

Traditional uses of some medicinal plants of Swat Valley, Pakistan

Muhammad Hamayun

Department of Botany, Government Degree College, Kotha, District Swabi, NWFP, Pakistan

E-mail: hamayun73@gmail.com

Received 27 September 2005; revised 16 March 2007

An ethnobotanical project was carried out in Swat valley in order to explore medicinal plants present in the local markets and their medicinal folk uses in the area. It was found that 51 species of medicinal plants belonging to 32 different families makes their way to the main local markets of Mingora and Madyan. Few of these are also traded to national and international markets. The people of Swat use indigenous medicinal plants for curing different ailments and also sell them in the local market for earning their livelihood. These medicinal plants are sold in the local market in fresh form, as the collectors are poor and needy. Some species are however, cleaned, sun dried and stored in plastic bags. During storage process, a considerable proportion of medicinal plants are lost. The population of medicinal plants has considerably decreased over past 15-20 yrs and the prime reasons are the increased dependency of locals on medicinal plants marketing, lack of job opportunities, non-sustainable harvesting methods like digging of whole plant and increased deforestation.

Keywords: Folk medicine, Ethnomedicine, Medicinal plants, Conservation status, Swat valley, Pakistan

IPC Int. Cl.⁸: A61K36/00, A61P1/00, A61P1/02, A61P1/04, A61P1/06, A61P1/10, A61P9/14, A61P11/00, A61P11/06, A61P11/10, A61P13/00, A61P13/02, A61P15/00, A61P17/00, A61P17/02, A61P19/00, A61P19/02, A61P25/00, A61P25/08, A61P29/00, A61P31/02, A61P35/00, A61P39/02

Swat district situated at the Northwest corner of Pakistan, not only contains beautiful valleys, but also innumerable monuments of ancient civilization. It lies from 34° 34' to 35° 55' North latitudes and 72° 08' to 72° 50' East longitudes. It is surrounded on the North by Chitral and Ghizer valleys, on the East by Kohistan and Shangla, on the South by Buner and Malakand protected area and on the West by Dir. The total area of the district is 5337 sq km¹. The district is part of the Malakand division. The twin cities of Mingora and Saidu Sharif are the districts as well as the divisional headquarters. Swat can be divided into two regions i.e. Swat-Kohistan and Swat Proper. Swat-Kohistan is the mountainous country on the upper reaches of the Swat river up to Ain in the South. The whole area south of Ain is Swat proper, which can be further divided into *Bar* (*Pashto*) means upper Swat and *Kooz* (*Pashto*) means lower Swat. Swat has predominantly rural population. *Yousafzai Pathans*, *Mians*, *Kohistanis*, *Gujars* and *Pirachas* inhabit the valley of Swat. The *Pashto* speaking *Yousafzai Pathans* are the direct descendants of Afghan of Ghazni. The *Gujars* and *Kohistanis*, who speak their own dialects of *Gujri*, *Garwi*, *Torwali* and *kohistanis* inhabit the mountainous areas up North.

The *Kohistanis* are settled in and around Kalam, Ushu, Utror and Gabral valleys. The nomadic *Gujars* also form a substantial part of the population in the northern areas of the district. District Swat contains about 1550 taxa of flowering plants and 55 pteridophytes. There are 7 types of forests from tropical dry deciduous to alpine. There are various reports about ethnobotanically important medicinal plants; the number varies from 55 to 345 species in Swat². The flora of Swat is very diverse and unique as the area is adjacent to the meeting point of 3 big mountain ranges, namely Karakorum, Hindu-kush and Himalayas. The Swat river rises from the Shandur or Mashabar range bordering district Swat with Chitral in the North and flows South and Southwest approximately dividing the district into two halves. The Himalayan glaciers and the melting snows of the high mountains feed it. Besides the Swat river, the other prominent rivers or *nalas* are Harnoi Khwar, Deoli Khwar and Daral Khwar.

Methodology

Fieldwork was carried out during 2001-02 in the Pansara markets at Kalam, Madyan, Mingora for collecting information about medicinal plants present

in the local markets and their trade. These plants were collected from the field, identified, authenticated and deposited in the herbarium of Quaid-i-Azam University, Islamabad. Conservation status of these medicinal plants was determined by using IUCN criteria for threatened plants³. During market survey, questionnaire method was adopted in order to get a more representative data. Plant collectors were interviewed for information pertinent to medicinal plant collection, cleaning, drying and storage techniques.

