	Arjun	AFK-23	KR, KRK, PT, CM, KP, KK HB.	Ornamental, Shade tree, Bark of tree used by heart patients. Leaves are used as fodder for cattle's.
Dilleniaceae	*Dillenia. indica* L.	Gul-e-Mast	AFK-24	KR. CM	Ornamental.
Ebenaceae	*Diospyros. embrdyopteris* Pers.	Gaab	AFK-25	CM	Ornamental, shade tree. Fruits are sometimes eaten.
Euphorbiaceae	*Bischofia javanica* Blume	Bishop Tree	AFK-26	CM	Ornamental, Important as an Avenue plant
	Phyllanthus emblica L.	Amla	AFK-27	CM, PT, KR, KRK.	Ornamental. Fruits are also utilized in pickles.
	Putranjiva roxburghii (Wall.) Hurusawa	Pata Jan	AFK-28	CM	Ornamental, Shade tree.
	Ricinus communis L.	Arind	AFK-29	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Decoction of fruit and stem is applied against rheumatic and arthritis. Seeds are used against scorpion bite. Leaves are utilized for wound healing and swelling. Paste of root is used for the treatment of piles. Castor oil of plant seeds is purgative in nature. Seed oil is also applied for paralysis and used as muscle tonic.
Fabaceae	*Acacia farnesiana* (L.) Wild	Boo Wala Kikar	AFK-36	CM, PT	Plant is a source of gum. Leaves are used as fodder for goats and cows. Branches are supporting the stem of *Momordica* (a climber crop). Stem/branches are used as fuel wood.
	Acacia modesta Wall	Phulai	AFK-37	KP, CM, PT,	Bark of the stem is utilized for curing asthma, cough and dysentery. Gum of the plant is used for enhancing sexual power. Twigs are usually taken as miswak for cleaning teeth. Wood is used for making agriculture tools and as fuel wood.
	Acacia nilotica (L.) Delile.	Babool/ Desi Kiker	AFK-38	KR. CM, PT, KP, CH, RJ, KRK	Bark of the stem is effective against foot and mouth diseases in cattle. Bark is used for preparing alcohol drink and for tanning leather. Dried pods and bark are the best remedies against kidney pain, diabetes and sexual disorders. Wood is used for making furniture, agriculture tools and fuel.

	Albizia lebbek (L.) Benth.	Sufaid Sharin	AFK-39	KR, CM PT,	Seeds help in curing piles, diarrhea, skin disorders and diabetes. Wood is used for making low quality furniture.
	Albizia procera (Roxb.) Benth.	Kala Sharin	AFK-40	KR, CM PT,	Wood is the main source of fuel for the inhabitants. Plant provides shade and for making furniture. Leaves are used as forage for livestock.
	Bauhinia purpurea L.	Kachnar	AFK-14	KR, CM	Flowers are cocked as vegetable and plant is also grown as ornamental.
	Bauhinia variegata L.	Kachnar	AFK-15	KR, CM	Flower buds are cocked as vegetable. It is grown for ornamental purpose.
	Butea monosperma (Lain.) Taubert.	Dhak	AFK-60	CM	Leaves are used as fodder. Wood is utilized in domestic works and as fuel wood. It is also grown as ornamental.
	Cassia fistula L.	Amaltas	AFK-16	CH, KR,CM, PT, KRK	It is an ornamental plant. Wood is utilized as fuel. Seeds are effective for digestive problems.
	Cassia surattensis Burn. f.		AFK-17	CM, PT, KR	Ornamental.
	Dalbergia latifolia Roxb.	ArbanTaali	AFK-61	CM	Wood is utilized for making furniture of low quality and agriculture tools.
	Dalbergia sisso Roxb.	Taali	AFK-62	KR, KRK, PT, CM, RJ, PH, DS, KK, KP, CH, RJ, HB.	Wood of the plant is much durable and of high quality and is used in furniture, construction material, farm tools and for making various house hold items. It is also utilized as fuel wood. Green twigs are used as miswak for cleaning teeth.
	Erythrina suberosa Roxb.	Gul-e-Nishter	AFK-63	CM	Ornamental; flowers are the medicine for treating menstrual problems.
	Millettia peguensis Ali	Walayati Shisham	AFK-64	CM	Ornamental, Shade tree.
	Gleditsia triacanthos L.	Honey Locust	AFK-18	CM	Ornamental.
	Parkinsonia aculeata L.	Walayati Kikar	AFK-19	CM	Ornamental. It is used as fuel as well as soil binder in order to reduce soil erosion.
	Prosopis cineraria (L.) Druce	Jand	AFK-41	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Wood is utilized in furniture and agriculture tools. Leaves are browsed by browsing animals.
	Prosopis glandulosa Torr.	Kikar	AFK-42	CM, KR, PT. PH. KK.	Wood is used for the formation of agriculture tools and as fuel.
	Prosopis juliflora (Sw.) DC.	Kikar	AFK-43	CM, KR, PT. KP, KK.	Leaves and pods are eaten by cattles. Dry branches are used as hedge. Wood is used as fuel. Fruit is edible.

