

MEDICINAL DIVERSITY OF WEEDS IN THE HISTORICAL VALLEY OF LANDIKOTAL, KHYBER AGENCY, PAKISTAN

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ABSTRACT

In this instant research, some 31 taxa of weeds belonging to 30 genera and 18 families were evaluated for their local and medicinal uses. Asteraceae was represented by eight species (26.66%) followed by Poaceae and Polygonaceae with three (10%) species each. Caryophyllaceae and Euphorbiaceae were presented by two (6.6%) species each while the remaining families i.e. Apiaceae, Cannabaceae, Chenopodiaceae, Convolvulaceae, Cyperaceae, Fumariaceae, Malvaceae, Oxalidaceae, Papilionaceae, Plantaginaceae, Primulaceae, Ranunculaceae and Zygophyllaceae by one (3.3%) species each. Forty (40) informants belonging to different age groups and tribes were interviewed randomly for documentation of diverse information regarding the weed species. These species are used for various purposes including vegetable five (16.6%), pot herb two (6.6%), skin diseases three (10.0%), fodder three (10%), ornamental two (6.6%), increase lactation two (6.6%), fever four (13.3%), diarrhea two (6.6%), neurological disorders one (3.3%), urinary tract one (3.3%), dysentery two (6.6%), malaria two (6.6%), diuretic eight (26.6%), blood purifier one (3.3%), toothache one (3.3%), jaundice three (10.0%), constipation two (6.6%), narcotic one (3.3%), healing wounds two (6.6%), ulcer one (3.3%), boils one (3.3%), abdominal pain two (6.6%), laxative four (13.3%), stomach problem three (10%), stimulant two (6.6%) and one species was used in hypertension (3.3%). It is concluded from the present research that further studies are required for the proper management and utilization of weed species and documentation of indigenous and ecological knowledge regarding the weed flora of the area.

Key words: Ethnobotanical uses, indigenous knowledge, Landi Kotal, traditional use.

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INTRODUCTION

Weeds are the undesirable plants and grow there where they are not wanted. They have very negative effect on agricultural crops. However, not all weeds are unwanted like in range land areas many annual grasses considered as weeds in crop fields are useful as animal food. They also serve as food and shelter for wildlife, reduce soil erosion as a good soil binder and are also used as medicines and food. During the present research it was found that the area is rich in indigenous and ecological knowledge associated with weeds but still there is large number of weeds without any utility. Some workers have carried out studies on useful aspects of weeds including Razzaq *et al.* (2013), Ullah and Rashid (2007) and Ahmad *et al.* (2006) who reported the ethnobotanical information of 15 common weeds in District Attock. Similarly, Islam *et al.* (2006) also reported the ethnobotanical study of common weeds of Shawar valley, District Swat.

Ibrar *et al.* (2003) studied 36 weeds from District Abbottabad out of which 35 weeds were used by the local people for the treatment various ailments. A similar study has been conducted on the local uses of weeds at district Bannu growing in sugarcane fields. They collected a total of 73 weeds species used locally by the people of the Area for different ailments and diseases.

In Pakistan due to weeds the annual losses recorded in the crops of maize and rice are 6.3 and 4.9 billion respectively (Hassan and Marwat, 2001). To meet with this problem to some extent, it is suggested to explore the medicinal utility and biological control of these weeds instead of eradicating them. Although weeds have negative impact on crops through competition and allelopathy, most of the weeds also have positive uses like food, fodder, medicinal and fuel.

Khyber agency is lies on $33^{\circ} 45'$ to $34^{\circ} 20'$ N latitudes and $70^{\circ} 27'$ to $71^{\circ} 32'$ E longitudes. The Khyber Agency is covering an area of 2576 km² with a population of about 5 lacs and is divided into three sub-valleys including Bara, Jamrud and Landi Kotal. A major part of this Agency however is composed of the closed and inaccessible area of Tirah, Bazar and Chora. Peshawar District is situated to the east, Afghanistan and Kurram Agency to the west, Mohmand Agency to north and Tribal areas of Kohat and Orakzai Agency to the south of Khyber Agency (Fig. 1). The highest peak of the mountain in the western side of Khyber Agency is 1029 m with 509 m at its eastern side. Landi Kotal is located in North West of Khyber Agency. Landi Kotal comprises of cultivable and fertile land and different crops are cultivated in i. e. wheat, maize, tomato and different vegetables.

