

# Potential and Market Status of Mushrooms as Non-Timber Forest Products in Pakistan

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## Abstract

The total area covered by forest in Pakistan is 4.8%. Forest resources directly contribute to 80% of livelihood of people living in extreme poverty. Important NTFPs are; morels, honey, fruits and nuts, vegetable, condiments and spices, mazri palm, silk cocoon, and many other. 17 species of mushrooms are reported during the study and about 34% of local people are dependent on NTFPs for income generation from these products. Local people rely on their indigenous knowledge for collection, processing, packing, drying, marketing and consumption of various Non Timber Forest Products (NTFPs) especially mushrooms. Mushrooms, after collection and processing are sold to the middleman who then sells into main market. More than 65% of the product is lost during the way to main market with finished product. About 532280 kg were produced in 1997-98. There are problems like lack of awareness about collection and processing of various products and knowledge about marketing among local collectors. Extensive research is needed to study market trends and monopolies, wastage and unsustainability during different steps of processing, and govt. attitude toward NTFPs etc. Studies to be conducted through bottom-up approach for proper planning, better levels of production, sustainable income through sustainable utilization, training and capacity building of related personals, sustainable marketing and community for conservation.

**Key Words:** Non timber forest Products, Mushrooms, Potential, Market status, Pakistan

## Introduction

Non-timber forest products (NTFPs) refer to a wide array of economic or subsistence materials that come from forests, excluding timber. Similar terms include "non wood," "minor," "secondary," and "special" or "specialty" forest products. About 6000 species of higher plants are noted in various forms (Shinwari, 2002). 400 (7.8%) of these are endemic to Pakistan representing 149 genera and 41 families. The share of forestry in country's economy is 456 millions in 1999-00 (Economic Survey of Pakistan, 2000). Some of the important NTFPs in Pakistan are:

### A) Food products

- Morels
- Honey
- Wild fruits and nuts
- Vegetables
- Condiments and Spices

## **B) Animal Products**

- Silk cocoons
- Lac
- Ivory, skin, eggs etc
- Different animals and birds

## **C) Industrial products**

- Resin
- Vegetable tanning
- Bhabar grass

## **D) Fibers**

- Mazri leaves

## **E) Miscellaneous products**

- Oils
- Soap-nut
- Walnut bark
- Gums
- Basketry
- Chewing sticks
- Ornamental plants and flowers
- Seabuckthorn etc

## **Methodology**

In consideration of the greater dependence of the rural population on NTFPs, especially mushrooms, it is timely to review the current status of mushrooms and identify gaps where unsustainability lead to decrease in markets trends. The methodology for the project was based on three material collection methods, i.e.

- Literature Review
- Meetings with the stakeholders
- Personnel interviews/ observations

Available literature (books, journals, research papers and articles etc) about mushrooms and NTFPs was reviewed. Sources of these literatures were Pakistan Forest Institution (PFI), Weed Sciences Department, Agriculture University Peshawar, Forest Department, Peshawar, Wildlife Department N.W.F.P., Export Promotion Bureau (EPB), Peshawar, Central Library Peshawar University, and Internet etc. Personal observation and experience about various NTFPs in the market like prices and collection processes by local communities were also considered during study.

## **Results**

### **Major Species**

A variety of black mushrooms or morels are found in Pakistan, including (*Morchella esculenta*), Giant morels (*M. crassipes*), Round head morels (*M. vulgaris*), white morels (*M. deliciosa*), *Conocyba crispa*, *C. comatus*, *Cantharellus floccus*, *M. conica*, *M. anqusticipt*, pine mushrooms (*Boletus luteus*), and other

morels like Oyesters, padakis, lapoita, polyporus, Ink cap, earthstar and meadow mushroom etc (Iqbal 1991, Rehman *et al*, 2000). Their local names are Guchi, Hasei, and Harerey etc., are common local names in various areas of Pakistan.

### **Distribution**

Morels grow naturally in the temperate forests of Pakistan, including Dir, Chitral, Mingora and Kalam (Swat), Kohistan, Tirah, Kurram Agency, Mansehra, Murree, Margalla Hills, Bagh and Chakoti (Azad Jamu & Kashmir), Quetta, Zayarat and Zhob (Baluchistan). The altitudinal limits for black mushrooms ranges from 1,800 to 3,000 meters above sea level (Rehman, *et. al.* 2000). Some of the amount also comes from Afghanistan through Para Chinar, which are known as Mazarey Mushrooms. They are of inferior quality and smaller height. In most of the plain areas of Pakistan, local people through their indigenous knowledge use them.

### **Indigenous knowledge of the people**

A forest dweller who finds mushrooms is often referred to by the local populace as "the luckiest person". Local people often hide the place from where they pluck mushrooms. An expert can collect mushrooms upto 8-10 kg in fresh form on his luckiest day, while normally upto one to two kg is collected. According to people, various mushrooms species have certain association with plant species. People recognize them through their various colors, like yellow, white, half-white, brown, blackish and dark brownish etc and different shapes. The local people also search these mushrooms under various tree species like apple, pears, *Taxus baccata*, *Taxus wallichiana*, *Abis spindrow*, *Juglans regia*, *Pinus wallichiana* etc.

### **Number of People involved**

About 289,000 forest dwellers, mainly children and women, are involved with collection and processing of morels in NWFP. Many people in local communities collect part time in addition to their regular jobs, such as grazing animals, collecting fodder and fuelwood etc. The role of women is really crucial in all the processes like collecting, cleaning and drying (Shah, 1991).

