

STUDY OF IMPORTANT MEDICINAL PLANTS OF DISTRICT DIR UPPER, PAKISTAN

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ABSTRACT

The research work was based on the collection of old knowledge from local people and herbalists (hakims) of the locality about the uses of the native medicinal plants. Survey was done in the local villages, fields and mountains of Tehsil Wari, District Dir (Upper), Khyber Pakhtunkhwa, Pakistan, during February to September 2013. In the survey, a questionnaire was made to ask the local people and herbalists about their indigenous knowledge of the local medicinal plants for treatment of various diseases. A sum of 39 plants species, belonging to 30 different families having 36 various genera were collected during the spring and summer seasons of 2013. Among these families, four species (10.20%) were of Lamiaceae, three species (8%) of Apiaceae, two species (5.12%) each of Solanaceae, Chenopodiaceae, Fagaceae and Polygonaceae. The rest of the families i.e. Violaceae, Ranunculaceae, Araceae, Hippocastanaceae, Asteraceae, Berberidiaceae, Brassicaceae, Buxaceae, Cannabiaceae, Euporbiaceae, Cruciferae, Fabaceae, Juglandaceae, Meliaceae, Moraceae, Myrsinaceae, Paeoniaceae, Oleaceae, Rhamnaceae, Rosaceae, Rutaceae, Sapindaceae, Scrophulariaceae, Sexifragaceae had only one species (2.56%) each. The study concluded that the local people use the indigenous flora for treatment of different diseases. They have no proper way of collection, conservation and storage of these medicinal plants. These medicinal plants were mostly used as carminative, digestive, stimulant, emollient, aphrodisiac, tonic, laxative, anthelminthic and antipyretic etc.

Key words: Diseases, indigenous knowledge, medicinal plants, treatment, uses, Dir Upper, Pakistan.

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INTRODUCTION

The relation of plants, animals and humans are much important. Humans have a great relationship with the plants as plants play a vital role in the life of humans and animals. This study was aimed at reviewing the indigenous traditions of the local people of district Dir (Upper), tehsil Wari for various medicinal plants because in the past there was lack of herbalists and doctors in local area for various diseases (Shinwari, 2002-03; Arshad, 1999).

In Pakistan, the eastern medicine is comprised of three systems which are Greco Arabic, Ayurvedic and Chinese. The medicinal recipes were derived from these systems from inorganic and organic sources (Khan, 1990). The ancient knowledge shows different drugs, used by doctors nowadays were earlier used by the Greeks, Babylonians, Egyptians, Chinese, Romans and people of the Indian sub-continent (Khan, 1991).

Earlier a list of 67 plants from Khyber Agency was made by Haq and Hussain (1993) and Shinwari and Khan (1998). In Abbottabad, the investigation was made by Abbasi *et al.* (2010) and in Chitral by Ali and Qaiser (2009). The largest family found everywhere was Scrophulariaceae that has 222 genera and 4480 species (Jussieu, 1789; Willis, 1973).

Tehsil Wari of District Dir (Upper) is rich in medicinal plants that are widely used for various medicinal purposes by the local people and herbalists (hakims). Dir (Upper) is a district of the province, Khyber Pakhtunkhwa (KP), Pakistan. It was declared as a separate district in 1996. This district lies between $71^{\circ} 32'$ to $72^{\circ} 22'$ towards East longitudes and $35^{\circ} 04'$ to $35^{\circ} 46'$ towards North latitudes. Dir share boundaries with district Chitral in the north, with district Swat in the east, in the south with Dir (Lower) and in the west with Bajour Agency. The total area of district Dir Upper is 3,699 km² and

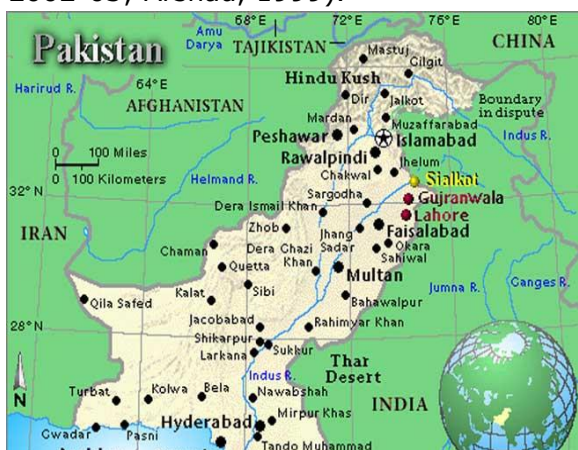


Fig. 1. Map of Pakistan showing Dir (Upper)

population is about 750,000. It comprises of two main subdivisions i.e. Dir and Wari (Anon, 1998).

