STATUS OF COLLECTION, CULTIVATION AND MARKETING OF MEDICINAL AND AROMATIC PLANTS IN PITHORAGARH, UTTARANCHAL

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Introduction

India accounts for nearly 8% of the biodiversity of the world despite having only about 2.4% of the total land area. This makes our country as one among 12 mega diverse countries of the world. Out of 17,000 plants, the classical systems of medicines like Ayurveda, Siddha and Unani make use of only about 2,000 plants in various formulations (Anon., 2000a). The global market for traditional remedies has shot up to over $70 billion today from less than $20 billion just five years ago. However, India has a rather small turnover of around Rs 5,000 crores in medicinal and aromatic plants, which is around 1% of global market. The future prospects of medicinal plant can be as such well imagined. The increase in demand for raw material has, however, put great pressure on the existing forest and other natural vegetation, leading to near extermination of some species. There has been a gross depletion of the natural population of a number of medicinal plants. Quite a few of these have become vulnerable while at least ten are endangered and on the verge of extinction (Sarin, 2003). Considering the potential of these plants as effective source of medicines, concerted efforts are required to conserve and augment them for sustainable utilization. Cultivation is clearly a sustainable alternative that can also be a potential provider of economic returns to the growers.

However, with the increasing demand of some of these species at national and international markets, traders and middlemen seem to be exploiting the expertise and knowledge of local people, which is leading to unsustainable harvest as well as degradation of the habitat. The desire to earn easy money has forced many families to also engage their children in the collection of medicinal plants from forests and high mountain areas. Besides this, the easy availability of *Nepali* labourers from across the border has further aggravated the exploitation of medicinal plant parts. Traditionally, local communities have been perceived as being subsistence rather than market oriented, more recent studies have cited the importance of forest products not only for direct household consumption, but also for cash income and that the communities are becoming increasingly integrated with regional and national economies (Maikhuri *et al.*, 1991; Nautiyal *et al.*, 2000, 2001; Joshi, 2001; Prasad *et al.*, 2002). Uttaranchal has already been declared as a 'Herbal state' and concerted government efforts are on to promote sustainable collection and large scale cultivation of

medicinal plants by assisting the farmers with technical know-how, availability of planting material, training and extension, credit, facilitation of buy back arrangement and establishment of processing units. The present paper deals with the status of collection, cultivation practices and marketing of medicinal and aromatic plants in Pithoragarh district of Uttaranchal.

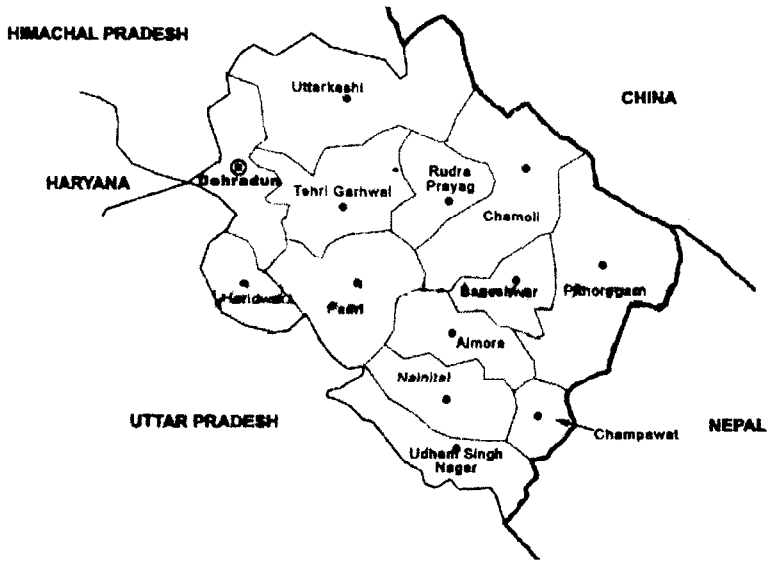
Material and Methods

(i) *Study area* : The study was carried out in Pithoragarh district, which is one of the largest districts of the newly created state of Uttaranchal (Fig. 1).

The district is situated in the northeastern part of the state having international boundary with Tibet in the North and Nepal in the East. It is well known among the traders and manufacturers as a treasure house of medicinal plant parts. The altitudinal variations and rich forest cover provide ideal conditions for the growth of a variety of medicinal and aromatic plants. The geographic area of the district is 7,090 km^2, of which 2,033 km^2 is under forests (Anon., 2003a). The district is divided into 8 development blocks with 273 villages on an average per block and population density of 65 persons per km^2. The important forest types of the district are tropical moist deciduous forest; dry tropical forest, tropical pine forest, Himalayan moist temperate forest, Himalayan dry temperate forest, sub alpine forest, and moist alpine scrubs (Gupta, 1971).

