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Ethnobotanical study on the weeds of wheat crop in District Swabi, Khyber Pakhtunkhwa, Pakistan

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Abstract

An ethno-botanical survey was conducted in order to document information about the traditional uses of plant species growing as weeds in the wheat fields of Swabi, one of the districts of Khyber Pakhtunkhwa, Pakistan. According to our findings about 138 weed species, belonging to 35 families and 111 genera were utilized by the local people for various purposes. Being herbs most of weeds were either medicinal (58 species) or fodder (23 species) or both medicinal and fodder (19 species). 15 species were used as green leafy vegetables or salad, 6 species were poisonous, 6 species were ornamental, 5 species were used both as medicines and as non woody hay fuel. The remaining species has got miscellaneous type of uses such as making brooms (2 species), washing (1 species), rope and basket making (1 species), as pesticide (1 species) and as a source of perfume (1 species). The remedies use to treat various ailments were generally prepared through infusion, decoction and concoction and were used orally or applied externally to the skin. These remedies were used to cure a variety of health problems like respiratory diseases, gastro-intestinal disorders, skeleto-muscular pains, cutaneous problems and cardiovascular disorders etc. According to our data analysis out of 138 weeds, 98 plant species were those in which the whole plant body was utilizable, however the remaining species had got one or several parts to be used by local people. Though weeds, the so called unwanted plants in the crop field, plants have a survival value for man on this earth planet. Therefore proper conservative measures and strategies are required for the existence and persistence of these plants in the area.

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Introduction

Ethnobotany is the science of man's survival on this earth planet. The World's history reveals that man has been using several thousands of plants species since ancient times in a number of ways. Although the modern man is interested in allopathic medicines and surgery, yet a large number of people still rely on traditional uses of plants, especially in developing countries (Mukherjee, 2002; Bodeker *et al.*, 2005). The reason is high prices or no access for the poor people, who live in far flung villages (Hameed *et al.*, 2011). Even in developed countries the herbal medicines are gaining popularity due to no or low side effects (Calapai, 2008; Braun *et al.*, 2010; Anquez-Traxler, 2011).

Weeds are in simple terms are the plants that interfere with healthy or normal growth and development of crops (Quereshi *et al.*, 2009). Serious losses in the production of grains, fruits and seeds due to weeds interference have already been reported (Jakhar *et al.*, 2005; Marwat *et al.*, 2008). They also affect crop plants by their aggressive growth, allelopathic behavior and providing a safe refuge to pests and diseases. Anyhow weeds are not as notorious as they are considered. They are wild plants used by local people as fodder for their cattle, as folk medicines, as material used for roofing, thatching, as ornamental or pot herbs and other miscellaneous purposes (Murad *et al.*, 2012).

Weeds growing inside the crop fields have more luxurious life regarding protection from grazing animals, availability of water, space, light and nutrients and hence reflect a clear picture of herbaceous flora of an area. It has been reported that valuable economic and medicinal plants are under a threat of depletion due to biotic interference, over use of plant resources, deforestation and over grazing (Sher *et al.*, 2014). It was found that in Kurram agency most of the critical endangered species have great medicinal importance (Hussain *et al.*, 2012). In district Swabi also the wild flora is subjected with the same situation like other reported areas. Therefore proper conservative measures and strategies are required to ensure the sustainable utilization of these plants in the area.

A number of researchers have worked on ethnobotanical aspects of plants throughout the world (Vinothkumar *et al.*, 2011, Hong *et al.*, 2015; Kankara *et al.*, 2015; Chinsebu, 2016, Ahmed, 2016) as well as inside the country (Qureshi *et al.*, 2006; Hammayun, 2007; Marwat *et al.*, 2008; Khan *et al.*, 2010; Khan *et al.*, 2011; Iqbal *et al.*, 2011; Sher *et al.*, 2014). The present work was aimed to prepare an ethno list and to document the traditional knowledge of weed flora growing in the wheat crop of District Swabi, as no work has been done so far on this area. The data might be helpful to other workers, naturalists, taxonomists, pharmacologists, wild life and water shed supervisors in their determinations to make this area prosperous.

Materials and methods

Research area

District Swabi is one of the districts of Khyber Pakhtunkhwa province, Pakistan. Before its creation in 1988, it was a tehsil under Mardan District. The district has four sub-divisions (Tehsils) i.e. Swabi, Topi, Lahore and Razar. The district is situated between 33°-55' and 34°-23' north latitudes and 72°-13' and 72°-49' east longitudes. On the north and on the east the district is surrounded by Buner and Haripur districts, respectively. Its south boundary is delimited by Attock district of the Punjab province, where as Nowshera and Mardan districts are situated in the west of Swabi district. A sum of 1543 square kilometers, make the total area of the district.

The district is divisible into two different parts; the northern hilly area and the southern plain. The main hills are Gadoon hills, Naranji hills and khattak hills. Gadoon hills are the extension of Mahaban hills whereas Naranji hills are located in the north-western corner of the district. Khattak hills are located in the south of Swabi town along the boarder with Nowshera district. These hills have a height ranges from 750 to 1400 meters above sea level. From the foot of the hills, the plain runs down, at first with a steep slope, and then gently to the lower levels, towards the Kabul River. The lower southern half of the district has its slope towards the river Indus. The plain area of the district is intersected by numerous streams and many smaller ravines.

