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# A CASE STUDY OF ETHNOBOTANY AND BIODIVERSITY CONSERVATION FROM TEHSIL BARAWAL, UPPER DIR, KHYBER PAKHTUNKHWA, PAKISTAN

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**Abstract**

This study signifies indigenous knowledge for biodiversity conservation: A case study of Tehsil Barawal District Dir (Upper), Khyber Pakhtunkhwa Pakistan and is an attempt to collect ethnobotanical information. The area lies in Hindukush Mountains and exhibit the traditional knowledge of medicinal plants among local inhabitants. The visits were arranged in order to collect information about the ethnobotanical uses of plants by the local peoples in various parts of Barawal valley during summer season, July 2011-November 2011. Questionnaires method was adopted for documentation of indigenous knowledge. The interview was carried out in local community, to investigate local people and knowledgeable persons. Data were systematically arranged in alphabetic order of botanical name, family name followed by Common name, local name, part used and ethnobotanical uses. Total ethnobotanical plants that are collected from the study area including 43 species belonging to 25 families. These plants are collected by the local residents from wild and sold in the market for their livelyhood. The local populace has always used the medicinal plants for various diseases and are dependent on the plants for their food, shelter, health, fodder, fuel, medicine, and various cultural purposes. The local residents of the area were using 43 plants of 25 families for numerous purposes. The chief usage by local populace is from 38 plants for the treatment of diseases, five species are used as fuel, nine fodder species, three veterinary species, 9 out of 43 are edible species, 6 as vegetable, 3 as timber rations and construction and 3 species are used as fencing and hedges. Some of the reported species like *Olea ferruginea, Berberis lyceum, Rheum emodi* and *Myrtis communis* remain rare species that need protection and conservation to avoid their extinction.

**Key Words:** Biodiversity, *Olea ferruginea, Berberis lyceum, Rheum emodi,Myrtis communis*

## Introduction

The term Barawal is derived from a Barahvian word *Barahole* means *"the home of leopards"*chitthonka Ghar. Tehsil Barawal geographically located in the west of proper Dir, lying along the Afghanistan border (Durand Line) at North West, connected with tehsil Maidan in south and tehsil Samarbagh in southwest. Lies about 4893 feet at height above sea level. Originates in the Hindukush Mountains, and geographically lies at 35° 5' 11" North 71° 45' 38" East (Fig. 1). The whole length of the valley from proper Dir to Afghan border is approximately 68km. The valley has two regions, Upper Barawal and Lower Barawal. Lower Barawal is consisting of town, Barawal Bandai and its surrounding from Sundrawal to Janbhatti and Upper Barawal includes the very far areas that are closest to Durand line. Tehsil Barawal is comprised on three union councils including union council proper Barawal Bandai, union council Darrikand, union council Shahikot and 107 villages. According to 1998, District Population Census Report of Khyber Pakhtunkhwa the total population of Tehsil Barawal is 54252. This scenic place is comprised of sub valleys, HattanDara, Shingara Dara, Bin Dara, Zyaranu Dara, Nusrat Dara and Sunai Dara. The whole area is hub of wild life with sprawling oak, pinus forests adoring the mountains. 72% of the population is farmers, dependent on their fields but most of them earn wealth in foreign countries. The cultivated lands are irrigated through drained out small canals named as "Wala" from the main stream positioned within the main abdomen of the valley locally called "LviKhwar". Wheat, Rice and Maize are the major crops and vegetables (i.e. Potato, Tomato, Lady Finger, Pumpkin etc) cultivated by the local farmer which gives high yield. Fruit productivity is very poor in the valley that is why horticulture is compact and of low interest. Most of the fruit, Persimmon, Walnuts, Peach; Plums and Pears are common cultivated fruit. Up on the hills terraces are made by the people in which the productivity and fodder totally based on the rain fall if rain falls then resultantly good crop productivity can be hand but in case of no precipitation the land nothing else more. The soil of the area is very fertile, in which mud and loamy materials are incorporated by running water, which includes many different mineral and chemical constituents. Local people especially women added cattle manure to fields, which also increase the fertility of soil. In some places of the area forest are divided and share among the communities but in some places, they have disputes on the ownership of the forest and hills behind their fields locally called "Shamillat". Decision to this effect is still pending in the courts. Comparatively hilly area is much more thickly populated with dense diverse vegetation. Vegetation is of three types. Synthetic forest (i.e. *Cedrus deodara, Pinus roxberghii, Robinapseudoacacia,* and *Populusnigra* etc planted by local communities), Coniferous forest (i.e. *Pinus roxburgii, Cedrus deodara, Abiespindrows, Piceasmithiana, Pinuswallichiana, Acer cappadocium, Aesculus indica, Quercus species*) and Broad leaves forest (i.e. *Alianthesaltissima, Alnusnitida, Juglans regia, Melia azedarcha, Populus nigra* and so many others). Deforestation, overgrazing, decreasing biodiversity, low agricultural yield and urbanization are threats for the forests of this area.