There was a need of documenting the medicinal flora of the area for broadening the scope of the indigenous knowledge of the local farming community which would help in curing various diseases through herbal treatments.

MATERIALS AND METHODS

The study trips were accomplished in the fields and mountains of Dir Upper (Tehsil Wari) in the period of February to September 2013. A total of 150 people were interviewed, among them 112 were men, 30 women and 8 herbalists as shown in Fig. 2. About 39 plant species were collected that belonged to different families having 36 genera. Their identification was done with the help of Flora of Pakistan (Choudary *et al.*, 2000; Riedl, 1991). The plant species were collected carefully from the target area. The interview of the local men, women and herbalists was conducted in native Pashto language. The plant specimens were collected and their photographs were taken which were quite helpful in identification of plant species. These species were identified and preserved in the Herbarium of Weed Science department of the University of Agriculture, Peshawar for future references. The data of medicinal uses was collected from the local community in the form of questionnaires and the identification was made with the available literature (Nasir and Ali, 1971-1995).

The obtained results were rechecked and compared with the literature from Ali (1998), Ali and Fefevre (1996) and Khalid (1995). The local knowledge was thus properly documented and discussed. The questionnaire included the name of each respondent, his/her age, profession. In addition, the respondent was asked for the local names of the plants he/she used for medicinal purpose, afterwards the botanical names, family names, habitats, growing seasons, were put in black and white after proper identification. The respondents were also asked for the parts of the plants they used, their medicinal uses and mode of administration of the plant parts.

RESULTS AND DISCUSSION

District Dir (Upper) has a variety of medicinal plants and the local people utilize these important species for various medicinal purposes. The local area has lack of basic health facilities therefore it totally depends on medicinal plants for treating various ailments. The local people of investigated area are poor, they fulfill their food requirements and medicinal value by boiling plant species in water, some consume them in fresh form and some are eaten as a fruit. The

herbalists prepare various medicines from these plants and sell in the local shops and the people use them for various diseases.

Thirty nine (39) plant species belonging to 33 families having 36 genera as given in the below list of Table-1 were reported in this study. For these plant species, a total of 150 people were interviewed among whom 112 were males, 30 were females and eight other male herbalists. Among these 39 plants, 22 are herb, 8 shrub and 9 tree species. The mostly medicinally used species are the herb species, followed by trees and then shrubs (Fig. 2). Figure 3 shows the percent uses of different plants parts in the local area. The local people ignore the local medicinal plants and there economic importance. Sum of 39 species, 23 plant species were medicinally and economically important (Ahmad, 2000; Rehman and Ghafoor, 2002).

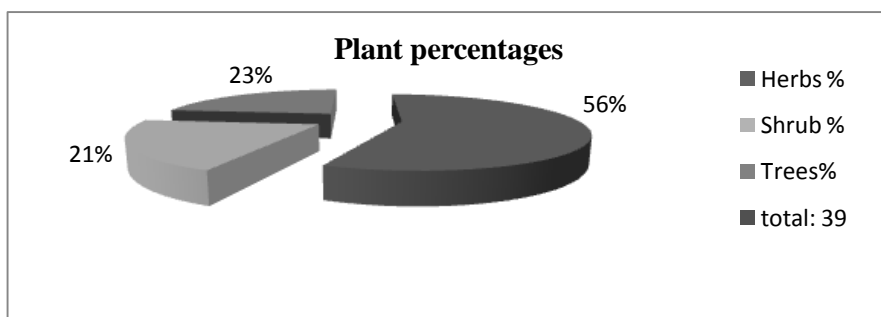


Figure 2. Percentage of herbs, shrubs and trees used as medicinal plants in tehsil Wari of district Dir (Upper), Pakistan