Results

During the study, 51 species of medicinal plants belonging to 32 different families were found to be collected and sold in local markets. Most of these medicinal plants make their way to national herb markets of Lahore, Karachi and Peshawar while some species are exported to International markets. These plants are also used locally for curing different ailments. A brief set of information about these plants is given below:

Achyranthus aspera L. (Amaranthaceae), Local name: *Gishkay*

Uses: Herb decoction is laxative, diuretic and stomachic. Root infusion is used for removing kidney stones.

Aconitum violaceum Jacq. ex Stapf (Ranunculaceae), Local name: *Zahar mora*

Uses: Tubers are used for curing gout and rheumatism.

Acorus calamus L. (Araceae), Local name: *Skha waja*

Uses: Rhizome is emetic and used in cough and dyspepsia. The plant is used as remedy for flatulence, colic, diarrhoea and snakebites.

Adiantum incisum Forsk. (Adiantaceae), Local name: *Sumbal*

Uses: Fronds are used for curing skin diseases, fever, cough and diabetes.

Adiantum venustum D. Don. (Adiantaceae), Local name: *Sumbal*

Uses: Frond juice is expectorant, emetic and diuretic. Ornamental fronds are used for curing scorpion bites.

Ajuga bracteosa Wall. ex Benth. (Lamiaceae), Local name: *Khwaga bootei*

Uses: Used as internal colic and for the treatment of pimples. Herb decoction is useful for curing jaundice, hypertension and sore throat.

Allium sativum L. (Alliaceae), Local name: *Ooga*

Uses: Used extensively in cooking as flavoring agent, carminative, aromatic and condiment. It is effective in heart diseases and hypertension. It is diaphoretic, diuretic, expectorant and antiseptic. Decoction is effective in hysteria, flatulence, asthma and whooping cough. It is also used in epilepsy.

Ammi visnaga (L.) Lam. (Apiaceae), Local name: *Spairkai*

Uses: Useful in whooping cough and asthma.

Arisaema flavum Schott. (Araceae), Local name: *Marjarai*

Uses: Rhizome and red fruits are poisonous causing numbness of tongue. It is also believed to help in tracing bears.

Artemisia brevifolia Wall. (Asteraceae), Local name: *Jaukay*

Uses: Respiratory stimulant, anthelmintic and purgative. Used as cure for ear ache. Used for burning. Shoots are used for making brooms and also used in making edges of mud roofs.

Artemisia vulgaris L. (Asteraceae), Local name: *Tarkha*

Uses: Leaves are anthelmintic. Also used for curing skin diseases. Shoots are used as fodder and sweeping dirt.

Berberis lycium Royle (Berberidaceae), Local name: *Speen kwaray*

Uses: Used as stomachic, expectorant, intestinal colic, diarrhoea and diuretic. Used in the treatment of internal wound, curing piles, jaundice and other liver disorders. The fruits are edible; it is also used in fencing and hedges especially against porcupines.

Berberis vulgaris Linn. (Berberidaceae), Local name: *Tor kwaray*

Uses: Same as *Berberis lycium* Royle

Bergenia ciliata (Haw) Sternb. (Saxifragaceae), Local name: *Qamar panra*

Uses: Used for discharge of pus in animals. Leaves are used as tonic and for relief of muscular pain.

Bistorta amplexicaulis (D. Don) Greene (Polygonaceae), Local name: *Tarva Panra*

Uses: Plant is locally used for curing ulcer.

Bunium persicum B. Fedtsch. (Apiaceae), Local name: *Tora zeera*

Uses: It is used as condiment and spice, in curry and *pullao* (rice dish), carminative, stomachic and stimulant.

Calendula arvensis L. (Asteraceae), Local name: *Zair gulae*

Uses: Leaves and flowers are given to children suffering from scrofula. The plant is used as tonic, diaphoretic and anthelmintic. Powdered leaf is used as snuff for the discharge of mucus.

Capsicum annuum L. (Solanaceae), Local name: *Marchakay*

Uses: Used as flavouring agent, stimulant, condiment, spices and salad. It is also used in pickles. Also used against common cold, dyspepsia and diarrhoea.

Colchicum luteum Baker. (Liliaceae), Local name: *Suranjan-e-talkh*

Uses: Locally used as blood purifier, laxative and aphrodisiac.