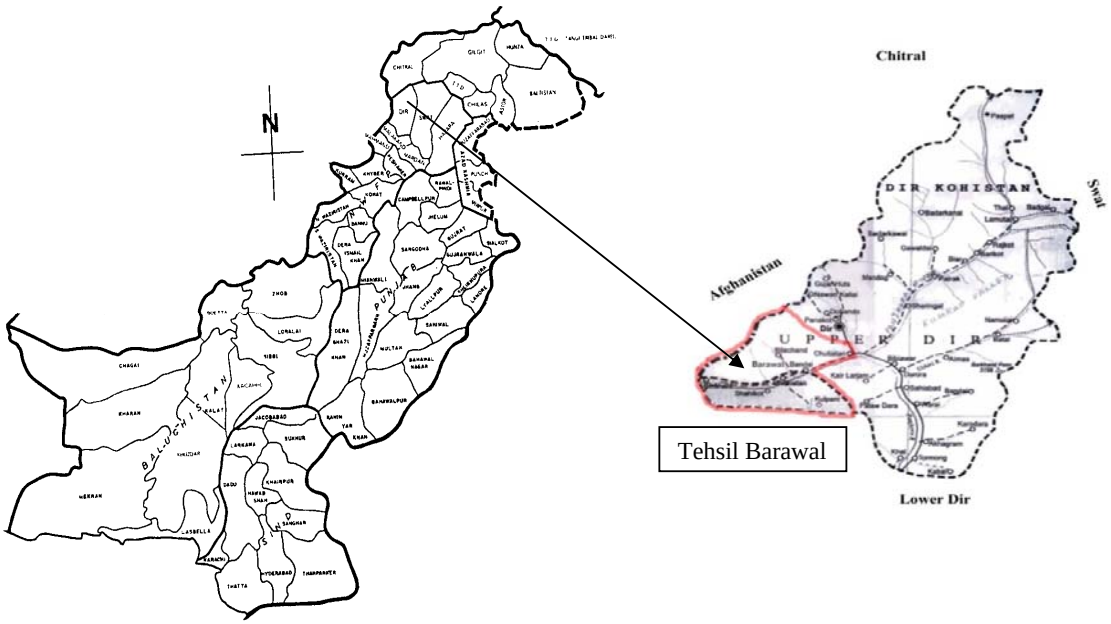


Fig.1. Map of study area.