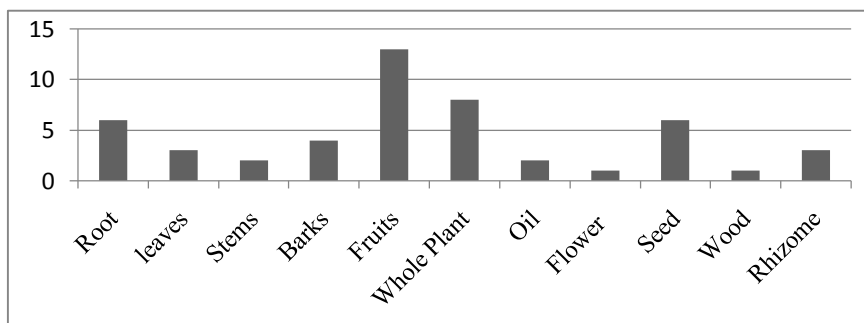


Figure 3. Percent uses of different parts of the plants in tehsil Wari, Dir (Upper), Pakistan

A total of 39 plants species belonging to 30 families were reported in this study. The family *Lamiaceae* comprised of four species (10.20%), *Apiaceae* of three species (8%) each, *Solanaceae*, *Chenopodiaceae*, *Fagaceae* and *Polygonaceae* of two species (5.12%) each and *Violaceae*, *Ranunculaceae*, *Araceae*, *Hippocastanaceae*, *Asteraceae*, *Berberidiaceae*, *Brassicaceae*, *Buxaceae*, *Cannabiaceae*, *Euporbiaceae*, *Cruciferae*, *Fabaceae*, *Juglandaceae*, *Meliaceae*, *Moraceae*, *Myrsinaceae*, *Paeoniaceae*, *Oleaceae*, *Rhamnaceae*, *Rosaceae*, *Rutaceae*, *Sapindaceae*, *Scrophulariaceae*, *Sexifragaceae* each had only one species (2.56%).

More than 65% populations are dependent on local medicinal plants and use for primary caring of various diseases. Different plant parts i.e. (roots, stem, leaves, flower, fruits and seeds) are utilized for the medicinal purposes. For example *Berberis lycium* roots and barks are used for mouth infections, body pain, strengthening of sex organs. The roots of the plants are crushed into fine powders, these powders were use with milk, sometime mixed with honey and also used locally sweet dish called Halwa. The use of medicinal plants for various diseases were shown and explained by Shinwari *et al.* (2002), Ahmad *et al.* (2004) and Sadaqat (1995). The same results were shown and reported from Buner by Hamayun *et al.* (2003).

It is obvious now from this study and another study conducted in 2014 (Muhammad Shuaib *et al.*, 2014) that these local plants are uses for various medicinal purposes i.e. diuretic, carminative, anticancer, stomachic, jaundice, antipyretic, sedative and antispasmodic. The local flora is medicinally important and used for various diseases shown by Qureshi *et al.* (2007). Beside the acute ailments, people remained exposed to have endemic, epidemic and chronic disease from Buner by Hamayaun (2003). The same results were shown by Hazrat *et al.* (2010) in Ushaire valley District Dir upper, he collected 50 plant species belong to 32 families, which were used for various medicinal and economic purposes, from district Shangla by Razzaq *et al.*, 2013); Maidan valley Dir Lower by Haq *et al.* (2016).

CONCLUSION

From the present work it is concluded that the local area is rich in medicinal plants and the local people are totally dependent on these plants for curing different diseases. A lot of chemical extracts are taken from these medicinal plants, which play important role in the economy of Pakistan. The herbalists use these plants for making different medicines. The medicinal plants ratio decreases in the local area due to unscientific collection methods, and lack of knowledge in collection process. The local people preserve the medicinal plants by unscientific way and destroy them due to getting damaged by

humidity, insects and fungal attack etc. The current study may provide valuable information to local community on the sustainable use and conservation of plant resources.

In the local area the people are illiterate and collect the expensive plants in unwanted way for money and sell them in market. Several important species are going to become extinct. Therefore, the government and NGOs need to arrange seminars and programs for the awareness of the local people about the importance of medicinal uses of plants to conserve the plant biodiversity because in the future these medicinal plants will play an important role in health of the people and in economy of Pakistan. The local people carelessly cut the forest for fuel. Therefore, the government has to provide basic facilities of light and gas to the local population in order to save deforestation.

