

MARKETING OF NATURAL DRUG PLANTS OF PAKISTAN

by

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Summary. *Drug market surveys conducted in Mingora, Peshawar, Rawalpindi, Lahore, Multan, Sukkur and Karachi have revealed that a large number of crude drugs are sold in sizable quantities in the markets of Pakistan. Thirty crude drugs were surveyed in view of their importance in different systems of medicine. Information was collected on consumption, sources of supply and price.*

Introduction. Crude drugs of vegetable origin collected from natural sources or from cultivated plants are sold in the markets of Mingora, Peshawar, Rawalpindi, Lahore, Multan, Sukkur and Karachi. Recent drug market survey conducted in these markets have revealed that the wholesale drug dealers were dealing in large numbers of items (nearly 500) used in Pharmacopoeial and Unani systems of medicines. Generally there is a ready demand of these crude drugs from about 40,000 to 50,000 practitioners in herbal medicine. The people also purchase them for treating minor ailments such as colds, dysentery and constipation as the drugs and their effects are known to them from centuries. The manufacturers of Unani medicines, e.g., Hamdard Dawakhana, Qaumi Dawakhana, Ashraf Laboratories, Dawakhana Hakim Ajmal Khan and many other concerns are the main users of these crude drugs. Hence there is a thriving business in crude drugs generally used in Unani and Ayurvedic systems of medicine and the markets are well established.

Method of Surveys

1. Thirty crude drugs were selected for the survey, keeping in view their importance in different systems of medicine.
2. A questionnaire was mailed to the wholesale drug dealers of different markets to elicit information on their supply, demand and prices.
3. Markets of Swat, Peshawar, Rawalpindi, Lahore, Lyallpur, Multan, Bahawalpur, Sukkur and Karachi were visited and pertinent information was collected on the spot from the wholesale drug dealers.
4. A list of wholesale drug dealers of different markets was prepared to develop further contacts with them.

Results. Swat. There are three main centres of collection in Swat District, i.e. Bahrain, Madyan and Mingora. About eighteen drug dealers are dealing in crude drugs in these markets. Their main job is to get the material collected from forest areas and to

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forward it to Peshawar, Rawalpindi, Lahore and Karachi markets. The approximate quantities of various crude drugs collected and supplied to different markets from Swat are Given in table 1.

TABLE 1

Crude drugs collected and supplied to different markets from Swat.

S.No.	Name of Plant	Part used	Destination	Approximate quantities sold during 1974 in Kg.	Rate per Kg. (Rupees)
1.	<i>Adiantum capillus Veneris</i>	Plant	Rawalpindi	30,945	2.75
2.	<i>Colchicum luteum</i>	Corms	Peshawar	226	9.00
3.	<i>Hyoscyamus niger</i>	Seeds	Rawalpindi	3,425	2.00
4.	<i>Juglans regia</i>	Fruits	Peshawar	37,416	1.50
5.	<i>Morchella esculenta</i>	Mushrooms	Rawalpindi	18,642	300.00
6.	<i>Podophyllum hexandrum</i>	Roots	Rawalpindi	40,097	5.87
7.	<i>Saxifraga ciliata</i>	Roots	Peshawar	24,650	2.50
8.	<i>Valeriana wallichii</i>	Roots	Rawalpindi, Karachi	203,385	10.00
9.	<i>Viola serpens</i>	Flowers	Peshawar, Rawalpindi.	8,147	8.00

Peshawar. About ten wholesale drug dealers deal in crude drugs, as well as dry fruits. Apart from receiving some drugs from Swat, a number of drugs, i.e. *Glycyrrhiza glabra*, *Saxifraga ciliata*, *Centaurea behen*, *Onosma echioides*, *Rheum emodi*, *Hygrophila spinosa*, etc. are also imported from Afghanistan. These items are forwarded to Rawalpindi, Lahore and Karachi markets as presented in table 2.

TABLE 2

Approximate annual consumption and supply of crude drugs from Peshawar market.

