



Ethnotaxonomical Approach in the Identification of Useful Medicinal Flora of Tehsil Pindigheb (District Attock) Pakistan

Research

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Abstract

The presented research investigated the use of folk remedies among the people of Tehsil Pindigheb, District Attock of Pakistan. During the ethnobotanical survey, we documented indigenous knowledge and collected plant specimens which included medicinal plants. Through questionnaire, ethnomedicinal data was collected from key informants and local inhabitants in randomly selected villages. One hundred plant species belonging to 44 families were recorded as medicinal flora of the area. Due to construction of new housing colonies, modern agricultural practices and cultural changes within the community, the use of traditional knowledge and medicinal plant species are threatened day by day in the area. This study will provide help in future conservation strategies.

Introduction

The use of folk medicine occurs in all societies around the world (Smitherman *et al.* 2005). As a result of their continual quest to find treatments for illnesses that are specific to their localities, human beings have developed an extensive pharmacopoeia of medicinal plants (Kiringe 2006). In Pakistan, more than 200 plant species are reported by Anderson (1988), which are used to treat a variety of diseases including cough, kidney stone, stomach problems, malaria, hepatitis, urinary disorders, toothache, inflammation, skin problems, and pneumonia. Although western drugs are extensively used in developing nations, many rural societies are still reliant on plant-based remedies for their basic health problems (Fratkin 1996, Swanson 1995). According to the World Health Organization (WHO 2002), about 80% of the world inhabitants use traditional medicine as their primary healthcare. Dymoke (1972), Ikram & Hussain (1978), Rahman *et al.* (1986) and Baquar (1989) contributed significantly to research in medicinal plants and ethnobotany in Pakistan. Watanabe *et al.* (1998a, b) deliberated the curative plant assets of the

Himalayas where they have conducted their field studies on medicinal plant resources.

Study Area

This research was conducted in Tehsil Pindigheb, District Attock (33°7' - 34°0'N, 71°45' - 73°0'E) which is an area rich in diverse floral and with a human population of about 0.2 million (Government of Pakistan 1998). Previously, Ahmed *et al.* (2003) and Ishfaq *et al.* (2004) worked on the other parts of the district. This was the first attempt in this area. Plants were important medicinal resources for the inhabitants in the area. Increase in number of oil fields, construction of new small dams, cultural changes such as the rapid shift towards allopathic medicine, and the spread of housing colonies and modern education lead to the destruction of not only the habitats of medicinal plants but also vanishing of traditional knowledge due to changes in inhabitants of the community. All these circumstances lead to a breakdown of the intergenerational transfer of information on the identification and use of medicinal plants. This indigenous knowledge has been

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conserved through the documentation of folk remedies using plants.

Objectives of Study

This ethnobotanical research, with an emphasis in ethnomedicine, was conducted in the year 2004 with the aim of documenting, exploring, investigating, collecting and identifying medicinal flora of Pindigheb, District Attock. This study was important because urbanization, oil fields extensions, construction of dams and changes in cultural practices were rapidly depleting natural plant resources and traditional knowledge. However, the specific objectives of the study were:

1. Documentation of indigenous knowledge and plant species that were utilized by the inhabitants of the area for medicinal purposes.
2. Documentation of the treatment of human diseases using traditional plant remedies which includes methods of preparation and mode of administration.

Materials and Methods

In this research, field surveys were conducted in randomly selected villages over a one year period following the procedure as described by Jain (1967), Trotter (1981) and Shinwari & Khan (2000). Plant specimens were collected and identified. The voucher specimens have been deposited

in the herbarium of Quaid-i-Azam University, Islamabad (ISL) for future reference. Questionnaires were used during field surveys to gather information on medicinal plants used by the villagers. Vernacular names, harvesting and processing methods, and the mode of administration of these medicinal plants to treat human ailments were collected. The questionnaires were given to key informants who were knowledgeable in traditional medicine. A total of 119 inhabitants, of which 75 were men, 31 women and 13 male key informants were interviewed. Traditional uses of medicinal plants were gathered from elders and key informants. Repeated queries were made to get the data conformed. Results from the field surveys were rechecked and compared with literature.

Results

All the inhabitants have used medicinal plants for their primary healthcare needs. Medicinal plants are used to treat different types of human diseases. We have recorded 100 plants species belonging to 44 families that are used to treat a variety of human and animal diseases. The highest number of medicinal plant species belong to the family Poaceae (8 species) followed by Cucurbitaceae (7 species), Asteraceae (6 species) and Solanaceae (6 species). These plants have different growth habits which include herbs, shrubs and trees. Most of these plants are wild but some are cultivated in the area. Table 1 lists the plant species and their uses that are recognized by the inhabitants of the area as medicinal.

Table 1. Medicinal plants and uses that are recognized by respondents from the local community of Pindigheb (District Attock), Pakistan.

1. ACANTHACEAE	
Scientific Name	<i>Justicia adhatoda</i> L.
Common Names	Bhekkar, Vasaka
Habit & Habitat	Herb, commonly found along road sides and in rocky places
Flowering Period	Round the Year
Part Used	Leaf
Folk Remedies	Dry the fresh leaves in a sheltered place. Boil the leaves in water and administer the decoction orally for the treatment of cough. The decoction is also administered orally to treat skin infection around the mouth area in livestock.
2. AMARANTHACEAE	
Scientific Name	<i>Achyranthes aspera</i> L.
Common Names	Puth Kanda, Chaff Plant
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	April to September
Part Used	Whole Plant
Folk Remedies	Decoction from whole plant is used to treat kidney stone problems. Dried plant is ground into powder and mixed with honey to treat cough.

3. ANACARDIACEAE	
Scientific Name	<i>Mangifera indica</i> L.
Common Names	Aam , Mango
Habit & Habitat	Tree, commonly cultivated
Flowering Period	January to March
Part Used	Leaf and Seed
Folk Remedies	1) Crush the leaves. Sieve the leaves from the leaf juice. Topically apply a few drops of the juice around ear area to treat ear ache. 2) Obtain embryo from dried fruit. Grind the embryo into powder and add sugar. Use mixture to stop vomiting.
Other Ethnobotanical Uses	The plant is grown for its fruits and wood.
4. APIACEAE	
Scientific Name	<i>Anethum sowa</i> Roxb. ex Fleming
Common Names	Soae , Dil Weed
Habit & Habitat	Herb, rarely cultivated
Flowering Period	February to March
Part Used	Seed
Folk Remedies	Mash two teaspoons of seeds and boil the seeds in 0.5 liter of water. Upon cooling, filter the decoction and use the filtrate to treat gastric disorders. Use two teaspoons each time at 1.5 hours interval for two days.
Other Ethnobotanical Uses	Whole plant is used as fuel.
Scientific Name	<i>Coriandrum sativum</i> L.
Common Names	Dhania , Coriander
Habit & Habitat	Herb, commonly cultivated
Flowering Period	Round the Year
Part Used	Fruit
Folk Remedies	Grind the seeds into powder and add brown sugar. Add one teaspoon of ghee and bake the mixture for 4 to 5 minutes. Take two teaspoons daily before going to bed to reduce the frequency of wet dreaming.
Other Ethnobotanical Uses	Plant is used as vegetable.
Scientific Name	<i>Daucus carota</i> L.
Common Names	Gajar , Carrot
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Root
Folk Remedies	Root and its juice are used for treating weak eyesight.
Other Ethnobotanical Uses	Root is used as vegetable and to make a local sweet called Gager ka halwa .

