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WEEDS AND LIVELIHOOD IN MANKIAL VALLEY, HINDUKUSH RANGE, PAKISTAN

Asad Ullah[1] and Abdur Rashid

ABSTRACT

An important step in the livelihood planning and improvement of the locals in an extremely isolated far-flung area of Mankial Valley of district Swat which is entirely dependent upon plant natural resources was investigated. Diverse age groups ranging from 25-120 years were interviewed about the role of common weed species growing wild in their crop fields in the study area. Twenty three weed species of ethno medicinal importance were collected from different crops i.e. maize, turnip, potato, cabbages and tomatoes. Out of the twenty three species, eleven (47.82%) were used as fodder, six (26.08%) as pot-herb, two (8.69%) each as purgative, diuretic, antiseptic, carminative, healing wounds, athlete's foot, and one (4.34%) each as flatulence, stimulant, antirheumatic, emollient, refrigerant, skin healer, liver, lungs disease and as stomacnache. However, due to the rapid increase in population of the valley and to meet the growing demand for more food, the people use different herbicides for the removal of these weeds from their crop fields. Instead of the use of hazardous herbicides, proper weed management is proposed for the sustainability of ecosystem, conservation of plant natural resources and preservation of the indigenous knowledge of the local communities of this remote area of the country for the upcoming generations.

Key words: District Swat, ethnomedicinal uses, pot herb.

INTRODUCTION

Mankial valley is situated in Upper Swat and is lying at 35°, 12′, 24.1″ N to 72°, 32′, 15.1″ E. On the revenue Index map of Swat District, the area is traced on Mozas (Settlement units) bearing S. No. 18 & 19 (Bhadai and Mankial) with the landholdings of 20620 and 11658 acres, respectively. The area has a very steep relief in a couple of Kilometers and varies from 1430 m at Mankial to 5726 m at Koohe Shaheen. The area represents a mountainous terrain of the high-glaciated peaks, perennial snowfields, glaciers, falls,

[1] Centre of Plant Biodiversity, University of Peshawar, Pakistan.

pastures, river, stream and intact forests. Physically the area can be divided into the mountains, valleys, pastures and dendrotic drainage network of the river Mankial. Generally weed is an unwanted plant growing in the crops fields. Though, almost all weeds are responsible for lower productions of agricultural crops, some of them are used directly or indirectly by the locals for various purposes (Shinwari *et al.*, 2003; Ahmad and Sirajuddin, 1996; Din *et al.*, 2003; Muhammad *et al.*, 2003; Ullah and Rashid, 2004). While Naeem *et al.*, 2004; reported eleven weed species of Ethnobotanical importance from District Bannu. Similarly locals of the socio-economically backward area like Mankial are also dependent on weeds for their livelihood. The inhabitants of the valley fulfill their requirements of the day to day life by utilization of Plant Natural Resource. The present study will correlate the weed flora, livelihood improvement, sustainable utilization and conservation of the Plant Natural Resources of the valley.

MATERIALS AND METHODS

This study was conducted in summer 2004 by using questionnaire method (Martin, 2004) in five different localities viz. Mankial Bazar 1700 m; Mehnain 1730 m; Ghund Patai 1766 m; Bhadai Baba 1894 m; and Bhadai Patai 2075 m. Plants were collected from various agricultural crops pressed and documented in the field. Habit, habitat, altitude and other related information were noted (Table-1). Identification was carried out with the help of herbarium specimens of Peshawar University Herbarium (PUP) and the available literature (Stewart, 1972; Beg and Khan, 1977; Nasir and Ali, 1970-1989; Ali and Nasir, 1989-1991; Ali and Qaiser, 1993-2003). Voucher specimens were deposited in the University of Peshawar Herbarium (PUP).

RESULTS AND DISCUSSION

The results of the present study (Table-1) show that weeds found in Mankial Valley play an important role in the livelihood of the people in the valley. Twenty three different weeds were reported from the area belonging to twelve families. Out of these eleven plant species namely, *Amaranthus gracilis* Desf., *Amaranthus viridis* L., *Convolvulus arvensis* L., *Dactylis glomerata* L., *Digitaria ciliaris* (Retz.) Koel., *Eragrostis poaeoides* P.Beauv, *Pennisetum elatum* L., *Piptatherum gracilis* Mez., *Saccharum halepense* L., *Setaria glauca* (L.) P. Beauv. and *Sonchus asper* (L.) Hill. were used as fodder both in fresh and dry form. Most of the weeds have medicinal values and are locally used for various body disorders. The leaves of *Chenopodium botrys* are used for healing of wounds. *Convolvulus arvensis* L. is purgative and used in skin disorders. Extracts of the *Equisetum arvense* L. is mixed with oil (mustard oil) and is used as hair tonic and also used to kill lice. The seeds of *Lepidium sativum* L. are given orally as a decoction to all livestock to treat flatulence. Decoction of *Malva neglecta* Wallr. is antispasmodic. Powder of the

dry leaves of *Mentha longifolia* (L.) Huds. are used as stimulant and antirheumatic. Leaves of *Nepeta erecta* (Bth.) are used for curing cuttings and wounds. Dried powder of the leaves of *Plantago depressa* Willd. and *Plantago major* L. are used as antiseptic. Seeds are swallowed with water and used in diarrhea. Fresh leaves are crushed for athlete's foot. *Portulaca oleracea* L. is used as pot-herb, refrigerant and alternative. Also used for kidney, liver, urinary bladder and lung problems. *Rumex dentatus* L. is pot-herb, and is used as diuretic, astringent and demulcent. It soothes the irritation caused by *Urtica dioica* L. which grows in association with *Rumex dentatus* L. Roots are astringent. *Rumex hastatus* D. Don. is used as flavoring agent, carminative, purgative, astringent, diuretic and stomach cure. Some of the specimens are shown in Plates 1-4.