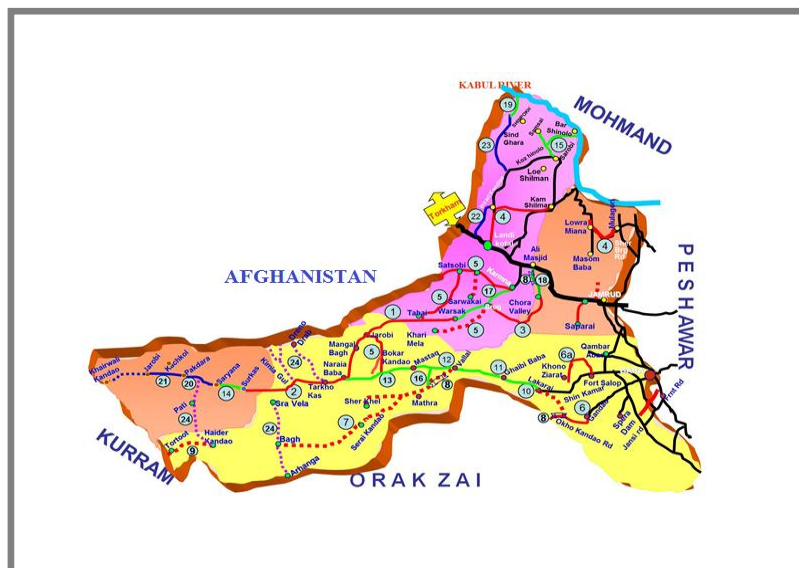


Figure 1. Map of Landi Kotal valley, Khyber agency, Pakistan

MATERIALS AND METHODS

Field studies were conducted throughout the research area during 2012-13 to record the ethnobotanical uses and ecological data of common weeds growing in the valley. Plant species were collected, dried, pressed and mounted on herbarium sheets. A Questionnaire was designed to record the ethnobotanical and medicinal uses of weeds. Different people, belonging to various age groups i.e. (30-40, 40-50, 50-60 and above 60 years) and different walks of life were interviewed through questionnaire regarding the local name, part used, ethnobotanical and medicinal uses of the weeds. Identification and nomenclature was carried out by consulting the available literature including Ali and Qaiser (1993-2012), Ali and Nasir (1991-1993) and Nasir and Ali (1970-1989), and Herbarium specimens. The dried specimens were mounted on Herbarium sheets and the vouchers specimens were deposited in the Herbarium of Botanical Garden/Centre of Plant Biodiversity (UPBG).

RESULTS AND DISCUSSION

The present day medicinal plants utilization is originated from Greek system of medicine. The Arabs were first adopted this system and then it was came under practice by the European and the people of subcontinent (Iqbal and Hamayun, 2004). The local inhabitants living in the far flung areas of developing countries usually prefers

traditional medicine system and the practice of the local remedies is very common due to its least cost and side effects (Khan, 2003). It is presumed that this may be a reason for extensive uses of local medicines in less develop countries of the world.

This research work was initiated to get information and document the ethnobotanical and ecological knowledge of medicinal weeds growing in Landi Kotal valley. The present study investigate that a total of 30 common weeds are being used by the people of the area for various medicinal and other ethnobotanical uses. Among these, as vegetable (five species); pot-herb (two species); skin diseases (three species); fodder (three species); ornamental (two species); increase lactation in new mothers (two species); fever (four species); diarrhea (three species); neurological disorders (one species); urinary tract (one species); dysentery (two species); malaria (two species); diuretic (eight species); blood purifier (one species); toothache (one species); jaundice (three species); constipation (two species); narcotic (one species); healing wounds (two species); ulcer (one species); boils (one species); abdominal pain (two species); menstruation (one species); laxative (four species); stomach problem (three species); stimulant (two species) and hypertension (one species); the details have been shown in Table-1 and Fig. 2). Further more detail studies are required to record the traditional and ecological knowledge about the uses of weeds for various diseases and ailments. The area is rich in plant Biodiversity which need to be thoroughly explored to make sure its sustainable utilization for the welfare of human being.