The cultivation of medicinal plant species is carried out at the altitudes varying between 1000-3500m. The cultivation is often carried out on the lands, which are available, even far from the inhabitation. The land holdings per family

Fig. 1



Map and location of Pithoragarh District

may vary from 5-10 nalis (one nali = 200 m^2) and in exceptional cases it may be up to 20 nalis.

(ii) *Methodology* : The study was carried out during July 2003 to June 2004 in two blocks namely Munsiyari and Didihat. After interacting with the farmers and study of the MAP species under collection and cultivation, twelve villages, seven in Munsiyari namely Darati, Dhumur, Munsiyari, Mupwalwara, Pato, Sela and Vasantkotwa and five in Didihat, namely Bhaisuri, Haatthrub, Khaitaula, Sata and Shantikunj were selected for recording of information on collection, cultivation, market channels and price spread.

Structured questionnaires were used for recording of primary information. A total of 36 questionnaires were filled up with one questionnaire per village from collectors and two questionnaires per village from cultivators respectively. Secondary information on status of collection and cultivation was obtained from the office of DFO, Pithoragarh, District Bheshaj Sangh (BS), Pithoragarh and Divisional Manager, Uttaranchal Forest Development Corporation (UAFDC), Pithoragarh.

Collection of Medicinal and Aromatic Plants (MAPs)

Traditionally, Anwals (animal herders) visiting the alpine grazing lands used to collect medicinal plant parts for their personal use only. Later on they started bartering of these plant parts with the local contractors to get essential commodities like salt, oil, clothes and other food items. However, with the increase in demand and high profit margins, the number of contractors increased. The main species, which are being collected from forests include Indrayan, Kapur kachri, Jhula, Reetha and Tejpat. Agencies like Bheshaj Sangh, Kumaon Mandal Vikas Nigam (KMVN) and UAFDC are involved in procurement of medicinal plants from the collectors. The data for the last five years, i.e., 1999-2003 (Table 1) show that there has been maximum collection of Jhula, Tejpat and Reetha by these agencies. The royalty received by forest department from the collection of these plants for the year 1998-9999, 1999-2000, 2000-2001, 2001-2002, 2002-2003 were to the tune of Rs. 2.75, 4.46, 3.61, 2.57 and 2.88 lakhs, respectively (Anon., 2003b). Besides this, large quantities of Reetha, Tejpat, Pashanbhed, Jatamansi and few other species enter in Pithoragarh from Nepal via Jhulaghat (Kala, 2003).

The mechanism of collection of medicinal plant parts, which was supposed to be followed till recently was that the forest department used to open a beat for the collection as per the prescription of working plans except for the banned species (Table 2). The details of the area, species permitted and royalty rates were to be conveyed to the BS and KMVN, which were to get the medicinal plant parts collected through their registered members/village level cooperative societies. These agencies (BS and KMVN) receive the plant parts collected by the registered members/societies against payment at specified rates. The forest department then used to verify the material, charge royalty and issue transport permit. The produce is transported to markets like Tanakpur, Ramnagar, and New Delhi for selling. After deducting the operational charges, the profit is supposed to be distributed equally to all the member of the BS societies.

Table 1

Species wise, year wise quantities collected through different agencies (Quintals)

Medicinal plants	Bheshaj Sangh					KMVN*			
	1998-99	99-2000	2000-01	01-02	02-03	98-99	99-00	00-01	01-02
Ghudvach	-	4.0	2.1	-	-	10.0	-	-	-
Indrain	2.3	0.5	0.5	-	1.3	-	-	-	-
Jhula	544.2	919.5	929.7	505.6	640.6	281.6	813.4	273.5	224.6
Kapur kachri	0.4	2.4	45.7	-	1.5	4.0	-	36.3	-
Reetha	20.7	70.8	22.4	9.9	6.0	11.5	52.4	13.5	6.4
Tejpat	868.3	925.4	608.6	570.7	605.4	248.9	315.0	399.0	209.9
Timur beej	-	-	0.3	-	-	12	0.4	-	-

KMVM : Kumaon Mandal Vikas Nigam
* Collections were not made in 2002-2003.
(Source: Collected from office of DFO, Pithoragarh)

However, during the course of study it was observed that this mechanism was not being followed in practice and instead the contractors engage local people for collection of specified medicinal plants and also give them some money as advance. These collectors then proceed towards the higher reaches in the month of August-September and remain there for almost two to three months. As winter approaches, they return to their respective villages and hand over the produce to the contractors. Children and womenfolk are also engaged in the collection activities at local level. Real community approach was not in practice and the collectors received only the wages.