Scientific Name	<i>Foeniculum vulgare</i> Mill.
Common Names	Sonf , Fennel
Habit & Habitat	Herb, rarely cultivated
Flowering Period	March to April
Part Used	Fruit
Folk Remedies	Fruits are ground into power. Dried seeds of <i>Punica granatum</i> L. are ground separately into powder. Mix an equal amount of the fruit and seed powder. Add sugar to the mixture for taste. This mixture is called phaki . Administer one teaspoon daily for stomach disorders and especially for watering of mouth during sleep.
Other Ethnobotanical Uses	Seed is used as preservative in sweets.
Scientific Name	<i>Trachyspermum copticum</i> (L.) Link.
Common Names	Ajwain , Caraway
Habit & Habitat	Herb, rarely cultivated
Flowering Period	March to April
Part Used	Fruit
Folk Remedies	Dried caraway is treated with lemon juice it becomes wet. Spread the wet caraway on a large plate in a sheltered place and let it dry. Add table salt and administer one teaspoon for stomach pain.
Other Ethnobotanical Uses	Seeds are used in cooking and confectionery.
5. APOCYNACEAE	
Scientific Name	<i>Nerium indicum</i> Mill.
Common Names	Kanhera , Indian Oleander
Habit & Habitat	Shrub, rarely found in rocky places
Flowering Period	April to October
Part Used	Root
Folk Remedies	Root is ground into powder and used for abortion.
Other Ethnobotanical Uses	Sticks are used to keep animals in order during grazing.
Scientific Name	<i>Rhazya stricta</i> Decne.
Common Names	Venra , Rhazya
Habit & Habitat	Herb, commonly found in rocky places
Flowering Period	December to March
Part Used	Leaf
Folk Remedies	Grind the fresh leaves. Add water and sieve the leaves from the liquid. Drink one cup of the liquid for few days to treat skin infections.
Other Ethnobotanical Uses	Leaves are chewed as a mouth freshener.

6. ARECACEAE	
Scientific Name	<i>Phoenix dactylifera</i> L.
Common Names	Khajur , Date
Habit & Habitat	Tree, commonly cultivated
Flowering Period	March to April
Part Used	Fruit
Folk Remedies	Eat seven dates and then drink a glass of milk daily to treat general body weakness.
Other Ethnobotanical Uses	Fruit is edible.
7. ASCLEPIADACEAE	
Scientific Name	<i>Calotropis procera</i> (Aiton) W.T. Aiton
Common Names	Ak , Sodom's Apple
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	Round the Year
Part Used	Leaf
Folk Remedies	Select a leaf from an uninfected plant. Spread honey on the abaxial surface and let it sit overnight. Lick the honey on the leaf the next day to treat asthma.
8. ASPHODELACEAE	
Scientific Name	<i>Aloe vera</i> (L.) Burm. f.
Common Names	Kwargandal , Aloe
Habit & Habitat	Herb, commonly cultivated as pot herb
Flowering Period	September to November
Part Used	Leaf
Folk Remedies	Mix freshly collected pulp with sugar, dasi ghee , and sooji (special local wheat flour) and cook for 25 to 30 minutes. This sweet meal is used to treat rheumatism and body weakness.
Other Ethnobotanical Uses	The plant grown for ornamental purposes.
9. ASTERACEAE	
Scientific Name	<i>Artemisia scoparia</i> Waldst. & Kit.
Common Names	Jhahoo , Wormwood
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	August to November
Part Used	Whole plant
Folk Remedies	Infusion of plant is used as a purgative. Smoke from burnt plant is used to treat burns.

Scientific Name	<i>Carthamus oxycantha</i> M. Bieb.		
Common Names	Poli , Carthamus		
Habit & Habitat	Herb, commonly found in waste places		
Flowering Period	March to June		
Part Used	Seed		
Folk Remedies	Grind seeds to make flour which is used to make chapatti which is used to treat ulcer problems.		
Other Ethnobotanical Uses	Roasted seeds are edible.		
Scientific Name	<i>Cichorium intybus</i> L.		
Common Names	Kasni , Chicory		
Habit & Habitat	Herb, rarely found along the banks of running waters		
Flowering Period	June to September		
Part Used	Leaf		
Folk Remedies	1) Obtain juice of leaves and add equal volume of juice from leaves of <i>Solanum nigrum</i> L. (Kaach Maach). This mixture is used as tonic for liver disease and jaundice. 2) Seeds are ground into powder to treat dry thorax and fever.		
Other Ethnobotanical Uses	Leaves of plant are used as salad greens.		
Scientific Name	<i>Echinops echinatus</i> Roxb.		
Common Names	Lay Boti , Globe Thistle		
Habit & Habitat	Herb, commonly found in fields		
Flowering Period	April to May		
Part Used	Whole Plant		
Folk Remedies	Decoction from whole plant is used to treat cough. Grind the dry roots into powder. Add water and make a paste. Apply paste to the hairs for fifteen minutes to treat lice infestation.		
Other Ethnobotanical Uses	Plant is used to make a tonic with aphrodisiac properties.		
Scientific Name	<i>Eclipta alba</i> (L.) Hassk.		
Common Names	Sofad Banghra		
Habit & Habitat	Herb, commonly found on waste places		
Flowering Period	July to September		
Part Used	Leaf		
Folk Remedies	Grind the leaves and make a paste. Apply paste topically to treat allergy, athlete's foot and ringworm.		
Scientific Name	<i>Helianthus annuus</i> L.		
Common Names	Suraj Mukhi , Sunflower		
Habit & Habitat	Shrub, commonly cultivated		
Flowering Period	May to July		
Part Used	Seed		
Folk Remedies	Mash the seeds and make a decoction to treat cough and fever.		
Other Ethnobotanical Uses	Plant is cultivated for ornamental purposes.		

