An Ethnobotanical Survey of Medicinal and Other Useful Plants of Khattak Tribe in Tehsil Karak, Khyber Pakhtunkhwa, Pakistan

Musharaf Khan, Zabta Khan Shinwari, Mohib Shah, Shahana Musharaf

1. Department of Biological Sciences, FGCB Mardan, Pakistan
2. Department of Biotechnology, Quaid Azam University Islamabad, Pakistan
3. Department of Botany, Abdul Wali Khan University Mardan, Pakistan
4. Department of Chemistry, GGDC, Sheikh, Maltoon Mardan, Pakistan.

Corresponding author email: k.musharaf@gmail.com.

Abstract This paper presents the results of ethnobotanical studies on medicinal and other useful plants used traditionally by the Khattak Tribe in Tehsil Karak. The study was carried out during 2005–2007 through interview using semi-structured questionnaire and personal observation. We documented the use of 160 plants belonging to 56 families in which 22 are trees, 23 are shrubs and 115 are herbs. These plants are used in the cure of various diseases of humans and their pets. The area was investigated for the first time and information about the traditional remedies with special reference to their medicinal uses were collected and documented before they are lost. From the economic and botanical point of view the study area has great potentiality.

Keywords Ethnobotany; Medicinal plant; Conservation; Pakistan

Introduction

Harshberger used the term “Ethnobotany” in 1896 to indicate plants used by the aboriginals. It is considered as a branch of ethnobiology. It deals with the study and evaluation of plant-human relations in all phases and the effect of plant environment on human society. Karak has rich biodiversity consisting of a large number of plants, some of which are used for their medicinal value. Most of the population of the area still depends on the folk medicines as they live in far flung areas where the facilities of the medical treatment are scarcely available. The area has a rural culture of old traditions and the local people have their own principle and choice for a village site house, family, dress and ornaments, weddings, childbirth, death ceremonies, cultural functions, festivals and socio-religious beliefs. So they get indigenous knowledge about the local plants. Ethnobotanical studies in various areas of Pakistan have also been carried out (Shinwari and Khan, 2000; Shinwari and Gilani, 2003; Hussain et al., 2006; Shinwari, 2010; Khan et al., 2011). The present research was aimed to collect, document and compile diverse and disperse traditional local information of century’s experienced therapeutic uses of medicinal plants of Karak. Such a study will provide evidence for their authenticity in a particular disease and hence it will give a very interesting and rewarding prepharmacological ground for undertaking its investigation on scientific basis.

Methodology

Research area

The tehsil Karak is situated at 32° 47 to 33° 28 N and 70° 30 to 71° 30 E (Figure 1–Figure 3). Majority of the study area consists of curved dry hills and rough fields areas. Although the hills are very dry, but it is a fact that it contains precious minerals like salt, gypsum and gas etc. There is shortage of drinking water, so the people bring water from remote area. The Rainfall is scanty in the area. In the year 2005, 300 to 400 mm of rainfall per annum recorded on district level. The area is very hot in summer and very cold in winter. In the year 2005 the mean maximum temperature was 42°C, in the month of the June, whereas the mean minimum temperature was as low as 4°C, in the month of December and January, recorded on district level (Table 1).
Survey and Questionnaire

The study was conducted by frequently surveying in winter, spring and summer during 2005-2007. Ethnobotanical information was gathered from each site by using a semi-structured questionnaire and the information about the medicinal uses of the plants was obtained from local experienced people through personal interview. Information about the local uses of the plants as medicinal, fuel wood, timber and fodder etc were obtained through random sampling by interviewing from different walks of life because different age group and gender use these plant for different purposes. Individual questionnaire was filled from plant collectors, housewives, shopkeepers, elders, plant traders and local healers (Hakims), who are the actual users and have a lot of indigenous knowledge about the plants and their traditional uses. The data was classified, tabulated, analyzed and concluded for final report. Plants specimens were collected, dried and identified with help of local available literature, using the herbarium, Department of Botany, Kohat University of Science and Technology Kohat, Pakistan. All plant species were divided into tree, shrubs and herbs mentioning botanical name, local name, family,
parts used, floral period, method of preparation and application.

**Results**

The present study includes indigenous knowledge of plants of Tehsil Karak. Total of 160 species belonging to 56 families are reported from the area comprises of 22 tree, 23 shrubs and 115 herbs (Figure 4). The dominant family is Poaceae with 16 species, followed by Asteraceae and Papilionaceae with 14 species, Solanaceae with 8 species, Amaranthaceae and Brassicaceae with 7 species, Cucurbitaceae and Lamiaceae with 6 species, Mimosaceae with 5 species, Convolvulaceae, Euphorbiaceae and Malvaceae with 4 species, Boraginaceae, Capparidaceae, Chenopodiaceae, Rhamnaceae, Verbenaceae and Zygophyllaceae with 3 species. Alliaceae, Apiaceae, Apocynaceae, Asparagaceae, Asphodelaceae, Cactaceae, Caryophylaceae, Caesalpiniaceae, Celastraceae, Fumaraceae, Geraniaceae, Hypericaceae, Meliaceae, Menispermaceae, Nyctaginaceae, Orobanchaceae, Oxalidaceae, Palmae, Pedaliaceae, Punicaceae, Ranunculaceae, Rosaceae, Salvadoraceae, Sapindaceae, Sapotaceae, Scrophulariaceae Tiliaceae and Vitaceae with single specie each (Figure 5). Most species had multi uses and the plants were mostly used as medicinal. The ethnobotanical inventory is presented in Table 2–Table 4.

![Figure 4](http://mpr.biopublisher.ca) Number of plant species in different strata of research area