Though most of the weeds have some adverse effects on the crop plants, yet many of them are used by the farmers for various purposes in their routine life. It is foreseen that proper weeds management and sustainable utilization will improve the livelihood of the local inhabitants.

Plate No. 1 *Amaranthus viridis* L.

Plate No. 2 Collection in Progress

Plate No. 3 *Equisetum arvense* L.

Plate No. 4 *Portulaca oleracea* L.

Table-1. Diverse information of weed species regarding their botanical, local, Urdu and English names, family and ethnobotanical uses.

S.No.	Family/Botanical Name	Local, Urdu & English Names	Crop Field	Ethnobotanical Importance
1.	Amaranthaceae			Fodder and pot- herb
	i. *Amaranthus gracilis* Desf.	Gata Chalway, Ganher, Amaranth	Maize, potato	
	ii. *Amaranthus viridis* L.	Wara chalway, Ganher, Amaranth	Maize, potato	Pot-herb and emollient
2.	Asteraceae			
	i. *Sonchus asper* (L.) Hill.	Shodapai, Garwa, Sow thistle	Potato, tomato	Fresh plant is used as fodder for cattle.
3.	Brassicaceae			
	i. *Lepidium sativum* L.	Sharsham, Halim, Garden cress	Turnip, cabbage	The decoction seeds are given to live stock for flatulence treatment.
4.	Chenopodiaceae			
	i. *Chenopodium botrys* L.	Sakha booty, Sakha Kharawa, Jerualem	Maize, potato	The leaves are used for the healing of wounds, and discharge of pus.
	ii. *Chenopodium murale* L.	Ganda booty, Chalwairay, Goose foot	Maize, potato	The young shoots are used as pot-herb and as a fresh fodder.
5.	Convolvulaceae			
	i. *Convolvulus arvensis* L.	Pairwaty, Pohli, Field bind weed	Turnip, tomato	Fresh fodder, purgative and skin disorders
6.	Equisetaceae			
	i. *Equisetum arvense* L.	Bandakai, Methi, Horse tail	Maize, turnip	Extracts of the plant is mixed with oil (mustard oil) and is used as hair tonic and lice killer.
7.	Lamiaceae			
	i. *Mentha longifolia* (L.) Huds.	Denali, Jangali podina, Horse mint	Maize, turnip	Powdered dried leaves are used as a stimulant and antirheumatic.
	ii. *Nepeta erecta* (Bth.) Bth.	Skha podina, Desi Jibing, Ground ivy	Maize, turnip	For cuttings and wounds
8.	Malvaceae			
	i. *Malva neglecta* Wallr.	Pandirak, Kauai, Dwarf mallow	Maize, potato	Pot-herb, ornamental. Leaf decoction is antispasmodic.
9.	Plantaginaceae			
	i. *Plantago depressa* Willd.	Waroky sat, Ispaghole, Semen Plantaginis	Cabbage, potato	Dried powdered of the leaves are used as antiseptic. Seeds are swallowed with water in diarrhea. Fresh leaves are crushed for athlete's foot.
	ii. *Plantago major* L.	Ghat sat, Ispaghole, plantain	Cabbage, potato	Dried powdered of the leaves are used as antiseptic. Seeds are swallowed with water in diarrhea. Fresh leaves are crushed for athlete's foot.
10.	Poaceae			

i. *Dactylis glomerata* L.	Wakha, Cock's foot	Maize	Fresh and dry fodder
ii. *Digitaria ciliaris* (Retz.) Koel.	Shamokha, Henry's Crabgrass	Maize	Fresh and dry fodder
iii. *Eragrostis poaeoides* P. Beauv.	Wakha, Allamanda, Climber of Garden	Maize	Fresh and dry fodder
iv. *Pennisetum elatum* L.	Wakha, Pearl millet	Maize	Dry and fresh fodder for cattle
v. *Piptatherum gracilis* Mez.	Wakha, Rye grass	Maize	Used as dry and fresh fodder for cattle
vi. *Saccharum halepense* L.	Wakha, Khati Buti, Hedge Grass	Potato	Fodder both dry and fresh
vii. *Setaria glauca* (L.) P. Beauv.	Wakha, Knot root fox tail	Maize	Used as fodder for cattle
11. Polygonaceae			
i. *Rumex dentatus* L.	Shalkhy, Ambarati, Duck	Potato, turnip	A pot-herb, diuretic, astringent and demulcent. It soothes the irritation caused by *Urtica dioica*.
ii. *Rumex hastatus* D. Don.	Tarooky, Khati buti, Dock sorrel	Potato, turnip	Used as flavoring agent, carminative, purgative, astringent and diuretic. Used as stomachache.
12. Portulacaceae			
i. *Portulaca oleracea* L.	Warkhare, Gaozaban, Purslane	Maize	A pot-herb, refrigerant and alternative. Also used for kidney, liver, urinary bladder and lung problems.

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