Coriandrum sativum L. (Apiaceae), Local name: *Dhanyal*

Uses: Used locally as condiment, aromatic, stimulant, flavoring agent and carminative. Also used in piles, increases the secretion of gastric juices, used as corrigan, fruit decoction is given in colic, seeds create appetite. Oil is extracted from it.

Daphne mucronata Royle (Thymelaeaceae), Local name: *Laighonai*

Uses: Fruits are edible; poisonous to animals; their poultice is used for sweeping and rheumatism. Also used as fuel wood. Flowers are ornamental.

Dioscorea deltoidea Wall. (Dioscoraceae), Local name: *Kanees*

Uses: Tubers are useful as uterine sedative, haemostatic, diuretic and expectorant. Tubers are also used as fish poison. The herb is used to expel worms from the body.

Diospyros lotus L. (Ebenaceae), Local name: *Tor amlook*

Uses: The wood is used in furniture and as fuel wood. Fruits are edible which are carminative, purgative and causes flatulence; leaves serve as fodder.

Ephedra gerardiana Wall. ex Stapf (Ephedraceae), Local name: *Asmani bootai*

Uses: The plant is used for curing asthmatic bronchitis and rheumatism. The tincture of *Ephedra* is a cardiac circulatory stimulant.

Foeniculum vulgare Mill. (Apiaceae), Local name: *Kaga*

Uses: Leaves are diuretic, digestive, aromatic, and stimulant as well as improve eyesight. Seeds are laxative, aphrodisiac, stimulant, and used as condiment.

Fumaria indica Pugsley (Fumariaceae), Local name: *Papra*

Uses: Used as blood purifier, diaphoretic and antipyretic.

Hedera nepalensis K.Koch. (Araliaceae), Local name: *Da Wano Kalay*

Uses: Fresh fodder, ornamental, anticancer. Juice is used in first aid.

Hyoscyamus niger L. (Solanaceae), Local name: *Dewana bhang*

Uses: Leaves are used as sedative, narcotic, anodyne and antispasmodic. Also used in nervous disorders, asthma and whooping cough. Seeds are used as tonic and astringent to the bowels.

Juglans regia L. (Juglandaceae), Local name: *Ghuz*

Uses: It is used in standard furniture and for carving. Bark (*Dandasa*) is used for cleaning and sparkling teeth. Leaves are used as lips make-up. Nuts can infect throat due to its oily nature. It has warm nature and can cause jaundice. It is also used as a dye. Decoction of leaves is given in eczema and intestinal worms.

Mentha longifolia (L.) Huds. Lamiaceae, Local name: *Villanay*

Uses: Dried leaf powder is used in chutney, as stimulant, antirheumatic, aromatic, flavoring agent, stomachache and carminative. It is used in diarrhoea, dysentery and various gastric problems. It is used with boiled eggs as tonsillitis.

Mentha spicata L. Lamiaceae, Local name: *Podina*

Uses: Leaves are used in chutneys and dyspepsia, also as salad, spice, stimulant and carminative. Leaf decoction is used as mouthwash.

Morchella esculenta (L.) Pers. ex Fr. (Helveticaceae), Local name: *Gujai*

Uses: It is collected by the locals and sold it in the local markets and then exported to abroad especially France, Germany, Switzerland and Austria.

Myrsine africana L. (Myrsinaceae), Local name: *Maru rang*

Uses: Used for aroma in tea. Used as spices, carminative, appetizer, flavouring agent.

Paeonia emodi Wall. ex Hk.f. (Paeoniaceae), Local name: *Mamaikh*

Uses: Roots and rhizomes are used to cure backbone ache, dropsy and epilepsy. It is also used as tonic, emetic, cathartic, blood purifier and colic. Seeds are purgative.

Pistacea integrimma J.L.Stewart ex Brandis (Anacardiaceae), Local name: *Shanai*

Uses: Fruit extract is used in jaundice and for curing chronic wounds. Leaves are used as fodder for cattle. Wood is used in furniture.

Plantago lanceolatum L. (Plantaginaceae), Local name: *Jabai*

Uses: Leaf extract is applied to sore, wounds and inflamed surface, used as laxative, in dysentery and mouth diseases.

Podophyllum hexandrum Royle (Podophyllaceae), Local name: *Kakorra*

Uses: Used as hepatic stimulant, purgative and emetic. It also yields resin. Fruit is used as drastic purgative.