The practice of collection has, however been modified recently with the Govt. orders of August and October 2003. Under the new mechanism the Divisional Level Committee (DLC) under Divisional Forest Officer has been authorized to take decision about allotting the forest area for medicinal plants extraction to UAFDC, BS and KMVN.

For the purpose, all the Divisional Forest Development Managers (DFDM) of UAFDC has been made medicinal plants collection officers in their respective divisions. The Govt. order also provides for registration of collectors who will be identified in the villages near the allotted forest areas. The registration is to be done by the divisional managers and information needs to be supplied to concerned forest divisions. All the divisions are expected to provide necessary training to the collectors.

The divisional and range headquarters are to be established as collection centres for medicinal plant parts. Forest guard's *chowkies/* huts in the concerned range have also been declared as collection centres. In addition, concerned

Table 2

Species banned for collection by Forest Department

Sl. No.	Common name	Botanical name
1.	Akhrot Chal	*Juglans regia*
2.	Atees	*Aconitum heterophyllum*
3.	Bach	*Acorus calamus*
4.	Ban kakri	*Podophyllum hexandrum*
5.	Banafsha	*Viola serpens*
6.	Chirayata	*Swertia chirata*
7.	Dhopjad	*Jurinea* spp.
8.	Dioscorea	*Dioscorea* spp.
9.	Dolu	*Rheum emodi*
10.	Gandrayan	*Angelica glauca*
11.	Ginjari	*Stephania glabra*
12.	Guchhi	*Morchella esculenta*
13.	Jatamansi	*Nardostachys jatamansi*
14.	Kaiphal (bark)	*Myrica esculenta*
15.	Kakolisir	*Lilium polyphyllum*
16.	Kilmora	*Berberis aristata*
17.	Kutki	*Picrorhiza kurroa*
18.	Lahsunia	*Malaxis muscifera*
19.	Mahamaida	*Polygonatum cirrhifolium*
20.	Meetha	*Aconitum ferox*
21.	Nairpati	*Skimmia laureola*
22.	Pasanbhed	*Bergenia ligulata*
23.	Patharlong	*Didymocarpus pedicellata*
24.	Ratanjot	*Onosma* spp.
25.	Ridhi-vridhi	*Habenaria intermedia*
26.	Salam mishri	*Eulophia campestris*
27.	Salampanja	*Dactylorhiza hatagirea*
28.	Sameva	*Valleriana wallichii*
29.	Somlata	*Ephedra gerardiana*
30.	Thuner	*Taxus baccata*

(Anon., 2000a)

medicinal plants collection officers have been authorized to declare other village common places as collection centres as per the requirement of Forest Corporation and the local people. Local collectors are expected to supply the semi-processed material at the collection centres. The royalty rates and collection charges paid by UAFDC for the year 2003-04 are presented in Table 3. Grading and packaging wherever required, is supposed to be done at the collection centres by the UAFDC staff. The marketing of the produce is to be carried out through open auctions.

It was observed that open auctions at Bansbagar, Devidhura, Munsiyari and Nachni in Pithoragarh have already been started by UAFDC and during the year 2004 a total of 540.16 qtls of medicinal plant parts have been procured by UAFDC from collectors. Major species procured by UAFDC in 2003-04 were Amla (0.56 qtls), Jhula (112.4 qtls), Tejpat (262.2 qtls) and few other species.

Cultivation of medicinal and aromatic plants

There are 147 cultivators of medicinal plants registered with the Divisional Forest Office, Pithoragarh. The maximum numbers (52.38%) of cultivators are in Munsiyari block followed by Dharchula and Vena (10.20% each) while very few people are taking up cultivation in other blocks. Most of the cultivators are cultivating Atees, Gudhvach, Indrayayan, Jambo, Jatamansi, Kalajeera, Kutki, Pashanbhed, Reetha, Sameva and Tejpat. It was also observed that very few people are cultivating species like Meetha, Mahamaida, Jeevak, Bajradanti and Indrayan.

