ETHNOBOTANICAL STUDIES OF SOME SHRUBS & TREES OF TEHSIL AHMAD PUR EAST, DISTRICT BAHAWALPUR, PAKISTAN

MUHAMMAD AJAIB[1], HAZOOR BAKHSH[1] AND MUHAMMAD FAHEEM SIDIQUI[2]

[1]Department of Botany, Mirpur University of Science & Technology (MUST), AJK
[2]Department of Botany, University of Karachi, Karachi-Pakistan
**Corresponding Author's E-mail: majaibchaudhry@yahoo.com*

Abstract

During the ethnobotanical survey a total of 41 shrubs and trees belonging to 36 genera and 25 families of angiosperms were reported, out of which 2 families (Typhaceae & Palme) were monocots (2 spp.) and remaining 23 families were belonging to dicots (39 ssp.). The most abundant family was Mimosaceae. The single usage plants were 8 (19%) where as 13 (32%) were dual-usage and 20 (49%) were multi-usage shrubs & trees. Among the single usage species 62% were medicinal, 25% furniture and 9% fuel.

Introduction

Ethnic people around the world possess unique knowledge about the plant resources and they are directly dependent on plants for food, medicine, and shelter (Cotton, 1996; Martin, 1995). Inhabitants of the remote areas keep a good knowledge of the utilization of plants, especially medicinal plants. Local people know the therapeutic activities of medicinal plants against various diseases which they learnt from their forefathers (Qureshi, 2004; Ajaib *et al.*, 2010).

Numerous chemical compounds are extracted from the plants on the basis of their utility by local communities of different geographical regions. A number of medicinal plants are well known for their various pharmacological action at community level, however many are yet to be explored for their medicinal value (Khan, 2003).

Keeping in view the importance of natural resources, the present ethnobotanical study was carried out for the purpose of documentation of the aboriginal knowledge of shrubs and trees of Tehsil Ahmad Pur East, District Bahawalpur. The average height of the study area was 105 m (344.49 feet) from sea level and is situated at 29º, 14 N and 71º'26 E (GPS Garmin Nuvi). The climate of Tehsil Ahmad Pur East is moderate during winter but very hot in summer season. Summer season extends from March to October and during peak season; temperature may increase up to 49ºC – 52ºC. Winter season starts from November and remains till February and is very pleasant. The minimum temperature in winter may drops to 10ºC – 6ºC. The annual rainfall in Tehsil Ahmad Pur East is 194.34 mm. Humidity is more in the morning than in the evening (Anonymous, 2012).

Materials and Methods

The current research work was accomplished during 2013 and 2014 and the study area was thoroughly studied. A total of 32 villages with 57 informants were interviewed. The purpose of the study was to collect and document the shrubs and trees particularly in desert areas of Tehsil Ahmad Pur East, District Bahawalpur.

To document the ethnobotanical resources of the study area, 32 villages were visited on weekly basis and plants were collected. Information about these plants was gathered from the local people of the area, i.e. hakims, shopkeepers, pansaries, shepherd, farmers, old women and wood sellers, etc. by interviewing and filing questionnaire. The information about the plants includes vernacular names, local uses, parts used (Fig. 5), habitat and recipe for the preparations of different medicines. Main areas visited includes Ram Kali, Mehmood Mahtam, Rajoor Rahoo, Kot Khalifa, Bait Bakhtari, Chani Goth, Shikrani, Chak Kehal, Jholan Wali, Tahir wali, Ban Wala, Gamani, Kora Kulyar, Siraj Pur, Uttera, Sojla Tanwari, Kulab, Faridabad, Nizam Pur, Anyat Pur, Mehmoodabad, Sukhail, Malkani Basti, Chak Wahni, Rashidabad, Muhammad Bakhsh Maher, Khuda Bakhsh Maher, Mehrab Wala, Nonari, Dhor Kot, Palla Hamshira and Abbas Kharbi. The plants collected from the study area were pressed properly before wilting in newspapers and mounted on herbarium sheets. The mounted specimens were then identified mainly with the help Flora of Pakistan and submitted in Dr. Sultan Ahmad Herbarium, Botany Department GC University Lahore, Pakistan after pasting the voucher numbers.