10. BORAGINACEAE	
Scientific Name	<i>Cordia obliqua</i> Willd.
Common Names	Lasoora , Geiger Tree
Habit & Habitat	Tree, rarely found as cultivated
Flowering Period	February to March
Part Used	Fruit
Folk Remedies	1) Fresh fruits are used for stringing of gums, thorax infection and common cold. Decoction from seeds is used to treat cough and stomach ulcers. 2) This remedy is also used in livestock for the similar diseases.
Other Ethnobotanical Uses	Gum is obtained from flashy fruit and used for sticking of paper.
11. BRASSICACEAE	
Scientific Name	<i>Heliotropium strigosum</i> Willd.
Common Names	Gorakh Pan , Heliotrope
Habit & Habitat	Herb, commonly found on sandy banks of running water
Flowering Period	July to September
Part Used	Whole Plant
Folk Remedies	Put a washed plant in a jug of water overnight. On the next day, remove the plant from the jug and use the red infusion for cooling purposes. Add sugar to infusion for taste.
Scientific Name	<i>Brassica campestris</i> L.
Common Names	Sarson , Mustard
Habit & Habitat	Herb, commonly cultivated
Flowering Period	November to April
Part Used	Seed
Folk Remedies	Grind dry seeds into powder with sulphur. Add brassica oil to mixture and make a paste to treat skin infection.
Other Ethnobotanical Uses	Plant is used as vegetable.
Scientific Name	<i>Brassica rapa</i> L.
Common Names	Thper , Turnip
Habit & Habitat	Herb, commonly cultivated
Flowering Period	March to May
Part Used	Root
Folk Remedies	Cut fresh napiform roots into pieces. Make a decoction from the cut roots. Feet are dipped in semi hot decoction and boiled turnips rubbed on feet to treat cracked skin on feet.
Other Ethnobotanical Uses	The napiform root used as vegetable.

Scientific Name	<i>Eruca sativa</i> Mill.
Common Names	Jumaeha , Rocket
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Seed
Folk Remedies	Extract oil from seeds. Fry a medium size onion with the extracted oil until the onion turns black. The oil is used to treat dandruff.
Other Ethnobotanical Uses	Arial parts of plant are used as vegetables.
Scientific Name	<i>Raphanus sativus</i> L.
Common Names	Mooli , Radish
Habit & Habitat	Herb, commonly cultivated
Flowering Period	November to January
Part Used	Root
Folk Remedies	1) Remove epidermis from radish and leave it overnight. Use it in the morning before breakfast to treat jaundice. 2) Juice from radish is also applied on the head to treat baldness.
Other Ethnobotanical Uses	Root is used as vegetable.
12. CACTACEAE	
Scientific Name	<i>Opuntia monacantha</i> Haw.
Common Names	Thoor , Prickly Pear
Habit & Habitat	Shrub, commonly found in waste sandy soil
Flowering Period	May to September
Part Used	Latex and Fruit
Folk Remedies	1) Ripened fruit is eaten for diabetes. 2) Latex is rubbed on paralyzed organs.
13. CANNABACEAE	
Scientific Name	<i>Cannabis sativa</i> L.
Common Names	Bhang , Indian Hemp
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	April to October
Part Used	Whole Plant
Folk Remedies	Add 50 to 60 grams of sugar to 150 grams of fresh or dry leaves. Add one glass of water and grind the mixture. The mixture is used to reduce general body inflammation, intoxication and to improve the appetite of an addictive person. Administer once daily in the morning for ten days to improve diet. Ensure that the person does not use narcotics again.
Other Ethnobotanical Uses	Plant is used as a narcotic.

14. CAPPARACEAE	
Scientific Name	<i>Capparis decidua</i> (Forssk.) Edgew.
Common Names	Karin , Caper Tree
Habit & Habitat	Tree, commonly found in the forest area
Flowering Period	May to July
Part Used	Flower and fruit
Folk Remedies	Decoction made from flowers and unripened fruit is used to treat joint pains.
Other Ethnobotanical Uses	Fruit is used to make pickles.
15. CHENOPODIACEAE	
Scientific Name	<i>Chenopodium album</i> L.
Common Names	Bathua , Goose Foot
Habit & Habitat	Herb, commonly found on waste places
Flowering Period	February to March
Part Used	Whole Plant
Folk Remedies	Fresh plant juice is used to treat jaundice.
Other Ethnobotanical Uses	The plant is used as vegetable.
Scientific Name	<i>Chenopodium ambrosioides</i> L.
Common Names	Gundi Booti
Habit & Habitat	Herb, commonly found on moist waste places
Flowering Period	August to September
Part Used	Leaf and Stem
Folk Remedies	Decoction made from fresh leaves is used to treat pile and indigestion problems especially diarrhea.
Scientific Name	<i>Spinacia oleracea</i> L.
Common Names	Palak , Spinach
Habit & Habitat	Herb, commonly cultivated
Flowering Period	May to June
Part Used	Leaf
Folk Remedies	Add fresh leaves to 50 grams of goat liver. Add 25 ml of water and grind the mixture. Filter the mixture and add a small amount of salt to the filtrate which is drunk to treat anemia.
Other Ethnobotanical Uses	Plant leaves are used as vegetable.

16. CONVULVULACEAE	
Scientific Name	<i>Convolvulus arvensis</i> L.
Common Names	Vahri , Bind Weed
Habit & Habitat	Herb, commonly found as weed
Flowering Period	January to March
Part Used	Whole Plant
Folk Remedies	1) Grind fresh plant into a paste. Add sugar and water to the paste. Filter the mixture and use the filtrate to treat constipation. 2) Plant paste is also applied to hairs to treat dandruff.
Other Ethnobotanical Uses	The plant is used as cattle fodder.
Scientific Name	<i>Cuscuta reflexa</i> Roxb.
Common Names	Akash Bail , Dodder
Habit & Habitat	Herb, rarely found on trees
Flowering Period	August to September
Part Used	Stem
Folk Remedies	Fresh branches are boiled in water. A paste is formed to treat paralysis.
17. CRASSULACEAE	
Scientific Name	<i>Kalanchoe pinnata</i> (Lam.) Pers.
Common Names	Zakham-e-Hayat , Kalanchoe
Habit & Habitat	Herb, cultivated as pot plant
Flowering Period	January to March
Part Used	Leaf
Folk Remedies	1) Leaves are applied to the injured part of the bone. 2) Paste made from the leaves is also used to treat skin wounds.
Other Ethnobotanical Uses	Plant is cultivated for ornamental purposes.
18. CUCURBITACEAE	
Scientific Name	<i>Citrullus colocynthis</i> (L.) Schrad.
Common Names	Tumba , Bitter Apple
Habit & Habitat	Herb, found in waste places
Flowering Period	July to August
Part Used	Fruit
Folk Remedies	1) Make a hole in fruit with a needle. Put some caraway seeds into the hole and let the fruit dry. Remove the caraway seeds when the fruit is completely dried. Use the caraway seeds to treat stomach pain. 2) The fruits are given to domestic animals which do not eat fodder well.