The river Indus, Naranji stream, Badrai stream and Shagai Stream are worthy to note. The land is irrigated by numerous canals and tube wells or Persian wheels. The main crops of the area are wheat, maize, barely, tobacco, sugar cane and pea.

Climates

Besides, some vegetables like lady fingers, brinjals, tomato, onion, garlic, spinach, culiflofwer, raddish, turnip and carrot etc. are also cultivated in the area. The climate of the district is extreme, characterized by a very hot summer and a very hot winter. June, July and august are the hottest months whereas December, January and February are the coldest months of the year. Maximum rain fall has been observed in the month of July and August due to moon soons. The weather remains hot and humid in these months. Throughout the year the relative humidity is quite high. The month of December has got the maximum humidity. Mahaban hills in Gadoon ranges represent some areas coming under forests. This area is protected by local people as well as by government. However, it is the cry of the day, to grow more and more forests in the area.

Methods

In District Swabi soil for wheat cultivation is prepared in the month of October. Sowing is started from late October and continues throughout the month of November. Weeds usually appear in the mid of November in the form of seedlings and exhibit a steady growth in the cold months of December and January. This is followed by a phase of vigorous vegetative and reproductive growth in the following two months. Anyhow, not all the weeds appear at the same time, nor they grow or mature at uniform rate. Wheat harvest is usually started in the last week of April. Mostly weeds complete their life cycle and are in drying or post reproductive stage.

The survey was conducted from October 2014 to May 2015, in order to collect information about the traditional uses of the plants, growing as weeds in the wheat fields of the area. Periodic visits of wheat fields were made to 56 selected sites. Plant specimens were collected in flowering stage dried and preserved

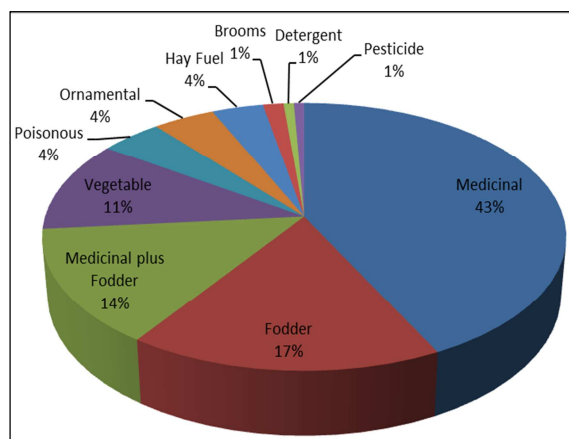
properly following standard techniques (Cunningham, 2011). They were mounted on herbarium sheets and identified through available literature (Ali and Qaisar, 2013). The plants were classified according to their use value (medicinal, fodder, vegetables, thatching, food, fuel etc.). The information collected from natives include local names, local uses, recipe preparation, parts used, occurrence, people involved in the collection and other relevant information. The information were collected through interviewing and filling questionnaire from drug dealers, herbal practitioners (Pansaries), herbal healers (Hakims) but priority was given to the local elderly people and Hakims, who were the real users and had a lot of knowledge in this regard. Moreover, previous literature was also consulted. The plant specimens were submitted to the herbarium, Department of Botany, Islamia College Peshawar, Pakistan.

Results and discussion

Ethnobotanical information is useful for the development and prosperity of an area. The people of the area earn their lively hood through agriculture, raring livestock and other natural resources. In the present course of investigation it was observed that a total number of 138 weed species, belonging to 35 angiospermic families and 111genera were used by local people for various purposes (Table 1). Among which monocotyledons were represented by 6 families 18 genera and 19 species, whereas the dicotyledons were represented by 29 families, 105 genera and 119 species. According to our data 58 (42.02%) weed species were used as therapeutic agents to cure various types of ailments. Some were used individually and others were used in combination. The information were in line with Sher *et al.*, (2014), Iqbal *et al.*, (2011), Hussain *et al.*, (2008), Ilahi (2008), Ali and Qaisar (2009) and Qureshi *et al.*, (2009) with respect to medicinal uses. Some weed plants were used for a single purpose while others were used for multiple purposes. These findings were in accodence with Ajaib *et al.*, (2011), who found that eleven species were used for multi purposes. Some common species used for medicinal purposes included *Allium griffithianum*, *Amaranthus viridis*, *Chenopodium album*, *Chenopodium*

ambrosioides, *Eryngium bierberstinaunum*, *Ageratum conazoides*, *Artemisia vulgaris*, *Bidens tripartita*, *Cichorium intybus*, *Cousinia prolifera*, *Cnicus benedictus*, *Crepis sancta*, *Carthamus lanatus*, *Carthamus oxicantha*, *Centaurea iberica*, *Circium arvense*, *Echinops echinatus*, *Parthenium hysterophorus*, *Pentanema devaricatum*, *Silibum marianum*, *Sonchus asper*, *Euphorbia granulate*, *Vaccaria hispanica*, *Oxalis corniculata* and *Verbascum thapsus* etc.