![Figure 5](http://mpr.biopublisher.ca) Total number of families in research area

| SN | Botanical name | Local name | Family | Floral period     | Part uses                  | Uses                                                                 |
|----|----------------|------------|--------|-------------------|---------------------------|----------------------------------------------------------------------|
| 1  | *Acacia modesta* Wall. | Palosa | Mimosaceae | March–April | Flowers, Gum & leaves | Inflorescence; perfume, cooling agent in asthma and fever; Gum; sexual desire & tonic, back bone pin and given especially for women after the child birth. Eye troubles. Ash of leaves; wound of cattle. Agriculture tools, fuel, fodder, hedging and sheltering & honey bee specie. |
| 2  | *Acacia nilotica* (L) Delice. | Kikar | Mimosaceae | April–May | Bark & Seed | Stimulant and demulcent. Bark deduction; diarrhoea, diabetes and dysentery; Gum; cough and chest complaints. Seed juice; eye trouble. Ash; wound. Fodder, fuel, soil erosion, shad, hedging & sheltering & honey bee specie. |
| 3  | *Albizia lebbeck* (L.) Benth. | Sreen | Mimosaceae | April–May | Leaves, Flower & Bark | Flowers; shin diseases, bark; diarrhea, seed; eye troubles, inflorescence; perfume. Wood; furniture and fuel. Shade, ornamental purpose, Hedging & sheltering. Honey bee specie. |
| 4  | *Capparis deciduas* (Forssk), Edge worth. | Tap | Capparidaceae | July–Sept. | Leaves & Fruit | Fruits; Pickles, Jams, laxative. Bark; laxative, anthelmintic and swellings. Fuel, agriculture tools and hedging & sheltering. Honey bee specie. |
| SN | Botanical name | Local name | Family | Floral period | Part uses | Uses |
|----|----------------|------------|--------|---------------|-----------|------|
| 5  | Dalbergia sissoo Roxb. | Shawa | Papilionaceae | Spring | Whole plant | Branches; clean teeth. Green bark; cleaning of teeth crushed leaves mixed with lemon juice are used for freckles. Fuel, furniture & agricultural tools. Ash; making snuff (Naswar). Shad tree, honey bee species, hedging & sheltering. |
| 6  | Eucalyptus globules L. | Sofida | Myrtaceae | April–May | Whole plant | Fuel wood, agriculture tools & hedging and sheltering. |
| 7  | Eucalyptus lanceolatus L. | Lochi | Myrtaceae | April–May | Whole plant | Fruit; laxative & digestive. Thatching, fuel wood, agriculture tools & hedging and sheltering. |
| 8  | Gymnosporia royleana Wall. | Pataki | Celastraceae | April–May | Seeds | Smoke of seed; against toothache. Fuel wood, fodder. hedging & sheltering. Honey bee specie. |
| 9  | Melia azedarach L. | Bakain | Meliaceae | March–April | Leaves | Leaves juice; diuretic & anthelmintic. Fuel, timber, agricultural tools, furniture, fodder; ornamental purposes & Honey bee species. |
| 10 | Monothea buxifolia (falk) A.D.C. | Gurgura | Sapotaceae | March–April | Fruit | Fruit; laxative & digestive. Thatching, fuel wood, Honey bee species, agriculture tools & hedging and sheltering. |
| 11 | Morus alba L. | Spin Shatat | Moraceae | March–April | Fruit | Fruit; laxative. Wood; fuel, furniture and timber. Branches; making cages for birds & baskets. Shady tree, honey bee species, hedging & sheltering. |
| 12 | Morus nigra L. Parkinsonia aculeata L. | Toor Shahtut | Moraceae | March–April | Leaves | Leaves juice; laxative & tonic. Fodder, fuel & honey bee specie |
| 13 | Phoenix dactylifera L. | Khajoor | Palmae | March–May | Fruits & Leaves | Fruits; cough chest problems, fiver, nutritive, laxative, tonic, cooling agent & stimulate sexual desires. Leaves; thatching & kits, mats, baskets, caps, ropes, hedge & soil binder. Dried peduncles; brooms. Honey bee specie. |
| 14 | Prosopis farcta (Banks & Sol.) J.F. Macbr. | Sangara | Mimosaceae | April–May | Fruits, Gum & leaves | Stimulant and demulcent. Bark deduction; diarrhoea and dysentery. Gum; cough and chest complaints. Ash; wound. Fodder, fuel, soil erosion, shad, hedging & sheltering. |
| 15 | Prosopis juliflora (Sw.) DC. Pungia granatum L. | Gersinai kikar | Mimosaceae | April–May | Fruits & Gum | Gum; cough and chest complaints. Fodder, fuel, soil erosion. |
| 16 | Punica granatum L. | Anar | Punicaceae | March–May | Fruits & Bark | Fruits; nutritive, cooling, laxative, tonic & digestive. Dried unripe seeds; condiments. Bark; dysentery. Ornamental, honey bee specie, handles of sickles. Tonic, diuretic, diarrhoea & dysentery. Honey bee specie. |
| 17 | Salvadora oleoides Decne. | Plaiman | Salvadoraceae | Feb.–March | Whole plant | Antiseptic. Bark; skin disease. Fumes; healing, inflammations of wounds & child’s birth. Leaves; various ways in tetanus & fodder especially for camel. Fuel, timber & furniture. Honey bee specie. |
| 18 | Tamarix aphylla (L.) Karst. | Sheen ghazz | Tamaricaceae | May–Sept. | Leaves & Bark | Antiseptic. Bark; skin disease. Fumes; healing, inflammations of wounds & child’s birth. Fuel & Honey bee specie. |
| 19 | Tamarix decidva Roxb. | Sor Ghazz | Tamaricaceae | May–Sept. | Leaves & Bark | Fruits; tonic, digestive & stimulate sexual desires. Branches; fencing. Leaves; boiled in water for bathing of dead Muslims bodies. Deduction of roots; fever. Agricultural tools like Belcha, Karah, & Ax (Tabar) etc. Honey bee species, Fuel, fodder, hedging & sheltering. |
| 20 | Zizyphus mauritiana Lam | Beri | Rhamnaceae | Spring | Leaves & Fruits | Fruits; tonic, digestive & stimulate sexual desires. Honey bee species, Fuel, fodder & Honey bee specie. |
| 21 | Zizyphus oxyphylla Edgew | Bada Bera | Rhamnaceae | Spring | Fruits | Fruits; tonic, digestive & stimulate sexual desires. Honey bee species, Fuel, fodder & Honey bee specie. |
Table 3 Economically important Shrubs of Tehsil Karak, botanical name, local name, family, parts used, floral period (FP) and uses

