

## ETHNOBOTANICAL STUDIES ON SOME USEFUL PLANTS OF DIR KOHISTAN VALLEYS, KPK, PAKISTAN

GUL JAN<sup>1</sup>, MIR AJAB KHAN<sup>2</sup>, FARHATULLAH<sup>3\*</sup>, FARZANA GUL JAN<sup>4</sup>, MUSHTAQ AHMAD<sup>2</sup>,  
MASOOD JAN<sup>3</sup> AND MUHAMMAD ZAFAR<sup>2</sup>

<sup>1</sup>Department of Botany, Hazara University Mansehra, Pakistan

<sup>2</sup>Department of Plant Sciences, Quaid-e-Azam University, Islamabad, Pakistan

<sup>3</sup>Department of Plant Breeding and Genetics, Agricultural University, Peshawar, KP

<sup>4</sup>University College for Women, Abdul Wali Khan University Mardan, Pakistan

### Abstract

An ethnobotanical exploration was carried out in Dir Kohistan Valleys. The checklist consisted of 65 species out of which 62 species were of 47 angiospermic families while three were of gymnospermic families. These plants were used medicinally and for other purposes. The investigation indicated that medicinal plants were used singly or in mixtures by local inhabitants. It was observed that unplanned exploitation had resulted in loss of medicinally important plant species. It was concluded that reforestation programs followed by proper protection is need of time.

### Introduction

The word "Kohistan" means the place of mountains. It is the name although given to all the hilly areas as Swat Kohistan, Dir Kohistan and Indus Kohistan (Hamayaun, 2005) valleys of Khyber Pakhtunkhwa, Pakistan. The Kohistan under focus is generally called as Dir Kohistan. Dir Kohistan Valleys cover 140,351 acres of the coniferous forests situated between latitude 35°-9' to 35°-47' and longitude 71°-52' to 72°-22' in the northern position of the watershed of Panjkora river. Territories adjoining the tract are Chitral on the north as well, on the West, Swat Kohistan and Upper Swat on the east and Pailinda khel and Dir on the South. The whole area is generally covered with forests. The research area is rich with medicinal plants and the local people of the area widely use them as a remedy for various ailments. The northern areas of Pakistan with unique biodiversity due to the presence of Himalayas, Kara Korums and Hindu-Kush mountain ranges are under tremendous pressure from locals because of illicit cutting of valuable plants, poor collection and storage methods of medicinal plants, smuggling of timber wood, over grazing, corrupt forest officials, illiterate population with no sense or lust for conservation and above all passive and non practical policies of Government as well as NGO,s working in the area (Hamayaun, 2005).

Pakistan has rich history on the folk use of plants. Afridi (1986) listed 67 medicinal plants from Khyber agency. Haq & Hussain (1993) reported local medicinal and other traditional uses of plants of Mansehra. Medicinal plants of Rawalpindi (Arshad & Akram, 1999; Durrani & Hussain, 2003), Kurram (Gillani *et al.*, 2003), Margalla (Shinwari & Khan, 1998), Abbotabad (Abbasi *et al.*, 2010), Kotli (Ajaiib *et al.*, 2010), Chitral (Ali & Qaiser, 2009) and Attock (Noor & Kalsoom, 2011) have also been investigated. Ethnobotanical studies have also been made in the various parts of Dir Kohistan valleys (Gul *et al.*, 1999; Ali *et al.*, 2010). The area is rich in plant wealth; therefore this study has been undertaken to prepare an inventory of indigenous medicinal plants and to bring other traditional knowledge on record.

### Materials and Methods

Regular study trips were made to representative areas and collections were completed in their flowering season from March 2000 to August 2010. During these trips, different plants were collected, dried, documented and were identified both by comparing them with herbarium specimen and with the help of Flora of Pakistan (Stewart 1967, 1982). Specimen sets were given to the Herbarium of Quaid-e-Azam University for future reference. Through a questionnaire, medicinal plants usage data was collected from local people and Hakims that practice the medicine regularly.