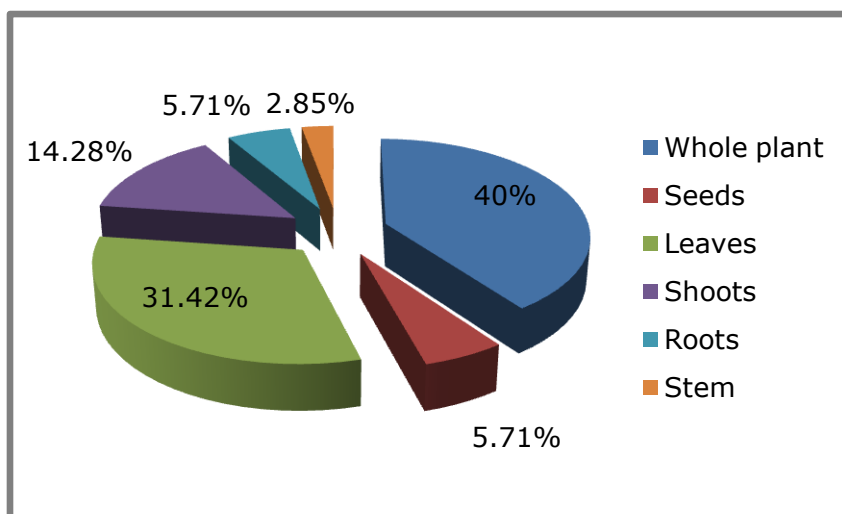


Figure 2. Showing %age of various parts used of weeds species

CONCLUSION

It is concluded from the present studies that although the weeds are considered to be undesirable and unwanted plants but proper weed management practices and utilization can highlight their positive role as well. In developing countries of the world like Pakistan, the people residing in the rural and far flung areas still rely upon the traditional uses of plants for various purposes including medicine, feeding their cattle and other miscellaneous usage. During the present studies, 30 common weeds species were reportedly used by the local people for various purposes. These weeds were used as vegetable, fodder and ornamental. While some species are used for medicinal purposes i.e. fever, diarrhea, dysentery, diuretic, blood purifier, jaundice, constipation, stomach problem and as stimulant. Therefore, weeds can be utilized for various purposes by tracing the indigenous knowledge and ecological information available with the local inhabitants. It will not only help in proper planning for weed management studies and its biological control, but may also play a vital role in the economy and yield increase of various cereal crops.

Table-1. Family and botanical names, life forms, local names, parts used and local uses of various weeds growing in Landi Kotal valley, Khyber agency Pakistan

S#	Family	Botanical name	Life form	Local name	Part used	Folk uses
1.	Apiaceae	<i>Scandix pectin-veneris</i> L.	Th.	Kali ziri	Whole plant	Eaten raw or cooked. Also used as pot-herb for flavoring.
2.	Asteraceae	<i>Artemisia vulgaris</i> L.	Ch.	Tarkha	Leaves/shoots	Skin diseases, fodder and ornamental.
		<i>Cirsium arvense</i> (L.) Scop.	Th.	Kareza	Shoots	Used as fodder only
		<i>Lactuca serriola</i> L.	Th.	Unknown	Leaves	Tea made from leaves (One tea cup daily for 5 days) is given to new mothers to hasten milk flow.
		<i>Parthenium hysterophorus</i> L.	Th.	Zangaley Tarkha	Whole plant	Decoction is used for urine infection, fever, in nervous problems, in treatment of diarrhea, malaria and dysentery. Also used for heart problems, in rheumatism, cold, herpes, rashes of skin, eczema and inflammation.
		<i>Sonchus asper</i> (L.) Hill, Herb.	Th.	Kandiali	Whole plant	It is tonic, diuretic, febrifuge, cooling agent, laxative and the infusion is used as a drink.
		<i>Sonchus oleracea</i> L.	Th.	Unknown	Leaves/stem/roots/juice	It is used as diuretic, purify blood, used in toothache and diarrhea.
		<i>Taraxacum officinale</i> Weber	G	Ziar gulay	Flowers/shoots	It is used as a tonic, diuretic, in constipation and jaundice.
		<i>Xanthium strumarium</i> L.	Th.	Ghat ghiskay	Leaves	Leaves decoction is recommended in long-standing malarial fever.
3.	Cannabaceae	<i>Cannabis sativa</i> L.	Th.	Bhang	Whole plant	It is narcotic and used as Chars. It is also sedative, diuretic, stimulant, anodyne and