| SN | Botanical name                        | Local name | Family          | F.P          | Part uses        | Uses                                                                 |
|----|---------------------------------------|------------|-----------------|--------------|------------------|----------------------------------------------------------------------|
| 1  | *Alhagi maurorum* Medic.              | Ganderi    | Papilionaceae   | Sep.–Dec.    | Whole plant      | Fuel:                                                                |
| 2  | *Astragalus psilocentros* Fisch.      | Azgekai    | Papilionaceae   | April–May    | Seed             | Seed: used as tonic. Fodder of camel.                                 |
| 3  | *Calligonum polygonoides* L.          | Balanza    | Polygonaceae    | Sep.–Dec.    | Whole plant      | Ash; Used in Naswar. Leaves: diuretic & expectorant. Fuel. Soil erosion. |
| 4  | *Calotropis procera* (Wild) R.Br.    | Spalmai    | Asclepiadaceae  | Through out year | Whole plant | Expectorant, anthelmintic. Young flowers; used for Tumors. Children play with fruits. Fuel. |
| 5  | *Capparis spinosa* L.                 | Kakri      | Capparidaceae   | Sep.–Dec.    | Leaves, Root & bark | Unripe fruit; in pickled as a condiment. Ripe fruits; laxative. Root bark; diuretic, tonic, expectorant, anthelmintic, paralysis & in large spleen. Bruised leaves; poultices in gout. Honey bee specie. |
| 6  | *Coccus pendulus* (Forst) Diels      | Beta       | Menispermacea   | Spring       | Whole plant      | Plant used in insanity & diarrhea.                                   |
| 7  | *Datura metel* L.                     | Barbaka    | Solanaceae      | Sep.–Dec.    | Leaves, Seeds & root | Seeds, leaves & roots; skin disease, insanity & diarrhea. Dry leaves; painful tumors. Fresh leaves; contraction of mammary glands & stop the production of milk. Seed; killing dogs. Fuel & honey bee specie. |
| 8  | *Dodonaea viscosa* L.                 | Sanatha    | Sapindaceae     | Spring       | Leaves           | Leaves; bitter & astringent, goat rheumatism, swelling & burns. Branches; thatching, hedging, fencing & ornamental plant. Dried plant; fuel. Honey bee specie. |
| 9  | *Ocimum basilicum* L.                 | Baburi     | Lamiaceae       | Oct.–Dec.    | Flowers, Seed & Roots | Flowers; stimulant, carminative & diuretic. Seed; mucilaginous: chronic diarrhea, dysentery & gonorrhea in the form of infusion. Inflorescence juice; applied to the quails during cold, flue & joints. Roots; bowel complaints of children. Ornamental purposes mostly in Masjid. Honey bee specie. |
| 10 | *Opuntia ficus indica* (L.) Mill      | Ganderi    | Cactaceae       | Spring       | Whole plant      | Hedge & sheltering. Flowers are used by children.                   |
| 11 | *Oostegia limbata* (Benth.) Boiss.    | Her sasa   | Lamiaceae       | Spring       | Whole plant      | Stimulant & carminative. Hedge & sheltering. Fuel.                 |
| 12 | *Periploca aphylla* Decne.            | Barara     | Asclepiadaceae  | April–May    | Whole plant      | Flowers; stimulant & diuretic. Fuel.                                |
| 13 | *Rhazya stricta* Decne.               | Ganderia   | Apocynaceae     | April–May    | Leaves           | Leaves; anticancer. Leaves extraction; eye trouble. Fuel, hedge & sheltering. Honey bee specie. |
| 14 | *Ricinus communis* L.                 | Arand      | Euphorbiaceae   | April–May    | Seeds            | Seed; mucilaginous: diarrhea & dysentery. Fruit; wound agent, fragrance. Gulkand: mixture of petals with sugar; cooling, nutritive and laxative. Flowers; sign of love. Ornamental purposes. Honey bee specie, hedge and sheltering. |
| 15 | *Rosa indica* L.                      | Sada Gulab | Rosaceae        | Through out year | Fruits | Root; diuretic & demulcent. Juice; blood trouble & urinary complaints. Leaves; Sweeper, fresh fodder special for cow. Children used peduncle for making kite & pen for writing. Prevent soil erosion, fuel, hedging and sheltering. Honey bee specie. |
| 16 | *Saccharum bengalense* Retz           | Kana       | Poaceae         | Oct.–Nov.    | Leaves & Root    | Root; diuretic & demulcent. Juice; blood trouble & urinary complaints. Leaves; Sweeper, fresh fodder special for cow. Children used peduncle for making kite & pen for writing. Prevent soil erosion, fuel, hedging and sheltering. Honey bee specie. |
| SN  | Botanical name                     | Local name | Family   | F.P             | Part uses  | Uses                                                                 |
|-----|-----------------------------------|------------|----------|-----------------|------------|----------------------------------------------------------------------|
| 17  | Saccharum spontaneum L.           | Cheyaka    | Poaceae  | Sep. ~ Nov.     | Leaves     | Leaves; cooling agent. Honey bee specie.                              |
| 18  | Vitex negundo L.                  | Nirgandi   | Verbenaceae | Aug. ~ Dec. | Flowers, Seeds & Roots | Flowers mixed with honey; vomiting and fever. Seeds are boiled in water; used to stimulate sexual desire. Roots; tonic & expectorant. The leaves; swelling of joint, headache, remove worm from ulcers, fever, headache & earache. Check erosion & readily grown from cutting. Hedging & sheltering. Honey bee specie. |
| 19  | Vitex trifolia L.                 | Nirgandi   | Verbenaceae | Aug. ~ Dec. | Whole Plant | Tonic & expectorant. Honey bee specie.                                |
| 20  | Vitis vinifera L.                 | Angur      | Vitaceae  | Feb. ~ March    | Fruit      | Fruit; nutritive, laxative, tonic digestive, cooling, refreshing & produces blood. Dried fruit; “Maveek”, & “Dasi sharab” or “Khattak Sarka”. Ornamental plant & honey bee species. |
| 21  | Withania coagulans Dunal.         | Shopyanga  | Solanaceae | Spring         | Fruit      | Fresh fruit; emetic. Dried fruit; coagulating milk, dyspepsia & flatulent colic. Packing material, fuel, skin diseases & blood purifying. Honey bee specie. |
| 22  | Withania somnifera (L) Dunal.     | Asgand     | Solanaceae | Through out year | Leaves & Fruit | Fruits; diuretic, alternative, Astringent, aphrodisiac & catching bird. Green leaves; relieve joints pain & painful swellings. Roots; Diuretic & tonic. Juice; rheumatism. Seeds; coagulate milk. Honey bee specie. |
| 23  | Zizyphus nummularia (Bur. f) W.&A. | Karkanha   | Rhamnaceae | Spring         | Fruits     | Fruits; eaten by the game birds. Hedging, fencing, fuel, fodder & honey bee specie. |