Results and Discussion

In study area, 41 shrubs and trees were collected from Tehsil Ahmad Pur East, District Bahawalpur. Among these shrubs and trees, monocots included 2 species of 2 families, i.e. Palmae and Typhaceae each having 1 species. The remaining 39 plant species were belonging to dicot families viz; Mimosaceae with 5 species,

Myrtaceae having 4 species, Moraceae and Solanaceae are represented by 3 species each, Combretaceae, Papilionaceae, Meliaceae, Rhamnaceae and Salvadoraceae represented by 2 species each. The remaining families, i.e. Amaranthaceae, Anacardiaceae, Apocynaceae, Bombacaceae, Boraginaceae, Asclepiadaceae, Caesalpiniaceae, Chenopodiaceae, Moringaceae, Polygonaceae, Capparidaceae, Tamaricaceae, Umbelliferae and Verbenaceae were represented by single species (Fig.1) (Table 1).

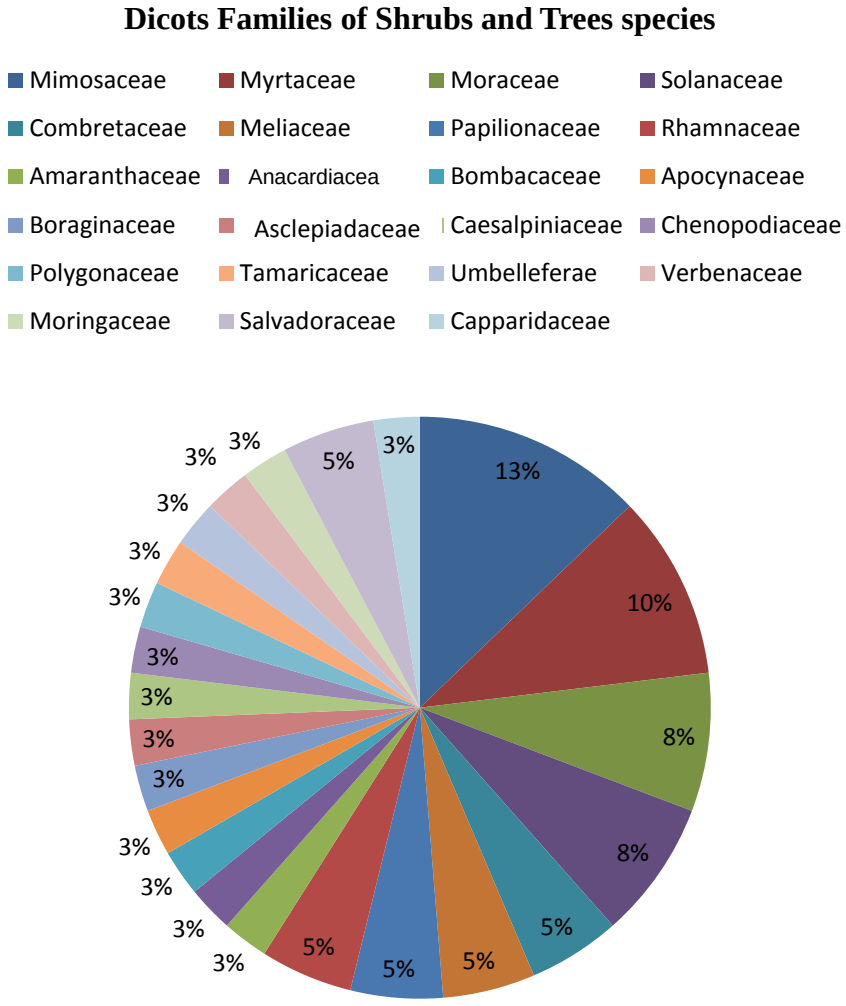

Fig. 1. The pie chart showing percentages of dicots families of shrubs and trees species

The people of Tehsil Ahmad Pur East live an area that is rich biodiversity because of its proximity to Head Punjnand, Abbasia and Abu Zhabi canals. But due to change 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 old aged people. The people living in remote area totally rely on plants for their daily requirements and most of the wanderers in the area depend upon plants for their livelihood. For instance they cut trees and sell them as a wood for fuel. The people in the study area facing poverty, lack of education, ignorance and lack of health facilities and hence, people in villages are yet rely on herbal medicines for their daily ailments as reported by Azaizeh *et al*., 2003 in Vellore District Tamilnadu, India.

