

# Marketing of medicinal plants of Utror-Gabral Valleys, Swat, Pakistan

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## Abstract

This paper is based on the results of an ethnobotanical project carried out in the area comprising Utror-Gabral Valleys of upper Swat. The residents of the area use indigenous medicinal plants for curing diseases and also sell some of them in the local market for earning their live hood. About 44 medicinal plants are collected in the area during the months of May, June, July and August. Out of these 44 species collected and marketed, 8 species of medicinal plants are endangered, 8 species are vulnerable and 8 species are rare. Bulk of these medicinal plants are used locally and only *Berberis lycium*, *Bergenia ciliata*, *Podophyllum hexandrum*, *Colchicum luteum*, *Dioscoria deltoides*, *Viola spp.*, *Pistacia integrimma*, *Morchella esculenta*, *Paeonia emodi*, *Rheum australe*, *Aconitum hetrophyllum*, *Valeriana jatamansi*, *Acorus calamus*, *Juglans regia*, *Diospyrus lotus* and *Bistorta amplexicaulis* makes their way to national and international markets.

A survey conducted shows that medicinal plants collectors include womenfolk (48.26%), men folk (27.0%) and children (24.74%). Almost 90% of these medicinal plants are sold in the local market in fresh form as the collectors are poor and needy. Some species are cleaned, dried in the sun and stored in plastic bags. The percentage of losses is much higher in the storage because the collectors are unaware about the proper storage methods of these plants.

The availability of medicinal plants decreased during the past 20 years. According to aged villagers, medicinal plants were abundant in the vicinities of human settlements some 20 years back. However, the population of medicinal plants drastically decreased due to increased marketing pressure on medicinal plants, lack of job opportunities in the area, non sustainable harvesting methods like digging of whole plant and increased population of the area. The medicinal plants are now collected in large volumes from remote areas of Desan, Ghos, Ladhu, Pala-Shair, Sind, Molat, Gozba, Deej, Tosi and Kagishdin.

**Key Words:** Medicinal plants; marketing status; conservation; collection methods

## • Introduction of Study Site

The Utror-Gabral valleys are situated in the north western part of the District Swat, Pakistan. The project area has unique flora as it occupies nexus of the three great mountain ranges i.e. Himalayas, Hindukush and Karakoram. The altitude of Utror is 2,225 meters and Gabral is 2,550 meters from the sea level. Both of these Valleys comprise Utror Union Council, Tehsil Kalam. The famous Kandol Lake is situated in the area.

## Location, Boundary and Area

The area is situated in the North West corner of District Swat. It lies between 35°-25' to 35°-30' North latitude and 72°-20' to 70°-30' East longitude.

The area is surrounded by Chitral District on the north, Swat District on east and south and Upper Dir district on the west.

The total area is 114627 hectares. Utror, Gabral (Gul Abad and Gujar Gabral), Sazgal, Behan, Baila, Karin, Kanai and Jabba (Upper and Lower) are the important villages of research area. (DCO, Office, Mingora)

## Climate

The area has a typical dry temperate zone climate. The winter season is very cold and as a result large number dwelling in the upper parts migrate to lower areas along with their live stock. These migrants return on the onset of spring. The coldest months are December, January and February during which snow falls are frequent. The valleys remain under snow cover for about four months. The snow started melting in April. June, July and August are the

hottest months of the year while during September and October, the climate is very pleasant. Rain is received in large amounts during March and April. The summer and autumn are relatively dry seasons.

- Mean annual maximum temperature is 61.9 °F.
- Mean annual minimum temperature is 39.37 °F.
- Mean annual snow fall is 331.01 cms.
- Mean annual rain fall is 52.43 cms.

### **Rivers and Streams**

Utror river is the main river which meets Ushu river at Kalam, thus giving rise to Swat river. The tributaries of Utror river includes, Gujar khawar, Gabral sin, Desan khawar and Battal khawar.

### **People of Utror Gabral Valleys**

The population of the area is 10126. The inhabitants include Kohistanis, Gujars, immigrants from Indus Kohistan, Malazai (from Dir) and other nomadic tribes. However, Kohistanis and Gujars form the bulk of the local population.

#### **Kohistanis**

Kohistanis are fair colored, hospitable and simple people. They are considered to be the real natives of Swat. They were forced by the invading Yousafzai tribe of Pathans to live in the remote upper parts of District Swat. The Kohistanis are now living in and around Kalam, Ushu, Utror and Gabral valleys. The Kohistanis are the land owners and also get royalty in the local forest income from the Government.