Table 4 Economically important herbs of Tehsil Karak, botanical name, local name, family, parts used, floral period (FP) and uses

| SN  | Botanical name                     | Local name | Family   | F.P             | Part uses  | Uses                                                                 |
|-----|-----------------------------------|------------|----------|-----------------|------------|----------------------------------------------------------------------|
| 1   | Abelmoschus esculentus (L.) Moench. | Bhindi     | Malvaceae | Mar. ~ May      | Fruits     | Fruits Deduction; demulcent, emollient, Gonorrhoea, vegetables & honey bee specie. |
| 2   | Achyranthus aspera L.              | Kurashka   | Amaranthaceae | Mar. ~ May | Leaves     | Leaves; purgative, laxative, fodder.                                  |
| 3   | Aerua persica (Bur. f.) Merrill.   | Sasa       | Amaranthaceae | Apr. ~ May | Whole plant | Plant; fodder, fuel and hedging & sheltering. Leaves & flowers; cotton & diseases of goats. Honey bee specie. |
| 4   | Ajuga bracteosa Wall.ex Benth.     | Beta       | Lamiaceae | Spring          | Leaves     | Laxative & fodder                                                     |
| 5   | Allium cepa L.                     | Pyaz       | Alliaceae | May ~ July      | Whole plant | Leaves; purgative, laxative, vegetable as a salad.                   |
| 6   | Allium sativum L.                  | yeza       | Alliaceae | April ~ May     | Whole plant | Leaves; purgative, laxative, vegetable used in Chatni.               |
| 7   | Aloe barbadensis Mill.             | Zargia     | Aloaceae  | July ~ Sep.     | Leaves     | Leaves; purgative, laxative, specialy in joints pain. Sign of Graveyard. |
| 8   | Alternanthera pungens Kunth.       | Soba       | Amaranthaceae | Sept. ~ Oct. | Whole plant | Fruits; diuretic, alternative, Astringent, aphrodisiac & catching bird. Green leaves; relieve joints pain & painful swellings. Roots; Diuretic & tonic. Juice; rheumatism. Seeds; coagulate milk. Honey bee specie. |
| 9   | Amaranthus viridis L.              | Ranzakka   | Amaranthaceae | Spring & Summer | Leaves     | Fruits; eaten by the game birds. Hedging, fencing, fuel, fodder & honey bee specie. |
| SN | Botanical name                  | Local name | Family     | F.P          | Part uses | Uses                                                                 |
|----|--------------------------------|------------|------------|--------------|-----------|----------------------------------------------------------------------|
| 10 | Anagalis arvensis L.           | Jonk mari  | Primulaceae| Mar.~April   | Leaves    | Leaves; snake biting, purgative, fodder & honey bee specie.          |
| 11 | Rhynchosia minima (L.) DC.     | Papilionaceae| Mar.~April | Whole plants |           | Purgative, laxative and fodder. Seeds; sexual desire & tonic.        |
| 12 | Arachis hypogaea L.            | Mungphali  | Papilionaceae| July~Aug.   | Fruit     | Fruit; astringent. Unripe nuts; lactagogue. Oil: aperients, emollient used as a substitute for Olive oil. Hay; fodder, particularly for camels. Seeds; sexual desire & tonic. Cash crop of the area. Honey bee specie. |
| 13 | Asparagus gracilis Royle.      | Zyr guli   | Asparagaceae| Spring      | Whole plant| Purgative, laxative, fodder Honey bee specie.                        |
| 14 | Asphodelous tenuifolius Cavan. | Pyazikai   | Asphodelaceae| Feb.-March  | seeds      | Tonic especially for hair mixed with oil.                            |
| 15 | Astragalus hamosus L.          | Wozai      | Papilionaceae| March~April | Whole plant| Leaves; purgative. Fodder. Seed; tonic for sexual desire.            |
| 16 | Avena sativa L.                | Keriana    | Poaceae    | Mar.~April   | Seeds      | Seed; laxative & fresh fodder. Honey bee specie.                     |
| 17 | Boerhaavia diffusa auct plur.  | Wallakah   | Nyctaginaceae.| Aug.-Dec.  | Whole plant| Expectorant, diuretic, laxative anthelmantic & fodder. Root; anaemia, oedema & asoites. Stem; chain is made which is placed in the neck of jaundice's patient. Honey bee specie. |
| 18 | Brassica rapa L.               | Veryai     | Brassicaceae| Mar.~April   | Seeds & shoots| The plant; fodder, vegetable & fuel. Oil; hair tonic. Oil seed cakes (Kall) are given to cattle to increase milk production. Honey bee specie. Its excessive use as vegetable may cause constipation. |
| 19 | Calendula arvenis L.           | Zyr goli   | Asteraceae  | Spring      | Flowers, leaves| Leaves juice; sudorific. Flower; stimulant & antispasmodic. Ornamental purposes. Honey bee specie. |
| 20 | Calendula arvenis L.           | Zirguli    | Asteraceae  | Spring      | Whole plant| Seed; tonic, ornamental purposes.                                    |
| 21 | Capsicum annuum L.             | Merchiki   | Solanaceae  | March~April  | Fruit      | Vegetable, stomach problem.                                          |
| 22 | Carthamus oxyantha Bieb.       | Azghiki    | Asteraceae  | April~May   | Seeds      | Oil; tonic, dressing ulcer & against itch. Honey bee specie.         |
| 23 | Celosia argentea L.            | Sufaid murg| Amaranthaceae| July~Sept.  | Seeds      | Seeds; eye diseases, diarrhea, blood & mouth sore. Honey bee specie. |
| 24 | Chenchras biflorus Hook. f.,   | Kurashka   | Poaceae    | July~Sept.  | Seed       | Anti cancer. Fodder.                                                 |
| 25 | Centaurea iberica Trev.Ex. Spreng.| Gultukua | Asteraceae  | April~May   | Leaves     | Leaves; diuretic, laxative & fodder. Honey bee specie.              |
| 26 | Chenopodium album L.           | Tor Soba   | Chenopodiaceae| Through out year| Leaves | Leaves; laxative and purgative. Honey bee specie.                   |
| 27 | Chenopodium murale L.          | Spen Soba  | Chenopodiaceae| Through out year| Leaves | Leaves; laxatives & purgative. Honey bee specie.                   |
| 28 | Chrozophora oblique (Vahl) A. Juss.| Sheravina | Euphorbiaceae| May~July    | Whole plant| Leaves; purgative, laxative. Especial food for Camel.              |
| SN | Botanical name                  | Local name | Family          | F.P      | Part uses         | Uses                                                                 |
|----|--------------------------------|------------|-----------------|----------|-------------------|----------------------------------------------------------------------|