Single-Usage shrubs and trees species: Single-usage plants are those plants which are used for only one specific purpose e.g. *Withania coagulans* Dunal. is used as medicinal only. Out of 41 shrubs and trees plant species, 8 were single-usage. The percentage of single usage plants was 19% and is divided into 3 categories, i.e. Medicinal (42.10%), furniture (36.82%) and fuel (10.52%). Out of 8 plants, medicinal plants were 5, furniture plants were 2 and fuel were represented 1 species (Fig. 2).

Single-usage plants, all were of Dicot families. All the single-usage plants along with their local names and families.

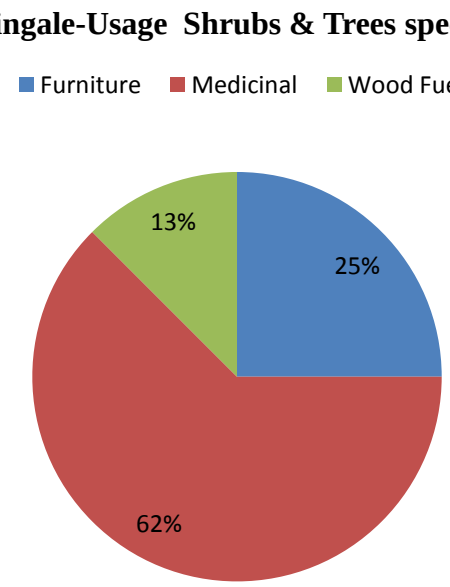

Fig. 2: The pie chart showing percentages of single-usage shrubs and trees species

Dual-Usage Shrubs and Trees species: Two-usage plants are those plants which are used for two purposes, e.g. *Fagonia indica* Burm.f. is used as both medicinal and as well as a fodder. Out of 41 plant species, 13(32%) plants were two-usage falling in 10 categories, i.e. medicinal & fodder (1), Fodder and Foods (1),Fodder and vegetables (1), Food & Medicinal (3), Medicinal & Flavoring agent (1), Fodder & Furniture (2), Fuel & Ornamental (1),Medicinal and ornamentals (1),Fuel & Food (1) and Chemical & Soap (1) (Fig. 3).

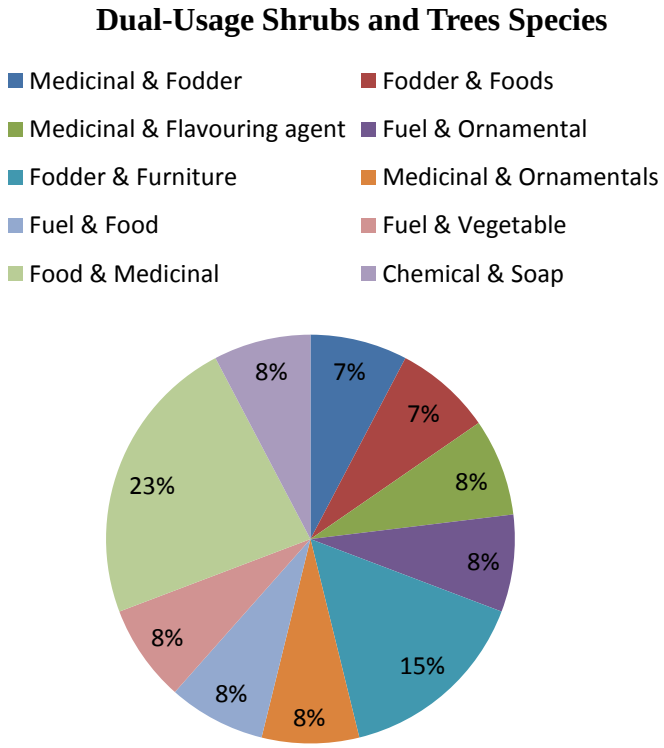

Fig. 3. The pie chart showing percentages of dual-usage shrubs and trees species

Multi-Usage Shrubs and Trees species: The plants which are used for more then two purposes are called multi-usage plants, i.e. *Azadirachta indica* A. Juss. is used as food, medicinal & timber purposes. Out of 41 plant species 20 (49%) were of multi-usage falling 18 categories out of these 3 plant species were monocotyledon while remaining 17 were dicotyledon (Fig. 4).

