ETHNOBOTANICAL STUDIES OF SOME PLANTS OF TEHSIL KHARIAN, DISTRICT GUJRAT

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Abstract

The ethnobotanical data on various medicinal uses of some plants of Tehsil Kharian, District Gujrat, and Punjab was documented by using a questionnaires and open ended interviews of local people of study area. A total of 50 plant species belonging to 32 families were identified and it was noticed that the indigenous people of the study area use plants in different ways in their daily life such as medicines, fuel, shelter, forage/fodder, etc. Two Families were found abundant among all the families, *i.e*. Poaceae and Asteracae, having 5 and 4 species under ethnobotanical use, respectively.

Introduction

Plants play a key role in our lives because they help in recycling of useful nutrients, stabilizes the soils against the rain water, supply us the herbal medicines that have relatively little side effects (Paye, 2000). Plants and humans have a deep association. Ethnobotanical search on medicinal plants is underway for the treatment of AIDS, cancer, inflammation, etc. (Balick, 1996). Plants play more roles in our daily life than animals because they possess many biochemicals that are effective against different ailments (Cotton, 1996). Ethnobotany term was first used by John Harshburger in 1896 which deals about the interaction of indigenous people with plants. Many of the modern day medicines are actually the plant products (Qureshi *et al*., 2007; Ajaib *et al.*, 2014). About 30% of the modern medicines have developed due to the increasing knowledge in ethnobotany and there is also increasing demand in future for the herbal medicines due to the interest of consumer in natural products in industrialized countries (Bhattarai and Karki, 2004; Khan *et al.,* 2011).

Several ethnobotanical studies have been carried out in Pakistan such as Sardar and Khan, (2009) provided information on 102 plant species belonging to 93 genera and 62 families from remote villages of Tehsil Shakargarh. Many species were used as fuel, fodder, brushing teeth, medicine, making baskets and mats, furniture, vegetables and fruits. Hussain *et al.* (2010) worked on medicinal plant lore of Jalalpur Jattan, District Gujrat, Punjab, Pakistan and reported 88 species of plants that were used to cure numerous diseases by the local people. Ajaib *et al*. (2010 and 2012) investigated ethnbotancial data of shrubs and climbers of District Kotli, Azad Jammu and Kashmir, along with their ethnobotanical uses, *i.e*. therapeutics, fuel, making tools, fodder/ forage and protection. Zareen *et al.* (2013) reported the ethnobotanical data of shrubs of central Punjab, Pakistan and noticed the biotic interference which was the major cause of biodiversity loss.

Tehsil Kharian is located District Gujrat of Punjab province, Pakistan at altitude and latitude 32°47'764N and 73°52'587E respectively. It is situated on the GT road (Grand Trunk road) between Islamabad and Lahore (Annexure I). The overall area of Tehsil Kharian is 1154 km. The average height of Tehsil Kharian is 275m (902ft) and its total population is 7, 79,632, according to census 1998, out of which urban population is 1, 67,803 while rural population is 6, 11,829. It is administratively divided into 43 union councils. It is well-known all over the Pakistan due to two reasons; it has a large cantonment and secondly, it is known as "Little Norway" because of its people in abroad particularly in Denmark and Norway. Climatically, it is moderate and summer-precipitating *i.e*. it is cold in winter and hot in summer season. Summer season extends from March to October and during peak summer; temperature may shoots up to 40 °C. Winter season starts from November and remains till February and is very pleasant. The minimum temperature in winter may drops to 5.22 °C. An annual precipitation amount to 844mm. humidity is high in the morning (73.9%) and low in the evening (44.5%). (Anonymous, 2013).

Materials and Methods

The ethnobotanical knowledge of the 23 areas, viz. Lidder, Islam nagar, Panjwarrian, Dhing, Bhattian, Gohlarra Hashim, Pindi Hashim, Kullak, Santhal, Mangliya, Shoriyan, Doga, Tihaal, Kanjiyal, Payara, Bidar Marjan, Thapla, Lamma Shreef, Sehna, Sadkaal, Raryala, Chho ahan, Bawali Shrif of Tehsil Kharian, District Gujrat Punjab was documented by interviewing local people, herbal drug dealers, hakims and growers, using semi-structured questionnaire. Mostly elderly people and herbal practitioners were consulted for obtaining the

Ethnobotanical information as they were found to possess a lot of knowledge about the local plants and their traditional uses. The plant species collected from the area were pressed, dried and mounted properly on herbarium sheets. They were identified with the help of Flora of Pakistan. Voucher numbers were pasted on the mounted plant specimens that were deposited in Dr. Sultan Ahmad Herbarium, GC University, Lahore.