Name of plant	Part used	Source of collection.	Destination	Approximate quantities sold during 1974 in Kg.	Rate per Kg. (Rupees)
<i>Adhatoda vasica</i>	Leaves	Peshawar	Lahore Rawalpindi	202,400	0.25
<i>Centaurea behen</i>	Roots	Kabul	Lahore, Karachi	43,200	2.50
<i>Foeniculum vulgare</i>	Fruits	Bannu Peshawar	Karachi, Lahore, Sargodha and Local consumption.	57,800	6.50
<i>Glycyrrhiza glabra</i>	Roots	Kabul	Lahore Karachi	282,400	1.62
<i>Lawsonia alba</i>	Leaves	D.I.Khan, Bannu	Lahore, Karachi	140,000	1.25
<i>Onosma echioides</i>	Bark	Kabul	Lahore, Karachi, Local consumption	56,440	1.00
<i>Podophyllum hexandrum</i>	Roots	Swat, Dir	Karachi	14,000	6.50
<i>Rheum emodi</i>	Roots	Kabul	Lahore, Karachi, Local consumption	39,600	1.20
<i>Saxifraga ciliata</i>	Roots	Kabul	Lahore, Karachi, Local consumption	56,440	1.00
<i>Viola serpens</i>	Flower	Swat, Dir	Lahore, Karachi	28,260	12.00
<i>Withania coagulans</i>	Fruits	D.I. Khan	„ „	38,000	0.37
<i>Zizyphus vulgaris</i>	Fruits	Swat, Dir	„ „	48,360	4.50

It would be clear from the data that Peshawar market is the main supplier of crude drugs occurring or cultivated in N.W.F.P. Crude drugs, e.g. *Withania coagulans*, *Adhatoda vasica*, *Viola serpens*, *Valeriana wallichii*, *Podophyllum hexandrum* and *Foeniculum vulgare* can be quoted as examples.

Rawalpindi. Crude drugs collected from Azad Kashmir, Murree hills, Swat, Dir, Chitral, Kohat, D.I. Khan are received in the Rawalpindi market where about eight whole-sale drug dealers are carrying out the trade. Most of these shops are situated in Ghalla Mandi, Rawalpindi. The drug dealers of Rawalpindi forward most of the crude drugs, mentioned below, to Lahore and Karachi markets. Some of the items, i.e. *Valeriana wallichii*, *Saussurea lappa* are exported to foreign countries as well.

TABLE 3

Crude drugs collected and supplied to different markets from Rawalpindi.

Name of Plant	Part used	Source of collection	Destination	Approximate quantities sold during 1974 in Kg.	Rate Per Kg. (Rupees)
<i>Adhatoda vasica</i>	Leaves	Peshawar	Lahore, Karachi	19,869	0.81
<i>Adiantum capillus</i>	Plant	Swat and Galis	Lahore, Karachi	63,257	6.57
<i>Carum copticum</i>	Fruits	Rawalpindi	Local consumption	1,039	5.40
<i>Colchicum luteum</i>	Corms	Swat, Dir	„ „	2,775	9.50
<i>Glycyrrhiza glabra</i>	Fruits	Peshawar	„ „	4,292	1.75
<i>Hellebrous viridis</i>	Roots	Gilgit	Lahore and Local consumption	19,869	10.00
<i>Onosma echioides</i>	Bark	Peshawar	Local consumption	1,740	1.50
<i>Rheum emodi</i>	Roots	Peshawar	Karachi and Local consumption	20,153	1.30
<i>Swertia chirata</i>	Plant	Murree, Hazara	Local consumption	22,557	2.70
<i>Saussurea lappa</i>	Roots	Azad Kashmir	Karachi and foreign countries	33,383	6.50
<i>Viola serpens</i>	Flowers	Hazara, Murree	Karachi, Lahore	7,400	10.00
<i>Viola serpens</i>	Leaves	Hazara, Murree	Karachi, Lahore and Local consumption	49,210	1.50
<i>Withania coagulans</i>	Fruits	Bannu	Local consumption	5,920	0.80
<i>Zizyphus vulgaris</i>	Fruits	Peshawar	„ „	8,954	0.70

Lahore, Lyallpur and Multan. These markets are situated in the heart of Punjab and most of the drugs sold in these markets are consumed by the local population. Crude drugs are received from Northern areas as well as some neighbouring countries, i.e. India, Iran, Nepal, etc. Lahore market is the largest from where the crude drugs are forwarded to Lyallpur, Multan, Karachi and Sukkur markets. Information regarding crude drugs sold in different markets is given in table 4.

TABLE 4

Crude drugs sold in the markets of Lahore, Lyallpur, Multan and Bahawalpur, during 1974.