American botanist J. W. Harsh Berger used the term ethno botany for the first time to study the use of plants by ancient and local people. Ethno botany studies every aspect of plants in relation with human or relation of plants sciences with man because plants are used for different purposes e.g. food, medicine, shelter, dye, fibers etc (Hazrat *et al.,* 2011). Ethnobotany concerns with the home use of plants by human being and with the useful and harmful effects of plants (Ahmad *et al.,* 2007). Humankind always used plants in his life from very early time, they were used plants only as food, medicine, and shelter but gradually time to time they get more knowledge about the use of plants for several goals of their life (Ali &Qaiser, 2009). People in mountainous regions and in rural areas of Pakistan also use plants for different purposes such as foodstuff, fuel, fodder, in making of tools, and especially as medicinal. The plants in mountainous areas (i.e. Himalaya, Karakorum, Hindukush, Hindu raj etc) having an extreme medicinal value with respect to its uses (Qureshi *et al.,* 2007). In developing countries, most people uses plants due to lack of modern health facilities, even in developed countries modern health services are not affordable by a common person due to too expensive cost. Therefore, like people use medicinal plants for their healthcare (Yineger *et al.,* 2008). About 6000 flowering plants are found in pakistan, 2000 of the total are used as remedial and most of them are yet unreported (Khalil*et al.,* 2014). Plants used as timber wood, firewood, fodder etchave caused an extreme removal of Jungles (Adnan *et al.,* 2015). Pakistan has unique place among under developing countries because it has a number of medicinal plants due to its diverse climate and edaphic factors. The northern areas of Pakistan are hub of medicinal plants. With the passage of time, the local knowledge about the uses of medicinal plants is dying due to lack of interest among young, documentation, protection, preservation and conservation (Shinwari*et al.,* 2015). Tehsil Barawal has plenty of plants, in which medicinal plants are more prominent, used by the local inhabitants. In this regard, a study has planned to explore the ethnobotanical study of plants and to document the indigenous knowledge of the local populace.

**Materials and Methods**

The visits were arranged to accumulate indigenous knowledge of plants by the local peoples in various parts of Tehsil Barawal, during summer season, July 2011-November 2011. Efforts were made to save the valid ethnobotanical information from people of different ages and different cultural groups. Many respondents and informants were interviewed, including Farmers, Herbalists, Shepherds, Pansaries (Plant sellers), and elders including both male and females old over 45 years, and inhabitants in the age rank of 20 to 50 years. The interviewers were mostly aged people, who have enough familiarity about ethnobotany. Precedence was given to elder women due to more knowledge about the use of medicinal plants and indirect ways were used for interviews. Indigenous knowledge was gathered from each site by using a semi-structured and close-ended questionnaire. Plant specimens collected were properly preserved, mounted on standard herbarium sheets, dried in shade to prevent photochemical degradation and to avoid fungus growth and identified with the help of available literature (Nasir & Ali 1971-1995, Ali & Qaiser 1995-todate). Plants were pressed in newspaper and its sheets were changed from time to time to dehydrate the plants. During the research process along with data collection of plants, its photography also done for easy identification and habitat recognition through an expensive sonny camera of every collected plant in tehsil Barawal. The plant specimens were deposited into the herbarium Department of Botany, Kohat University of Science and Technology Khyber Pakhtunkhwa, Pakistan. After the completion of whole research process, collection of plants, preservation,

identification and photography the entire data was written in the form of thesis.