Polygonatum verticilatum All. (Liliaceae), Local name: *Peramole*

Uses: Rhizome is used in rheumatism, as aphrodisiac and crushed rhizome is given to cattle's for increasing milk production.

Portulaca olearacea L. (Portulacaceae), Local name: *Warkharay*

Uses: Pot herb, refrigerant, and alternative. Plant is also used in kidney, liver, urinary bladder and lungs problems.

Punica granatum L. (Punicaceae), Local name: *Anar*

Uses: Leaves are used in skin diseases, dysentery. Fruit is astringent and blood purifier. Fruit pericarp is used for whooping cough and is laxative. Seeds are dried known as *anardana* are used as condiments and spices. Bark of stem and root is anthelmintic, mouth washer, antipyretic and expectorant.

Rheum australe D. Don (Polygonaceae), Local name: *Chotial*

Uses: Roots are purgative and astringent tonic. Rhizomes are alexiterix, emmenagogue, diuretic and also used in biliousness, lumbago, sore eyes, piles, chronic bronchitis, fever, asthma, pains and bruises. Locally it is used as blood purifier. Leaves are used as vegetable, stomachic and in dyspepsia, as a laxative and for cough.

Salvia moorcraftiana Wall.ex Benth. Lamiaceae, Local name: *Khur dug*

Uses: Leaves poultice is used for healing wounds and for washing utensils.

Solanum nigrum L. (Solanaceae), Local name: *Dadam, Kachmachu*

Uses: Fodder of low quality. Drinking of water after eating may cause flatulence and prove fatal for cattle.

Solanum surratense Burm. f. (Solanaceae), Local name: *Manraghonay*

Uses: Expectorant, bitter, stomachache, diuretic, asthmatic, anti-gonorrhoea. Plant is also used in cough, fever and pain in chest.

Thymus linearis Benth. (Lamiaceae), Local name: *Kaneesh*

Uses: Fruits are used in cold, cough and digestive troubles.

Valeriana jatamansi Jones (Valerianaceae), Local name: *Mushk-e-bala*

Uses: Rhizome decoction is used in cholera and dysentery. Rhizome is carminative and aromatic, antispasmodic and also used in hysteria.

Viola biflora L. (Violaceae), Local name: *Banafsha*

Uses: Diaphoretic, antipyretic and febrifuge. Paste is locally used in eczema. Reported to be useful in the treatment of cancer. Flowers are recommended in epilepsy and nervous disorder. Used for body coldness in the form of syrup.

Viola canescens Wall. ex Roxb. (Violaceae), Local name: *Banafsha*

Uses: Astringent, demulcent, purgative, diaphoretic, antipyretic, febrifuge and anti-cancerous.

Vitex negundo L. (Verbinaceae), Local name: *Marvandaey*

Uses: Fresh roots are used as bandage to relieve pain of chest and back; branches are used as toothbrush (*miswak*), leaves are aromatic, febrifuge, diuretic and anthelmintic. Leaves are smoked to relieve headache. Flowers are astringent and tonic.

Withania somnifera (L.) Dunal. (Solanaceae), Local name: *Kutlal*

Uses: Leaves and roots are used as poultice to swellings, ulcers and carbuncles. Fruit is diuretic. Root is an aphrodisiac tonic, diuretic, narcotic and used in rheumatism.

Ziziphus rugosa Lam. (Rhamnaceae), Local name: *Markhanaey*

Uses: Fruits are edible, used as astringent, cooling. Used as fuel wood, in fencing and hedges; leaves fresh fodder for goats.

Medicinal plant collectors are usually poor villagers. Plant collection is their part time activity besides farming and livestock keeping. Medicinal plants are primarily collected in upper Swat during spring and summer season during April-September and sold in the local market. The availability of medicinal plant in the area decreased in the last 20 yrs. Bulk of medicinal plants collected in the area is rhizomatous. The plants are sold in local markets, while some of them are kept in homes for curing

different ailments. Major proportions of plants collected are sold in fresh while some plants are stored from one week to one year. Before storing, these plants are washed and kept under the sun for drying. During storage, considerable amounts of medicinal plants are wasted due to humidity, insect attacks, inappropriate storage facilities and lack of awareness on the part of collectors.

