

COMMERCIAL EXPLOITATION AND CONSERVATION STATUS OF HIGH VALUE MEDICINAL PLANTS ACROSS THE BORDERLINE OF INDIA AND NEPAL IN PITHORAGARH

CHANDRA PRAKASH KALA

*Indigenous Knowledge System,
G.B. Pant Institute of Himalayan Environment and Development,
Kosi-Katarmal, Almora (Uttaranchal).*

Introduction

Historically, the importance of medicinal plants was restricted to the few specialized herbal healers and rural communities, and thus much of their use was seen as primarily of local interest (Arnold and Perez, 2001). For past two decades medicinal plants have been recognized for improving economic status by selling in markets across the world. The world trade figures suggest that India is next to China by exporting 32,600 tonnes of medicinal raw material worth US\$ 46 million annually (Lange, 1997; Dhar *et al.*, 2000; Manjkhola and Dhar, 2002). In the Himalayas, the trend towards increased commercialization of medicinal plants has resulted in over-harvesting, and now many of the valuable indigenous plant species are critically endangered (Kala, 1998; 2002). The increasing population, high rate of unemployment, desire to earn more money and increasing acceptability of herbal medicine are among some of the factors responsible for rising trade in medicinal plants.

Earlier, the harvesting of medicinal plants was the domain of specialist herbal healers but now harvesting has become a

domain of untrained and often indifferent commercial gatherers (Williams *et al.*, 2000) leading to environmental degradation and decline in wild stock (Kala, 2000). With increasing demand, the market for medicinal plants has expanded, thus opening new avenues to improve the economic status of local communities. On the other hand, there is a challenge for a more sustainable, efficient and equitable management of these valuable products as unsustainable harvesting, inequitable benefits distribution and overall economic inefficiencies characterize the current trend in medicinal plants marketing (Ojha, 2000). Although, there are studies on the documentation of medicinal plants, their population status and propagation packages through rural and modern biotechnological approaches along with *ex-situ* and *in-situ* conservation strategies, there is paucity of quantitative data on the trade in medicinal plants. The present study aims to bridge this gap by studying and analyzing the trade in medicinal plants, especially of high economic and conservation significance. Besides, the current policy issues and their implications in sustainable management and utilization of medicinal plants are studied in one of the remote regions of Uttaranchal Himalayas.

Study Area

The present study was carried out across the borderline between India and Nepal in Pithoragarh district of Uttarakhand, India. There are two main entry points to enter India from Nepal – one is via Dharchula and other one via Jhulaghat. The medicinal plants brought to Jhulaghat of Pithoragarh District (Uttarakhand) in India are collected from Baitadi District of Nepal. Baitadi is one of the hilly districts, situated in the remote region of Nepal (29°22' to 29°27' N and 80°15' to 82°45' E). Its neighbouring districts are Doti and Bajhang in the East, Dharchula in the West, Bajhang in the North and Dadeldhura in the South. Baitadi covers wide altitudinal range (390 - 2,950m). About 2,40,725 people (male-51%, female-49%) inhabit the 1482 km² area of Baitadi District. Besides collection of medicinal plants for selling, agriculture and livestock rearing are among the main occupations of local people.

Survey Method

To gather information on the medicinal plants in trade and quantity of trade, the local traders and contractors at Jhulaghat (the main centre of trade in medicinal plants collected from Baitadi district of Nepal) were identified and interviewed. The field studies were carried out between September and October, 2002, as most of the medicinal plants are traded during this period. A complete checklist of all medicinal plants and plant parts in trade was compiled for each shop. The local name of each plant species was recorded. Information relating to the suppliers of the plants (e.g. commercial gatherer or wholesaler) and their sources (i.e. the region from where they have been

harvested) was also collected along with the trade channels.

Results and Discussion

Across the borderline of Nepal and India in the Jhulaghat region of Pithoragarh District of Uttarakhand, a total of 16 medicinal plants were in trade (Table 1). These medicinal plants and their parts are used for curing various ailments. Most of the medicinal plants across the borderline of Nepal and India were collected from the Baitadi District of Nepal by local herb gatherers. Fruits of Reetha (*Spindus mukorosi*) were traded in highest quantity (about 4,000 qtls) during 2002. Six species of rare and endangered categories (e.g. *Swertia chirata*, *Berberis asiatica*, *Acorus calamus*, *Bergenia ligulata*, *Picrorhiza kurroa* and *Nardostachys jatamansi*) were also collected from Baitadi District for sale to India, inspite of the total ban on their collection for commercial purpose. Besides, other plants such as Brahmi (*Centella asiatica*), Bajradanti (*Potentilla fulgens*), Mameera (*Thalictrum foliolosum*), Kanthakera (*Carallia brachiata*) and Kadi patta (*Murraya koenigii*) were collected but not traded due to their low market values and also due to the lesser demand.

Besides government agencies, there are a number of stakeholders in the medicinal plants trade sector, ranging from herb gatherers, local middlemen, urban traders, wholesalers, manufacturers, exporters and herbal healers. The medicinal plant collectors are generally the marginal farmers and labourers. They get cash income by selling medicinal plants to meet their expenses on food, health, children education and basic requirements. On many occasions, the herb gatherers do

Table 1

Medicinal plants trade in the Jhulaghat region of Pithoragarh during 2002.