Name of Plant	Part used	Source of collection	Disposal of drug	Approximate quantities sold during 1974 in Kg.	Rate per Kg. (Rupees)
<i>Aconitum heterephyllum</i>	Roots	Rawalpindi, Peshawar	Local consumption	5,921	10.92
<i>Adhatoda vasica</i>	Leaves	Rawalpindi	—do—	219,236	0.90
<i>Carum copticum</i>	Fruits	Bannu, Rawalpindi, Kamoki	—do—	366,122	5.00
<i>Cassia absus</i>	Seeds	Gujar Khan, Kabul	—do—	62,851	10.00
<i>Cardiospermum halicacabum</i>	Seeds	Quetta	—do—	1,473	12.49
<i>Cassia angustifolia</i>	Leaves	Sukkur, Hyderabad	—do—	71,186	1.48
<i>Colchicum luteum</i>	Corm	Swat, Dir, Peshawar	—do—	4,671	10.00
<i>Foeniculum vulgare</i>	Fruits	Bannu, Peshawar, Sialkot	—do—	284,756	6.50
<i>Glycyrrhiza glabra</i>	Roots	Peshawar, Quetta	—do—	327,903	1.96
<i>Helleborus viridis</i>	Roots	Rawalpindi, Gilgit	—do—	137,826	9.72
<i>Hygrophila spinosa</i>	Seeds	India	—do—	6,159	32.00
<i>Hyoscyamus niger</i>	Seeds	Quetta	—do—	18,306	2.50

Table 4 (Contd.)

Name of Plant	Part used	Source of collection	Disposal of drug	Approximate quantities sold during 1974 in Kg.	Rate per Kg. (Rupees)
<i>Lavatera kashmiriana</i>	Roots	Rawalpindi	—do—	33,454	2.53
<i>Lawsonia alba</i>	Leaves	Kasur, Khushab	—do—	222,471	2.15
<i>Merendera persica</i>	Corms	Iran	—do—	4,980	6.81
<i>Nigella sativa</i>	Seeds	Lyallpur	—do—	63,317	10.82
<i>Onosma echioides</i>	Bark	Rawalpindi, Peshawar	—do—	31,674	1.48
<i>Plantago ovata</i>	Seeds	Chistian, Hasilpur	—do—	271,342	3.50
<i>Rheum emodi</i>	Roots	D.I. Khan, Peshawar	—do—	98,165	1.40
<i>Saussurea lappa</i>	Roots	Azad Kashmir	—do—	2,537	8.27
<i>Valeriana wallichii</i>	Rhizomes	Swat, Dir, Peshawar	—do—	41,674	12.50
<i>Viola serpens</i>	Leaves	Rawalpindi, Peshawar	—do—	162,578	1.69
<i>Viola serpens</i>	Flowers	Rawalpindi, Peshawar	—do—	110,887	11.00
<i>Withania coagulans</i>	Fruits	Bannu, D.I. Khan	—do—	333,520	1.00
<i>Zizyphus vulgaris</i>	Fruits	Peshawar, Iran	—do—	139,114	4.20

Karachi. Karachi is a large trade centre and most of the drugs received from Quetta, Sukkur, Rawalpindi, Lahore, and Peshawar are used for local consumption. Some, e.g. *Rheum emodi* (Roots), *Valeriana wallichii*, *Foeniculum vulgare* ((Fruits), *Carum copticum* (Fruits), *Glycyrrhiza glabra*, (Roots), *Carum bulbocastanum* (Fruits), *Cuminum cyminum* (Fruits), *Papaver somniferum* (Seeds), Gum arabic and *Asafoetida* gum are exported in sizable quantities. Crude drugs sold and exported from Karachi market are given in table 5.

TABLE 5

Crude drugs sold in large quantities in Karachi market during the year 1974.

Name of Plant	Part used	Source of collection	Mode of disposal of drug	Approximate quantities sold during 1974 in Kg.	Rate Per Kg. (Rupees)
<i>Carum copticum</i>	Fruits	Sukkur, Dadu, Thatta	Export and Local consumption	103,348	1.50
<i>Cassia angustifolia</i>	Leaves	Hyderabad, Thatta	Local consumption	53,100	1.00
<i>Carum bulbocastanum</i>	Fruits	Gilgit, Peshawar, Rawalpindi	Export and Local consumption	102,960	12.00
<i>Colchicum luteum</i>	Corms	Rawalpindi, Swat, Dir	Local consumption	9,360	10.00
<i>Cuminum cyminum</i>	Fruits	Kalat and Quetta	Export and Local consumption	639,000	8.00
<i>Foeniculum vulgare</i>	Fruits	Sukkur, Dadu, Thatta	Export and Local consumption	418,392	7.00
<i>Glycyrrhiza glabra</i>	Roots	Peshawar, Quetta, Kabul	Export and Local consumption.	383,220	2.00
<i>Hyoscyamus niger</i>	Seeds	Quetta	Local consumption	10,240	3.00
<i>Merendra persica</i>	Corms	Iran	—do—	17,028	7.00
<i>Onosama bracteatum</i>	Leaves	Iran	—do—	28,260	3.00
<i>Plantago ovata</i>	Seeds	Chistian, Hasilpur, Sajawal	—do—	76,752	4.00
<i>Rheum emodi</i>	Roots	Quetta, Peshawar	Export and Local consumption.	103,482	1.50
<i>Viola serpens</i>	Flowers	Swat, Peshawar, Rawalpindi	Local consumption	12,520	12.00
<i>Viola serpens</i>	Leaves	Swat, Peshawar, Rawalpindi	—do—	62,244	2.00
<i>Withania coagulans</i>	Fruits	D.I. Khan, Bannu, Kohat	—do—	61,632	1.00
<i>Zizyphus vulgaris</i>	Fruits	Peshawar, Hirat	—do—	78,336	4.30