**Table. 1.**

| No. | Botanical Name | Family Name | Local Name | Part used | Indigenous Knowledge |
|---|---|---|---|---|---|
| 01 | *Achyranthes bidentata* Blume | Amaranthaceae | Jeshay | Whole plant | The admixed powder of the root used with milk for the treatment of cough, cold, piles and stomachache. Plant decoction is taken for curing headache, tiredness and kidneys problem. |
| 02 | *Aconitum violaceum* Jacq. ex Stapf | Ranunculacae | Zaharmora | Root | One-third piece of the root enclosed in butter, and then ingested to cure gout and rheumatism. It used as anti-inflammatory and febrifuges in the treatment of snake and scorpion bites. |
| 03 | *Acorusc alamus* L. | Araceae | Anja / Skhawaja | Rhizome (Root) | The dried rhizome of the plant crashed into powder, and then used with water for coughing, bellyache, hepatitis, dysentery and other stomach problems. Dried rhizome of *Acorus calamus* ground together with the seeds of *Foeniculum*, rhizome of *Paeoniaemodi* and dried leaves of *Mentha longifolia* in the form of powder. It has mixed paste taken with water to treat dyspepsia. Also used as analgesic. |
| 04 | *Ajuga bracteosa* Wall. exBenth. | Lamiaceae | Ghutti | Whole plant | *Ajugabracteosa* is an astringent and tonic plant. The fresh plant is crashed and its decoction is used for purification of blood, fever, malaria and inflammation of stomach, oral thrush, Urticaria, and sore throat. |
| 05 | *Ajuga parviflora* Benth. | Lamiaceae | Ghutti | Whole plant | The whole plant crashed combine with *Cynodon dactylon* and its mixed decoction passed through thick cloth and then drink for curing hepatitis, fever and sore throat. It is also used as a tonic and astringent. The mixed decoction of *Ajuga parviflora, Cichorium intybus, and viola odorata*is used for rashes and jaundice (locally in Pashtu called aspha). |
| 06 | *Arisaema flavum* Schott. | Araceae | Maar botay/Maarjwar | Bulb | One-third part of the bulb enclosed in butter and then ingested to treat the epilepsy and the inflammation of intestines. Also used as insecticide. |
| 07 | *Artemisia scoparia* Waldst & Ket. | Asteracea | Jaokay | Shoots, leaves and seeds | Shoots are used in making brooms for sweeping lawns and houses. Used for earache, laxative and purgative. The fresh plant boiled in water, then cooled and used for stomach problems and for inflammation of intestines. |
| 08 | *Berberis lyceum* Royle | Berberidaceae | Kwaray | Fruit, Root and stem bark | The stem and root bark of *Berberis lyceum* is boiled in water and an extract is obtained which is nearby used in the treatment of stomach ulcer, internal wounds, and fractures of bones, sore mouth and throat. Its fruit is edible. Its paste is taken for diarrhea, jaundice, diabetes mellitus, stomach and sole inflammation. 1kg bark of *Berberis lycium* ground into powder and boiled in 5 liter water, yellow color extraction is obtained which again boiled till a dark yellowish well viscous fluid is obtained. Then honey or sugar syrup poured into this viscous fluid and small sized capsules are made from it and dried in shade. After that the capsules are enclosed in butter and ingested for lust and potency. |
| 09 | *Bergenia ciliata* (Haw) Sternb. | Saxifragaceae | Kamarzeala/ kamarpanra | Whole plant | The leaves of the plant warmed with fire and keep on wound to discharge pus. The root is crashed and combines with flour taken to relief vertebral and muscular pain. Its root is crashed and given to increases the flow of milk in cows and is powerful. |
| 10 | *Bistorta amplexicualis* D. | Polygonaceae | Enjobar | Shoots and leaves | The leaves are used as vegetables and the root is crashed and mixed with mother breast milk, give to baby for colic. Also used as anti ulcer and |

Don laxative.