**Gujars** The Gujars are the major community of Gabral valley. They are the land owners in the valley but have no share in forest royalty. They are mainly farmers and keep cows and buffalows. There are some Gujars who spent nomadic life and are called **Ajars**. They keep herds of sheep and goats. Ajars pay rent to the Gujars of Gabral for utilizing their pastures during summer season.

#### **Malazai and others**

These are not permanent residents of Utror and Garal Valleys. They visit the area during the month of March and leave it in early November. The bulk of these nomads include Malazai tribe from upper Dir District. These nomads have big herds of sheep and goats. They graze their herds in the green pastures of the area and work as peasants for locals.

#### **Languages**

The local languages are Kohistani and Gujro. However, Pushto is also under stood in the area. Kohistani is an interesting language because it has no alphabets and hence no body can write it. Gujro language is actually Punjabi with some what different dialect.

#### **• Medicinal Plants**

Any plant or part of the plant which contain active medicinal chemical constituents and give a definite physiological response in the treatments of diseases in humans and other animals are called medicinal plant.

Pakistan has a diverse flora containing about 6000 species of phanerogams. Estimates indicate that around 700 plant species are used as medicinal and aromatic plants. The total number of plant species in the Hindukush-Himalayas is estimated to be 25000 or 10% of the world flora of which 2/3 are useful (Pei, 1992).

In Swat District more than 224 medicinal plants are reported. Around 55 of these are collected and sold in the local markets. 17 species i.e. almost 30% are marketed on national level.

#### **Demand for Medicinal Plants**

Pakistan has about 50,000 registered practitioners of traditional medicines known as tibb-e-unani and majority of the population, especially rural, is getting health care by Tabbibs. It is estimated that 60% of the population used herbal medicines prescribed by traditional practitioners.

The use of medicinal herbs for various human and livestock health disorders is a common practice in rural areas of Pakistan. The main reason for using traditional medicines is economics. As in other developing countries, the majority of the people of Pakistan cannot afford the high cost of modern health care. Lack of modern health care facilities in remote areas is another mojour reason for adopting traditional medicines.

## Objectives of the Present Study

The main objective of the study was to evaluate marketing of medicinal plants of the area, women role in medicinal plants collection, people involve in medicinal plants trade and folk methods of medicinal plants collection, cleaning and storage. All these will help in bringing sustainability to the indigenous medicinal flora of the area.

## Materials and methods

Field work was carried out during 2002. First collectors of medicinal plants including women folk was interviewed for indigenous knowledge of medicinal plants collection, cleaning, drying and storing. Questionnaires were adopted during the surveys in order to get a more representative data about the medicinal plants marketing in the area. The medicinal plants markets at Kalam, Madyan, Mingora, Peshawar, Rawalpindi and Lahore was visited to get pertinent information about medicinal plants trade.

## Results and Discussion

### • Marketing of Medicinal Plants

In Utror-Gabral Valleys the locals collect about 44 medicinal plants during the months of May, June, July and August. These are sold in the local market. Only 14 of them are traded to National and International markets while the rest are used locally. According to IUCN categories, out of these 44 species collected and marketed, 8 species of medicinal plants are endangered, 8 species are vulnerable and 8 species are rare. The remaining 20 species of medicinal plants are also under intense pressure of marketing. The data relating Plant availability status, Part used, Plant status (whether Endangered, Vulnerable or Rare), Local prices of fresh form is given in table#1.