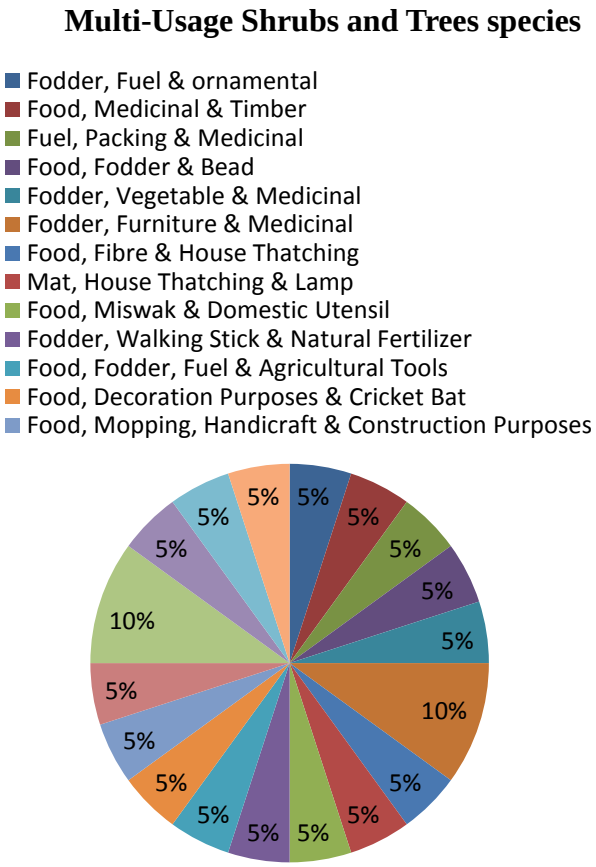

Fig. 4. The pie chart showing percentages of multi-usage shrubs and trees species

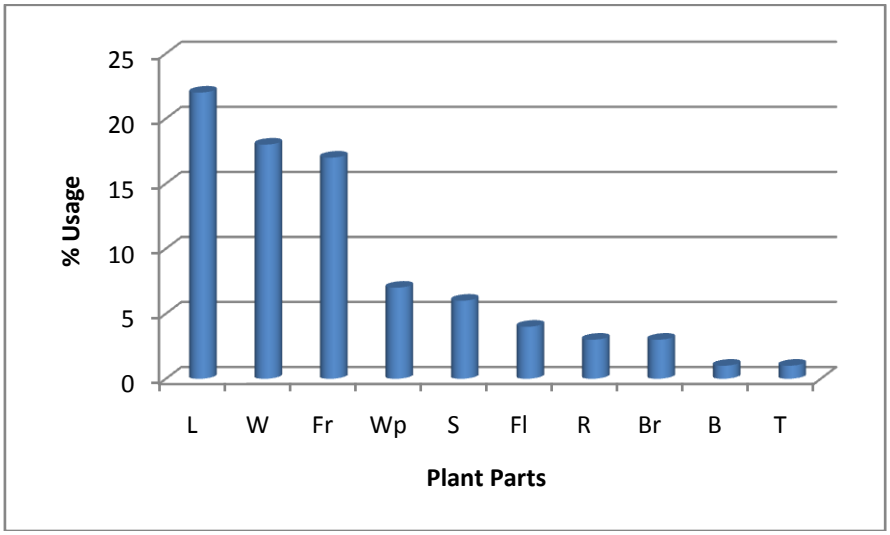

Fig 5. % plant parts used ethnobotanically in Tehsil Ahmad Pur East, District Bahawalpur.

Note: More than one part of some plants is used. Fr: Fruit, Fl: Flower, L: Leaf, R: Root, S: Seed, W: Wood, T: Tuber, Wp: Whole plant, B: Bark, Br: Branch.

Table 1. List of ethnobotanically useful shrubs and trees of Tehsil Ahmad Pur East, District Bahawalpur