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Table-1. Checklists of medicinal plant of Tehsil Wari Dir Upper are as below

S. No.	Botanical Name	Local Name	Family	Part used	Habit	Medicinal uses
1	<i>Aconitum heterophyllum</i> Wall. ex. Royle.	Zahar mora	Ranunculaceae	Rhizome	Herb	Plant used as aphrodisiac, tonic and febrifuge
2	<i>Acorus calamus</i> L.	Skhawaja	Araceae	Rhizome	Herb	Plant rhizomes are use in cough, colic and diarrhea.
3	<i>Aesculus indica</i> (Wall ex. Comb) Hook. F.	Jawaz	Hippocastanaceae	Leaves, bark, fruit	Shrub	Fruit were use in intestinal colic. Nuts are colic to chest diseases.
4	<i>Ajuga bracteosa</i> Wall.	Gooti/Butti	Lamiaceae	Whole	Herb	Plant heated in water and used for blood purification, internal infection, abdominal pain, kidney pain and food digestion. Help in expulsion of gases from stomach. Plant used as diuretic, astringent, stimulant.
5	<i>Artemisia vulgaris</i> L.	Tarkha	Asteraceae	Leaves	Herb	Plant use for the killing of intestinal worm. Also help in blood clotting.
6	<i>Atropa accuminata</i> Royle.ex Miers	Bargak	Solanaceae	Leaves	Shrub	Plant leaves are use as diuretic, sedative, narcotic and anodyne.
7	<i>Berberis lyceum</i> Royle.	Koraay/ zair largay	Berberidiaceae	Root	Shrub	Extract remove from the plant which is used in ophthalmia. The root of the plant use as cooling agent and jaundice. Plant help in the treatment of internal wound.
8	<i>Bergenia ciliata</i> (Haw).Sternb.	Kamar Panra	Sexifragaceae	Root	Herb	Plant root help to increase sexual power. Plant in cough and cold. Also help in fever, diarrhea and pulmonary infection.
9	<i>Brassica campestris</i> Linn.	Sharsham	Brassicaceae	Leaves, seed, oil	Herb	Oil produced from seed use in cooking and massage. Helpful for healthy hairs. Use for cooking purposes
10	<i>Bunium persicum</i> (Bioss). B. Fedtsch.	Tora zeera	Apiaceae	Fruit	Herb	Plant uses as antiseptic, stomachic and carminative.
11	<i>Buxus sempervirens</i> Hk. F	Shmshad	Buxaceae	Whole	Tree	Plant uses as purgative and Anti-rheumatic
12	<i>Cannabis sativa</i> L.	Bhung	Cannabiaceae	Whole	Shrub	Plant leaves use as sedative, narcotic, astringent, anodyne and antispasmodic.

						Plant use as cooling agent
13	<i>Chenopodium botrys</i> L.	Kharawa	Chenopodiaceae	Whole	Herb	Enhances digestive power of stomach and intestine. Heated in water and relieves intestinal pain. Laxative, expulse worms
14	<i>Chenopodium murale</i> L.	Sowhanee	Chenopodiaceae	Leaves , seed	Herb	Plant uses as tonic for liver, carminative, emollient, purgative, anthelmintic, digestive and laxatives. Seed were uses as in Peptic ulcer, dyspepsia, hemorrhoids, cardiac disorder and ophthalmopathy
15	<i>Corianderum sativam</i> L.	Dhanya	Apiaceae	Fruits and leaves	Herb	Plant helps in food digestion and removes toxicity of stomach. Plant uses a cooling agent, diuretic, stimulant and carminative.
16	<i>Dodonea viscosa</i> L.	Ghwarasky	Sapindaceae	Leaves, seed	Shrub	Plant leaves are oily and old time used as urgent bandages for wounds. Seed are used as fish poison. Leaves use as rheumatism, swelling and fragrant.
17	<i>Duchesnca indica</i> Lindl.ex. Lacaïta	Xamaky toot	Rosaceae	Fruit	Herb	Plant fruit are laxative. Help to reduce sugar in blood
18	<i>Euphorbia heliscopia</i> L.	Mandanu	Euporbiaceae	Whole	Herb	The oil obtained from the seed of the plant and useful to increase bowel evacuation Also help in respiratory disorder. Help in the killing of worms in stomach. Use in the treatment of dysentery.
19	<i>Feoniculum vulgare</i> Mill.	Kaga/ Kagaii	Apiaceae	Root, stem, leaves	Herb	Help in food digestion. Uses as diarrhea and antipyretic. Help in expulsion of gases from stomach.
20	<i>Ficus crica</i> L.	Inzar/ Injeer	Moraceae	Leaves, Fruit	Tree	Saf of plant use to stop spreading of vitligo diseases. Fruit are blood purifier and help in controlling of cancer diseases
21	<i>Indigofera heterantha</i> Wall.	Ghorega	Fabaceae	Root	Shrub	Plant root use for belly pain
22	<i>Isodon rugosus</i> Wall. Ex (Benth).	Spairkay	Lamiaceae	Leaves, seed	Herb	Plant use for fungal infection in mouth Plant leaves and seed help for treatment of external wounds and blood clotting.
23	<i>Juglan regia</i> L.	Ghuz	Juglandaceae	Root, bark, fruit	Tree	Fruit is brain tonic. Bark of the plant use as "Dandassa" help in cleaning of teeth.