**Table. 1. (Cont'd.)**

| No. | Botanical Name | Family Name | Local Name | Part used | Indigenous Knowledge |
|---|---|---|---|---|---|
| 11 | *Boerhaavia diffusa* L. | Nyctaginaceae | Kachparna | Whole plant | The dried plant grinds and utilizes in blood purification, abdominal pain and kidney problems. It is diuretic, laxative and the root powder is used for coughing. |
| 12 | *Calendula arvensis* | Asteraceae | ZiarGulay | Root and leaves | Used for eye trouble and for oral sore. It used as tonic and inflammatory agent. Leaves heated with fire and used as poultice and as vegetables. |
| 13 | *Caltha alba* Jacq. ex Camb | Ranunculacae | Patriguluna | Leaf and root | The plant used as antispasmodic and sedative. It is used to cure backache and costochondritis. The extraction of root used for cough, cold and fever. It also used as poultice. |
| 14 | *Chenopodium botrys* L. | Chenopodaceae | Kharawa | Whole plant | Cooked as vegetable. The decoction of the fresh plant is used to cure jaundice, diabetes, liver problems, fever, itching and recovery of mouth taste. |
| 15 | *Chenopodium ambrosoides* L. | Chenopodiaceae | Skhabotay | Leaves and shoots | The leaves of the plant warmed with fire and used for discharging pus from wound. It is anthelmintic and used as fodder. |
| 16 | *Cichorium intybus* L. | Asteraceae | Kashnee | Leaves, shoots and root | The roots of the plant are boiled in water and used to cure jaundice and typhoid. It is also used as antidiabetic and antispasmodic. The root decoction of *Cichoriumintybus* combine with the decoction of *Oxalis carniculata*, *Ajuga parviflora* and *Solanum nigrum* is used to cure malaria. The local people belief that when the decoction placed in open atmosphere during night, it takes achieve from stars and after that it is used to cure malaria. |
| 17 | *Clematis grata* Wall. | Ranunculacae | Zelai | Leaves, Root | The juice of leaves is used in jaundice by human and as fodder for sheep and goats. It planted for prevention of erosion of fields |
| 18 | *Conyza Canadensis* (L.) Cronquist. | Asteraceae | Shkandarbotay | Shoots | The decoction of the fresh plant is used to delight bellyache, colic and diarrhea. An infusion of the plant is also used to cure the inflammation of throat. |
| 19 | *Datisca cannabina* L. | Datiscaceae | Jal bhang | Leaves and root | The plant juice is given in fever and headache. Root is used in breaking of renal calculus. Also used as diuretic, laxative and purgative. Used as fodder and fuel. |
| 20 | *Euphorbia wallichii* Hooker f. | Euphorbiaceae | Arbay | Shoots and inflorescence | The latex of the plants is given to flies for killing them, means used as insecticide. Its leaves decoction is purgative and laxative. The latex of the plant is also used for releasing tape warms. |
| 21 | *Euphorbia hirta* L. | Euphorbiaceae | Mash botay | Whole plant | The latex of the plant increases flow of milk in women, and used for curing vaginal thrush. The plant is boiled in water and then used for the treatment of dysentery. The infusion of the plant is used for curing cold, cough and skin disease. |
| 22 | *Equisetum arvense* L. | Equisitaceae | Bandokay/ Dela | Whole plant | The extract of shoots is mixed with the decoction of *Mentha specata* used for diarrhea and cholera. It is also used for cleaning and washing of utensils, and for cleaning and shining of teeth. Used as fodder for Goats and Sheep. |
| 23 | *Foeniculum vulgare* L. | Umbalfareae | Kagelany | Seed, Young shoots | The young shoots are used as vegetables and the parched seeds are eaten for relieving bellyache and for intestinal disorder. The seeds of the plant is first parch or to scorch slightly and then roast combine with eggs, taken for the treatment of dysentery and used for digestion. Parched seeds are also grind and given to baby in his mother breast milk for colic pain. The seeds are collected by the local populace and sold in the market. Seeds are also used in the special domestic breeds that are locally called "kakori".These domestic breeds are prepared from the combination of fine floor, milk, sugar syrup, |

butter (ghee), peanuts, walnuts and *Foeniculum* seed.