These plants were used to cure different types of ailments in the area. For example *Amaranthus viridis* is used as emollient and *Boerhavia procumbense* as blood purifier, *Cyperus rotundus* as stomachic and diuretic, *Euphorbia granulata* as anthelmintic, diuretic and purgative. The findings agreed with the work done by other researchers (Jabeen *et al.*, 2009; Immanuel & Elizabeth, 2009; Kumar *et al.*, 2010; Natarajan *et al.*, 2005).



Graph 1. Number of weeds species of wheat crop with respect to Different types of uses in the area.

In District Swabi, farmers rear livestock like goats, sheep, cows, and buffaloes to obtain milk, butter and

other dairy products. Similarly other domestic animals like donkeys, horses and even camels are reared in the foot hill villages like Shehr Dara, Naranji and Aman Kot etc. Therefore the natives of the area use a number of weeds as fodder to feed their animals. Some commonly used palatable reported species were *Lathyrus aphaca*, *Lathyrus sativus*, *Lathyrus sphaericus*, *Medicago polymorpha*, *Melilotus indicus*, *Trifolium repens*, *Vicia hirsuta*, *Vicia sativa*, *Fumaria indica*, *Avena sativa*, *Avena fatua*, *Cynodon dactylon*, *Desmostachya bipinnata*, *Phalaris minor*, *Sorghum halipense* and *Anagallis arvensis*. According to our findings there were 23 (16.66%) fodder species used by the people. Most of fodder species either belonged to fabaceae or poaceae. Similar findings were also reported by other workers (Sher, 2005; Sher *et al.*, 2003, 2004; Hussain *et al.*, 2004, 2005; Gilani *et al.*, 2003; Ibrar *et al.*, 2007). Besides, 19 (13.76%) species were used both as medicines and fodder. The result agreed with Ajai *et al.*, who reported ten plants with two usages.

Sher *et al.*, (2014) reported a high pressure on fuel wood species in the Ashezai and Salarzai valleys of district Bunir due to sever winters. As the forests are negligible in district Swabi (Census report, 1998), therefore herbaceous plants (5 Species or 3.62%) are also used as fuel, especially for cooking breads (Chapathi) in a special oven made of mud, called “Thandoor or Tanoor” in local language. The most common plants used for this purpose were *Asphodelus tennifolius*, *Carthamus oxicantha*, *Parthenium hyhterophorus*, *Xanthium strumarium* and *Heliotropium europium*. The reason for using these plants as fuel is that the poor people save woods fuel which they buy from nearby wood stalls in the area. These plants are harvested by boys or adults and then dried in the sun.

Table 1. List of weed species and their uses in the research area and their ethnobotanical uses.

S/NO	Botanical name	Local name	Part used	Uses (Therapeutic, vegetable, fodder, ornamental etc.)
Monocotyledons				
1	<i>Allium griffithianum</i> Boiss, Daign. (Amaryllidaceae)	Woraki	Whole plant	The plant used in the cure of colds, fever, intestinal parasites, high B.P, jaundice and sores. Grinded fresh leaves are mixed with maize flour to prepare a special type of bread.
2	<i>Scilla griffithii</i> Hochr. (Asparagaceae)	Unknown	Whole plant	Used in the cure of flue, fever, hepatitis and perfume, also an ornamental herb.
3	<i>Cyperus rotundus</i> L. (Cyperaceae)	Dila	Whole plant	A common fodder of sheep, goats and cattle, also used to treat diarrhea and fever.
4	<i>Juncus bufonious</i> L. (Juncaceae.)	Krachi	Whole plant	A casual fodder, antipyretic, antinflamatory.