Discussion

The flora of Pakistan is very rich due to her diverse climatic, soil conditions and multiple ecological regions. The country has about 6,000 species of wild plants of which about 400-600 are considered to be medicinally important. A survey by Pakistan Forest Institute concludes that 75 crude herbal drugs are extensively exported and more than 200 are locally traded in Pakistan. Indigenous people, who have no training in sustainable harvesting, post-harvesting care and storing of medicinal plants, collect 85% of these crude herbs from the wild. Such activity is causing a rapid depletion of medicinal plant resources. In addition, indigenous knowledge used to identify, evaluate and apply medicinal plants is dying out and no systematic documentation of the ethnobotanical information exists. According to recent estimates, 25% of all prescribed medicines in the developed world contain ingredients derived from plants and roughly 80% of the world's population living in the developing world relies on herbal remedies for their primary healthcare needs⁴.

District Swat contains more than 1,550 taxa of flowering plants and 55 Pteridophytes; the number of medicinal plants varies from 55-345 species in Swat⁵. The market survey revealed that only 52 medicinal plants are sold in the markets as well as used in homes for curing different diseases. These medicinal plants are primarily collected from upper parts of Swat. Locals use bulk of these medicinal plants; however, some of them are traded to other parts of the country and abroad. Pakistan has about 40,000 registered practitioners of traditional medicine and majority of the population, especially villages, is getting healthcare by *Tabbibs*. It is estimated that 60% of the population use the herbal prescriptions of Traditional Practitioners⁶. About 500 families are involved in medicinal plant collection in Swat district and they collect 5,000 tons of medicinal plants annually⁷. However, no

economic analysis exists to date for the marketing chain from collection to consumption systems. It is also necessary to know that how much plant material is collected and passing through the whole process of refinements; how much quantity reaches to the market. It will give us the rough picture of the whole system from collection to consumption. It may also be the one reason of over exploitation of highly valuable and endangered medicinal plants. All available data is related to quantities traded in markets at a specific time and their approximate values. Large quantity of medicinal drug plants is wasted from collection to the marketable material. The reasons behind this are unawareness of the locals about proper collection of the desired plant part; use of poor and cheap equipments; non-availability of the proper space for storing and drying. It is observed in the remote areas that when females and children go to the forest for collecting fuel wood or grazing their livestock, they collect the medicinally important plants.

Conclusion

Swat is a mountainous area with a diverse and unique flora. However, over the last 10-15 yrs, the plant resources have been degraded. It is largely because of indiscriminate deforestation for getting cultivation lands, over exploitation of plant resources for economic purposes, urbanization and industrialization trends, population explosion, increased tourism and lack of awareness on the part of the inhabitants of the area. Medicinal plants are collected and are used traditionally for curing different ailments in the area. The people living there are poor and can't afford buying allopathic medicines. In the last decade, people also started selling these medicinal plants in the local markets for earning livelihood. This trend accelerated with the passage of time and resulted in the depletion of these indispensable resources and many economically valued plant species are now under a constant threat of extinction from the area. Huge amounts of plant collection are spoiled due to poor and inappropriate collection, cleaning, drying and storage techniques. Local community participation in such programs is highly valued. Awareness programs should be initiated in the area in order to educate the inhabitants of the area about the importance of natural resources and their sustainable use. Clearing of forests for acquiring cultivation land and smuggling of timber wood should be discouraged. Alternate fuel sources

should be provided in the area to prevent the loss of valuable plant species for fuel purposes.

References

- 1 Anonymous, *District Census Report on Swat*, (PCO, Government of Pakistan), 1998.
- 2 Ahmad H & Sirajuddin, Ethnobotanical profile of Swat, Proc First Train. Workshop Ethnobot Appl Conserv, 1996, 202-206.
- 3 IUCN, *IUCN Red List Categories and Criteria: Version 3.1*. (IUCN Species Survival Commission, IUCN. Gland, Switzerland and Cambridge, UK), 2 (2001) 30.
- 4 Shinwari ZK, Khan AA & Nakaike T, *Medicinal and Other Useful Plants of District Swat, Pakistan*, 2003.
- 5 Shinwari ZK, Gilani SS, Kohjoma M & Nakaike T, Status of Medicinal Plants in Pakistani Hindukush Himalayas, Proc Nepal-Japan Joint Symposium, 2000.
- 6 Haq I, *Medicinal Plants*, (Hamdard Foundation Press, Pakistan), 1983.
- 7 Chaudhary MS, Ahmad A Ali, Sher H & Malik S, *Technical Report on Market study of medicinal herbs in Malakand, Peshawar, Lahore and Karachi*, (SDC-Intercooperation, Peshawar), 2000.