### Results and Discussion

The use of plants for the existence of human being is as old as the human race itself. The accumulation of knowledge of plants uses however co-evolved with human civilization through the experiential use of plants, generation after generation. People would have remained exposed to epidemic, endemic and chronic diseases, besides acute ailments (Hamayaun, 2003). The people of Dir Kohistan Khyber Pakhtunkhwa, Pakistan have always used medicinal plants for various diseases and have been dependent on surrounding plants. During the survey, information obtained about the uses of plants against different medical problems practiced by the people and Herbalist. The local community uses 65 species belonging to 50 families for various purposes. They used 59 plants for curing of different ailments (Table 1). Besides this other plants are used for many other purposes such as timber, fuel, fruit, potherb and fodder (Ahmad *et al.*, 2009; Ghufuran *et al.*, 2010; Tareen *et al.*, 2010; Hazrat *et al.*, 2011; Khan *et al.*, 2011). The basic health facilities are not available; therefore the inhabitants of the area largely depend on plants for the treatment of diseases. It was observed that old age people are more inclined to the use of plants as primary health care in comparison with young generation (Qureshi & Bhatti, 2009; Qureshi *et al.*, 2009, 2010, 2011; Sardar & Khan 2009; Ahmad *et al.*, 2010).

\*Correspondence: aliawaisj@hotmail.com

Table 1. Botanical name, family, local name, parts used and local uses of medicinal plants of Dir Kohistan Valley, KP, Pakistan.

S. No.	Botanical name	Family	Local name	Parts used	Local uses	Flowering period
1.	<i>Acacia modesta</i> Wall.	Mimosaceae	Palosa	Gum and wood	Gum used as tonic for baackache, timber and fuel wood, visited by honeybees.	March-May
2.	<i>Acacia nilotica</i> (L.)	Mimosaceae	Kikar	Wood	Timber, Fuel wood, Planted as hedge.	March-August
3.	<i>Aconitum violaceum</i> Jacq.ex Stapf.	Ranunculaceae	Zohar Mora	Roots	Roots (Tuber) are used for gout and rheumatism.	July-September
4.	<i>Acorus calamus</i> L.	Aceraceae	Shhwaja	Rhizome	The dried rhizome is used in dysentery and chronic diarrhea.	April-October
5.	<i>Aconitum heterophyllum</i> Wall. ex Royle	Ranunculaceae	Sarba Zaila	Roots	The Dried roots from the male plant are given to weak children along with mutton for enhancing their growth and weight.	June-August
6.	<i>Achyranthus aspera</i> L.	Amaranthaceae	Spay booty	Roots	Roots are used for stomach, urine formation and cough.	April-August
7.	<i>Ailanthus altissima</i> (Mull.) Swingle	Sinurubaceae	Bakiana	Wood	Timber, Fuel wood, visited by honeybees.	July-September
8.	<i>Ajuga bracteosa</i> Wallex Benth	Lamiaceae	Pamkash	Leaves	Used against abdominal pain, fever and good for liver. Fish poison	February-June
9.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Gunhar	Whole plant	Used as potherb, used as emollient poultice to abscesses and boils.	July-September
10.	<i>Anagallis arvensis</i> L.	Primulaceae	Chichra	Whole plant	Diuretic, diaphoretic and expectorant. Used as fodder.	March-April