**Table. 1. (Cont'd.)**

| No. | Botanical Name | Family Name | Local Name | Part used | Indigenous Knowledge |
|---|---|---|---|---|---|
| 24 | *Geranium wallichianum* D. Don ex Sweat | Geraniaceae | Srazela | Rhizome | The rhizome of the plant is grind and then boiled in water which gives a viscous mild, after that, this viscous mild cooked with floor, raw sugar syrup and staring it quietly, obtained sweetmeat used for gout, joints and sexual power. It is astringent, tonic and used as to treat renal disease. It increases flow of milk in cows. |
| 25 | *Hypericum perforatum* L. | Fabaceae | Shen chai | Whole plant | The fresh plant boiled in water, decoction obtained is used for curing cough and fever. An infusion of leaves is used for curing diarrhea, jaundice and nausea. In hilly regions, it is also used as tea. |
| 26 | *Indegofera heterantha* Wall. Ex Brand. Synonym: *Indegofera gerardiana* Wall. | Fabaceae | Ghwareja | Flowers, Fruit, Leaves, Root bark | The pods (fruit) of *Indegofera heterantha* are eaten for sexual power, and help in the maturation of ova and semen. It is also used by pregnant women for fetus nourishment. The petals of flower combine with the petals of *Rosa indica* and *Viola odorata* used in a specific matter called *"Gul Qand"* that is used to cure sore mouth, sore throat, dysentery, eye trouble and skin disease. Its young shoots are twisted and make baskets. The fruit are given to cows for increasing amount of butter. During the spring season *Indegofera heterantha* releases a specific type of secretion locally called "Da Shetantokyy or laree" (saliva of evil) used to cure eczema and itching. Its root bark boiled in water mix with the root of *Cynodondactylon* give red color extraction used for bellyache. Also used as fuel and fodder. |
| 27 | *Juglans regia* L. | Juglandaceae | Ghoz | Fruit, Leaves, Stem, Root Bark | The core of nuts is just like human brain in shape, edible and used for excellence and brilliance. The expensive furniture is made from *Juglans* wood and the bark that is locally called "Dandasa"is used for cleaning of teeth and used as lipstick mostly by ladies. The best Dandasa(bark) is cut off from the root. An infusion of leaves is used for itching and the fresh leaves are also used for cleaning and shining of teeth. The core of nuts causes irritation due to presence of oil. The core of nuts is burnt normally, used for itching. |
| 28 | *Morchella esculenta* (L.) Pers. ex Fr. | Helvelaceae | Gosay | Whole plant | The plant is roasted in Butter and then eaten for improvement of eyesight. Properly used for sexual power in specific dishes. It is collected by local people and sold in the market for their economic purposes. |
| 29 | *Myrsine Africana* L. | Myrcinaceae | Marurang/ Mano Gaya | Fruit and Leaves | The fresh green leaves are used in tea for irritation of throat. Decoction of leaves is given for internal inflammation, blood purification and digestion. |
| 30 | *Myrtus communis* L. | Myrtaceae | Mano | Fruit and Leaves | The extraction of the leaves is used in the treatment of urinary problems, digestion, and sore throat and for coughing. The fruit is carminative. Help in digestion, vomiting and bellyache. |
| 31 | *Olea ferruginea* L. | Oleaceae | Khona | Fruit, leaves and seed | The leaves of the plant are boiled in water that is called "Da Khona chai" (Tea of olive) taken to treat the mouth sore, throat sore, cough and kidney problems. Also used as antidiabetic. The fruit is edible and oil obtained from the seeds and smear on joints. Used as fuel wood, fodder and in making agriculture tools and the spoons are also |

made from its wood.