Scientific Name	<i>Citrullus vulgaris</i> Schrad. ex Eckl. & Zeyh.
Common Names	Rainda , Water Mellon
Habit & Habitat	Herb, commonly cultivated
Flowering Period	April to July
Part Used	Fruit and seed
Folk Remedies	Fruit juice is used to treat jaundice. Remove seed coat and grind the endosperm which is used with milk to treat urinary blockage and kidney stone.
Other Ethnobotanical Uses	Fruit is edible.
Scientific Name	<i>Cucumis melo</i> var. <i>agrestis</i> Naudin
Common Names	Chibbar , Wild Water Melon
Habit & Habitat	Herb, commonly grows in sandy fields
Flowering Period	July to September
Part Used	Fruit and seed
Folk Remedies	Dry the fruit and seeds in a sheltered place. Grind the dried plant parts into powder. Administer small amount orally to treat skin infection.
Other Ethnobotanical Uses	Women use dried fruit for quick boiling of meat.
Scientific Name	<i>Cucumis melo</i> var. <i>utilissimus</i> (Roxb.) Duthie & Fuller
Common Names	Ter
Habit & Habitat	Herb, commonly cultivated
Flowering Period	April to July
Part Used	Seed and fruit
Folk Remedies	Remove seed coat and grind the endosperm which is used with milk to treat urethra inflammation, spleen diseases and jaundice.
Other Ethnobotanical Uses	Fruit is used as vegetable.
Scientific Name	<i>Cucumis sativus</i> L.
Common Names	Kheera , Cucumber
Habit & Habitat	Herb, commonly cultivated
Flowering Period	April to July
Part Used	Fruit
Folk Remedies	Fruit is cut into very small pieces. Women place the cut pieces on their faces for fifteen minutes to treat inflammation due to makeup.
Other Ethnobotanical Use	Plant is used as vegetable.

Scientific Name	<i>Cucurbita pepo</i> L.
Common Names	Kaddo , Pumpkin
Habit & Habitat	Herb, commonly cultivated
Flowering Period	April to August
Part Used	Fruit
Folk Remedies	Fruit is cut into pieces and boiled in 1.5 liters of water until the fruit becomes soft. Add salt and black pepper for taste. The fruit is then eaten and decoction drunk to treat intestinal disorders and gastric problems.
Other Ethnobotanical Uses	Fruit is used as vegetable.
Scientific Name	<i>Momordica charantia</i> L.
Common Names	Karala , Bitter Gourd
Habit & Habitat	Herb, commonly cultivated
Flowering Period	June to August
Part Used	Fruit
Folk Remedies	Juice from fruit is used for diabetes. Add table salt for taste.
Other Ethnobotanical Uses	Fruit is used as vegetable.
19. EUPHORBIACEAE	
Scientific Name	<i>Ricinus communis</i> L.
Common Names	Hernoli , Castor oil
Habit & Habitat	Shrub, commonly grows in waste places
Flowering Period	Round the Year
Part Used	Seed
Folk Remedies	Oil from seed is used to treat constipation.
20. FABACEAE	
Scientific Name	<i>Acacia modesta</i> Wall.
Common Names	Phulai
Habit & Habitat	Tree, commonly found in the forest area
Flowering Period	March to May
Part Used	Bark and Stem
Folk Remedies	1) Bark of young branch is chewed and sucked for gastric pain. 2) Stem is used as toothbrush because it protects the teeth from decay.
Other Ethnobotanical Uses	Plant wood is used for both timber and lumber.

Scientific Name	<i>Acacia nilotica</i> (L.) Delile.
Common Names	Kekar , Gum Arabic
Habit & Habitat	Tree, commonly cultivated and found in the wild
Flowering Period	March to August
Part Used	Pod
Folk Remedies	Take few dry pods and add equal amount of sugar. Grind the mixture into powder. Take one tea spoon of the mixture twice a day for a week to treat gonorrhoea.
Other Ethnobotanical Uses	It is a wood and gum yielding plant.
Scientific Name	<i>Cassia fistula</i> L.
Common Names	Amaltas , Golden Shower
Habit & Habitat	Tree, rarely cultivated
Flowering Period	April to May
Part Used	Seed
Folk Remedies	Seeds are boiled in milk. Add sugar and filter the solution. The filtrate is used to treat gastric problems.
Other Ethnobotanical Uses	The plant is cultivated for ornamental purposes. The plant is used for its wood.
Scientific Name	<i>Cicer arietinum</i> L.
Common Names	Kalay Cholay , Black Gram
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Seed
Folk Remedies	Soaked seeds overnight in water. On the next day, boil the seeds in water for a long time. Filter the seeds and add small amount of table salt to the filtrate which is drunk to treat irregularity of menstruation and ease menstruation pain.
Other Ethnobotanical Uses	Young herbaceous plant is used as vegetable. Seeds are used as common food.
Scientific Name	<i>Dalbergia sissoo</i> Roxb. ex DC.
Common Names	Tali , Rosewood
Habit & Habitat	Tree, commonly cultivated
Flowering Period	March to April
Part Used	Bark
Folk Remedies	Soak bark overnight in a glass of water. Drink the infusion water the next day before breakfast to treat nosebleed.
Other Ethnobotanical Uses	The plant is grown for its high quality wood.

Scientific Name	<i>Trigonella foenum-graecum</i> L.
Common Names	Mathri , Fenugreek
Habit & Habitat	Herb, commonly cultivated
Flowering Period	March to April
Part Used	Seed
Folk Remedies	Grind seeds into powder. Add sugar to powder and use it to treat diabetes.
Other Ethnobotanical Uses	1) Seeds are used to make pickles. 2) Green leaves are used as vegetable. 3) Dried leaves are used in curry for their pleasant smell.
21. LAMIACEAE	
Scientific Name	<i>Lallemantia royleana</i> (Benth.) Benth.
Common Names	Tukm-e-Balangah
Habit & Habitat	Herb, rarely found in arid area
Flowering Period	March to April
Part Used	Seed
Folk Remedies	The seeds are soaked in water overnight. On the next morning, add sugar to the infusion which is used to treat stomach warmth and intestinal troubles.
Other Ethnobotanical Uses	In summer, seeds are mixed with brown sugar and water to make a local drink.
Scientific Name	<i>Mentha longifolia</i> (L.) Huds.
Common Names	Chitta Podna , Wild Mint
Habit & Habitat	Herb, commonly cultivated
Flowering Period	July to August
Part Used	Leaf
Folk Remedies	The leaf is ground into powder to treat gastric pain.
Other Ethnobotanical Uses	The leaf is used as salad green.
Scientific Name	<i>Ocimum basilicum</i> L.
Common Names	Niazbo , Holly Basil
Habit & Habitat	Herb, commonly cultivated in kitchen gardens
Flowering Period	Round the Year
Part Used	Leaf
Folk Remedies	1) Paste made from leaves is administered orally to treat indigestion. 2) Leaves are chewed and rubbed in oral cavity to treat mouth infections.
Other Ethnobotanical Uses	Leaf is used as a salad green.