| 29 | *Cicer arietinum* L.            | Chana      | Papilionaceae   | Mar.-Apr.| Whole plant       | Roasted seeds; nutritive & diuretic. Seed; tonic stimulant & digestive for horses and donkeys. Gram flour bread; heart patient. Young shoots & leaves; vegetable. Hay; dry fodder, particularly for camels. Important cash crop of the area. Honey bee specie. |
| 30 | *Cistanche tubulosa* (Schenk) Wight. | Kasi      | Orobanchaceae   | Oct.-Dec.| Whole plant       | Laxative, Stomach, worm killing, against sores & diarrhea. Honey bee specie. |
| 31 | *Citrullus colocynthis* L. Schrad. | Indrayan  | Cucurbitaceae   | Nov.-Jan.| Roots & Fruits   | Fruit juice; eye treatment and mixed with sugar in discoloration of skin. Seed Oil; snakebite. Fruits; purgative & intestinal disorder of cattle. Honey bee specie. |
| 32 | *Cleome viscosa* L.            | Hulhul     | Capparidaceae   | Aug.-Dec.| Leaf, Seeds & roots | Leaves juice; inflammation of middle ear, earach and deafness. Seeds; carminative & anthelmintic. Roots; anthelmintic. Honey bee specie |
| 33 | *Convulvulus arvensis* L. Pryvatay | Pryvatay  | Convolvulaceae  | Feb.-April| Whole plant       | Plant decoction; regulates menstrual cycle, skin disorders & asthma. Fodder. Honey bee specie. |
| 34 | *Convulvulus pluricaulis* Choisy | Gra pryvaty | Convolvulaceae  | Feb.-March| Whole plant       | Leaves; purgative, laxative. Seed: Tonic & highly aromatic |
| 35 | *Corchorus trilocularis* L.    | Beta       | Tiliaceae       | July-Sept.| Leaves & seed     | Leaves; flavour to vegetables & chutnies. Fruits & seeds are ground and used as spices for curries. The fruits; highly aromatic, carminative, stimulant, aphrodisiac & refrigerant. Fruit decoction; colic pains, flatulence and bleeding piles. Honey bee specie. |
| 36 | *Coriandrum sativum* L. Dhanya  | Apiaceae   | Apiaceae        | Feb.-May | Leaves, fruits & seeds | Leaves; purgative, laxative, Fruit; Tonic. |
| 37 | *Coronopus didymus* (L) Smith. | Beta       | Brassicaceae    | March-May | Leaves & fruit    | Leaves; purgative, laxative, Fruit; Tonic. |
| 38 | *Crotalaria medicaginea* Lam.  | Shaftal    | Papilionaceae   | Nov.-Dec. | Leaves            | Purgative, laxative, fodder. |
| 39 | *Cucurbita maxima* Duchesne.   | Penta      | Cucurbitaceae   | July-Aug.| Flowers, Seeds & Fruits | Seeds; tonic, anthelmintic & diuretic. Flowers; vegetable. Fruits; diuretic. Jams & Halwa. Fruit pulp; applied to boils & inflamed portion. Honey bee species. |
| 40 | *Cucurbita pepo* L. Safed Keddu | Cucurbitaceae | July-Aug.| Leaves, Seeds & Fruits | Leaves; applied to burns, Jaundice, heart & stomach problems. Fruits; vegetable. Jams & Halwa. Honey bee species. |
| 41 | *Cymbopogon jwarancusa* (Jones) Schult. | Sargara   | Poaceae         | July-Sep.| Leave & Fruit     | Leaves; purgative, laxative, used in Mosque for heat. |
| 42 | *Cynodon dactylon* (L) Pers.   | Barava     | Poaceae         | Through out year | Leaves             | Leaves; purgative, laxative, asthma. Fodder. Ornamenental purposes. |
| 43 | *Cyperus rotundus* L.          | Dela       | Cyperaceae      | May-Oct. | Leaves            | Leaves; purgative, laxative, fodder. |
| 44 | *Cyperus scarlosus* R.B.       | Dela       | Cyperaceae      | May-Oct. | Leaves            | Leaves; purgative, laxative, fodder. |
| SN | Botanical name                      | Local name | Family   | F.P    | Part uses                        | Uses                                                                 |
|----|------------------------------------|------------|----------|--------|----------------------------------|----------------------------------------------------------------------|
| 45 | Daucus carota L.                   | Gajara     | Apiaceae | Spring | Roots & seeds                    | Roots: confectionary for preparing sweets. Seeds; stimulant, carminative & effective; in kidney & uterine pain. Honey bee specie. |
| 46 | Descarainia Sophia (L.) Webb.      | Khakshir   | Brassicaceae | April–May | Whole plant                      | Flower & leaves; astringent. Seeds; tonic, expectorant in fever & dysentery. Leaves juice; worm & calculus complaints. Honey bee specie. |
| 47 | Desmostachya bipinnata (L) Stapf.  | Sorgul     | Poaceae  | Sep.–Oct. | Flowers & Stem                   | Leaves; Fodder. Stems; making brooms “Chaj” for the winnowing of wheat & hedging & sheltering. Honey bee specie. |
| 48 | Dichanthium annulatum (Forsk) Staph. | Bambolchi  | Poaceae  | Spring & Summer | Whole plant                     | Leaves; purgative, laxative, fodder.                                    |
| 49 | Digera muricata (L). Mart.         | Ranzaka    | Amaranthaceae | Spring | Leaves                          | Leaves; purgative, laxative, fodder.                                    |
| 50 | Echinochloa colonum (L) Link.      | Bambolchi  | Poaceae  | Sep.–Oct. | Leaves                          | Leaves; purgative, fodder.                                             |
| 51 | Echinops echinatus D.C Beav.       | Azghi gul  | Asteraceae | Spring | Fruit                           | Tonic, purgative.                                                      |
| 52 | Eragrostis poaoides                | Bombolchi  | Poaceae  | Through out year | Whole plants                     | purgative, laxative, fodder.                                            |
| 53 | Erodium malacoides Wild            | Ger Beta   | Geraniaceae | Spring weed | Whole plant                      | purgative, laxative, tonic, expectorant in fever & dysentery.           |
| 54 | Eruca sativa Millel.               | Taramira   | Brassicaceae | Mar.–June | Whole plant                     | Plant; fodder especially for donkey. Young leaves; diuretic, antiscorbic, stimulant, stomachic & vegetable. Seeds; vesicant & acrid; used as mustard. Oil; cooking, massage & hair tonic. Seed cakes (Kall); increase milk production. Fuel & honey bee species. Excessive use; constipation. |
| 55 | Euphorbia helioscopia L. Shenstarga | Euphorbiaceae | Spring | Seed | Purgative, piousness for cattle. | Leaves; purgative, laxative, Fodder.                                   |
| 56 | Euphorbias prostrate Ait. Beta     | Euphorbiaceae | Spring weed | Whole plant |                                | Laxative and fodder                                                      |
| 57 | Evolulus alsinoides L. Herbeta     | Convolvulaceae | July–Sep. | Whole plant |                                | Abdominal & gastric troubles. Twigs; cooling agent & blood purification. Fodder especially for camel & honey bee specie. Juice; common fever. Plant; diuretic, diaphoretic & aperients. Extract; cooling, blood purification. Fodder. Honey bee species. |