Results and Discussion

Ethnobotanical uses of 50 species of plants belonging to 32 families documented from indigenous people showed that the plants in the study area were in use from generations to generations for medicinal, fruit, forage/fodder, fuel, fence, ornamental purposes, etc. Monocots included 7 species of 3 families, *i.e*. Poaceae, Asphodelaceae and Typhaceae each having 5, 1 and 1 species, respectively. The rest of the 43 species were dicotyledonous belonging to 27 families (Table 1). Among dicotyledonous, families like papilionaceae, Mimosaceae and Boraginaceae are important ethanobotanically (Fig. 1). It was observed that most of the plants were medicinally important for the treatment of human ailments such as digestive tract, skin, rheumatic pains, vomiting and pulmonary problems, etc. For example *Artemisia scoparia* plant extract is anthelmintic. Similarly *Cannabis sativa* L. leaves are used to cure constipation, piles, stomach disorders and whooping cough. It is also used to control persistent headache. *Abutilon indicum* (L.) leaves are used as demulcent, laxative, diuretic and aphrodisiac and roots are used for leprosy. *Achyranthes aspera* L. stem is used for blood purification and the powder of the burnt plant is mixed with honey and is taken to cure cough. *Fumaria indica* (Hausskn.) Pugsley distillation of leaves is used as blood purifier and also used to treat common fever, skin diseases and pimples. *Farsetia jacquemontii* Hook. f. & Thoms used to cure rheumatism. *Tribulus terrestris* L. is tonic and aphrodisiac. Its fruits are used for treatment of rheumatism and backbone pain after child birth. *Trianthema portulacastrum* L**.** roots are used in cough, asthma and in fever. *Solanum surattense* Burm. f. curry of fruit is taken by the patients of asthma. It is also useful for healing of internal injuries and to relieve pain. *Indigofera linifolia* seeds are used as tonic, aphrodisiac and antipyretic.

These plants also cures epidemic diseases like measles, piles e.g. *Asphodelus tennuifolius* Cav. *Carthamus oxyacantha* M. Bieb., *Cannabis sativa* L., *Calotropis procera* (Aiton) Dryand., etc. Many species are used as fodder for cattle, vegetable for human, making good quality furniture and for ornamental purposes. *Acacia nilotica* ssp. *Indica* leaves and pods are used as fodder for cattle. Wood and pods are used for fuel purposes. Tender twigs make use of cleaning teeth. Wood is used for making cheap furniture, agricultural tools and domestic articles. Its gum is used to increase sex drive in human beings. *Acacia modesta* leaves are used as forage for cattle, goat and sheep. Flowers provide nectar for honeybee. Wood is used as fuel wood and young twigs are used as an alternative for tooth brushes. *Bombax ceiba* L. cotton is used for stuffing pillows. Wood is used for making fruit packing boxes and in match box industry. *Capparis decidua* (Forssk.) Edgew fruit is used in the preparation of pickles and wood is used to make tool handles. *Ehretia obtusifolia* Hochst. ex A.DC. wood is used as firewood and leaves as fodder. *Ziziphus nummularia* Fruits are edible. Leaves are used to give bath to the dead bodies. Wood is used to make various domestic articles, the frames of bed and for fencing of fields. *Dodonaea viscosa* it is used as a hedge plant. Wood is used for fuel purpose and for making walking sticks. *Typha domingensis* Pers Dib Leaves are arranged in different manners to make prayer mats and baskets. *Punica granatum* fruits are edible and tonic. *Heliotropium europaeum* L. is a poisonous plant and is not used locally. *Dalbergia sissoo* wood is used for making good quality furniture, tool handles, and other domestic articles. Young branches are used as maswak. Its decayed leaves are good source of natural fertilizer. Decoction of fruit of *Foeniculum vulgare* helps in indigestion while fruit is taken to improve eyesight. Fruit is also used as a spice and carminative. On the whole it was found that 9 species (18%) were having single use, 19 (38%) species two uses and the remaining 23 (46%) having multiple use.