	Pongamia pinnata (L.) Merrill.	SukhChain	AFK-30	CM, KR, PT.	It is an ornamental plant and shade tree. Branches are used as miswak for cleaning teeth.
	Saraca asoca (Roxb.) De Wilde.	Ashok	AFK-20	KR, KRK, PT, CM, RJ, HB.	Ornamental, Shade tree planted along water courses.
Meliaceae	*Azadirachta indica* (L.) A. Juss.	Neem	AFK-31	KR, CM, PT, PH, KRK,	Inflorescence and leaves are used as blood purifier. Seeds are effective for piles and constipation. Leaves are used for curing wounds and against bacterial infections. The extract of leaves is mixed in water to take bath by the inhabitants against eczema.
	Cedrela toona Roxb.ex Wild.	Tun	AFK-32	CM, KR, PT, PH.	Wood is used to make furniture and as fuel. It is grown as ornamental.
	Chukrasia tabularis Adr. Juss.	Chukrasi	AFK-33	CM	Wood is used as fuel. It is an ornamental tree.
	Melia azedarach L.	Bakain	AFK-34	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Plant is a good source of fuel and timber wood. Leaves and flowers used for curing headache. Leaves juice is utilized as diuretic. Wood is also utilized in making furniture. Leaves are used as fodder for goats and sheep.
	Swietenia mahogany Jacq.	Mahogany	AFK-35	CM	Wood is used for making furniture.
Moraceae	*Artocarpus lakucha* Buch.-Ham.	Tao	AFK-44	CM	Fruit is used in pickles and is effective for digestive disorders. It is grown as ornamental plant.
	Broussonetia papyrifera (L.) L'Herit. ex Vent.	Peepal Marvi, Jangli Tut	AFK-45	PT, CM KK, KP.	Leaves are used as fodder. Bark is utilized for making ropes. Fruit is effective for stomach disorders. Wood is used as fuel.
	Ficus benghalensis L.	Bohar	AFK-46	KR, KRK, PT, CM, RJ, PH, DS, KK, KP, CH, RJ, HB.	Plant latex is taken orally with bitasha (Sweet) for erectile dysfunctions. It is a shade tree.
	Ficus infectoria Roxb.	Pelkan	AFK-47	KR, CM	Ornamental purposes and shade tree.
	Ficus macrophylla Huegel ex Miq.	Australian Bargad	AFK-48	CM, PT	Ornamental and shade tree.
	Ficus palmata Forssk.	Pakwara	AFK-49	CM, KP	Fruit is applied for the treatment of sexual problems, asthma, cough, diabetes, inflammation, constipation and liver disorders. Tooth powder is made from dried bark for tooth ache. Wood is used as fire wood in houses.