| 58 | Fagonia cretica L. Spelaghzai      | Zygophyllaceae | Oct.–Jan. | Whole plant |                                |                                                                     |
| 59 | Fumaria indica (Haussk.) Pugsley.  | Papra      | Fumaraceae | Mar.–April | Whole plant                     |                                                                     |
| 60 | Helianthus annus L. Meyrgul        | Asteraceae  | Nov.–Jan. | Seeds | Oil; diuretic & laxative. Ornamental purposes, Fuel & Honey bee species. Special fodder for camel. The hakims use the plants for softens of Lead (Cushta) in a special manner. Plant extract; against scorpion-sting. Honey bee specie. |
| 61 | Heliotropium europaeum L. Hathi-sunda | Boraginaceae | May–Sept. | Whole plant |                                |                                                                     |
| SN | Botanical name                      | Local name | Family        | F.P   | Part uses       | Uses                                                                 |
|----|-----------------------------------|------------|---------------|-------|-----------------|----------------------------------------------------------------------|
| 62 | *Heliotropium strigosum* Wild.     | Sherawena  | Boraginaceae  | May~Sep.| Whole plant    | Leaves; purgative, laxative                                           |
| 63 | *Hordeum vulgare* L.              | Arbashay   | Poaceae       | Mar.~April | Stem & Seeds | Seeds; staple cereal crop, easily digestible, bread; diet of stick. Stem; used in air cooler, light packing material, fodder & honey bee specie. |
| 64 | *Hypericum pendulum* L.           | Beta       | *Hypericaceae* | Spring | Whole plant    | Cooling agent & blood purification. Fodder especially for camel & honey bee specie. |
| 65 | *Ifloga fontanesii* Cass.         | Shenbo     | Asteraceae    | Feb.~Mar. | Whole plant    | Purgative, laxative & fodder.                                         |
| 66 | *Indigofera linifolia* (L.f.) Rets.| Aalia      | Papilionaceae  | July~Oct. | Seeds & Root  | Root deduction; purgative, bitter, tonic. Seed; anthelmantic. Honey bee specie. |
| 67 | *Ipomoea hederacea* (L.) Jack.    | Kaladana   | Convolvulaceae | Sep.~Oct.| Seeds  | Seeds; Jalap due to purgative characteristic, fodder & honey bee specie. |
| 68 | *Kickxia ramosissima* (Wall) Jan. | Kanodi     | Scrophulariaceae | Jan.~May | Whole plant    | Antidiabetic, fodder & honey bee specie.                               |
| 69 | *Lactuca sativa* L.               | Salad      | Asteraceae    | July~Sep. | Leaves | Leaves; laxative, purgative, eaten raw vegetable (called Salad) & ornamental purposes. Honey bee specie. Cooling, sedative & diuretic in the treatment of coughs in phthisis, bronchitis, asthma & pertussis. Honey bee specie. |
| 70 | *Lactuca serriola* L.             | Salad      | Asteraceae    | July~Sep. | Whole plant    | Leaves; applied to the head of children that are suffering from fever. Leaves extract; cooling agent. Honey bee specie. |
| 71 | *Launaea procumbens* (Roxb.) Ramayya & Raigopal. | Dudglak | Asteraceae    | April~May | Leaves | Leaves; applied to the head of children that are suffering from fever. Leaves extract; cooling agent. Honey bee specie. |
| 72 | *Lens culinaris* Medic.           | Masur      | Papilionaceae  | Sep.~Oct. | Seeds  | Seeds; laxative in fever, Tonic. Fodder & honey bee specie. Sedative, diuretic, fodder & honey bee specie. |
| 73 | *Lippia nodiflora* (L.) C. Rich.ex. Michaux. | Deaya | Verbenaceae | April~May | Whole plant    | Fodder & laxative                                                     |
| 74 | *Lithospermum arvense* L.         | Beta       | Boraginaceae  | Spring   | Whole plant    | Fruit; laxative, nutritive, tonic, Piles and heart patients. Honey bee species. |
| 75 | *Luffa acutangula* Roxb.          | Babara Toray | Cucurbitaceae | Oct.~Dec. | Leaves & Fruit | Fruit; laxative, nutritive, tonic, Piles and heart patients. Piles and heart patients, blood pressure & stomach. Dry fruits without seed; clean feet & utensils. Honey bee specie. |
| 76 | *Luffa aegyptiaca* (L.) M.J.Rocm. | Toray      | Cucurbitaceae | Oct.~Dec. | Fruit | Fruit; laxative, nutritive, tonic, Piles and heart patients. Piles and heart patients, blood pressure & stomach. Dry fruits without seed; clean feet & utensils. Honey bee specie. |
| 77 | *Lycopersicom esculentum* Mill.   | Tamatar    | Solanaceae    | Mar.~April | Fruits | Fruit; nutritive, preparation of soups, flavouring agent & chattiness. honey bee specie |
| 78 | *Malcolmia africana* (L.) R.Br.   | Alhami     | Brassicaceae  | Spring   | Whole plant    | Plant juice; purgative & fodder. honey bee specie                     |
| 79 | *Malva neglecta* Wallr.           | Khubasi    | Malvaceae     | Jan.~Mar. | Leaves & Seeds | Leaves extract; applied externally in skin diseases. Seeds; cough. Fodder & honey bee specie. Seed; demulcent, in cough & ulcers in bladder. Leaves; potheber & fodder. Honey bee specie. |
| 80 | *Malva parviflora* L.             | Panirak    | Malvaceae     | Jan.~Mar. | Leaves & Seeds | Seed; demulcent, in cough & ulcers in bladder. Leaves; potheber & fodder. Honey bee specie. |
| SN | Botanical name                          | Local name | Family         | F.P        | Part uses        | Uses                                                                 |
|----|----------------------------------------|------------|----------------|------------|------------------|----------------------------------------------------------------------|
| 81 | *Malvastrum coromandelianum* (L.) Gareke. | Beta       | Malvaceae      | Nov.-Dec.  | Whole plant      | Purgative, laxative & fodder.                                         |
| 82 | *Medicago laciniata* (L.) Mill.         | Malghinda. | Papilionaceae   | Mar.-April | Whole plant      | Anthelmantic & tonic in fever and skin diseases. Fodder & honey bee specie |
| 83 | *Melilotus indicus* (L.) All.            | Shaftal    | Papilionaceae   | Feb.-Mar.  | Whole plant      | Fodder & laxative. Honey bee specie                                   |
| 84 | *Mentha arvensis* L.                    | Pudina     | Lamiaceae      | Feb.-May   | Leaves           | Leaves extract; removing of face sign. Sauces, in vegetable as flavoring agent, carminative, digestive & ornamental purposes. |