22. LILIACEAE	
Scientific Name	<i>Allium cepa</i> L.
Common Names	Piaz , Onion
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Bulb
Folk Remedies	Grind two to three bulbs which are then dissolved in one glass of water. The mixture is administered for two days to treat cholera.
Other Ethnobotanical Uses	The bulb is used in salad and it is an essential ingredient of curry.
Scientific Name	<i>Allium sativum</i> L.
Common Names	Thoom , Garlic
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Bulb
Folk Remedies	Fry 20 to 30 bulbs in two cups of <i>Brassica campestris</i> L. oil for 10 to 15 minutes. Filter and store the oil in a glass bottle when the bulbs turn black. The oil is used to treat ear pain. Apply two to three drops of oil to infected ear for one to two days.
Other Ethnobotanical Uses	The bulb is an essential ingredient of curry.
23. MALVACEAE	
Scientific Name	<i>Abutilon indicum</i> (L.) Sweet.
Common Names	Peeli Booti , Indian Mallow
Habit & Habitat	Herb, commonly found in moist waste places
Flowering Period	February to March
Part Used	Leaf and seed
Folk Remedies	1) Paste made from fresh mucilaginous leaves is used to treat piles topically. 2) The mucilaginous seeds are used as a laxative.
Other Ethnobotanical Uses	The plant is used as a cattle fodder.
Scientific Name	<i>Hibiscus rosa-sinensis</i> L.
Common Names	Chembarathi , Shoe Flower
Habit & Habitat	Shrub, commonly cultivated in houses
Flowering Period	Round the year
Part Used	Flower
Folk Remedies	Apply paste made from flowers to burn area to reduce the burning sensation and inflammation.
Other Ethnobotanical Uses	The plant is cultivated for ornamental purposes.

Scientific Name	<i>Malva parviflora</i> L.
Common Names	Sonchal , Mallow
Habit & Habitat	Herb, commonly grows near moist fields
Flowering Period	January to March
Part Used	Leaf and seed
Folk Remedies	1) Decoction made from seeds is used as tea to treat common cold and cough. 2) Leaves are cooked to treat constipation.
Other Ethnobotanical Uses	Plant is used as vegetable.
24. MELIACEAE	
Scientific Name	<i>Melia azedarach</i> L.
Common Names	Dherak , Chinaberry
Habit & Habitat	Tree, commonly cultivated
Flowering Period	February to March
Part Used	Leaf and fruit
Folk Remedies	1) In spring, newly sprouted twigs are ground into powder and mixed with water. Add table salt to mixture for taste. The mixture is used to treat skin infection. 2) Young fruits are eaten in spring to treat skin diseases.
Other Ethnobotanical Uses	It is a shelter, fodder, timber and fuel yielding plant.
25. MENISPERMACEAE	
Scientific Name	<i>Tinospora cordifolia</i> (Willd.) Miers
Common Names	Glow , Heart Leaved Moon Seed
Habit & Habitat	Herb, rarely found as pot plant
Flowering Period	March to May
Part Used	Seed
Folk Remedies	Soak one gram of mashed seeds in water overnight. Filter the mixture and drink one cup of the filtrate every morning for three months to treat tuberculosis.
Other Ethnobotanical Uses	The plant is cultivated for ornamental purposes.
26. MORACEAE	
Scientific Name	<i>Ficus benghalensis</i> L.
Common Names	Boher , Banyan
Habit & Habitat	Tree, cultivated in wetlands
Flowering Period	April to May
Part Used	Latex
Folk Remedies	Two drops of latex are administered orally to treat gonorrhoea.
Other Ethnobotanical Uses	Plant is a soil binder and provide shade near wetlands.

Scientific Name	<i>Ficus palmata</i> Forssk.
Common Names	Khabara , Wild Fig
Habit & Habitat	Tree, rarely cultivated
Flowering Period	May to November
Part Used	Latex
Folk Remedies	Latex is mixed with milk to form a paste which is used to treat pimples.
Other Ethnobotanical Uses	Fruit is edible.
Scientific Name	<i>Ficus religiosa</i> L.
Common Names	Pipal , Sacred Fig
Habit & Habitat	Tree, commonly cultivated
Flowering Period	October to November
Part Used	Bark
Folk Remedies	Dried bark is ground into powder. Take one teaspoon of the powder daily for two weeks to treat gonorrhoea.
Other Ethnobotanical Uses	Plant is grown for its wood.
Scientific Name	<i>Morus nigra</i> L.
Common Names	Kala Toot , Mulberry
Habit & Habitat	Tree, commonly cultivated
Flowering Period	March to April
Part Used	Root, leaf and fruit
Folk Remedies	1) Clean the roots and strip the root bark. Mix the root bark with leaves and prepare a decoction. Add a small amount of phatkari (cream of tartar) to the decoction to treat bad thorax. Decoction made from root is also used to treat stomach worms. 2) Fruit is used to treat bad thorax.
Other Ethnobotanical Uses	Young branches are used to make tokra , a type of basket. Fruit is edible.
27. MYRTACEAE	
Scientific Name	<i>Eucalyptus camaldulensis</i> Dehnh.
Common Names	Sofada , Eucalyptus
Habit & Habitat	Tree, commonly cultivated
Flowering Period	March to August
Part Used	Leaf
Folk Remedies	1) Decoction made from leaves is used to treat common cold. Crush five to seven leaves using gentle hand movements and smell the crushed leaves to treat nose infection during common cold. 2) Branches are fed to livestock to treat common cold.
Other Ethnobotanical Uses	The plant is grown for its timber.