	Ficus racemosa L.	Gulhar	AFK-50	CM, KR, PH.	Mainly planted along roadsides as shade tree. Fruit is edible and applied for curing eyes problems.
	Ficus religiosa L.	Peepal	AFK-51	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Extract from bark is used for regulating women menstrual cycle. Bark is also utilized for the treatment of fever, flue and liver disorders. Plant has large leaves size and canopy and used as shade tree in villages.
	Morus alba L.	Tot Sufaid	AFK-52	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Fruit is a tonic for chest pain, sexual problems and heart diseases. Wood is utilized in manufacturing of sports goods and furniture. Fresh branches are used for making baskets for agriculture purposes. Leaves are used as fodder for cattle. Leaves are also fed to silkworm for silk production. Wood is utilized for fuel purposes.
	Morus nigra L.	Tot Siah	AFK-53	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Fruit is eaten by human. Fruit is also used as tonic for cough, and throat ailments and has cooling effects. Leaves are eaten by animals. Wood is used in furniture and sports goods. Fresh branches are used for making baskets for farmers. Wood is good source of fuel. Leaves of plant are utilized for rearing silk worms.
Myrtaceae	*Callistemon lanceolatus* (Sm.) Sweet.	Bottle Brush	AFK-54	KR, PT, CM, RJ, PH, DS, KK, KP, KRK.	Ornamental, As an Avenue plant due to its floral beauty.
	Eucalyptus camaldulensis Dehnh.	Sufaida	AFK-55	KR, KRK, PT, CM, RJ, PH, DS, KK, KP, CH, RJ, HB.	Leaves are applied in headache and flue. Wood is utilized in making furniture of low quality and as fuel. Twigs are used as miswak.
	Psidium guajava L.	Amrod	AFK-56	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Leaves are effective against cough and common cold. Wood is used as fuel.
	Syzygium cumini (L.) Skeels	Jaman	AFK-57	KR, KRK, PT, CM, RJ, PH, KK, KP, CH, RJ, HB.	Fruit is edible and also useful for diabetic patients. Leaves are used for curing cough and flu.
Palmae	*Livistona chinensis* (Jacq.) R. Br. ex Mart.	Wall Palm	AFK-58	PT, CM, CH, KR	Ornamental, Shade tree.

	Roystone aregia (Kunth) O.F. Cook.	Royal Palm, Bottle Palm	AFK-59	CM, KR	Ornamental
Pinaceae	*Pinus roxburghii* Sargent	Chir	AFK-65	CM	Ornamental, Shade tree.
Proteaceae	*Grevillea robusta* A. Cunn. ex R. Br.	Shah Baloot	AFK-66	CM	Ornamental.
Rhamnaceae	*Ziziphus mauritiana* Lamk**.**	Ber	AFK-67	KR, KRK, PT, CM, RJ, HB.	Fruits are edible, leaves are eaten by goats, wood is used for making agriculture tools and as fuel.
Rutaceae	*Poncirus trifoliate* (L.) Raf.	Khatti	AFK-68	CM, KR, PT.	Plant is grown as hedge around the parks and gardens. Fruit is edible as pickle and is useful for skin problems.
Salicaceae	*Populus nigra* L.	Poplar	AFK-69	CM, KR, PT. PH.	Leaves are used as fodder. Wood is used as fuel.
	Salix tetrasperma Roxb.	Bilo	AFK-70	CM	Branches are used for making baskets. Wood is used as fuel.
Sapindaceae	*Sapindus mukorossi* Gaertn.	Reetha	AFK-71	CM	Ornamental, Shade tree. Fruit is used for cleaning hair and skin.
	Schleicuera trijuga Wild.	Jangli Leechi	AFK-72	CM	Fruit is edible and used as prickle. An ornamental, Shade tree.
Sapotaceae	*Mimusops elengi* L.	Molsiri	AFK-73	CM	Ornamental, Shade tree.
Sterculiaceae	*Pterospermum acerifolium* (L.) Willd.	Kanak Champa	AFK-74	CM	Ornamental, Shade tree. Flowers are used for stomach ulcer.
	Sterculia villosa Roxb.	Masso (Sterculia)	AFK-75	CM	Ornamental, Shade tree.
Tamaricaceae	*Tamarix aphylla* (Linn.) Karst.	Frash	AFK-76	KR, KRK, PT, CM, RJ, HB.	Leaves are used for making clay oven. Wood is used for furniture making and as fuel.
Verbenaceae	*Gmelina arborea* Roxb. ex Sm.	Candahar	AFK-77	CM	Ornamental.
	Tectona grandis L. f.	Sagwan	AFK-78	CM	Ornamental, Shade and timber tree mainly used by the natives for crafting high class furniture.

Legend: CM=Changa Manga, KR=Kasur, PT=Pattoki, RJ=Raja Jang, KRK=Kot Radha Kishan, HB=Habibabad, KK=Khudian Khas, KP=Kangun Pur, CH=Chunian, PH=Pholnagar, DS=Deosial.

Declarations

List of Abbreviations: Fig=Figure, CM=Changa Manga, KR=Kasur, PT=Pattoki, RJ=Raja Jang, KRK=Kot Radha Kishan, HB=Habibabad, KK=Khudian Khas, KP=Kangun Pur, CH=Chunian, PH=Pholnagar, DS=Deosial

Ethics Approval and Consent to Participate: Study was approved by the Rules of Okian Botanical Society; Department of Botany, University of Okara. All work was done under the requirements of Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

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