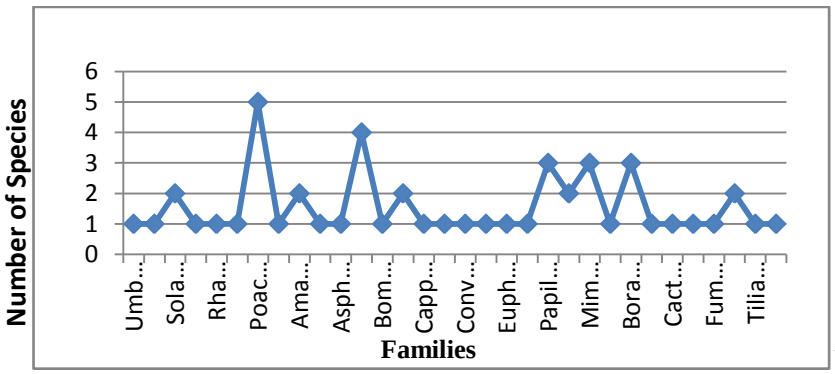

Fig. 1. Number of Species Belonging to different Families.

Table 1. Ethnobotanical Inventory of Tehsil Khariaan, District Gujarat

S.No.	Botanical Name	Local Name	Family	Part used	Traditional uses and Flowering Period
1	*Arundo donax* L.	Nasrr	Poaceae	Whole Part	Whole plant is used for fuel purposes. Stem is used to make pens for writing. *Fl.Pr.* June -Dec.
2	*Amaranthus viridis* L	Cholai	Amaranthaceae	Whole plant	Plant is eaten as vegetable Saag called "Cholai ka saag". Seeds after grinding are mixed with the rice water to control menstruation. *Fl. Pr.* July-Sept.
3	*Achyranthes aspera* L.	Puth kanda	Amaranthaceae	Whole plant	Stem is used for blood purification. The powder of the burnt plant is mixed with honey and is taken to cure cough. *Fl. Pr.* July-Sept.
4	*Asphodelus tennuifolius* Cav	Poghat,Piazi	Asphodelaceae	Whole plant	Whole plant extract is given to the patients of measles and piles. It has an ornamental value and also used as condiment with maize bread. *Fl. Pr.* November-April
5	*Artemisia scoparia* Waldst. & Kitam.	Chaho	Asteraceae	Whole plant	It is an ornamental plant. Plant extract is anthelmintic. *Fl. Pr.* August-September
6	*Anagallis arvensis* L.	Bili booti	Primulaceae	Whole plant	It is used as a fodder for cattle. *Fl. Pr.* Feb.-March
7	*Acacia nilotica* (L.) Delile ssp. *Indica*	Desi Kikar	Mimosaceae	Wood, pods and leaves	Leaves and pods are used as fodder for cattle. Wood and pods are used for fuel purpose. Tender twigs make use of cleaning teeth. Wood is used for making cheap furniture, agricultural tools and domestic articles. Its gum is used to increase the potency in human beings. *FL. Pr.* Feb.-June
8	*Acacia modesta* Wall.	Phulai	Mimosaceae	Wood flower and leaves	Leaves are used as forage for cattle, goat and sheep. Flowers provide nectar for honeybee. Wood is used as fuel wood and young twigs are used as an alternative for tooth brushes. *Fl. Pr.* March-May
9	*Albizia lebbeck* (L.) Benth.	Sharein	Mimosaceae	Wood, leaves	Leaves are used as fodder for goats and sheep. Its leaves are hanged in homes against evil forces. Wood is used in furniture and for making photo frames. *FL. Pr.* April-May
10	*Abutilon indicum* (L.) Sweet.	Kangi booti	Malvaceae	Whole plant	Leaves are used as demulcent, laxative, diuretic and aphrodisiac. Roots are used for leprosy. *Fl. Pr.* August-September
11	*Bombax ceiba* L	Simbal	Bombacaceae	Bark, cotton, wood	Bark is used for rheumatism. Cotton is used for stuffing pillows. Wood is used for making fruit packing boxes and in match box industry. *Fl. Pr.* December-March