| 85 | *Micromeria biflora* (Buchi .Ham exD. DonBenth). | Beta       | Lamiaceae      | Spring     | Whole plant      | Fodder, carminative.                                                   |
| 86 | *Momordica charantia* L.                | Karela     | Cucurbitaceae  | Oct.-Dec.  | Fruits           | Stomach disorder, jaundice diabetes, pills & anthelmantic. Fruit juice; poisonous to animal. Honey bee specie. |
| 87 | *Oxalis corniculata* L.                 | Zyre beta  | Oxalidaceae    | Mar.-May   | Whole plant      | Purgative, laxative & fodder,                                         |
| 88 | *Peganum harmala* L.                    | Sponda     | Zygophyllaceae  | Sep.-Dec.  | Seeds & Root     | Piles, antiseptic after child birth & injuries. Seeds; antispasmodic, hypnotic, narcotic & anthelmantic. Seeds are burnt and the red spots on the body of patient disappear if the body is exposed to smoke in small pox. Roots; lice-killing agent. Honey bee specie. |
| 89 | *Pennisetum typhoides* (Burm) Stapf.    | Bajra      | Poaceae        | Sep.-Aug.  | Seeds            | Tonic; disease of heart. Seeds; special food called “Piasa” is made, diabetes. Fodder, fuel & Honey bee species. |
| 90 | *Phragmites karka* (Retz) Trin . Ex. Steud. | Baniwolkrak | Poaceae        | Nov.-Dec.  | Whole plant      | Fuel & fodder. Thatching, hedging, fencing & ornamental plant.        |
| 91 | *Plantago ciliata* Desf.                | Ispaghul   | Plantaginaceae  | Mar.-May   | Leaves & Seeds   | Seeds with sugar; drastic purgative & dysentery. Leaves; wounds & inflamed surfaces. Fodder & honey bee specie. Seeds; cooling diuretic, demulcent agent in inflammatory conditions of mucous membrane, dysentery, diarrhoea & constipation. Leaves & root; fever. Fodder & honey bee specie. |
| 92 | *Plantago ovata* Forsk.                 | Ispaghul   | Plantaginaceae  | Mar.-May   | Seeds & root     |                                                                         |
| 93 | *Pupalia lappacea* (L.) Juss.           | Beta       | Amaranthaceae   | Nov.-Dec.  | Whole plant      | Purgative, laxative, Fodder.                                           |
| 94 | *Ranunculus muricatus* L.               | Beta       | Ranunculaceae   | Mar.-May   | Whole plant      | Purgative, laxative & fodder.                                           |
| 95 | *Raphanus sativus* L.                   | Muli       | Brassicaceae    | Mar.-May   | Fruits, root     | Root; jaundice, liver ailments, urinary complaints & piles. The leaves; diuretic & laxative. Fodder & honey bee specie. |
| 96 | *Rumex dentatus* L.                     | Ranzaka    | Polygonaceae    | Aug.-Sep.  | Whole plant      | Purgative, fodder & honey bee specie.                                  |
| SN | Botanical Name | Local Name | Family | F.P. | Part Uses | Uses |
|----|---------------|------------|--------|------|-----------|------|
| 97 | *Salvia moorcroftiana* Wall | Papar | Lamiaceae | Mar.-April | Seeds & Root | Seeds; dysentery & colic. Leaves; wound as poultice & against the mosquito. Root juice; cough & cold. Honey bee specie. Purgative, laxative, fodder & fuel. |
| 98 | *Saussurea heteromalla* (D.Don) Hand. | Gullali | Asteraceae | Aug.-Sep. | Whole plant | Seeds; tonic & diuretic. Leaves; demulcent in cholera, diarrhoea & dysentery. Seed oil; urinary complaint & dysentery. Fodder & honey bee specie. |
| 99 | *Sesamum indicum* L. | Tili | Pedaliaceae | Sept.-Nov. | Seeds | Seeds; tonic & diuretic. Leaves; demulcent in cholera, diarrhoea & dysentery. Seed oil; urinary complaint & dysentery. Fodder & honey bee specie. |
| 100 | *Silene conoidea* L. | Nosheen | Caryophylaceae | Spring | Fruit | Fruit; Emollient. Juice; is used in both or as fumigant. Fodder & honey bee specie. |
| 101 | *Sisymbrium irrio* L. | Khub kalan | Brassicaceae | Feb.-April | Leaves & Seeds | Leaves; throat & chest affections. Seed; expectorant in asthma. Fodder & honey bee specie. |
| 102 | *Solanum incanum* L. | Asind | Solanaceae | Feb.-May | Fruit & roots | Toothache & sore throat. Fruit; chest trouble. Roots; horse medicine. |
| 103 | *Solanum nigrum* L. | Mako | Solanaceae | through out year | Leaves | Leaves; gouty joint & skin disease. Sedative, diuretic, laxative, cooling agent & tonic. Deduction; piles, enlargement of spleen & liver, hydrophobia. Fodder & honey bee specie. |
| 104 | *Solanum surattense* Burm.f | Zira mana | Solanaceae | through out year | Leaves & Fruit | Bitter, digestive, Diuretic, expectorant & anthelmintic in cough, asthma, fever, chest pain. Fruit; sore throat. Leaves; relieve pain. Honey bee specie. |
| 105 | *Sonchus asper* (L) Hill. | Tareza | Asteraceae | Sep.-April | Whole plant | Pounded herb; wound or burn skin. Honey bee specie. |
| 106 | *Sorghum vulgare* (L.) Pers. | Jowar | Poaceae | June-July | Seeds | Seeds; diuretic & demulcent. Fodder, fuel & Honey bee species. |
| 107 | *Spinacia oleracea* L. | Palak ka sag | Chenopodiaceae | Mar.-Oct. | Leaves & Seeds | Leaves; inflammation of lung, bowels, laxative, purgative & vegetable. Seeds; inflammation of liver & jaundice. Fodder & honey bee specie. |
| 108 | *Taraxacum officinale* Weber. | Gulsag | Asteraceae | Mar.-May | Leaves | Leaves; fermentation. Galls; dysentery agent. Fodder & Honey bee species. |
| 109 | *Trianthema portulacastrum* L. | Sathi | Aizoaceae | Mar.-May | Leaves & Root | Root; irritant & amenorrhea. Leaves; diuretic. Honey bee specie. |
| 110 | *Tribulus terrestris* L. | Malghandia | Zygophyllaceae | Sep.-Dec. | Fruit & Seeds | Cooling & diuretic agent. Seeds; diseases of kidney stone & urinary bladder. Fruit; cough, heart diseases & sexual desire. Fodder & honey bee specie. |
| 111 | *Trifolium alexandrianum* L. | Shawtala | Papilionaceae | Spring | Flowers | Dried flowers; cough, asthma & ulcer. Honey bee species, fodder, harmful for horses & cultivated for fertility of soil crop rotation. |
| 112 | *Triticum aestivum* L. | Gehum | Poaceae | Feb.-Mar. | Flowers & Seeds | Seeds; tonic, nutritive, stimulant, increased sexual desires. Cooling fattening. The flour; bread & chapatti. Flowers; soaked in water and are used as a plaster for swellings. Fodder & HONEY bee specie. |
| 113 | *Vicia sativa* L. | Ankra | Papilionaceae | March-May | Whole plant | Anti poisonous, fodder & Honey bee specie. |
| 114 | *Xanthium strumarium* L. | Kurashki | Asteraceae | July-Sep. | Whole plant | Purgative, laxative, fuel |
| 115 | *Zea mays* L. | Makai | Poaceae | June-Aug. | Fruit | Semi-ripe cobs roasted and eaten as a snack food. Silky stigmas; diseases of bladder. Fodder, fuel & Honey bee specie. |
Discussion