Scientific Name	<i>Psidium guajava</i> L.
Common Names	Amrood , Guava
Habit & Habitat	Tree, commonly cultivated
Flowering Period	Round the Year
Part Used	Fruit
Folk Remedies	Remove seeds from fruit. Eat the fruit with a small amount of table salt to improve appetite.
Other Ethnobotanical Uses	Fruit is edible and the plant is also grown for its wood.
Scientific Name	<i>Syzygium cumini</i> (L.) Skeels
Common Names	Jamnoo, Jambolan
Habit & Habitat	Tree, commonly cultivated
Flowering Period	March to April
Part Used	Seed
Folk Remedies	Grind dried seeds into powder and mix with sugar for taste. Take half teaspoon of mixture twice daily to treat diabetes.
Other Ethnobotanical Uses	Plant is wood yielding and fruit is edible.
28. OLEACEAE	
Scientific Name	<i>Jasminum sambac</i> (L.) Aiton
Common Names	Motia , Jasmine
Habit & Habitat	Shrub, commonly cultivated in house gardens
Flowering Period	March to August
Part Used	Flower
Folk Remedies	Grind the flowers into a paste and add two teaspoons of rose extract. Use the paste to treat wrinkles on face.
Other Ethnobotanical Uses	Flowers are used to make garlands worn by local women.
29. NYCTAGINACEAE	
Scientific Name	<i>Boerhavia procumbens</i> Banks ex Roxb.
Common Name	Itsit
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	July to September
Part Used	Root
Folk Remedies	Dried root pieces are strung together with a cotton thread to make garlands which are worn by patients to treat jaundice.
Other Ethnobotanical Uses	Plant is used cattle fodder.

Scientific Name	<i>Mirabilis jalapa</i> L.
Common Names	Gul Basi , Four-o-Clock
Habit & Habitat	Herb, commonly cultivated in houses
Flowering Period	Round the Year
Part Used	Leaf and seed
Folk Remedies	1) Apply paste made from leaves on infected skin area. 2) Seeds are used to treat gonorrhoea. Prepare an infusion by soaking the seeds in water overnight. In the morning, add sugar to infusion and drink before breakfast.
Other Ethnobotanical Uses	Flowers are cultivated for ornamental purposes.
30. PAPAVERACEAE	
Scientific Name	<i>Papaver somniferum</i> L.
Common Names	Kashkash , Opium
Habit & Habitat	Herb, rarely cultivated more than 5-6 plants in houses
Flowering Period	February to March
Part Used	Fruit and seed
Folk Remedies	1) Grind 15 grams of seeds with sugar and a glass of water. Mixture is drunk to treat brain weakness. Grind 15 grams of seeds with sugar (for taste) and one glass of milk. Boil the mixture. The decoction is used to treat cold. 2) Decoction made from dried fruit is used to treat fever.
Other Ethnobotanical Uses	The plant is used to make the local narcotic hafaem . Field cultivation of plants is prohibited.
31. PEDALIACEAE	
Scientific Name	<i>Sesamum indicum</i> L.
Common Names	Til , Sesame
Habit & Habitat	Herb, commonly cultivated
Flowering Period	August to September
Part Used	Seed
Folk Remedies	Roast two to three grams of seeds for five minutes in ghee. Administer the seeds to children between the age of five and six who wet their beds at night.
Other Ethnobotanical Uses	Seeds are used to make the local sweet til ka merrunda .
32. PLANTAGINACEAE	
Scientific Name	<i>Plantago ovata</i> Forssk.
Common Names	Aspaghool , Plantain
Habit & Habitat	Herb, rarely found in arid area
Flowering Period	March to April
Part Used	Seed
Folk Remedies	Testa of seed is administered orally with milk to treat constipation.
Other Ethnobotanical Uses	The plant is used as cattle fodder.

33. POACEAE	
Scientific Name	<i>Arundo donax</i> L.
Common Name	Nerri
Habit & Habitat	Shrub, Found near running water bodies
Flowering Period	June to December
Part Used	Leaf and stem
Folk Remedies	1) Decoction made from aerial parts is used to treat fever. 2) Smoke from burnt plant is used to treat dysfunctional organs of cattle.
Other Ethnobotanical Uses	The plant is used to make musical instrument like the local flute, tootni . Plant is also to make hookah pipes.
Scientific Name	<i>Cymbopogon iwarancusa</i> (Jones) Schult.
Common Names	Khavi , Wild Lemon Grass
Habit & Habitat	Herb, commonly found growing on hard soil
Flowering Period	August to September
Part Used	Leaf
Folk Remedies:	1) Grind dried leaves into powder. Take one teaspoon of powder orally daily to treat obesity. 2) Decoction made from dried leaves is used as a tea to treat common cold and fever. It also used to treat similar diseases in livestock.
Other Ethnobotanical Uses:	The plant is used to layer sather (mosque floor) for its pleasant fragrance.
Scientific Name	<i>Cynodon dactylon</i> (L.) Pers.
Common Names	Khabul , Bahm Grass
Habit & Habitat	Herb, common grass in the area
Flowering Period	June to October
Part Used	Whole Plant
Folk Remedies:	Grind fresh plant into a paste which is used to treat wounds.
Other Ethnobotanical Uses:	The plant is used as cattle fodder. It is also grown as lawn grass.
Scientific Name	<i>Desmostachya bipinnata</i> (L.) Stapf.
Common Names	Dab , Tail Grass
Habit & Habitat	Herb, common grass in the area
Flowering Period	March to April
Part Used	Leaf
Folk Remedies	Decoction made from leaves is used to treat fever.
Other Ethnobotanical Uses	Plant is used as cattle fodder.

Scientific Name	<i>Hordeum vulgare</i> L.
Common Names	Jo , Barley
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Seed
Folk Remedies	Grind seeds into a barley stack known as dalia which is used as soft food during stomach disorders.
Other Ethnobotanical Uses	1) Grind roasted fresh seeds into satoo , a type of local flour which is mixed with sugar and water in summer to make a local drink. 2) The plant is used as cattle fodder.
Scientific Name	<i>Saccharum spontaneum</i> L.
Common Name	Sarrout
Habit & Habitat	Herb, common grass found near water
Flowering Period	August to October
Part Used	Whole plant
Folk Remedies	Decoction made from root is used to improve appetite and to treat abdominal pain. It is also used to treat similar diseases in cattle.
Other Ethnobotanical Uses	Stem is used for roofing. Chiks (sheets of stem) are made during summer as sun-shade.
Scientific Name	<i>Triticum aestivum</i> L.
Common Names	Karank , Wheat
Habit & Habitat	Herb, commonly cultivated
Flowering Period	February to March
Part Used	Stem
Folk Remedies	Soak wheat straw overnight in a glass of water. Filter the wheat straw and the filtrate is administered orally to treat diabetes.
Other Ethnobotanical Uses	The flour is used to make chapatti which is staple food of the area.
Scientific Name	<i>Zea mays</i> L.
Common Names	Makai , Maize
Habit & Habitat	Herb, commonly cultivated
Flowering Period	July to November
Part Used	Female flower
Folk Remedies	Decoction made from fresh stigma and style of female flower is used to treat kidney stone.
Other Ethnobotanical Uses	Corncoobs are edible.