**Table 1: Marketing Medicinal Plants of Utror-Gabral Valleys, Upper Swat.**

No	Botanical Name	Local Name	Part Used	Availability	Collection Method	Plant Status	L.Pr. (Rs.)
1	<i>Aconitum hetrophyllum</i>	SarbaBotay/ Sarb-walay	Roots	Dec.	Digging	V	400
2	<i>Aconitum violaceum</i>	Zahar Mora	Roots	Dec.	Digging	V	250
3	<i>Acorus calamus</i>	Skhawaja	Rhiz.	Dec.	Digging	E	20
4	<i>Adiantum venestum</i>	Persoshan	Plant	Dec.	Cutting	V	5
5	<i>Ajuga bractiosa</i>	Panarkas/boti	Shoot	Pers.	Plucking	-	30
6	<i>Ammi visnaga</i>	Spairkai	Fruit	Pers.	Picking	-	40
7	<i>Artemissia vulgaris</i>	Tarkha	R/L	Inc.	Digging	-	12
8	<i>Berberis lycium</i>	Hez/Toor kwaray	Roots	Dec.	Digging	V	25
9	<i>Berberis vulgaris</i>	Hez/Speenkwaray	Roots	Dec.	Digging	E	25
10	<i>Bergenia ciliata</i>	Qamar Panra	Lvs	Pers.	Plucking	R	25
11	<i>Bistorta amplexicaulis</i>	Anjabar	Rhiz.	Dec.	Digging	E	10
12	<i>Cuminum cyminum</i>	Zankai	Seeds	Pers.	Picking	R	60
13	<i>Calendula arvensis</i>	Charkeet	Roots	Dec.	Digging	-	23
14	<i>Caltha alba</i>	Makhan pat	Plant	Pers.	Plucking	-	4
15	<i>Cichorium intybus</i>	Han	Lvs	Inc.	Plucking	-	13
16	<i>Colchicum luteum</i>	Suranjan Talkh	Rhiz.	Dec.	Digging	V	30
17	<i>Coriandrum sativum</i>	Dhanyal	Fruits	Inc.	Picking	-	25
18	<i>Bunium persicum</i>	Zankai	Seeds	Pers.	Picking	V	80
19	<i>Dioscoria deltoides</i>	Kaneez	Root	Dec.	Digging	E	14
20	<i>Diospyrus lotus</i>	Toor amlook	Fruit	Pers.	Picking	-	12
21	<i>Ephedra intermedia</i>	Mahon	B/L	Dec.	Cutting	V	8
22	<i>Foeniculum vulgare</i>	Kaga/Alanai	Fruit	Pers.	Picking	-	20
23	<i>Fragaria indica</i>	Da Zamakay Toot	Fruit	Inc.	Picking	-	7

24	<i>Geranium wallichianum</i>	Srazela/ Rathan jot	Roots	Pers.	Digging	-	8
25	<i>Hedra nepalensis</i>	Palul Zelai	Lvs	Pers.	Plucking	-	7
26	<i>Hyoscyamus niger</i>	Dewana Bhang	Seeds	Dec.	Picking	-	30
27	<i>Hypericum perforatum</i>	Shana Chai	Shoot	Pers.	Plucking	-	9
28	<i>Juglans regia</i>	Ghuz	Fruit	Inc.	Picking	-	30
29	<i>Mentha spicata</i>	Podina	Lvs	Inc.	Plucking	-	8
30	<i>Mentha sylvestris</i>	Valanay	Plant	Pers.	Plucking	R	8
31	<i>Morchella esculenta</i>	Kasee/Gujai	Plant	Dec.	Picking	R	800
32	<i>Origanum vulgare</i>	Shamakai	Roots	Pers.	Digging	-	7
33	<i>Paeonia emodi</i>	Mamekh	Rhiz.	Dec.	Digging	E	8
34	<i>Peganum harmala</i>	Spailanay	Seeds	Inc.	Picking	-	6
35	<i>Pistacia integrifolia</i>	Shanai	Pod	Dec.	Picking	V	35
36	<i>Plantago lanceolatum</i>	Spaighol	Seeds	Pers.	Picking	R	40
37	<i>Podophyllum hexandrum</i>	Kakora	Rhiz.	Dec.	Digging	E	10
38	<i>Polygonatum verticillatum</i>	Peramole	Rhiz.	Dec	Digging	E	25
39	<i>Rheum australe</i>	Chotal	R/R.	Dec.	Digging	R	10
40	<i>Skimmia laureola</i>	Nazar panra	Lvs	Pers.	Plucking	R	12
41	<i>Thymus linearis</i>	Spairkai	Seeds	Dec.	Picking	R	25
42	<i>Valeriana jatamansi</i>	Muske Bala	Rhiz.	Dec.	Digging	E	10
43	<i>Viola canescens</i>	Banafsha	Lvs/f	Pers.	Plucking	-	16
44	<i>Viola biflora</i>	Banafsha	Lvs/f	Pers.	Plucking	-	16

### Abbreviations

**Part used:** Lvs and L stands for leaves, Rhiz and R For rhizome, B for bark and R for roots.

**Availability:** Dec. stands for decreased, Pers. for persistent, Inc. for increased.

**Plant Status:** E stands for endangered, V for vulnerable, R for rare.

Medicinal plants are sold in the local markets of Kalam, Madyan and Mingora. Out of 44 species collected, 13 species are exported to International markets while the remaining medicinal plants are used in Swat and other parts of the country. In table 2, medicinal plants traded from Swat are given. Considerable proportions of these come from Utror-Gabral Valleys.