S/NO	Botanical name	Local name	Part used	Uses (Therapeutic, vegetable, fodder, ornamental etc.)
Monocotyledons				
5	<i>Asphodelus tenuifolius</i> Cav. (Lilliaceae)	Pyazaki	Whole plant	Leaves or used as vegetable. Mature plants are used as fuel.
6	<i>Tulipa stellata</i> Hook. (Lilliaceae)	Ghantol	Whole plant	Ornamental, also used as cardiac stimulant.
7	<i>Avena sativa</i> L. (Poaceae)	Jwandar	Whole plant	A good fodder especially for cattle.
8	<i>Avena fatua</i> L. (Poaceae)	jwandar	Whole plant	A good fodder especially for cattle.
9	<i>Bromus pectinatus</i> Thunb. (Poaceae)	Nari jwandar	Whole plant	Used as fodder but less common.
10	<i>Briza minor</i> L. (Poaceae)	Unknown	Whole plant	A fodder but very casual.
11	<i>Cynodon dactylon</i> (L.) Pers. (Poaceae)	Kabal	Whole plant	A very common fodder.
12	<i>Digitaria sanguinalis</i> (L.) Scop. (Poaceae)	Trakray	Whole plant	A common fodder.
13	<i>Desmostachya bipinnata</i> (L.) Stapf. (Poaceae)	Drab	Whole plant	A common fodder.
14	<i>Lolium temulentum</i> L. (Poaceae)	Mastak	Whole plant	Fodder, anodyne and sedative.
15	<i>Phalaris minor</i> Retz. (Poaceae)	Spinbambal	Whole plant	A good fodder.
16	<i>Phleum himalaicum</i> Mez. (Poaceae)	Nari spinbambal	Whole plant	Fodder
17	<i>Poa annua</i> L. (Poaceae)	Lashakai	Whole plant	Fodder and noxious weed.
18	<i>Polypogon monspeliensis</i> (L.) Desf. (Poaceae)	Wekhtawar spinbambal	Whole plant	A fodder, not very common.
19	<i>Rostraria cristata</i> (L.) Tzvelev (Poaceae)	Shinbambal	Whole plant	Fodder especially for grazing animals.
20	<i>Sorghum halipense</i> (L.) Pers. (Poaceae)	Dadam	Whole plant	Fodder for cattle, but young stage not recommended, can make the animals ill.
Dicotyledons				
21	<i>Amaranthus viridis</i> L. (Amaranthaceae)	Chalveri	Whole plant	The plant used is emollient, also used to relieve asthma and cough, fresh leaves used as vegetable (sag).
22	<i>Chenopodium album</i> L. (Amaranthaceae)	Larmi sarmi	Whole plant	Used as Anthelmintic, antiphlogistic, antirheumatic, contraceptive and laxative. Leaves are used as vegetable.
23	<i>Chenopodium murale</i> L. (Amaranthaceae)	Tor lami sarmi	Shoot	Expel parasitic worms, analgesic, antiasthmatic, stomachic and vermifuge. Leaves are used as vegetable.
24	<i>Chenopodium ambrosioides</i> L. (Amaranthaceae)	Shin larmi sarmi	Leaves	Expel parasitic worms, analgesic, antiasthmatic, stomachic and vermifuge. Leaves are used in other vegetables.
25	<i>Eryngium bierberstinianum</i> L. (Apiaceae)	Shin azghi	Whole plant	Various hybrids are ornamental, diaphoretic, diuretic, aromatic, and stimulant, expectorant.
26	<i>Scandix pecten-veneris</i> L. (Apiaceae)	Mangaz	Whole plant	Ornamental, young top leaves used as vegetable or Salad, pot herb, constipation and flu, fodder.
27	<i>Torilis leptophylla</i> (L.) Rchb.f. (Apiaceae)	Gazar jeshi	Whole plant	Antioxidant, antiseptic and fodder when young.
28	<i>Ageratum conyzoides</i> L. (Asteraceae)	Odiguli	Whole plant	Antidysenteric, insecticide, nematicide
29	<i>Artemisia vulgaris</i> L. (Asteraceae)	Tarkha	Root and leaves	Relieve fever, stimulant to facilitate respiration, purgative, relieves ear pain
30	<i>Bidens tripartita</i> Linn. (Asteraceae)	Unknown Asteraceae	Whole plant	Staunch blood flow, often used to uterine, haemorrhage and conditions producing blood in urine, antiseptic.
31	<i>Cichorium intybus</i> Linn. (Asteraceae)	Kashni	Whole plant	Fodder, usually grow wild in the fields of <i>Trifolium</i> .
32	<i>Conyza canadensis</i> (L.) Cronquist. (Asteraceae)	Narai joka	Whole plant	Fodder, the plant is slightly tonic, active diuretic, astringent, nephritic infections.
33	<i>Conyza sumatrensis</i> (S.F.Blake) pruski & G.Sancho (Asteraceae)	Ghata joka	Whole plant	Fodder for goats and sheep when young, parts used to relieve headache, rheumatism, also act as post-partum protective medicine. Also used as hay fuel.
34	<i>Cousinia prolifera</i> Jaub. and Spach (Asteraceae)	Unknown	Whole plant	Effective against skin infections, dropped into the ear to relieve earache, analgesic for a variety of painful conditions, a cup of tea made in the dry parts may be used daily for this purpose.
35	<i>Calendula arvensis</i> L. (Asteraceae)	Surguli	Whole plant	A very common fodder of winter season. Leaves are diaphoretic, flowers antispasmodic, stimulant; all parts have similar therapeutic properties.
36	<i>Cnicus benedictus</i> Linn. (Asteraceae)	Wekhtawara kariza	Whole plant	Diuretic, diaphoretic, emetic, tonic, appetizer, vermifuge.
37	<i>Crepis sancta</i> (L.) Babc. (Asteraceae)	Zyarguli	Whole plant	Decoction is prepared to cure Constipation. Diuretic, young leaves used as salad.
38	<i>Crepis thomsonii</i> Babc. (Asteraceae)	Ghanawar Paiwarki	Whole plant	Appetizer, astringent
39	<i>Carthamus lanatus</i> L. (Asteraceae)	Dreri	Whole plant	Analgesic, antibacterial, antiphlogestic, febrifuge, sedative, vermifuge.
40	<i>Carthamus oxicantha</i> M.B.Bieb. (Asteraceae)	Kariza	Whole plant	Diuretic, flower decoction is anthelmintic for children; seed oil is useful in bad ulcers, itch, joint