34. PORTULACACEAE	
Scientific Name	<i>Portulaca oleracea</i> L.
Common Names	Kulfa , Purslane
Habit & Habitat	Herb, commonly found in moist fields
Flowering Period	March to June
Part Used	Whole plant
Folk Remedies	1) Decoction made from seeds is administered orally to treat jaundice and typhoid. 2) Whole plant is cooked and eaten to treat iron deficiency. 3) Seeds ground into powder is orally administered one teaspoon daily to treat skin allergy.
Other Ethnobotanical Uses	The plant is used as vegetable.
Scientific Name	<i>Portulaca quadrifida</i> L.
Common Names	Khatmal , Small Purslane
Habit & Habitat	Herb, commonly found in moist waste places
Flowering Period	June to September
Part Used	Whole Plant
Folk Remedies	The whole plant tightly applied on sore muscle with a cotton cloth.
35. PUNICACEAE	
Scientific Name	<i>Punica granatum</i> L.
Common Names	Anar , Pomegranate
Habit & Habitat	Shrub, commonly cultivated
Flowering Period	March to April
Part Used	Exocarp of fruit
Folk Remedies	Grind dried exocarp into powder. Administer one teaspoon of powder with water to treat dysentery and irregularity of menstruation.
Other Ethnobotanical Uses	The exocarp is used to make a purplish-red dye to color white cotton.
36. RHAMNACEAE	
Scientific Name	<i>Ziziphus jujuba</i> Mill.
Common Names	Baer , Jujube
Habit & Habitat	Tree, found cultivated and wild
Flowering Period	October to December
Part Used	Leaf and fruit
Folk Remedies	1) Mix leaves with brown sugar. Grind the mixture and then add soap to make a paste which is used to treat skin infections where pus is present. 2) Dry fruit in a sheltered place. Grind the whole ripen fruit into powder. Store powder in glass jar in a dry and sheltered place. Add one teaspoon of the powder in a glass to make the local drink Lasi . Drink one glass daily for a month to treat iron deficiency.
Other Ethnobotanical Uses	The plant is used as fodder and shelter. It is also grown for its timber.

37. ROSACEAE	
Scientific Name	<i>Pyrus malus</i> L.
Common Names	Sayb , Apple
Habit & Habitat	Tree, commonly cultivated
Flowering Period	February to March
Part Used	Fruit
Folk Remedies	1) Eat one medium size apple follow by a cup of milk before breakfast for a month to aid in health recovery illness. 2) This is also used to treat iron deficiency.
Other Ethnobotanical Uses	The plant is grown for its fruits and wood.
Scientific Name	<i>Rosa indica</i> L.
Common Names	Gulab , Rose
Habit & Habitat	Shrub, commonly cultivated
Flowering Period	February to August
Part Used	Flower and seed
Folk Remedies	Juice from petals is used to clean eyes. A small amount of powder made from ground dried seeds is used to treat heart disease.
Other Ethnobotanical Uses	Flowers are used for their fragrance in ceremonies.
38. RUTACEAE	
Scientific Name	<i>Citrus grandis</i> (L.) Osbeck
Common Names	Metha , Panelo
Habit & Habitat	Tree, rarely cultivated
Flowering Period	February to March
Part Used	Fruit
Folk Remedies	Fruit juice is used to treat malaria.
Other Ethnobotanical Uses	Fruit is edible.
Scientific Name	<i>Citrus limon</i> (L.) Burm. f.
Common Names	Nimboo , Lemon
Habit & Habitat	Tree, commonly cultivated
Flowering Period	Round the Year
Part Used	Fruit
Folk Remedies	1) Grind dried exocarp into powder and then mix in table salt. The mixture is used as toothpowder in the area. 2) Add lemon juice to 350 grams of sugar until sugar becomes wet. The mixture is fed to pregnant domestic animals suffering from mammary gland infection.
Other Ethnobotanical Uses	In summer, fruit juice is used to make ishkangi , a local fresh cold drink. Fruit is also used to make pickles.

39. SALVADORACEAE	
Scientific Name	<i>Salvadora oleoides</i> Decne.
Common Name	Jhal
Habit & Habitat	Shrub, rare forest species
Flowering Period	April to May
Part Used	Stem, leaf and seed
Folk Remedies	1) Decoction made from young branches with leave is used to treat cough. 2) Oil from seed oil is used to treat rheumatism and infections after childbirth.
Other Ethnobotanical Uses	Stem is used to make toothbrush.
40. SAPINDACEAE	
Scientific Name	<i>Dodonaea viscosa</i> Jacq.
Common Name	Sanatha
Habit & Habitat	Shrub, common forest species
Flowering Period	February to March
Part Used	Leaf
Folk Remedies	Grind dried leaves into powder. Add one gram of the powder to clean water. The solution is used to treat stomach acidity and skin allergy. Do not use the solution for a prolonged time because it can harm the spinal chord.
Other Ethnobotanical Uses	The plant is cultivated hedges in gardens.
41. SOLANACEAE	
Scientific Name	<i>Capsicum annuum</i> L.
Common Names	Ratian Merchan , Red Pepper
Habit & Habitat	Herb, commonly cultivated
Flowering Period	Round the Year
Part Used	Fruit
Folk Remedies	Pickle made from fruit is given to cattle to improve appetite.
Other Ethnobotanical Uses	Fresh and dry fruits are used in curries.
Scientific Name	<i>Datura inoxia</i> Mill.
Common Names	Datura, Thorn Apple
Habit & Habitat	Shrub, commonly found in waste places
Flowering Period	March to July
Part Used	Seed
Folk Remedies	Grind two grams of seeds and two grams of black pepper into powder. Add two teaspoons of honey and a small amount of <i>Sterculia urens</i> (Kateera). Make tablets of grain size from mixture. Orally administer one tablet at night for a week with a glass of milk to treat gonorrhoea. Do not exceed prescribed dosage.