**Table 2: List of plants traded to National and International markets from Swat.**

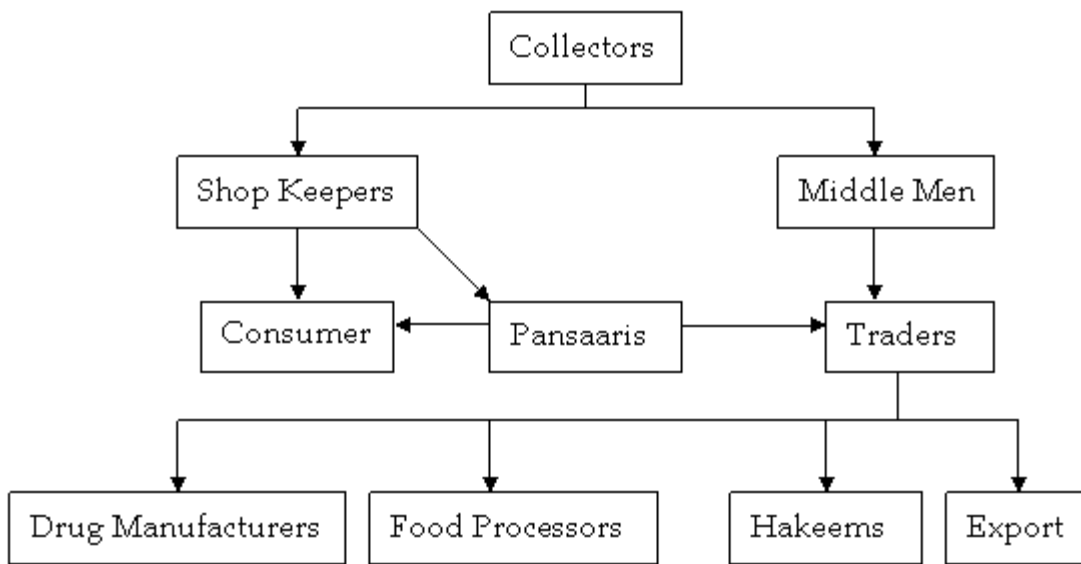
S. No	Botanical Name	Local/Common Name	Exported To	Quantity (Kg)
1	<i>Acorus calamus</i>	Aorch	National Use	2,80,000
2	<i>Adiantum incisum</i>	Parshoshan	Germany, Scotland, Iran and India.	80,000
3	<i>Adiantum capillus-veneris</i>	Parshoshan	Germany, Scotland, Iran and India.	80,000
4	<i>Bergenia ciliata</i>	Qamar Panra	China	120,000
5	<i>Colchicum luteum</i>	Soranjan talakh	Germany, Scotland, Iran, India and	80,000

			Afghanistan.	
6	<i>Dioscoria deltoids</i>	Kaneez	India	19,20,000
7	<i>Diospyrus lotus</i>	Tor Amlok	National use	96,00,000
8	<i>Morchalla esculenta</i>	Guchi	Switzerland, France, Germany, Scotland, Austria, Belgium.	400,000
9	<i>Myrtus communis</i>	Maroon	National use	400,000
10	<i>Paeonia emodi</i>	Mamekh	Europe and India.	600,000
11	<i>Pistacia integrimma</i>	Shanai	India	40,000
12	<i>Podophyllun hexandrum</i>	Kakora	Europe and India.	40,00,000
13	<i>Bistorta amplexicaulis</i>	Anjabar	Europe and India.	640,000
14	<i>Valeriana wallachii</i>	Mushk Bala	Europe and Iran.	280,000
15	<i>Viola betonicifolia</i>	Banafsha	India, Germany and Scotland.	400,000
16	<i>Viola serpens</i>	Banafsha	India, Germany and Scotland.	400,000

#### • Plant Collectors, Collection and Storage

Medicinal plant collectors are usually poor villagers. Plant collection is their part time activity besides farming and live stock keeping. The collectors include 48.74% womenfolk, 27.0% men folk and 24.26% children. They collect medicinal plants during spring and summer season which starts from April to September and sell it in the local market to fetch some money. One can see a person coming from a hilltop with a bundle of fuel wood on his head and a bag of medicinal plants in his hands. He handover his bag of medicinal plants to local Pansaris and put in his pocket whatever money he gets. According to Choudhary et al. (2000) about 500 families are involved in medicinal plant collection in Swat District and they collect 5000 tons of medicinal plants annually. The availability of medicinal plant in the area decreased in the last twenty years. However, in the last six years pressure on medicinal plants for collection is relaxed due to an increased cultivation of potato and beans in the area. The Utroris also have stopped the Gujars from entering the forest as they claim the ownership of the local forests.