S.No.	Botanical Name	Local Name	Family	Part used	Traditional uses and Flowering Period
12	*Calotropis procera* (Aiton) Dryand.	Ak, Mudaar	Asclepiadaceae	Whole plant	Leaves are used as purgative. Latex is used for piles, baldness, toothache and is anthelmintic. Latex is toxic and causes blindness. Whole plant is boiled and given to buffaloes to treat skin diseases localy called "Zeharwaad". *Fl. Pr***.** Throughout the year
13	*Carthamus oxyacantha* M.Bieb	Poli	Asteraceae	Whole plant	Root is used to cure piles. Plant without spine is given to buffaloes to increase milk production. *Fl. Pr.*April-June
14	*Cirsium arvense* (L.) Scop.	Lay, Kandyari	Asteraceae	Whole plant	The plant is used as fodder for cattle. *Fl. Pr.* April-May
15	*Cassia fistula* L.	Amaltas	Caesalpiniaceae	Leaves and Flower	Leaves are used as vegetable saag. Decoction of the plant leaves and pods helps in delivery. Flowers are used to make gulkand. *Fl. Pr.* April-June
16	*Cassia occidentalis* L.	Kasondi	Caesalpiniaceae	Whole plant	Decoction of the whole plant is given in urinary problems. *Fl. Pr.* October-March
17	*Capparis decidua* (Forssk.) Edgew	Karrir	Capparidaceae	Fruit and wood	Fruit is used in the preparation of pickles and wood is used to make tool handles. *Fl. Pr.* March-August
18	*Chenopodium album*	Bathua, Bathu	Chenopodiaceae	Whole plant	Plant is used as fodder for cattle. Leaves are used as vegetable and to cure constipation. *FL. Pr.* Jan.-Dec.
19	*Convolvulus arvensis* L.	Lehli	Convolvulaceae	Whole plant	It is used as fodder for cattle. The paste of whole plant is mixed with milk and is given to buffalos as anthelmintic. *Fl. Pr.* Throughout the year
20	*Citrullus colocynthis* (L.) Schrad.	Tuma	Cucurbitaceae	Whole plant	Powdered plant is used in digestion of man and cattle. *Fl. Pr.* Jan.-April
21	*Cordia myxa* L.	Lasura	Boraginacae	Fruit and wood	Fruit is edible and used in the preparation of pickle. Wood is used for making tools and for fuel. *Fl. Pr.* March-April
22	*Cannabis sativa* L.	Bhang	Cannabaceae	Whole plant	Its flowers and leaves are narcotics and sedative. Chars are obtained by rubbing the leaves. Leaves are used to cure constipation, piles, stomach disorders and whooping cough. It also used to control menstrual cycle and persistent headache. *Fl. Pr.* April–September
23	*Dalbergia sissoo* DC.	Tali	Papilionaceae	Whole plant	Wood is used for making good quality furniture, tool handles, and other domestic articles. Young branches are used as maswak. It decayed leaves are good source of natural fertilizer. *Fl. Pr*. March-May

S.No.	Botanical Name	Local Name	Family	Part used	Traditional uses and Flowering Period
24	*Dendrocalamus strictus* (Roxb.) Nees	Bans	Poaceae	Calum, Bans	It is used to make roller blinds, stairs, constructional implements and brooms. *Fl. Pr.* November –April
25	*Dodonaea viscosa* (L.) Jacq.	Sanatha	Sapindaceae	Whole Plant	It is used as a hedge plant. Wood is used for fuel purpose and for making walking sticks. *Fl. Pr.* Spring, Summer and Fall
26	*Datura innoxia* Mill.	Ak dhatura	Solanaceae	Whole Plant	It is used as a fuel plant. Seeds are poisonous and used as narcotics. *FL. Pr.* May-October
27	*Euphorbia helioscopia*	Dhadar booti	Euphorbiaceae	Milky sap	Milky sap is used as an ointment on the ring worms. *Fl. Pr.* Jan.-July
28	*Ehretia obtusifolia* Hochst. ex A.DC.	Puna	Boraginacae	Leaves and wood	The wood is used as firewood and leaves as fodder. *Fl. Pr.* March-May
29	*Foeniculum vulgare* Mill.	Saunf	Umbelliferae /Apiaceae	Fruit	Decoction of fruit helps indigestion. Fruit is taken to improve eyesight. Fruit is also used as a spice and carminative. *Fl. Pr.* April – September
30	*Ficus benghalensis* L.	Bohar	Moraceae	Latex, wood and leaves.	Wood is used as fuel wood. Boiled roots and latex are aphrodisiac. *Fl. Pr.* April -July
31	*Farsetia jacquemontii* Hook. f. & Thoms	……	Brassicaceae	Whole plant	Used to cure rheumatism and used as a fodder. *Fl. Pr.* Feb.-June
32	*Fumaria indica* (Hausskn.) Pugsley	Papra	Fumariaceae	Whole plant	It is used as source of fodder for cattle. The distillation of leaves is used as blood purifier. It is also used to treat common fever, skin diseases and pimples. ***Fl.*** *Pr.* Feb. –June
33	*Grewia tenax* (Forssk.) Fiori	Gwangi	Tiliaceae	Whole plant	It is used as fodder for camel, goats and sheep. *Fl. Pr.* Feb.-October
34	*Heliotropium europaeum* L.	Hathi sunda	Boraginacae	Whole plant	It is poisonous plant. *Fl. Pr.* March-June
35	*Indigofera linifolia* (L.f.) Retz.	Ratanmala	Papilionaceae	Seeds	Seeds are used as tonic, aphrodisiac and antipyretic. *Fl. Pr.* March-April
36	*Justicia adhatoda* L.	Bhakar	Acanthaceae	Leaves	For the purification of blood and for the removal of bad smell from the shoes. *Fl. Pr.* November-April
37	*Malva parviflora* L.	Sonchul	Malvaceae	Whole plant	Leaves are used as vegetable. Plant is contorted and given to the hens as food. *FL. Pr.* Spring, Summer