11.	<i>Aquilegia pubiflora</i> Wall.ex Royle	Ranunculaceae	Woudi Gwala	Seeds and leaves	Seed has diuretic and diaphoretic properties. Leaves are generally used in lotions for sore mouth and throats.	July-September
12.	<i>Arisaema flavum</i> Schott	Araceae	Marjary	Rhizome	Used for snake bites	April-October
13.	<i>Berberis lycium</i> Royle	Berberidaceae	Ziarlagay	Rhizome	Decoction of rhizome is used for jaundice powder for rheumatism & baackache, visited by honeybees.	March-June
14.	<i>Bergenia ciliata</i> (Haw) Sternb	Saxifragaceae	Kamar panra	Rhizome	The rhizome is used for the treatment of burns and wounds.	May-August
15.	<i>Butea monosperma</i> (Lam.) O. Kuntz.	Betulaceae	Birch	Wood	Used as fuel wood.	August-October
16.	<i>Calandula avenensis</i> L.	Asteraceae	Ziar gulae	Flower	Flower is antispasmodic and ornamental	March-July
17.	<i>Calotropis procera</i> (Wild).	Asclepiadaceae	Spalmay	Stem and leaves	Its stem is used as miswak; the milk of the leave is used for asthma.	April-August
18.	<i>Canabub sativa</i> L.	Canabinaceae	Bhang	Whole plant	It is sedative, tonic, narcotic, anodyne refrigerant and antispasmodic, used as a fuel.	April-August
19.	<i>Cichorium intybus</i> L.	Asteraceae	Hun	Roots and leaf	The roots are used for Jaundice. Leaves are used as a "Saag" against Typhoid. It also increases bile secretion and is used to promote digestion.	July-Sept.
20.	<i>Corydalis govaniana</i> Wall.	Fumariaceae	Desi mamera	Flowers	Used for eye troubles.	May-August
21.	<i>Datura stramonium</i> L.	Solanaceae	Dhatura	Seeds and leaves	Seeds and leaves both are poisonous. Leaves are applied on boils for maturation.	May-September
22.	<i>Ephedra Gerardiana</i> Wall.ex Stapf.	Ephedraceae	Asmani botai	Whole plant	The plant is used for curing asthma bronchitis and rheumatism.	-----
23.	<i>Hyoscyamus niger</i> L.	Solanaceae	Shamala	Seeds	The seeds are chewed for relieving toothache	May-Sept.
24.	<i>Hypericum perforatum</i> L.	Hypericaceae	Shin chai botai	Leaves	Decoction is diuretic.	April-August
25.	<i>Dodonea viscosa</i> L. Jacq	Sapindaceae	Ghawarskay	Whole plant	Fuel and thatching.	April-May
26.	<i>Diospyros kaki</i> L.	Ebinaceae	Zair amlok	Fruit and wood	Laxative. Fuel wood.	April-May
27.	<i>Epilobium hirsutum</i> L.	Onagraceae	Unknown	Root	It has cooling and astringent properties.	May-August
28.	<i>Ficus carica</i> L.	Moraceae	Inzar	Fruit	Fruit is edible, used for piles, latex is antihelmintic.	March-June
29.	<i>Fragaria indica</i> Andrews	Rosaceae	Da zmakay toot	Fruit	Edible and laxative	April-June
30.	<i>Fraxinus xantholoides</i> Wall.ex DC.	Oleaceae	Sum	Wood and leaves	Wood is used to make tool handles and walking sticks. Leaves are used as fodder.	August-October
31.	<i>Gentiana kurroo</i> Royle	Gentianaceae	Unknown	Roots	Stomachache, astringent, tonic, antispasmodic.	Sept.-Octo
32.	<i>Hedera nepalensis</i> K. Koch.	Araliaceae	Prewatai	Leaves	Leaves used for diabetes.	May-June
33.	<i>Indigofera Gerardiana</i> Wall.	Papilionaceae	Ghoureja	Shoots	Shoots serve as fodder. Fuel wood, for thatching and fencing. A honeybee species.	May-June