S/NO	Botanical name	Local name	Part used	Uses (Therapeutic, vegetable, fodder, ornamental etc.)
Monocotyledons				
				pains, liver diseases, and fodder in young stage.
41	<i>Centaurea iberica</i> Trevir.ex Spring (Asteraceae)	Spin azghi	Whole plant	Used to relieve rheumatoid arthritis, high fever, and headache.
42	<i>Cirsium arvense</i> (L.) Scop. (Asteraceae)	Tora kariza	Whole plant	Used as tonic, diuretic and astringent.
43	<i>Echinops echinatus</i> Roxb. (Asteraceae)	Ghanawara kariza	Whole plant	Root powder is used to heal wounds, kill maggots; the same powder is also used as antilice.
44	<i>Gamochaeta pensylvanica</i> (Willd.) Cabera (Asteraceae)	Khar guli	Whole plant	Used to cure parkinsonism, ophthalmic diseases, also used as detergent.
45	<i>Lactuca dissecta</i> D. Don 1825 (Asteraceae)	Gur Paiwarki	Whole plant	Used as Anodyne, antispasmodic, digestive, diuretic, hypnotic, narcotic and sedative.
46	<i>Lactuca serriola</i> L. (Asteraceae)	Unknown	Whole plant	Cooling agent, sedative, diaphoretic, and diuretic, antiseptic, expectorant is helpful in respiratory problems.
47	<i>Launaea procumbens</i> (Roxb.) Ramayya and Rajagopal (Asteraceae)	Prot Paiwarki	Whole plant	Applied externally to cure skin diseases.
48	<i>Parthenium hysterophorus</i> L. (Asteraceae)	Khar boti	Whole plant	Used to cure fever, diarrhea and neurological disorders, also used as fuel.
49	<i>Pentanema divaricatum</i> Cass. (Asteraceae)	Babona	Whole plant	Stimulate the onset of menstruation, used to cure neuromuscular problems.
50	<i>Saussurea heteromalla</i> (D. Don) Hand-Mazz. (Asteraceae)	Klak paiwarki	Whole plant	Various varieties are grown as ornamental plants.
51	<i>Silimum marianum</i> (L.) Gaertn. (Asteraceae)	Kaparkanda	Whole plant	Used to cure diabetes in combination with standard treatment.
52	<i>Sonchus asper</i> (L.) Hill (Asteraceae)	Paiwarki	Whole plant	The plant is pounded and applied as a poultice to wounds and boil. Latex is applied to warts.
53	<i>Sonchus oleraceus</i> (L.) L (Asteraceae)	Paiwarki	Whole plant	Healing ulcers, sedative, tonic.
54	<i>Taraxacum officinale</i> (L.) Weber ex F.H.Wigg. (Asteraceae)	Shoda pai	Root and flowers	High blood pressure, heart weakness, chronic joint, skin complaints, gout
55	<i>Xanthium strumarium</i> L. (Asteraceae)	Jeshi	Whole plant	Anodyne, antirheumatic, appetizer, diaphoretic, diuretic, laxative, sedative.
56	<i>Anchusa arvensis</i> (L.) M. Bieb. (Boraginaceae)	Unknown	Whole plant	Antitussive, diaphoretic, diuretic.
57	<i>Buglossoides arvensis</i> (L.) I.M.Johnst. (Boraginaceae)	Lakhtai	Whole plant	Pregnancy, lactation, menstrual problems.
58	<i>Heliotropium europium</i> L. (Boraginaceae)			Abcess , arthritis, antiseptic,
59	<i>Nonea echioides</i> (L.) Roem. & Schult. (Boraginaceae)	Spinguli	Whole plant	Used to cure Anxiety, diarrhea, heart burn, indigestion, liver disease, loss of appetite and constipation.
60	<i>Trichodesma indicum</i> (Linn.) R. Br. (Boraginaceae)	Unknown	Root	Anodyne, antianflammatory, carminative and ophthalmic.
61	<i>Arabidopsis thaliana</i> (L.) Heynh. (Brassicaceae)	Unknown	Shoot	Effective against all types of viral diseases.
62	<i>Capsilla bursa-pestoris</i> (L) Medik. (Brassicaceae)	Batwaboti	Seeds	Useful against varicose veins and hemorrhoids.
63	<i>Cardaria chilepensis</i> (L.) Hand. Mazz. (Brassicaceae)	Khog paiwarki	Whole plant	Carminative, depurative and diuretic. A good fodder for cattle but not very common.
64	<i>Cardamine hirsuta</i> L. (Brassicaceae)	Narai talmira	Whole plant	Used against various diseases and disorders, like liver diseases and loss of appetite.
65	<i>Descurainia sophia</i> (L.) Webb ex Prantl (Brassicaceae)	Unknown	Flower seeds and	Emollient, laxative and sedative.
66	<i>Lipidium didimum</i> L. (Brassicaceae)	Skha boti	Whole plant	Antiscorbutic, digestive, expectorant and ferifuge.
67	<i>Malcolmia africana</i> (L.) W.T. Aiton (Brassicaceae)	Pyazi guli	Whole plant	Useful against eczema and viral infections.
68	<i>Nasturtium officinale</i> W.T. Aiton (Brassicaceae)	Talmira	Shoot	Leaves are cooked as vegetable, also a good fodder for sheep and camels.
69	<i>Neslia apiculata</i> Fisch., C.A.Mey. & Ave.Lall (Brassicaceae)	Ori	Whole plant	Effective in sexually transmitted diseases.
70	<i>Sisymbrium irio</i> L. (Brassicaceae)	Natroshi	Leaves and seeds	Leaves are eaten raw with bread. Relieves backache, reduce cholesterol and prevent cramps.
71	<i>Sisymbrium officinale</i> (L.) Scop. (Brassicaceae)	Sharsham plar	Seeds, young shoots and leaves	Used to cure common cold, gall bladder ailments, jaundice, sciatica and ulcers. Young shoots are cooked as vegetable.
72	<i>Sisymbrium orientale</i> L.	Unknown	Seeds	Expectorant, restorative and stimulant.