Sl. No.	Commercial name	Species	Local name	Part used	Quantity (qtls)
1.	Reetha	<i>Sapindus mukorosii</i>	Reetha	Fr	4000
2.	Tejpat	<i>Cinnamomum tamala</i>	-	Lf	500
3.	Bach	<i>Acorus calamus</i>	Bojho	Rt	200
4.	Pasanbhed	<i>Bergenia ligulata</i>	Silphadi	Rt	900
5.	Timur	<i>Zanthoxylum armatum</i>	Timur	Fr	60
6.	Tagar	<i>Valeriana hardwickii</i>	Shammia	Fr	250
7.	Jhula	Lichens spp.	Chhadila	-	400
8.	Kingod	<i>Berberis asiatica</i>	-	Rt	180
9.	Darul Haldi	<i>Berberis aristata</i>	-	Rt	60
10.	Chiraita	<i>Swertia chirata</i>	Titya	Wh	25
11.	Katuki	<i>Picrorhiza kurroa</i>	-	Rt	150
12.	Satawari	<i>Asparagus racemosus</i>	Jhijhirkana / Kairon	Rt	150
13.	Jatamansi	<i>Nardostachys jatamansi</i>	Bhutkesh	Rt	100
14.	Awala	<i>Emblica officinale</i>	-	Fr	400
15.	Jeevantee	<i>Pholidota articulata</i>	Jeevantee	Wh	150
16.	Kakasingi	-	Kakdi	Fr	30

not get their actual share due to the lack of right information about the prices of the medicinal plants that often fluctuate between Rs. 50 and Rs. 120 per unit. Since the transportation, communication and other infrastructure facilities are under-developed, there are obstacles in flow of information between wholesalers and local herb gatherers.

Although, in Nepal, the various rules pertaining to conservation of natural resources (e.g. Forest Rules, Forest Acts, National Conservation Strategy, Nepal Environmental Policy 1993, National Parks and Wildlife Conservation Act, Convention on Biological Diversity and CITES) exist and ban has been imposed keeping in mind

conservation of the rare and useful species, however, the present rules are not enough to protect the resources – rather there is enhancement of the illegal trade and smuggling (Anon., 1995; Ojha, 2000). There are many rare plants, which are in the negative list of collection, but these species are being collected illegally on a large-scale for trading. For example, there is a ban on the collection of Yarshagumba (*Cordyceps sinensis*) and Jatamansi (*Nardostachys grandiflora*) but illegal trade is continuing in both the species. Each year, many threatened medicinal plants such as *Swertia chirata*, *Berberis asiatica*, *B. aristata*, *Acorus calamus*, *Bergenia ligulata*, *Picrorhiza kurroa* and *Nardostachys jatamansi* are being traded

to India in significant quantities. *Bergenia ligulata* has become endangered due to the use of its roots. During 2002, about 900 quintals roots of this threatened herb were collected and traded only from Baitadi District of Nepal to India. In practice, there is a more pressure on the species with high market rates and thus these species are declining more rapidly.

All the 16 medicinal plants (Table 1) grow in the remote hill region where the villagers have limited alternatives to improve their economy. Therefore, the medicinal plants growing in such areas have become a viable source of their income. The policy makers therefore, should develop the policies in such a way that the underprivileged communities may not be deprived from their own resources. There is also an urgent need to develop a

mechanism by which the information can be made available to the local herb gatherers and traders so that they can reap the benefits of their hard work.

At the same time, the conservation of threatened medicinal plants is of utmost significance. Steps must be taken in gathering information on the medicinal plants in trade commercially along with the quantification of trade. This can be useful in identifying the pressure on the threatened taxa, and also in comparing the regional and national medicinal plants markets. Furthermore, analyzing the dynamics of trade and the factors those have been influencing the supply and demand can be useful towards identifying solutions and survey methods for setting priorities and goals for sustainable development (Williams *et al.*, 2000).

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SUMMARY

Across the borderline of Nepal and India in the Jhulaghat region of Pithoragarh District (Uttaranchal), a total of 16 medicinal plants were documented during the present survey, which are in trade for commercial purpose. Most of these medicinal plants are being collected from the Baitedi District of Nepal and then supplied to the India via Jhulaghat and Dharchula. Reetha (*Sapindus mukorosii*) was traded commercially in highest quantity (about 4,000 qtls) during 2001-2002. Six species of rare and endangered categories were also collected from Baitadi District for sale to India, inspite of the total ban on their collection for commercial purpose. Based on the survey and findings, various conservation and management steps have been discussed to protect the medicinal plants and also for future course of action.

पिथौरागढ़ में भारत-नेपाल सीमारेखा के आरपार अधिक मूल्यवान औषधीय पादपों की व्यावसायिक
समुपयोजन और संरक्षण स्थिति

चन्द्रप्रकाश काला

सारांश

पिथौरागढ़ जिले के झूलाघाट क्षेत्र में भारत-नेपाल सीमारेखा के आरपार कुल मिलाकर 16 औषध पादप, प्रस्तुत सर्वेक्षण

में लेखबद्ध किए गए जिनका व्यावसायिक प्रयोजनों के लिए व्यापार किया जाता है। इनमें से अधिकांश पादप नेपाल के बायतेडी जिले से इकट्ठा किए जाते हैं और फिर झूलाघाट और धारचुला होते हुए भारत में भेजे जाते हैं। 2001-2002 में सर्वाधिक मात्रा में (लगभग 4000 क्विंटल) व्यापार रीठे (*सैपिण्डस मुकोरोसिआई*) का किया गया। व्यावसायिक प्रयोजन के लिए उनका संग्रह करने पर पूर्ण प्रतिबन्ध लगा रहने के बावजूद भारत में बेचने के लिए बायतेडी जिले से दुर्लभ और संकटापन्न श्रेणी में आने वाली छह पादप जातियों का संग्रह भी किया गया। इस सर्वेक्षण और इससे प्राप्त हुई जानकारी के आधार पर इन औषधी पादपों की रक्षा करने, तथा भविष्य में क्या किया जाए, बताने के लिए विभिन्न संरक्षण और प्रबन्धन उपायों का विवेचन भी किया गया है।

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