Medicinal Plants in Active Trade at Haridwar City of Uttarakhand State in India

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Abstract

Medicinal plants offer a wide range of services including monetary benefits. In view of the importance of medicinal plant marketing, the present study was conducted in the Uttarakhand state of India. The traders were interviewed for collection of information on the medicinal plants in active trade. Thirty medicinal plants were documented during the survey those were in active trade. Different plant parts of these species such as fruit, root, leaf, stem and bark were sold in the market. The dried leaves of Allium stracheyi Baker had the highest cost in the market (Rs 3000 per kg), followed by Picrorhiza kurrooa Royle ex Benth (Rs 2500 per kg). Of the total 30 traded species, 10 species are categorized as the threatened species. There is an urgent need for conservation of medicinal plant species in order to maintain their sustainability and the business associated with such a precious natural resource.

Keywords: Medicinal plants; Ecosystem service; Marketing; Uttarakhand; Sustainable development

Introduction

Medicinal plants, traditionally established as a major source of curing diseases, at present, not only use in curing various ailments but also offer a wide range of subsistence and monetary benefits to the people across the world [1-3]. The recent past has witnessed the substantial growth in the herbal product’s market. According to the World Health Organization, 30% of the drugs sold worldwide contain compounds derived from plant material. The world trade figures suggest that India is next to China as it exports 32,600 ton of medicinal raw material worth US$ 46 million annually [4]. The exponential growth in human population, unemployment, desire to earn more money, and increasing acceptability of herbal medicine are among few stimulating factors for rising trade in medicinal plants [5].

In India, over 270 million people depend on forest produce for their living [6]. Due to several reasons, including vagaries of climate, the agriculture does not yield expected returns on many occasions. The dependency of community on forest produce, which include medicinal plants, may increase on such occasions [7]. Since supply chain of medicinal plants passes through many stages involving primary collectors, local contractors, regional wholesale markets and specialized suppliers, the primary collectors may not be getting the genuine benefits of their produce sold in the market [8]. At the same time, there is a challenge for the sustainability of raw material. In view of the present socio-economic changes due to several reasons and importance of medicinal plants marketing, the present study was conducted in the Uttarakhand state of India.

Survey Methods

The present study was carried out in Uttarakhand state of India. It is mainly a hill state having international boundaries with China (Tibet) in the north and Nepal in the east. On its south lies the Indian state of Uttar Pradesh and on north-west is Himachal Pradesh. It spans over an area of 53,483 square km. Because of the wide altitudinal range, Uttarakhand endows with the sub-tropical, temperate and sub-alpine forests that support a rich biological and cultural diversity.

To gather information on the medicinal plants in trade, the local traders in the city of Haridwar were identified and interviewed, as the medicinal plants collected from the hill districts of Uttarakhand are also brought here for sale being the city located in the foothills of the Himalayas. A checklist of medicinal plants and plant parts in trade were compiled. Information related to the supply chain of medicinal plants was also gathered by approaching village level collectors to middlemen and wholesale traders.

Results and Discussion

A total 30 medicinal plants were documented during the survey those were in active trade (Table 1).

| Serial No. | Species | Plant trade name | Part used | Rupees per kg |
|------------|---------|------------------|-----------|---------------|
| 1          | Acacia concinna DC. | Shikakai | Fruit | 100          |
| 2          | Acorus calamus L. | Buch | Leaf | 300          |
| 3          | Allium stracheyi Baker | Faran/jambu | Leaf, stem | 3000        |
| 4          | Arnebia benthamii (Wall. ex G.Don) Johns | Balchhadi | Root | 600          |
Table 1: Medicinal plants traded in the Uttarakhand state of India.

| No. | Plant Name                                      | Part Sold  | Price (Rs/kg) |
|-----|------------------------------------------------|------------|---------------|
| 5   | Asparagus racemosus Willd.                     | Root       | 400           |
| 6   | Azadirachta indica A. Juss.                    | Leaf       | 80            |
| 7   | Berberis aristata DC.                          | Root/stem  | 80            |
| 8   | Belula utilis D. Don                           | Bark       | 1200          |
| 9   | Centella asiatica (L.) Ubr.                    | Leaf       | 250           |
| 10  | Chlorophytum borivilianum Santapau & R.R.Fern  | Root       | 1200          |
| 11  | Convolvulus pluricaulis Chois.                 | Whole      | 100           |
| 12  | Cyperus rotundus L.                            | Root       | 100           |
| 13  | Eclipta alba Hassk.                            | Leaf       | 100           |
| 14  | Ficus religiosa L.                             | Bark       | 80            |
| 15  | Gendarussa vulgaris Nees.                      | Leaf/root  | 200           |
| 16  | Gymnema sylvestre R.Br.                        | Leaf       | 140           |
| 17  | Juglans regia L.                               | Bark       | 800           |
| 18  | Murraya koenigii Spreng.                       | Leaf       | 100           |
| 19  | Onosma echioides L.                            | Root       | 500           |
| 20  | Picrorhiza kurrooa Royle ex Benth              | Root       | 2500          |
| 21  | Pterocarpus marsupium Roxb.                    | Stem       | 100           |
| 22  | Sphaeranthus indicus L.                        | Fruit, whole plant | 100 |
| 23  | Stevia rebaudiana Bertoni                      | Shoot      | 300           |
| 24  | Swertia chirayita (Roxb.) H. Karst.            | Whole      | 400           |
| 25  | Terminalia arjuna (Roxb. ex DC.) Wight & Arn. | Bark       | 100           |
| 26  | Terminalia bellonica Roxb.                     | Fruit      | 80            |
| 27  | Terminalia chebula Retz.                       | Fruit      | 80-100        |
| 28  | Tinospora cordifolia Miers                     | Stem/Root  | 100           |
| 29  | Vitex negundo L.                               | Samolu     | 100           |
| 30  | Withania somnifera (L.) Dunal                  | Root       | 350           |