S/NO	Botanical name	Local name	Part used	Uses (Therapeutic, vegetable, fodder, ornamental etc.)
Monocotyledons				
	(Brassicaceae)			
73	<i>Cannabis sativa</i> L. (Canabaceae)	Bhang	Whole plant	Narcotic, antiseptic, analgesic, antiemetic, neuroprotective, antianflammatory, effective against certain ecological disorders.
74	<i>Arenaria serphyllifolia</i> Bourg. Ex Willk & Lange (Caryophyllaceae)	Jalai	Whole plant	A casual fodder for grazing cattle. Antitussive and diuretic.
75	<i>Cerastium dichotomum</i> L. (Caryophyllaceae)	Torpanji	Whole plant	A good fodder, used to cure colds, dyspepsia.
76	<i>Silene conoidia</i> L. (Caryophyllaceae)	Mangoti	Whole plant	A good fodder but less common. Immature seeds are eaten raw.
77	<i>Spargula arvensis</i> L. (Caryophyllaceae)	Ghwar wakha	Whole plant	Fodder, also used as diuretic.
78	<i>Stellaria media</i> (L.) Vill. (Caryophyllaceae)	Olalai	Whole plant	A common fodder of winter, mostly in shady places.
79	<i>Vaccaria hispanica</i> (Mill.) Rauschert (Caryophyllaceae)	Nari mangoti	Whole plant	Used to cure blood disorders, arthritis and breast diseases.
80	<i>Convolvulus arvensis</i> L. (Convulvulaceae)	Prewati	Leaves	Fodder and medicinal, used to reduce profuse menstruation, leaves are laxative.
81	<i>Chrozophora tinctoria</i> (L.) Raf. (Euphorbiaceae)	Spinboti	Whole plant	Poisonous
82	<i>Euphorbia helioscopia</i> L. (Euphorbiaceae)	Piryandolai	Whole plant	Poisonous
83	<i>Euphorbia granulata</i> Forssk. (Euphorbiaceae)	Nari warkhari	Whole plant	Laxative and to control dysentery.
85	<i>Euphorbia pepus</i> L. (Euphorbiaceae)	Piryan boti	Whole plant	Poisonous
86	<i>Lathyrus aphaca</i> L. (Fabaceae)	Ghata chilo	Whole plant	A good fodder.
87	<i>Lathyrus sativus</i> L. (Fabaceae)	Chilo	Whole plant	A good fodder.
88	<i>Lathyrus sphaericus</i> Retz. (Fabaceae)	Karakin chilo	Whole plant	A good fodder but not very common.
89	<i>Lotus corniculatus</i> L. (Fabaceae)	Unknown	Whole plant	Fodder but not very common.
90	<i>Medicago minima</i> L. (Fabaceae)	Nari shpeshti	Whole plant	Fodder, sometimes cause abdominal and digestive disorders in the cattle.
91	<i>Medicago polymorpha</i> (L.) L. (Fabaceae)	Shpeshti	Whole plant	Fodder, Vegetable, not recommended for cattle at young stage.
92	<i>Melilotus indicus</i> L. ALL (Fabaceae)	Lewanai	Whole plant	Fodder, infantile diarrhea, discutient, emollient and strongly laxative
93	<i>Trifolium repens</i> L. (Fabaceae)	Shotal	Whole plant	Vegetable, Fodder, antirhumatic and depurative.
94	<i>Trigonella incisa</i> Hornemann ex Fischer & Meyer (Fabaceae)	Phalidar shpeshti	Whole plant	Mainly used as fodder, carminative, demulcent, antitumor and carminative.
95	<i>Vicia hirsuta</i> (L.) Grey (Fabaceae)	Narai chilo	Whole plant	Mainly used as fodder. Used for diarrhea and constipation.
96	<i>Vicia sativa</i> L. (Fabaceae)	Chilo	Whole plant	Mainly used as fodder.
97	<i>Fumaria indica</i> Pugsley (Fumariaceae)	Papra	Whole plant	Commonly used as fodder. Also used to cure constipation, helps in fluid retention and heat problems.
98	<i>Centaurium tenuiflorum</i> (Hoffmannsegg & Link) Fritsch (Gentianaceae)	Unknown	Whole plant	Bloating, dyspepsia, flatulence and anorexia.
99	<i>Geranium collinum</i> Stephan ex Willdenow (Geraniaceae)	Panerakboti	Whole plant	Antiseptic, eczema, also used against nail fungus.
100	<i>Geranium rotandifolium</i> L. (Geraniaceae)	Paneraki	Whole plant	Astringent and diuretic.
101	<i>Ajuga bractiosa</i> Wall ex Benth. (Lamiaceae)	Unknown	Whole plant	Aromatic, astringent and tonic.
102	<i>Lamium amplexicaul</i> L. (Lamiaceae)	Pyarma	Whole plant	Antirhumatic, diaphoretic, febrifuge and laxative.
103	<i>Mentha longifolia</i> (L.) L. (Lamiaceae)	Welani	Whole plant	Leaves are used as salad. Used in gastrointestinal disorders, especially in dysentery and diarrhea, carminative, antiseptic, antiasthmatic and stimulant.
104	<i>Salvia egyptiaca</i> L. (Lamiaceae)	Gowamli	seeds	Seeds are Used in drinks as cooling usually made in "gurh". Also to cure diarrhea and gonorrhoea and haemorrhoids.
105	<i>Salvia marcroftiana</i> Wall. ex Benth. (Lamiaceae)	Khar ghwaq	Whole plant	Dysentery, haemorrhoids and colic.
106	<i>Malva neglecta</i> Wallr.	Panirak	Leaves	and Astringent, laxative and urine inducing medicine.