These plants which are growing naturally in different seasons of year in this area are used for different purposes. The benefits of about 160 plant species were studied and described by local people and habitants. All these species are the main source of medicine and other requirements of the local communities, because of the shortage of trained manpower and resources. Shenji (1994) suggested that ethnobotany is the science of documenting the traditional knowledge on the use of plants by the indigenous people and for further assessing human interactions with the natural environment. It is a collaborative venture between people in local communities and various scientists and specialists. So the indigenous knowledge, accordingly, continue to provide the building blocks for development in rural communities because the medicinal plants are the precious economic resources of the area and wild are used in the crude form locally or collected and transported into the drug markets inside the area and country. The people depend upon the local resources around them particularly on plants.

600 Individual questionnaires were filled from plant collectors, housewives, shopkeepers, elders, plant traders, bee keepers and local healers (Hakims). It was observed that 80% among men and 55% among women were knowledgeable about plants. It was noted that elder people had more knowledge about the folk uses of medicinal plants than younger generation. In the remote areas, modern health care facilities are lacking. Health authorities in Pakistan are not able to provide services to greater part of the rural population. According to WHO reports more than 80% of Asia’s population cannot afford formal health care facilities and therefore relies on wild medicinal plant species owing to their cultural familiarity, easy access, simple use and effectiveness (Anon., 2008). Many of the important medicinal plants are sold at higher prices in the market. Most of the plants used by the local people are not conserved but are over exploited. Similar finding were reported from Khan and Musharaf (2014). Therefore, the wide spread use of folk herbal remedies appears to be not only a case of preference but also a situation without other native choices. Such a system of medical treatment on which the majority of the population has been relying upon for generations with considerable success, should not be overlooked for further medical investigation, specially on those plants which have not been looked at for medical research, although the same have been in use by local inhabitants over hundreds of years. The present study indicated that the leaves and fruit are the most common parts of plant like Withania somnifera, Withania coagulans, Monotheca buxifolia, Zizyphus mauritiana etc used against different diseases (Table 2–Table 4). Similar finding were also reported from other areas of Pakistan (Hussain, et al., 2006; Shinwari et al., 2006; Shinwari, 2010, Khan et al., 2011a, 2011b; Khan et al., 2013). Ecological problems like cutting, overgrazing and up rooting of medicinal plants for fuel wood and commercial exploitation has resulted in poor vegetation cover, promoted soil erosion and deterioration of habitat in the area. The local people depend on fuel wood and other needs on these plants. According to Singh and Pandey (1980), rapid deforestation caused by over– harvesting and exploitative trade of medicinal plants has significantly reduced the availability of the medicinal plants in arid and semi–arid region. In the present study it was noticed that the large numbers of plants like Withania somnifera (L) Dunal., Withania coagulans Dunal., Vitex negundo L., Saccharum bengalense Retz., Rhazya stricta Dcne., Zizyphus mauritiana Lam., Monotheca buxifolia (falk) A.DC., Gymnosporia royleana Wall., Capparis deciduas (Forssk). Edge worth., Prosopis farcta (Banks & Sol.) J.F. Macbr., Salvadora oleoides Decne., Otostegia limbata (Benth.) Boiss. are over harvested. Therefore it is an urgent need of conserving these plants that in future the coming generations could be benefited from these precious plants that are a real gift of nature for the mankind. During research work it was notice that a large number of plant fossils are present in the hills of research area (Figure 6–Figure7). No research work was done in such approach. The people of the area demolish such historical wealth due to lack of knowledge and importance of fossils. Honey production is widespread in Karak. The most important indigenous flora for honey production includes Ber (Zizyphus mauritiana) and Phulai (Acacia). Ber honey is very popular. Due to the fine quality of honey, it is exported to markets at provincial
and national level. Most of the honey entrepreneurs producing Ber honey were outsiders. Bee keepers are to be encouraged and train them in the production and processing of high quality honey because the demand for this product is very high. The local organizations leader should facilitate them in promotion of their services among communities and organizations. A chief goal of present study is to ensure that local natural history becomes a living tradition in communities used with great interests and are active participants in the trade and economy of the country.

![Figure 6 Fossil of plant species in research area–1](image1)

![Figure 7 Fossil of plant species in research area–2](image2)

**Conclusion**

The present study show that the people of the area possessing good knowledge of herbal drugs but as people are going to modernization; their knowledge of traditional uses of plants may be lost in due course. The investigated area has a rich diversity of medicinal plants and provides a conductive habitat and ideal conditions for their growth. Native healers should be encouraged to accurately share their knowledge to others. Such studies may also provide some information to biochemist and pharmacologist in screening of individual species and in rapid assessing of phyto-chemical constituent and bioanalysis for authentic treatment of various diseases.

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