Different plant parts of these species such as fruit, root, leaf, stem and bark were sold in the market (Figure 1). The dried leaves of Allium stracheyi Baker had the highest price (Rs 3000 per kg) in the market, followed by Picrorhiza kurrooa Royle ex Benth (Rs 2500 per kg). The plant parts of threatened medicinal plants species are also sold in the market, of these Picrorhiza kurrooa and Arnebia benthaniit (Wall. ex G.Don) Johns belong to the critically endangered category and Swertia chirayita, (Roxb.) H. Karst. and Acorus calamus L. belong to the endangered category. Besides, 4 species such as Allium stracheyi Baker, Terminalia chebula Retz., Pterocarpus marsupium Roxb. and Gymnema sylvestre R.Br. belong to the vulnerable category and two species such as Terminalia arjuna (Roxb. ex DC.) Wight & Arn. and Asparagus racemosus Willd. belong to the near threatened categories of threatened species as per the IUCN nomenclature. All the species as sold in the market were not collected from the hills of Uttarakhand only but some species were supplied from the plains of India, as well.
The prices of medicinal plants vary across the states. *Chlorophytum borivillianum* Santapau & R.R. Fern, a high value medicinal plant that grows in the plains of central India, costs Rs 800-1200 in Haridwar and Rs 1200-2000 in Odisha. However, many medicinal plants as sold in the market of Uttarakhand having high medicinal values grow only in the Himalayan region. The cost of such medicinal plants goes up in the market away from Uttarakhand.

There are reports which claim that the medicinal plant marketing is not properly organized. This discourages farmers to take up medicinal plants farming at a large scale. In the hills of Uttarakhand, the small landholding of farmers is not consolidated. If marketing of medicinal plants is organized properly its farming may be useful in terms of financial and economic gains. Wild collection still plays an important role in the trade of medicinal plants not only in India [9], but other countries of the world [10]. For the sustainability of medicinal plants related sector, it is important to prioritize the species under pressure due to overexploitation. Out of 30, ten species being placed under different threat categories indicates the need of their immediate conservation. Encouraging farmers for growing high value medicinal plants, including threatened categories, may help to save their wild populations.

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References

1. WHO (2003) WHO guidelines on good agricultural and collection practices (GACP) for medicinal plants. Geneva: World Health Organization.
2. Kala CP (2005) Indigenous uses, population density, and conservation of threatened medicinal plants in protected areas of the Indian Himalayas. Conservation Biology 19: 368-378.
3. Kala CP (2011) Medicinal Plants and Sustainable Development. Nova Science Publishers, New York, USA. 280 pp.
4. Lange D (1997) Trade figures for botanical drugs world-wide. Medicinal Plant Conservation Newsletter 3: 16-17.
5. Kala CP (2003) Commercial exploitation and conservation status of high value medicinal plants across the borderline of India and Nepal in Pithoragarh. Indian Forester 129: 80-84.
6. Shrivastava KS (2011) Price tag for tendu, bamboo, Down to Earth, May 15, 2011.
7. Kala CP (2013) Harvesting and supply chain analysis of ethnomedical species in the Pachmarhi Biosphere Reserve of India. American Journal of Environmental Protection 1: 20-27.
8. Kala CP (2015) Medicinal and aromatic plants: Boon for enterprise development. Journal of Applied Research on Medicinal and Aromatic Plants.
9. Kala CP, Dhyani PP, Sajwan BS (2006) Developing the medicinal plants sector in Northern India: challenges and opportunities. Journal of Ethnobiology and Ethnomedicine 2: 1-15.
10. Coskun M, Ozkan AMG (2005) Global phytochemistry: The Turkish frame, Phytochemistry, 66: 956-960.