Table 1. (Cont'd.).

S. No.	Botanical name	Family	Local name	Parts used	Local uses	Flowering period
34.	<i>Juglens regia</i> L.	Juglandaceae	Ghuze	Seeds and bark	Brain tonic. Bark is used for cleaning of teeth.	Feb.-April
35.	<i>Juniperus communis</i> L.	Cupressaceae	Gojar	Fresh ripe berries	Berries are diuretic, carminative, stimulant and are used in skin diseases. The berries are given in scanty urine and chronic cough.	-----
36.	<i>Melia azedarach</i> L.	Meliaceae	Shandai	Leaves	Used for flatulence in animals, leaves are used as insecticide in grains.	Feb.-April
37.	<i>Mentha longifolia</i> L.	Lamiaceae	Villanay	Leaves	Leaves are carminative used for diarrhea and gastric problem.	July-August
38.	<i>Morus alba</i> L.	Moraceae	Speen toot	Fruit	Fruit is laxative, edible. Fodder, Fuel, Timber.	March-April.
39.	<i>Myrsine africana</i> L.	Myrsinaceae	Maru rang	Leaves	Used as spice, carminative, appetizer, flavoring agent, digestive.	February-April
40.	<i>Nasturtium officinalis</i> R. Br.	Amaryllidaceae	Talmeera	Leaves	Leaves are used as potherb. Laxative.	February-March
41.	<i>Olea ferruginea</i> Royle (L.) P.	Oleaceae	Khona	Seeds and wood	Oil is obtained from seeds used for rheumatism, cooking. Wood is used for agriculture tools.	April-May
42.	<i>Origanum vulgare</i> L.	Lamiaceae	Shamakey	Leaves	It is used against abdominal pain, fever and good for liver.	February-June
43.	<i>Orostegia limbata</i> (Benth), Baiss.	Lamiaceae	Pishkaar	Leaves	Used for gum diseases and curing of wounds.	May-June
44.	<i>Paeonia emodi</i> Wall ex HK. Royale	Paeoniaceae	Mamaikh	Rhizome	Rhizomes are used to cure backache, dropsy and epilepsy. It is also used as tonic, emetic, cathartic blood purifier and colic.	April-May
45.	<i>Papaver somniferum</i> L.	Papaveraceae	Dhodda	Latex and seeds	It is narcotic and an anodyne. It increases excitement and physical vigor. It is also used as ornamental.	April-June
46.	<i>Pinus roxburghii</i> Sargent.	Pinaceae	Nakhtar	Stem	Timber, furniture wood and fuel.	-----
47.	<i>Podophyllum hexandrum</i> Wall.	Podophyllaceae	Kakora	Rhizome & fruit	Hepatic, stimulant, purgative and emetic. It also yields resins. The fruit is used as drastic purgative.	July-September
48.	<i>Platanus orientalis</i> L.	Plataginaceae	Chinar	Bark	Bark is given in toothache and diarrhea. Used as fuel wood.	April-May
49.	<i>Plantago lanceolata</i> L.	Plantaginaceae	Isphaghol	Seeds	Seeds are laxative and are used to cure dysentery and mouth diseases.	March-April
50.	<i>Populus nigra</i> L.	Salicaceae	Sperdad	Leaves and wood	Fodder. Fuel wood, Ornamental, a shade tree.	April-July
51.	<i>Punica granatum</i> L.	Punicaceae	Anarghorai	Leaves and fruit	The leaves are used for skin diseases and against dysentery. Fruit is an astringent, cool and blood purifies.	-----
52.	<i>Quercus dilatata</i> Royle	Fagaceae	Seray	Wood and nuts	Fuel wood species. Seeds are edible, astringent and diuretic.	May-August
53.	<i>Sonchus asper</i> L.	Asteraceae	Shodapay	Leaves	Fodder, for kidney inflammation.	March-April
54.	<i>Taxus wallichiana</i> Zucc.	Taxaceae	Bonya	Leaves	Leaves are bitter and used in bronchitis, whooping cough and asthma.	-----
55.	<i>Teucrium stocksianum</i> Boiss.	Lamiaceae	Spairbotay	Whole plant	It is used as a cooling agent. It is used against hepatitis.	May-June
56.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Markondai	Fruits	Fruits and roots are given for urinary disorders	April-August
57.	<i>Skimmia lauroala</i> (DC.) Stele & Zaexwall	Rutaceae	Nazar panra	Leaves	It is believed that smoke from its leaves purifies the air and repel evils.	April-May
58.	<i>Valeriana jatamansi</i> DC.	Valerianaceae	Mushk-e-bala	Rhizome	Rhizome is carminative, aromatic and antispasmodic.	February-August
59.	<i>Viola canescens</i> Wall ex Roxb	Violaceae	Binowsha	Whole plant	Astringent, demulcent, purgating diaphoretic, antipyretic, febrifuge and anticancer.	March-April
60.	<i>Vitis jacquemontii</i> Parker.	Vitaceae	Gedar kwar	Fruit	Laxative.	April-May
61.	<i>Withania somnifera</i> (L.) Dunal.	Solanaceae	Kuttial	Roots	Aphrodisiac tonic, diuretic, narcotic and used in rheumatism.	-----
62.	<i>Woodfordia fruticosa</i> (L.) Kurz.	Lythraceae	Datki	Flower and wood	Dried flowers are used as astringent, stimulant and used in liver complaints. Used as fuel wood species.	May-June
63.	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Dambara	Fruit	Stomachache, toothache and carminative.	April-May
64.	<i>Ziziphus jujube</i> Mill.	Rhamnaceae	Baira	Fruits	Expectorant, emollient and blood purifier.	June-July
65.	<i>Ziziphus mauritiana</i> L.	Rhamnaceae	Markhanay	Fruits branches and leaves	Fruits are edible and used as an astringent. Fuel wood and used for fencing and hedge. The leaves provide fresh fodder for goats. A honeybee species.	June-July

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