Scientific Name	<i>Lycopersicon esculentum</i> Mill.
Common Names	Tamatar , Tomato
Habit & Habitat	Herb, commonly cultivated
Flowering Period	Round the Year
Part Used	Fruit
Folk Remedies	1) Fresh juice of riped fruit is used to reduce acidity of the stomach. 2) Make a paste from ground fruit. Allow paste to dry. Administer one teaspoon daily for a week to treat inflammation of esophagus and stomach.
Other Ethnobotanical Uses	Fruit is used as vegetable.
Scientific Name	<i>Solanum nigrum</i> L.
Common Names	Kach Mach , Nightshade
Habit & Habitat	Herb, commonly found in fields
Flowering Period	Round the Year
Part Used	Leaf
Folk Remedies	Leaves are cooked and used to abnormal and painful secretions from ears.
Other Ethnobotanical Uses	Plant is used as vegetable. Fruit is edible.
Scientific Name	<i>Solanum surattense</i> Burm. f.
Common Names	Mohokri , Yellow Berried
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	June to November
Part Used	Fruit
Folk Remedies	Decoction is made from fruit which is used to treat fever and cough.
Other Ethnobotanical Uses	Plant is consumed by camels.
Scientific Name	<i>Withania somnifera</i> (L.) Dunal
Common Names	Ak San , Winter Cherry
Habit & Habitat	Herb, commonly found in waste places
Flowering Period	Round the Year
Part Used	Whole Plant
Folk Remedies	Decoction made from whole plant is used to treat asthma.
42. TAMARICACEAE	
Scientific Name	<i>Tamarix aphylla</i> (L.) H. Karst.
Common Names	Rokh , Tamarisk or Salt Cedar
Habit & Habitat	Tree, commonly cultivated
Flowering Period	March to April
Part Used	Leaf
Folk Remedies	1) Infusion made from burning leaves is used to treat external worms of skin and internal worms of nose and ear in livestock. 2) Leaf infusion is drunk with the help of cigarette or hookah to ease toothache.
Other Ethnobotanical Uses	Plant is grown for its fire wood.

43. VERBENACEAE	
Scientific Name	<i>Vitex negundo</i> L.
Common Names	Marvan , Five Leaved Chaste Tree
Habit & Habitat	Shrub, rarely found in sandy places
Flowering Period	March to June
Part Used	Seed
Folk Remedies	1) Grind seeds into powder. Administer one teaspoon daily to treat skin allergy and purify blood. 2) Young twigs with leaves and inflorescence are fed to livestock to treat constipation.
Other Ethnobotanical Uses	The plant is used in roofing hut because of it has insecticidal property.
44. ZYGOPHYLLACEAE	
Scientific Name	<i>Fagonia indica</i> Brum. f.
Common Names	Dhamian , Fagonia
Habit & Habitat	Herb, commonly found in fields
Flowering Period	Round the Year
Part Used	Whole plant
Folk Remedies:	Grind fresh whole plant. Add water and then filter the plant materials. Use one cup filtrate for a few days to purify blood.
Scientific Name	<i>Peganum harmala</i> L.
Common Names	Hermal , Syrian Due
Habit & Habitat	Herb, commonly found in waste fields
Flowering Period	May to June
Part Used	Seed
Folk Remedies	Grind seeds into powder. Use a small amount of the powder to alleviate pain, treat gastric problems, and stop vomiting.
Other Ethnobotanical Uses	Dried seeds, as a result of their insecticidal property, are thrown into fire to create smoke which kills germs and insects in the room. The smoke is also used to reduce bad smell.
Scientific Name	<i>Tribulus terrestris</i> L.
Common Names	Bhakra , Puncture Vine
Habit & Habitat	Herb, commonly found in waste fields
Flowering Period	April to September
Part Used	Seed
Folk Remedies	Grind 25 grams of dry seeds into flour. Mix flour with the local sweet dish of wheat, Halwa . The mixture is used to treat back pain in especially women.
Other Ethnobotanical Uses	Young branches are used as livestock fodder.

Discussion

Plants have been used as medicine since ancient times (Shinwari & Khan 2000). Emmerich & Valle (1991) reported the knowledge used by the indigenous people in Mato Grosso, Brazil. Kiringe (2006) brought about ethnobotanical findings related to the Maasai community of Southern Kaijiado District of Kenya. In Pakistan, the use of folk remedies is also a common practice. Use of plants in the treatment of different medical problems by local inhabitants in the study area was passed down from generation to generation but rapid modernization is causing old traditions to vanish.

Our research result overlaps with those of Ahmed *et al.* (2003) who conducted their research in Tehsil Attock, and Ishfaq *et al.* (2004) who worked in Tehsil Fateh Jang. People in these areas use the same plants for same purposes. In addition, our research also unveils some new aspects of plant-based remedies. Shinwari & Khan (2000) described the folk use of medicinal plants in Margallah Hills National Park, Islamabad in similar manner. Haq (1983) reported some economically important plants of Pakistan where few of these plants still exist as wild species in the area. So, this area can be utilized for the cultivation of these commercially important medicinal plants.

We have identified about 35 different types of human diseases that have been cured using traditional methods. Sixteen plant species were used to treat gastric problems, 14 to treat skin infections, 12 to treat cough, common cold and fever, 9 to treat jaundice and 5 to treat iron deficiency. Most of the plants, which are enlisted in Table 1, are widely used in the other parts of the world in similar or different ways. For example, *Cichorium intybus* (Norbaek *et al.* 2002), *Ziziphus jujuba* (Peng *et al.* 2000) are used in North America for medicinal purposes. Additional properties of some of the medicinal plants of the area are also unveiled by scientific findings such as the fumigant toxicity of *Artemisia scoparia* (Negahban *et al.* 2005). Singh *et al.* (2000) tested the antioxidant activity of *Justicia adhatoda*. Many of the plants identified in this study are widely used as herbal medicine and marketed internationally. Some examples include *Anethum sowa*, *Coriandrum sativum*, *Foeniculum vulgare* and *Trachyspermum copticum*. It was also found that some common vegetables (*Cucumis sativus*, *Cucurbita pepo* and *Capsicum annuum*), fruits (*Mangifera indica*, *Psidium guajava* and *Cucumis melo* var. *agrestis*), and even crops (*Triticum aestivum*, *Cicer arietinum* and *Hordeum vulgare*) are part of the ethnobotanical culture of the area.

Smitherman *et al.* (2005) reported that folk remedies have been and still are relied on by different ethnic minorities for many reasons such as health beliefs, the lack of modern professional medical healthcare and economic factors. Specific remedies tend to vary among different cul-

tural groups although there is some overlap as shown in our study. Presently, scientists are actively engaged in exploring plants that have important medicinal properties such as anti-ulcer, anti-diabetes, antioxidant and anti-inflammatory. Scientists often experiment with plants which have been described in previous ethnopharmacological investigations. This study complements such research. Mennis (2006) studied the socioeconomic relations between people and vegetation, and concluded that modernization is not only straining natural resources but also impacting the quality of life for many people. In spite of all these factors, one major issue is the loss of indigenous knowledge which may serve as a guideline for many scientists all over the world as they continue to research on plant-based therapeutics.

This research also shows that people in the area are not using the plants to treat modern day diseases. This indicates that the use of traditional plant-based medicine is vanishing. People are practicing traditional medicine based on what they currently understand about the system and there is no guarantee that people will use this knowledge in the future even in remote areas. Many plant species have become threatened due to habitat loss as a result of rapid urbanization. So, the result of this survey can be incorporated into future conservation management plans for threatened medicinal plants. Local people should participate in problem formulation and decision making process.

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