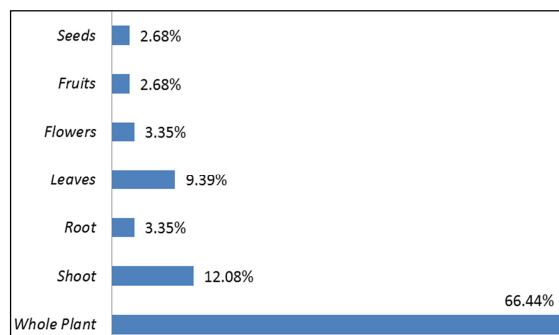
S/NO	Botanical name	Local name	Part used	Uses (Therapeutic, vegetable, fodder, ornamental etc.)
Monocotyledons				
	(Malvaceae)		seeds	
107	<i>Boerhavia procumbens</i> Banks ex Roxb. (Nectaginaceae)	Insat	Leaves	Immunostimulatory, immunosuppressive and anticancer.
108	<i>Oenothera rosea</i> L'Hér. ex Aiton (Onagraceae)	Unknown	Whole plant	Skin diseases and perfumes.
109	<i>Oxalis corniculata</i> L. (Oxaladaceae)	Taroki	Whole plant	Used as antihelmintic, astringent, antiscorbutic, diuretic, stomachic, febrifuge and styptic.
110	<i>Oxalis pescaprea</i> L. (Oxaladaceae)	Dak taroki	Whole plant	Used to cure stomach problems. h
111	<i>Misopates orontium</i> (L.) Raf. (Plantaginaceae)	Bandaki	Seeds	A good fodder of winter. Also a stimulant.
112	<i>Plantago lanceolata</i> L. (Plantaginaceae)	Unknown	Seeds and leaves	Effective against respiratory tract, skin, insect bites and infections.
113	<i>Veronica anagallis- Aquatica</i> L. (Plantaginaceae)	Yakh boti	Leaves and seeds	Alterative, antiscorbutic, appetizer, diuretic and poultice.
114	<i>Veronica persica</i> Poir. (Plantaginaceae)	Charkulma	Whole plant	Diuretic, expectorant, stomachic and tonic.
115	<i>Hypercium pendulum</i> L. (Papeveraceae)	Phalidara papra	Whole plant	Used as antiseptic, astringent and tonic expectorant.
116	<i>Papaver hybridum</i> L. (Papeveraceae)	Navi	Leaves and flowers	Various hybrids are ornamental, sedative analgesic and antitussive.
117	<i>Polygonum plebeium</i> R.Br. (Polygonaceae).	Machichki	Whole plant	Used in bowel complaints and ophthalmic treatments of birds.
118	<i>Persicaria glabra</i> (Willd.) M. Gomes	Tor palpolak	Leaves	Diarrhea, astringent and styptic.
119	<i>Persicaria hydropiper</i> (Linn.) Spach	Palpolak	Leaves	Stimulant, diaphoretic, diuretic and emmenagogue.
120	<i>Emix spinosa</i> (L.) Campd. (Polygonaceae)	Markundai	Whole plant	Relieve stomach and colic disorders.
121	<i>Rumix chalepensis</i> Mill. (Polygonaceae)	Shalkhi	Leaves and seeds	Leaves are used as vegetable.
122	<i>Rumix dentatus</i> L. (Polygonaceae)	Shalkhi	Leaves and seeds	Leaves are used as vegetable.
123	<i>Rumix vesicarius</i> L. (Polygonaceae)	Sur shalkhi	Leaves and flowers	Aperient, astringent, diuretic, cooling.
124	<i>Anagallis arvensis</i> L. (Primulaceae)	Chakstargi	Whole plant	A common fodder of winter season. Used to cure epilepsy and rabies.
125	<i>Ranunculus arvensis</i> L. (Ranunculaceae)	Nari chaghachagh	Whole plant	Poisonous
126	<i>Ranunculus scleratus</i> L. (Ranunculaceae)	Ghund chaghachagh	Whole plant	Poisonous
127	<i>Ranunculus muricatus</i> L. (Ranunculaceae)	Chaghachagh	Whole plant	Poisonous,
128	<i>Ranunculus laetus</i> Wall.ex Hook.f.& J.W.Thomson (Ranunculaceae)	Randa panra	Whole plant	Used to cure backache.
129	<i>Gallium aparine</i> L. (Rubiaceae)	Zag	Whole plant	Diuretic, tonic, alterative, aperient.
130	<i>Mazus pumilus</i> (Burm.f.) Steenis (Scrophulariaceae)	Stori	Whole plant	It is aperient, emmenagogue, febrifuge and tonic, alterative.
131	<i>Mesopates orontium</i> (L.) Raf. (Scrophulariaceae)	Bandaki	Seeds	Used in the treatment of tumors and ulcers.
132	<i>Verbascum Thapsus</i> L. (Scrophulariaceae)	Khargad	Leaves, fruits and seeds	Respiratory problems, chest colds, bronchitis, asthma and irritated membranes.
133	<i>Solanum nigrum</i> L. (Solanaceae)	Kachmachoo	Shoot, leaves and seeds	Measles, cardiac pain, blood purifier, chronic fever, arthritis, antipyretic property.
134	<i>Solanum surattense</i> Burm.f. (Solanaceae)	Maraghoni	Whole plant	Cough, cold, asthma, respiratory tract conditions.
135	<i>Thymelaea passerina</i> (L.) Coss. & Germ. (Thymeleaceae)	Jarogai	Whole plant	Used for making brooms, cathartic, expectorant.
136	<i>Valerianella szovitsiana</i> Fisch. & Mey	Unknown	Whole plant	Fever, common cold, spring medicines.
137	<i>Verbena officinale</i> L. (Verbenaceae)	Shamaki	Whole plant	Used to treat fever and overanthsiasm, fuel and broom making
138	<i>Verbena tenuisecta</i> Briq. (Verbenaceae)	Gazar guli	Whole plant	Ornamental, also used to treat asthma, chest pain and whooping cough.