S.No.	Botanical Name	Local Name	Family	Part used	Traditional uses and Flowering Period
38	*Morus alba* L.	Tut Safaid	Moraceae	Fruit, wood	Fruit is edible and is used as cooling agent. Leaves are used as fodder for cattle. Wood is used for making tool handles and crutch. *FL. Pr.* March-May
39	*Melilotus indicus* (L.) All.	Sinjahi	Papilionaceae	Whole plant	Flowers are used as a source of nectar for honey bees and whole plant is used as a fodder for goat, sheep and cattle. *Fl. Pr.* March-August
40	*Opuntia monacantha* (Willd.) Haw.	Thohar	Cactaceae	Whole plant	It is used as an ornamental plant. It is used for fencing of field. *Fl. Pr.* late spring until early autumn
41	*Pennisetum glaucum* (L.) R.Br.	Bajra	Poaceae	Whole Plant	Flour of the grains is used to make bread while the whole plant is used as a fodder for cattle. *Fl. Pr.* Jan.-April
42	*Phalaris minor* Retz.	Dumbi sitti	Poaceae	Whole part	It is used as a fodder for cattle. *Fl. Pr.* March-April
43	*Punica granatum* L.	Anar	Punicaceae	Fruit, Wood	Fruit is edible and dried form is known as "Anar Dana" used in different recopies. Fruit juice is tonic and also used to stop vomiting while wood is used for fuel purpose. *Fl. Pr.* March-May
44	*Sonchus asper* (L.) Hill.	Dodhak	Asteraceae	Whole plant	As a fodder and to treat ringworm. *Fl. Pr.* July–Sept.
45	*Sorghum halepense* (L.) Pers.	Baru	Poaceae	Whole part	It is used as a fodder for cattle and is also used to make brooms. *Fl. Pr.* May-October
46	*Solanum surattense* Burm. f.	Mokrri	Solanaceae	Fruit, leaves	Curry of fruit is taken by the patients of asthma. It is also useful for healing of internal injuries and to relieve pain. *Fl. Pr.* throughout the year
47	*Typha domingensis* Pers.	Dib	Typhaceae	Leaves	Leaves are arranged in different manners to make prayer mats and baskets. *Fl. Pr.* Throughout the year
48	*Trianthema portulacastrum* L.	Itsit	Aizoaceae	Whole plant	It is used as fodder for cattle. Roots are used in cough, asthma and in fever. *Fl. Pr.* July-November
49	*Tribulus terrestris* L.	Bhakhra	Zygophilaceae	Whole plant	It is tonic and aphrodisiac. Its fruits are used for treatment of rheumatism and backbone pain after child birth. *Fl. Pr.* Throughout the year
50	*Ziziphus nummularia* (Burm.f.) Wight & Arn.	Beri	Rhamnaceae	Whole plant	Fruits are edible and leaves are used to give bath to the dead bodies. Wood is used to make various domestic articles, the frames of bed and for fencing of fields. *Fl. Pr.* March–June

The people of Tehsil Kharian live in an area that has a great diversity of vegetation because of its proximity to River Chenab and Jhelum. But due to changes in social status, most of the people used allopathic products. They do not know much about the plants and therefore, ethnobotanical knowledge is only limited to local hakims and old aged people. However, still the people living in villages depend upon plants for their daily needs. Most of the nomads in the area depend on plants for their livelihood especially; they cut the trees and sell them as fuelwood. Because of poverty, lack of up to date health services and ignorance, most of the people in villages are still rely on herbal medicines for their daily ailments as reported by Azaizeh *et al.* 2003. The people of Tehsil Kharian also use the plants for many other purposes that include thatching, agricultural tools, household articles, handicrafts, etc. People live in different villages of Tehsil Kharian are agriculturalist and have a lot of domestic animals and they used different plants to cure various diseases of animals. The common day diseases are usually cured by using various plants. But most of the people in Tehsil Kharian, due to changes in their social status, do not use herbal medicines. They prefer allopathic drugs instead of herbal medicines as indicated by Ajaib *et al.* 2013, while working with the ethnobotanical studies of District Loralai Baluchistan.

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