						anti lice.
4.	Caryophyllaceae	<i>Spergula arvensis</i> L.	Th.	Kallri booti	Leaves/seeds	Leaves and young plants are edible. Medicinally it is diuretic.
		<i>Stellaria media</i> (L.) Vill.	Th.	Pullan booti	Whole plant	It is used as a healer, in itching, as alterative, in rheumatism, ulcer, eczema, in abscess and in boils.
5.	Chenopodiaceae	<i>Chenopodium murale</i> L.	Th.	Tor surma	Whole plant	Used as pot herb. Especially used for abdominal pains, diuretic and considered as anthelmintic.
6.	Convolvulaceae	<i>Convolvulus arvensis</i> L.	Th.	Prewata	Leaves/roots	Fresh fodder, purgative and skin disorders.
	Cyperaceae	<i>Cyperus rotundus</i> L.	Th.	Delloca	Whole plant	The rhizome gives positive result in the treatment of menstruation, vomiting and diarrhea.
7.	Euphorbiaceae	<i>Euphorbia helioscopia</i> L.	Th.	Mandaro	Whole plant	Poisonous and laxative.
8.	Fumariaceae	<i>Fumaria indica</i> L.	Th.	Shahtra	Whole plant	Used as stomachache, in itching, fever, as blood purifier, cooling agent, in jaundice and in eye infection.
9.	Malvaceae	<i>Malva neglecta</i> Wallr.	Th.	Pandirak	Whole plant	Pot-herb, ornamental. Leaf decoction is antispasmodic
10.	Oxalidaceae	<i>Oxalis corniculata</i> L.	Th.	Zmak taroke	Whole plant	Anti bleeding in wound, stomachache, cooling agent, refrigerant and vermifuge.
11.	Papilionaceae	<i>Medicago denticulata</i> L.	H	Spashtay	Seeds/oil	It is used as antispasmodic, in constipation, emollient, laxative, it is used as nutritive.
12.	Scrophulariaceae	<i>Veronica anagallis-aquatica</i> L.	Th.	Sheen gulay	Leaves	Leaves are eaten raw or cooked to treat respiratory tract.
13.	Poaceae	<i>Avena sativa</i> L.	Th.	Jamdar	Leaves/seeds	It is used as laxative, stimulant and

					eds	nerve tonic.
		<i>Cynodon dactylon</i> (L.) Pers.	H	Kabal	Shoots/leaves	Used in jaundice, dysentery and as aphrodisiac.
		<i>Eleusine indica</i> (L.) Gaertn.	Th.	Unkown	Whole plant	It is used in hypertension, as diuretic and stomachache.
14.	Polygonaceae	<i>Emex australis</i> Steinh.	Th.	Unkown	Leaves	Used as laxative.
		<i>Polygonum plebejum</i> R. Br.	Th.	Adranak	Whole plant	Eaten as vegetable for curing digestive problems
		<i>Rumex hastatus</i> D. Don.	G	Tarokay	Leaves/shoots	The leaves and shoots are carminative, astringent and diuretic. It is also used as coolant, while the powdered roots are useful for abdominal pain.
15.	Primulaceae	<i>Anagallis arvensis</i> L.	Th.	Neeli booti	Whole plant	It is used as diuretic, in fever, expectorant, anti-depressant, liver problems, tuberculosis, dropsy, rheumatism and epilepsy.
16.	Ranunculaceae	<i>Ranunculus muricatus</i> L.	Th.	Barea	Whole plant	The paste of whole plant is applied to the skin till recovery for the treatment of Eczema locally called as Chambal.
17.	Zygophyllaceae	<i>Tribulus terrestris</i> L.	H	Markonday	Seeds	Whole plant is dried and powder is prepared. One spoon is taken with milk for infertility and increasing lactation.

Key: Life-form classes: Th = Therophytes, H = Hemicryptophytes, G = Geophytes, Hyd = Hydrophytes, C = Climber

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