**Table. 1. (Cont'd.)**

| No. | Botanical Name | Family Name | Local Name | Part used | Indigenous Knowledge |
|---|---|---|---|---|---|
| 32 | *Origanum vulgare* L. | Lamiaceae | Da GhraKashmalay | Vegetative part | The fresh plant boiled in water and its decoction is used for cold, fever, colic and earache. Some people used this as tea in hilly places. This plant rubbed around the honeycomb or hive, which spreading smell-attracting honeybee. |
| 33 | *Rheum emodi* Wall. Ex Meissn. | Polygonaceae | Chotial | Leaves and Root | Leaves are used as vegetables, laxative and powerful. The extraction of the fresh plant is used for curing diarrhea, dysentery and to treat rheumatism. Used for constipation, tonic and dyspepsia. |
| 34 | *Rubus fruticosus* Hk. f. | Rosaceae | Khwrach | Fruit, leaves and shoots | The staffs are made from its straight mature shoots used in disputes. Used as fodder and for fencing and hedges. Fruit is edible. |
| 35 | *Rumex crispus* L. | Polygonaceae | Shalkhay | Leaves, root | The root crashed into powder and then its paste used for diarrhea, piles and cough. The powder is boiled in water which gives a viscous mild, then a bandage is made used for curing external wounds. Used as laxative and tonic. |
| 36 | *Rumex hastatus* D. Don. | Polygonaceae | Saagtharokay | Leaves and Shoots | Leaves decoction is diuretic and used for stomachache. Its juice is used for fermentation of milk. It is fodder for goats and sheep. Used as vegetables. |
| 37 | *Saccharum spontaneum* L. | Poaceae | Kahay | Culmns, leaves | The root extraction is used for curing dyspepsia, and piles. Its taste is sweet. The dry plant is used as fuel and in making of brooms from its shoots. It is laxative and diuretic. |
| 38 | *Solanum nigrum* L. | Solanaceae | Karmacho | Vegetative part, fruit | It is used as rheumatic and its fruit is edible and tonic. The decoction of the leaves is sedative, diuretic, expectorant and used for lever problems. Also used as vegetable. It is used to cure rashes and diabetes. |
| 39 | *Teucrium stocksianum* Boiss. | Lamiaceae | Spairbotay | Whole plant | The dry plant crashed to make powder and then its paste is used with water for diabetes. In addition, the decoction of fresh plant used to cure inflammation of intestine, stomachache, liver disorder and irregular menstruation. It is used as antipeptic ulcer and epigastria pain. |
| 40 | *Valeriana jatamansi* Jones. Synonym: *Valeriana wallichii* | Valerianaceae | Toorpanra | Whole plant | The extraction of the plant is used to cure eye trouble, fever, and wounds, used as blood purifier. The whole plant is collected and sold in the market. |
| 41 | *Viola odorata* L. | Violaceae | Benaosha | Flowers and leaves | The flowers of the plant are boiled in water an extraction is obtained, used for cold, diarrhea and bronchitis. Its paste is also taken for the concern disease. The local residents collect the flowers of *viola odorata*and sold in the market. |
| 42 | *Xanthium strumarium* L. | Asteraceae | Jishkay | Leaves | An infusion of the leaves is used to treat fever, cough, cold and malaria. The decoction of shoots is applied on external wounds, and burnt places. During autumn season the dry plants are collected and used as fuel. |
| 43 | *Zizyphus sativa* Gaertn. | Rhamniaceae | Markhanay | Fruit, leaves | Fruit is edible and sold in the market, used as blood purifier. The leaves are grind and then its paste is used for diabetes mellitus. Also used as fuel wood and for fencing and hedges. The leaves are used as fresh fodder for goats and sheep. When leaves chewed combine with raw sugar |

causing mouth tasteless.

## Results

By survey of Tehsil Barawal, it is notified that 43 plant species of 25 families confined to the ethnobotanical significance for the local community. The plants under the usage of the local inhabitants were of diverse nature. In these, including as minute herbs in one hand while on the other hand the largest plant *Juglans* is the target of importance for the local people. It was noted that elder people had more knowledge about the folk uses of medicinal plants than younger generation.

## Discussion

The investigation displayed that the local inhabitants' uses 43 plant species belonging to 25 families for different purposes. The plants are usually used for various ailments through different ways. The local people used the herbs, its different parts leaves decoction, bark extraction, seeds, root infusion, paste, solution, tea etc orally, nasal route, across the skin or dermal and smoke scattering on the body. In the obtained information, 78% plants were mostly used orally and 22% by other ways. The present knowledge was gathered mostly from the elder people, including both male and female. Young generation is not interested in the use of plants rather they are unaware from traditional utilization of plants.

Most of the plant species are threatened due to over grazing, deforestation, excessive consumption as fuel, uprooted based on doubt toxicity, burnt by people based on tribal enmity and bad blood etc. Some people erase plants to prepare terraces for cultivation in hilly area, in which losing a lot of plants diversity. Especially *Olea ferruginea, Berberis lyceum* and *Myrtis communis* are at risk to become extinct because these are rare species in study area. Due to excessive deforestation, many valuable plants like deodar, fir, etc are becoming endangered. In which political people having main role because when forest department taking action against those timber mafia, politician accompanied with timber mafia, suppressing forest officials obversely. Timber mafia mostly having relation with absconder and scoundrel people that occupy common forests and forest of the owners, such type of people sell these forests into timber mafia, cut and smuggle it for them on wage. Taking these zests, the forest officers and their subalterns requisite bribe and become their coadjutant. During barbarous cutting, trees fell down on many other plants, which may lead the destruction of plant communities. Such type of situations gradually increase and cause the removal of plants which is the entrustment of our next generation. The habitat of animals and plants is also disturbed.

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