24	<i>Lycopersicon esculentum</i> L.	Tamator	Solanaceae	Fruit	Herb	Fruit help in purification of blood. Fruit also use in constipation, anorexia and skin diseases. Iant helpful in hepatitis
25	<i>Melia azadarach</i> L.	Tora Shandai/ Bakyana	Meliaceae	Barks, Fruits	Tree	The root of the plant use in chest disease. The leaves act as antisugar. Also use for killing lice. Plant use as dysentery
26	<i>Mentha longifolia</i> L.	Velany	Lamiaceae	Whole	Herb	Leaves of the plant are useful in vomiting. Help in food digestion. Remove stomach acidity. The leaves of the plant used for joint pain.
27	<i>Mentha piperita</i> L.	Podina	Lamiaceae	Whole	Herb	Plant uses as carminative and gastric stimulant. Plant uses for gastro-intestinal, Liver and gall bladder disturbance. Help in vomiting. Use in homeopathic stores for various folks medicines.
28	<i>Myrsine africana</i> L.	Monogayaa	Myrsinaceae	Leaves	Shrub	Leaves use as laxative and anthelmintic. Also use for blood purification.
29	<i>Nasturtium officinale</i> W. T. Aiton.	Tarmeera	Cruciferae	Whole	Herb	From plant seed oils are remove and use for Masaage of body muscle pain. Leaves of plant use as vegetable and helpful in stomach diseases
30	<i>Olea ferruginea</i> Royle.	Khona	Oleaceae	Leaves, fruit, bark, oils	Tree	Plant use as antispasmodic, stimulant, vermifuge and expectorant. Plant fruits and leaves are germicides and antipyretic. The fresh leaves of the plant heat in green tea and uses for coughing.
31	<i>Paeonia emodi</i> Wall. ex. Hook	Mamekh	Paeoniaceae	Rhizome	Shrub	Plant help in blood purification Rhizome uses as body tonic, backbone ache, emetic and epilepsy.
32	<i>Quercus ballota</i> L.	Shabaloot/ Sarai	Fagaceae	Fruit	Tree	Seed uses as chronic diarrhea and dysentery. Also uses as treatment of hemorrhages
33	<i>Quercus incana</i> W.Bartram	Sarai	Fagaceae	Leaves, seed	Tree	Plant seed are tonic. Leaves are use as purgative.
34	<i>Rumex crispus</i> L.	Shalkhay	Polygonaceae	Leaves, Fruit	Herb	Plant seed helpful in infection of ears. Leaves of the plant use as blood purifier. Also use as for anemia, stomach tonic, dysentery and laxative.
35	<i>Rumex hastatus</i> L.	Tarookay	Polygonaceae	Whole	Herb	Root and leaves of the plant heated in water and used for belly pain Plant juice help for treatment of blood pressure
36	<i>Verbascum thapsus</i> L.	Khurdag	Scrophulariaceae	Stem , root	Herb	Plant uses as astringent and emollient.. Stem help

						as anti- diarrhea.
37	<i>Viola indica</i> W. Becker	Benawsha	Violaceae	Leaves, flower	Herb	Plant leaves put in yogurts and uses in fever, cold, coughing and influenza . Plant also helping in internal wound healing
38	<i>Zanthoxylum armatum</i> DC.	Dambara	Rutaceae	Seed	Tree	Plant seed are use as condiment for mouth taste. Also use in bubbles gums. Also uses for the treatment of cardiovascular, respiratory and gastrointestinal disorder.
39	<i>Zizphus vulgaris</i> L.	Markhanai	Rhamnaceae	Leaves, fruit	Tree	The fruit of the plant help in controlling of sugar. The plant helpful in chronic constipation

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