S.No	Species and Voucher No.	Family	Local Name	Traditional local uses
Shrubs				
1	*Calligonum polygonoides* L. GC.Herb.Bot. 2239	Polygonaceae	Phog	Wood is chiefly used as fuel while flowers are eaten and need to prepare raita by local people and also fed to cattle.
2	*Calotropis procera* (Ait.) Ait.f. GC.Herb.Bot. 2240	Asclepiadacae	Ak	Branches are used to cure swollen mouth due to plaque and gum disease. Latex is toxic and causes blindness but latex drop mixed with sweet is used as aphrodisiac where as whole plant is boiled and given to buffaloes to treat skin diseases.
3	*Capperis decidua* (Forssk) Edgew. GC.Herb.Bot. 2241	Capparidaceae	Dehly	Fruits are used to prepare pickles and eaten by local people while roots are commonly used as tooth brush known as Miswak. Branch wood is used to hang the domestic utensils.
4	*Cassia tora* Linn. GC.Herb.Bot. 2242	Caesalpiniacea e	Janttar	Leaves are used as forage for goats and wood used for making sticks and its raw material increase the fertility of the soil.
5	*Clerodendrum indicum* L. GC.Herb.Bot. 2243	Verbenaceae	…….	Plat is used as an ornamental and also as fuel.
6	*Datura innoxia* Mill. GC.Herb.Bot. 2244	Solanaceae	Datura	The plant is said to be toxic and poisonous where as seed and leaves are used for nervous disorders.
7	*Foeniculum vulgare* Mill. GC.Herb.Bot. 2245	Umbelleferae	Saunf	Fruit is used as spice and carminative. It also improves the eyes sight and prevent soaring of eye after optical surgery.
8	*Haloxylon stocksii* Boiss. GC.Herb.Bot. 2246	Chenopodiace ae	Khaar	Plant is used as a source of crude sodium carbonate and the ash of the plant is used as substitute of soap for cleaning clothes.
9	*Leptadenia pyrotechnica* (Forssk.) Decne. GC.Herb.Bot. 2247	Apocynaceae	Khip	Whole plant is used as fodder for goats and sheep while fibers are obtained to makes ropes by local people. Young braches are used for house thatching which commonly called “Goppa” by local people.
10	*Prosopus juliflora* (Swartz) DC. GC.Herb.Bot. 2248	Mimosacae	Jhund	Wood used as fuel purposes.
11	*Suaeda fruticosa* (L.) Forssk. GC.Herb.Bot. 2249	Chenopodiace ae	Larren	Whole plant is used as fodder and water in its fruit is eaten to accomplished desert animal thirst.
12	*Typha angustifolia* Bory. GC.Herb.Bot. 2250	Typhaceae	Kondhr	Leaves are used for making mats and house thatching where as dried fruits soaked with oil used as lamp.

13	*Withania coagulans* Dunal. GC.Herb.Bot. 2251	Solanaceae	Mamool i	Seeds are used for stomach pains.
14	*Withania somnifera* L. GC.Herb.Bot. 2252	Solanaceae	Mamool a	Fruits are eaten by children for abdominal pains.
15	*Ziziphus nummularia* (Burm.f.) Wight & Arn. GC.Herb.Bot. 2253	Rhamnaceae	Jangli Beri	Fruits are edible while leaves are used to give bath to the dead body and also used as fodder for goats. Wood is used to make various domestic articles and also used as fencing of the field due to its spines.
	Trees			
16	*Acacia nilotica* L. GC.Herb.Bot. 2254	Mimosaceae	Kikar	Leaves and fruits are used as fodders for goats while bark is used to make dyes and alcohol. Wood is used as for manufactures of furniture and agriculture instruments. Young branches are commonly used as "Miswak" by local people. 10 grams of gum dry at shade mixed with one spoon Desi Ghee and one egg then boil for 10 minutes and drunk which relieve the pain and recover or healing the wound. Unripe fruits dried at shade then grading in powder forms and used as aphrodisiac.
17	*Albizia lebbeck* (L.) Benth. GC.Herb.Bot. 2255	Mimosaceae	Sharin	Leaves are used as fodder for goats and sheep while leaves are hanged in home against evil. Wood is used to make high quality furniture and photo frames.
18	*Alhagi maurarum* Medik. GC.Herb.Bot. 2256	Papilionaceae	Jhawan	Whole plant is used as fodder for cattle while plant paste is used to cure Hepatitis.
19	Azadirachta indica A.Juss. GC.Herb.Bot. 2257	Meliaceae	Neem	Fruits are eaten raw while leaves are boils to wash face for skin diseases and wood yield high quality timber.
20	*Bombox ceiba* L. GC.Herb.Bot. 2258	Bombacaeae	Sumbal	Wood used for furniture making purpose.
21	*Callisteman lanceolatus* (Sm.) GC.Herb.Bot. 2259	Myrtaceae	Bottle Brush	Plant is cultivated as an ornamental while seeds are used to cure asthma.
22	*Conocarpus lancifolius* Engl. GC.Herb.Bot. 2260	Combretaceae	Conna	It is used as ornamental purposes while leaves are used as forage and wood as fuel.
23	*Cordia myxa* L. GC.Herb.Bot. 2261	Boraginaceae	Lasura	Ripped fruits are edible while unripped fruits are used for making pickles. Wood is used for fuel and for making agriculture tools where as leaves are used as fodder for goats and sheep.
24	*Dalbergia sissoo* GC.Herb.Bot. 2262	Papilionaceae	Tali	Wood is used for furniture while young branches used for making baskets and fruits are used to cure asthma.
25	*Eucalyptus camaldulensis* A.Cunn. GC.Herb.Bot. 2263	Myrtaceae	Sufaida	Leaves are rubbed and smelled to cure flu where as wood is used as fuel and for making fruit boxes.
26	*Ficus benghalensis* L. GC.Herb.Bot. 2264	Moraceae	Boher	4-5 drops of latex mixed with sweet and eaten twice a day to relief backbone pain and also as aphrodisiac.