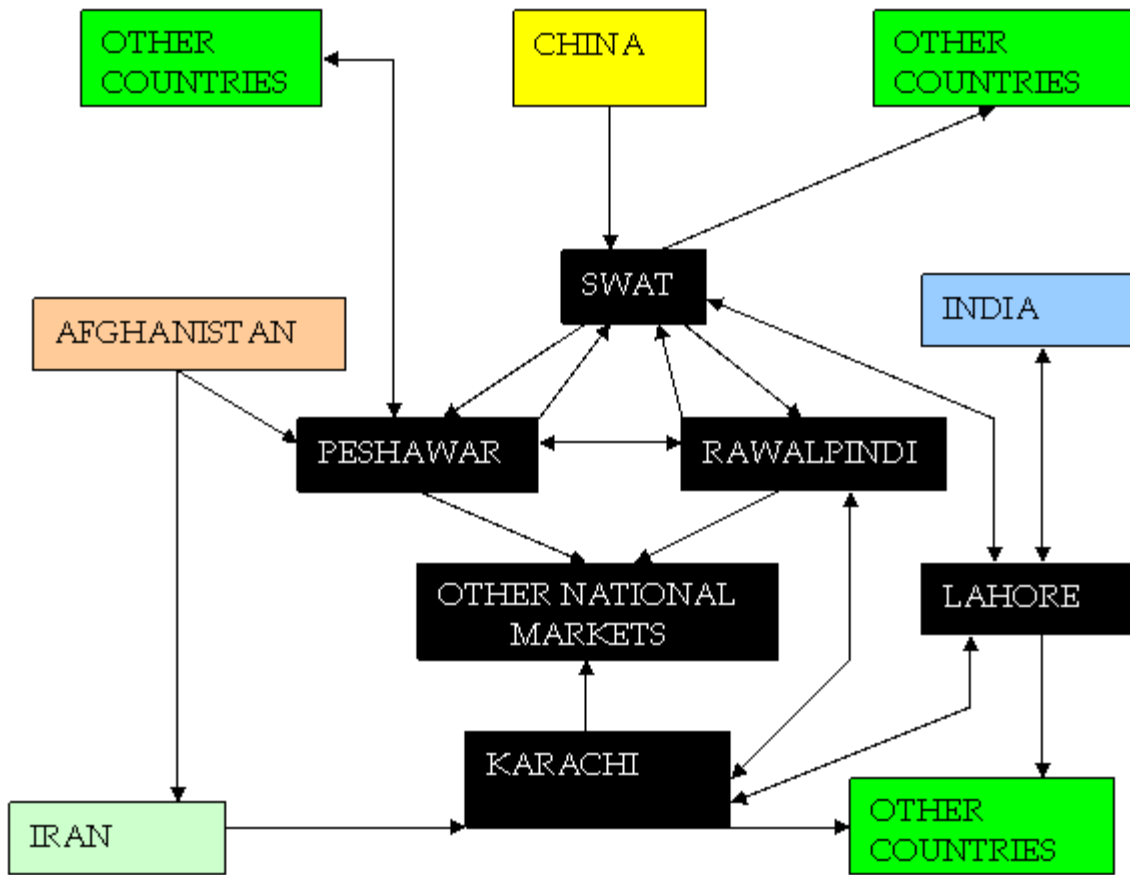
Bulk of medicinal plants collected in the area is rhizomatous. The collectors carry with them digging tools and dig medicinal plant wherever found. The plants are sold in local markets while some of them are kept in homes for curing different ailments. In fig.1 chain of people involved and fig.2 chain of medicinal plants marketing is given. Major proportions of plants collected are sold in fresh while some plants are stored in bags and sacks 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.



**Figure 1:** Chain of people involved in the medicinal plant trade in Pakistan.

### Women Knowledge of Medicinal Plants

Women folk of the area provide the most valuable source of indigenous knowledge of medicinal plants. Women work in the fields along with their men. They also collect fuel wood from the forest. They also collect medicinal plants. Some of these collected are kept in home and used for their own needs, while rest of medicinal plants collected are sold in the local market to earn some money.



**Figure 2:** Marketing chain for medicinal plants collected in Swat, Pakistan.

### Recommendations

- Local community should be trained regarding methods of collection and drying, identification and sustainable harvesting.
- Plant collectors should be encouraged and educated in order to increase their bargaining power, thus increasing their revenues from medicinal plants.
- The locals should be educated about the importance of medicinal plants to their socio economic conditions and eco system.
- There should be more coordination and cooperation among various agencies such as govt. departments and pharmaceutical firms pertinent to the utilization and regeneration of selected medicinal plants.
- Traditional medicines manufacturers and scientists should be encouraged to carry out research into the cultivation of medicinal plants.
- Cultivation of threatened medicinal plants should be encouraged in order to relieve pressure on these plants.
- Direct links between collectors and consumers should be established to secure higher level prices.

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