Export of crude drugs. Some of the crude drugs exported from Karachi market to different countries of the world in the year 1973-74 are given in table 6.

TABLE 6
Crude drugs exported from Pakistan

Name of Plant	Part used	Total quantity in Kg.	Value in Rupees
<i>Acacia arabica</i>	Gum	2,57,075	3,123,000
<i>Carum copticum</i>	Fruit	9,900	34,000
<i>Cuminum cyminum</i>	Fruit	687,950	5,440,000
<i>Ephedra sp.</i>	Twigs	64,950	288,000
<i>Foeniculum vulgare</i>	Fruit	316,650	3,965,000
<i>Glycyrrhiza glabra</i>	Roots	147,500	398,000
<i>Opium alkaloid</i>	Salt derivative	2,000	18,000
<i>Papaver somniferum</i>	Seed	731,200	1,976,000
<i>Rheum emodi</i>	Roots	143,000	224,861
<i>Ricinus communis</i>	Seed	6,937,000	26,316,000
<i>Valeriana wallichii</i>	Rhizome	346,320	4,002,162

From table 6 it would be clear that crude drugs valued at about 45.7 million rupees were exported from Pakistan during 1973-74.

Conclusion. Surveys of different drug markets revealed the following facts:

1. A number of crude drugs, i.e. *Valeriana wallichii*, *Viola serpens*, *Adiantum capillus*, *Swertia chirata* are collected from Swat, Dir, Chitral and Azad Kashmir by certain firms, and the material is forwarded to Peshawar, Rewalpindi, Lahore and Karachi markets.
2. Certain crude drugs, e.g. *Glycyrrhiza glabra*, *Rheum emodi*, *Carum bulbocastanum* though exported from Pakistan but are in fact imported from Afghanistan through illegal means via Peshawar and Quetta. A few drugs, e.g. *Onosma bracteatum*, *Zizyphus vulgaris*, *Cassia absus*, *Saxifraga ciliata*, *Centurea behen*, *Onosma echioides*, *Hygrophilla spinosa* are being imported from Afghanistan and Iran for local consumption.
3. Some of the medicinal plants cultivated in different pockets of Pakistan are consumed locally and also exported to different countries of the world. Examples

are *Foeniculum vulgare*, *Cuminum cyminum*, *Plantago ovata*, *Lawsonia alba*, *Carum copticum* and *Papaver somniferum*.

4. Some of the exporters complained that material supplied to them by the dealers of Lahore, Sukkur and Peshawar was often mixed with dust and straw and it had to be cleaned before it was sold or exported.
5. It was also brought to our notice that crude drugs such as *Glycyrrhiza glabra*, *Rheum emodi* and other root materials get attacked by fungi if stored for two to three months. This may be due to incomplete drying before storage and improper storage conditions.
6. Some of the exporters of crude drugs have switched over to export other commodities because of frequent breakdown in the supply of drug materials and the uncertainty created by foreign buyers.
7. It was suggested that facilities for testing the active ingredients of crude drugs may be made available to the drug dealers so that the crude drugs exported could not be rejected by foreign firms on flimsy grounds.
8. Considering the significant effect of method of collection, drying and storage of medicinal plants on their quality and active ingredients, it is suggested that collection, drying, grading and packing units be established in the vicinity of drug plant habitats by the Forest Departments to ensure the supply of high quality drugs.

Reference

- ANONYMOUS 1974. Foreign trade statistics of Pakistan, Part I (Export and re-export) Vol. 9, Government of Pakistan, Karachi Pp. 92-128.