27	*Ficus religiosa* L. GC.Herb.Bot. 2265	Moraceae	Peepal	Wood is used for furniture and leaves and fruits are eaten by goats.
28	*Leucoena leucocephala* (Lam) de Wit. GC.Herb.Bot. 2266	Mimosaceae	Desi Kikar	Wood is used as fuel while flowers and seeds used as vegetable.
29	*Mangifera indica* L. GC.Herb.Bot. 2267	Anacardiaceae	Aam	Fruit are edible and also used for making pickles. Leaves are used for decoration purposes while wood is used for making cricket bats.
30	*Melia azedarch* L. GC.Herb.Bot. 2268	Meliaceae	Dharik	Seeds are eaten while leaves used as fodder for goats and sheep.
31	*Moringa oleifera* Lam. GC.Herb.Bot. 2269	Moringaceae	Suhajna	Flowers are used as vegetables commonly known as "Saag" by local people while leaves are used as fodder by goats. Gums obtained from the trunk used to cure joints diseases.
32	*Morus alba* L. GC.Herb.Bot. 2270	Moraceae	Shehtoot	Fruit is edible and used as cooling agent where as laves are used as fodder for "Silk worms". Young braches are used to make baskets.
33	*Phoenix dactylifera* Roxb. GC.Herb.Bot. 2271	Palmae	Khajoor	Fruits are edible while leaves are used to make hats and mates. Main trunk is used for construction purposes and bushes without fruits are used for mopping.
34	*Prosopis glandulosa* Torr. GC.Herb.Bot. 2272	Mimosaceae	Vilayti Jand	Wood is used as fuel while flowers are used as vegetables.
35	*Psidium gujava* L. GC.Herb.Bot. 2273	Myrtaceae	Amrud	Fruits are eatable, tonic and increase appetite.
36	*Salvadora oleoides* Decne. GC.Herb.Bot. 2274	Salvadoraceae	Jall	Leaves are used as fodders for camels while roots and branches are used as tooth brush and fruits are edible and also used for making pickles.
37	*Salvadora persica* L. GC.Herb.Bot. 2275	Salvadoraceae	Von	Leaves are used as fodders for camels where as roots and branches are used as tooth brush while fruits are edible and used for making pickles. Seeds yield oil that is rich in lauric and myristic acids and can replace coconut oil in preparation of soaps and detergents.
38	*Syzygium cuminii* Skeels. GC.Herb.Bot. 2276	Myrtaceae	Jaman	Fruits are edible while seeds are dried under shade then grind to powder form (30 g per day) used to reduce blood glucose level.
39	*Tamarix dioica* (L.) Karsk. GC.Herb.Bot. 2277	Tamaridaceae	Moora	Leaves are used as fodder for camel while bark is dried and grind in powder is used to relieve pain during circumcision. W: Wood is used as furniture while leaves are boiled and its liquids are drink by horse to relief pains.
40	*Terminalia arjuna* (Roxb.) Wight & Arn. GC.Herb.Bot. 2278	Combretaceae	Arjun	Wood is used to manufacture furniture and agricultural tools.
41	*Zizyphus mauritiana* Lam. GC.Herb.Bot. 2279	Rhamnaceae	Ber	Fruits are eaten while leaves and bark in powder is used to control dysentery and diarrhea.

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