### **Level of Production**

Each year, local people collect about 55 to 65 tons of dried morels, which equals to the weight of 500 tones of fresh morels. More than 70% of mushrooms are produced in NWFP (Iqbal, 1991). Some people are going for cultivation of mushrooms in the areas of Punjab (Fiasalabad), NWFP and Azad Jammu & Kashmir. About 532,280 kg of mushrooms were produced in 1997-98 (EPB, 2001). Mushrooms also came from Afghanistan via Para chinar in to main trading center of Peshawar, which is then exported from country after processing. These mushrooms are of inferior quality and know as Bangla or Mazari Mushrooms. Positive trends are seen in cultivation of mushrooms in some of the North Western part of the country due to climatic favourability and attraction of people for income.

### **Collection and Processing Methods**

Local people (children 54%, women 24%, men 22% in NWFP) collect them in fresh form from the forest (Iqbal, 1991). By traditional methods, they keep for drying up to 2-3 days in sunlight and clean the dried soil from stalk. Dried mushrooms are sold on barter trade basis or for money to the near by local grocers. From the grocers dried mushrooms are sold to "Middle Men" in to the main trading markets who supply mushrooms to main trading centers like Lahore, Karachi and Rawalpindi etc or even

directly export e.g. in Mingora and Swat. They pack mushrooms in tea crates. In main trading centers, they are well processed according to the demand of importer, which cost 90 to 110 rupees/Kg (Iqbal, 1993). Main trading companies like Umer and Haji trading companies in Peshawar supply these mushrooms to Lahore and Karachi.

### **Unit Price**

The unit price of *Morchella esculenta* is Rs. 4000 to 4300 per kg at local grocers level while at middlemen level its price reached from Rs. 4000-4300 to Rs. 5000-5500 per kg (Adnan, 2002). Children sell fresh morels at a price of 600-650 per kg while the tail is sold at price of 1300-1350 per kg and mushroom dust is sold at 300-330 per kg. The prices for various morels ranges from Rs. 65-235 per kg. The prices are varied throughout the season i.e. in start, middle and end of season. Price of *Morchella esculenta* in international market is \$271 per kg. There was 60-70% increase in prices from 1991-2003 (Iqbal, 2002).

### **Exporting Countries**

Mushrooms are normally exported to France, UK, Italy, Switzerland, and Dubai etc. Its exports ranged to 150 to 160 million rupees (Iqbal, 1993). Pakistan earned \$6.904 million foreign exchange in 1993. There was an export of Rs. 78,640,000 in 1999-00 (EPB, 2002). 70 per cent decrease in exports was recorded in year 2000-2001.

### **Market Chain of mushrooms and other products**

Marketing of various products exported from the country passes through various chains. Mainly four phases reviewed during the study. These are local collector level, middlemen level, local market levels and exporting level.

- Products are extracted by forest dwellers, which processed them through indigenous methods and sell the home based finished products to middlemen.
- Middlemen are normally the local shopkeeper or local traders. Shopkeepers buy the products and sell on local traders “BeyParian” in the main market. Local people also sell products on local traders, who visit regularly to the village or town.
- Local market level, are the main city/town markets, in which the local trader or middlemen sell the further processed product to the locally known “BeyParian”.
- From the local market these products goes to exporting markets. After further processing, they are export. Main exporting countries are Germany, Middle Eastern countries, Jappan, India, UK, Switzerland, France etc.

From the review study, it was revealed that more than 60-65% is lost during the way to the local markets.



### ***Figure 1 Market Chain and loss of Mushrooms***

#### **Discussion**

The main problems for mushrooms production and fluctuation are: lack of local people awareness about collection and processing techniques; lack of proper market knowledge and access; lack of interest of government for its cultivation in the suitable areas; and quality of morel which leads to lower prices in the market etc. Provision of proper attention to all these problems one can hope for better price and well being to forest dwellers.

Sixty-five percent loss of material during initial processing affects the sustainability of ecosystems, which affect the supply base. Involvement of 54% children in collection and processing of different mushrooms itself narrate the whole picture. The role of women during various processes of mushrooms preparation and marketing is neglected. They are deprived from their respected benefit. 70% decrease in export of mushrooms shows the unsustainable harvesting by the local people. Same situation exists with other NTFPs especially medicinal plants.

#### **Recommendations**

1. Equal share of benefits should be given to local people both men and women, through outs the process of product sell and trade, through proper market development and rules.
2. Training to the communities of product collection/utilization and marketing should be given for sustainable harvesting.

3. New markets has to be created for various products collected from the wild and cultivated, so that the community may be well benefited.
4. Various Govt. Institutions, mushrooms related industries and NGOs should go for new programs on marketing and certification of various products prepared for sustainable income as well as marketing.
5. Proper advertisement and marketing of various products like Mazri, morels, honey, Seabuckthorn, fruits etc not only at national but also at international level have to be done for more foreign exchange and local benefits.
6. Proper monitoring of trade and marketing should be done for consistency in supplies of the products and monopoly of few buyers should be avoided.
7. Domestication and cultivation of various products through *ex-situ* conservation and community management in the prone areas where products are decreasing in their quantities.
8. For proper conservation and sustainable utilization, rules and regulations at community level is to be implemented, with the help of dignities of community, so that both goal of economic development and ecosystem conservation has to be achieved.
9. Place in the international market has to be created for products prepared through improvement in the collection, drying, grading, packing and transporting, so that low production with better quality may yield better prices and benefits, while losses during these processes will pave the way towards sustainability of ecosystem.

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