Fig A. A village dweller is harvesting *Parthenium hysterophorus* for fuel purpose. **Fig B.** Dry stock of *Parthenium hysterophorus*.

Eleven weed species (7.97%) were used as vegetables or salad. The vegetable are collected by young boys and girls and are cooked in the homes for their own use. The species used as vegetable were *Amaranthus viridis*, *Chenopodium album*, *Chenopodium murale*, *Chenopodium ambrosioides*, *Allium grifithianum*, *Malcolmia Africana*, *Nasturtium officinale*,

Sisymbrium irio, *Sisymbrium officinale*, *Trifolium repens*, *Malva neglecta*, *Rumex chalepensis*, *Rumex dentatus* and *Solanum nigrum*. In most cases these were fresh leaves or young shoots used as vegetable (sag) or salad. The information was in accordance with findings of Sher *et al.*, (2014), Sher (2003) and Gilani *et al.*, (2003). *Scandix pecten-veneris*, *Tulipa stellata*, *Papaver hybridum*, *Rumex vesicarius*, *Verbena tenuisecta* and *Allium grifithianum*, were some of the weeds (4.34%) with ornamental values and can be used for commercial purposes. Similar findings were also reported by Sher *et al.*, (2014). Six weeds species were found poisonous to man and livestock. These species were *Chrozophora tinctoria*, *Euphorbia helioscopia*, *Euphorbia peplus*, *Ranunculus arvensis*, *Ranunculus muricatus* and *Ranunculus scleratus*. These are the species which can be used in pharmaceuticals as a source of medicines. Some species have got miscellaneous uses. *Gamochaeta pensylvanica* was noted to be used for washing while *Scilla grifithi* as a source of perfume. Two species, *Thymelea passerina* and *Verbena officinale* were used for making brooms while, *Desmostachya bipinnata* is used for making ropes and baskets (Murad *et al.*, 2012).



Graph 2. Parts used (%) of weed species of wheat crop in the area.

Today the wild plant species in the area poses a great threat due to heavy biotic pressure. It has been found that over grazing, deforestation, uprooting and utilization of medicinal plants in an unplanned manner, population increase are some of the factors responsible for natural habitat loss and soil erosion (Iqbal *et al.*, 2011, Sher *et al.*, 2014). Weeds are considered undesirable plants and that's why they eradicated by hoeing, plowing and herbicides.

Agricultural communities promote the cultivation of desirable species while destroying or ignoring others, which they find undesirable. Infract they want to bring more and more land under cultivation to meet the demands of fast growing population, which has resulted in habitat degradation of plant diversity (Hameed *et al.*, 2011).

It is a matter of fact that allopathic drugs have brought revolution in the field of medicines, but they have serious side effects (Kala *et al.*, 2005) as compared to minimal side effects of herbal medicines (Haq, 2004; agarwal, 2005; Samy *et al.*, 2008; verma and Singh 2008; Kavishankar *et al.*, 2011). That's why the popularity of herbal medicines is growing even in developed countries (Hameed *et al.*, 2011). In the research also a large number of peoples still rely on traditional uses of plants due to poverty. Anyhow, the utilization of these herbs is on experimental know-how, the scientific study of these drugs is intensely needed to promote their efficiency for further use.

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