Table 3

Species wise prevailing royalty rates and procurement price by UAFDC

Sl.	Species	Scientific name	Royalty (Rs. per kg.)	Procurement price (Rs. per kg.)
1	Amaltas	*Cassia fistula*	0.80	2.70
2	Amla*	*Emblica officinalis*	0.50-0.60	5.60-5.90
			0.80	7.30
			0.90	8.70
3	Chitrak mool	*Plumbago zeylanica*	1.50	18.20
4	Giloy, Gaduchi	*Tinospora cordifolia*	0.80	6.90
5	Gudmar	*Gymnema sylvestre*	2.80-2.90	27.80-29.10
6	Ghudvach	*Acorus calamus*	1.60-1.70	16.70-17.50
7	Hans raj	*Adiantum* spp.	0.10	11.40
8	Indrayan	*Citrullus colocynthis*	2.90-5.90	29.10-103.00
9	Jeevak	*Microstylis wallichii*	1.20	11.90
10	Jhula	*Parmelia perlata*	1.70	17.50
11	Kakar singi	*Pistacia integerrima*	3.80-4.80	94.50-97.40
12	Kapur kachri	*Hedychium spicatum*	0.80	6.90-7.30
13	Pangar	*Aesculus indica*	0.30-0.40	1.50-2.80
14	Pashand bhed	*Bergenia ligulata*	0.90	8.40
15	Punarnava	*Boerhavia diffusa*	0.80	6.90
16	Reetha	*Sapindus mukorossi*	2.70-2-90	8.70-11.10
17	Sameva	*Valeriana wallichii*	0.80	6.90
18	Tejpat	*Cinnamomum tamala*	0.90-1.5	9.70-10.20
			1.50-2.80	21.70-27.80
19	Timur	*Zanthoxyllum armatum*	2.10-2.90	21.00-32.00

* Procurement price vary with the quality
(Source: Rate list of UAFDC, 2003-04, Pithoragarh)

The production of important MAPs for the last five years (Table 5) indicates that maximum quantities have been produced for Reetha (3,186.4 qtls) followed by Tejpat (887.2 qtls) and Ginjadi (131.6 qtls). The production trends, however, are not clear and different quantities have been produced in different years.

Marketing channels

Traditionally the distribution of MAP produce is a step-by-step physical movement along with ownership transferred successively from producers to intermediaries and finally to the buyers. This movement of MAP follows different pathways involving various intermediaries, and resulting into different marketing channels. The marketing channels for these products can be summarized as :

1. Producer → Middleman → Trader → Consumer

Table 4

Number of registered cultivators in Pithoragarh

Development block	Registered cultivators
Berinag	1
Dharchula	15
Didihat	7
Gangoli haat	7
Kanalicheena	11
Munakot	12
Munsiyari	77
Vena	15
Total	147

2. Producer → Trader → Consumer
3. Producer → Local trader → Trader → Consumer

The market channel "1" was observed to be adopted by 50% of the collectors and 90% of the cultivators. The market channel "2" was observed to be adopted by 33% collectors and 9% cultivators. The reason could be that a sizeable proportion of the collectors constitute Nepalis who prefer to sell their produce directly to the local traders. The cultivators however, are local farmers who prefer selling their produce to middleman because of small quantities, high

Table 5

Year wise production of some commercially important MAPs species by the registered growers in Pithoragarh

Medicinal plant	Year wise production (quintals)					Total
	1998-99	1999-2000	2000-2001	2001-2002	2002-2003	
Atees	34.0	0.4	-	-	-	34.4
Chirayata	-	3.0	1.6	-	-	4.6
Dhoop Lakkar	-	-	-	10.4	-	10.4
Ghudvach	-	0.2	-	-	-	0.2
Ginjadi	17.8	20.5	28.0	26.4	38.9	131.6
Indrayan	16.2	13.2	1.5	0.7	2.4	34.0
Jambo	17.9	4.0	2.9	4.1	4.4	33.3
Jatamansi	-	15.0	5.2	1.8	2.1	24.1
Kutki	24.1	100.5	33.9	44.9	8.6	212.0
Pashanbhed	-	-	-	-	3.5	3.5
Reetha	77.0	653.0	659.0	441.0	1356.4	3186.4
Salampanja	1.0	0.8	2.0	-	-	3.8
Sameva ganth	-	97.0	1.2	-	-	88.2
Sameva panchang	-	2.0	1.5	-	0.6	4.1
Satua	-	-	0.5	-	-	0.5
Tejpat	-	176.3	270.2	208.0	232.7	887.2
Timur beej	7.5	-	2.3	-	-	9.8

(Collected from office of DFO, Pithoragarh Forest Division)

transportation costs and quite often under obligation.

Price spread

The share of collector, cultivator, middleman and the trader on gross return basis for channel "1" are presented in Table 6 (a) and (b). In case of MAP collected from forest the percentage share of producer in consumer rupee (PSCR), varies between 45-76.47%. The collection of Salampanja results into a maximum of 76.47% share of the collector for a consumer rupee, which is followed by 66.67% in case of Jhula. On an average the producer's share, the middleman's share and the trader's share in the consumer rupee was observed to be 56.22%, 20.74% and 23.04%, respectively.

In case of MAPs cultivated on farmlands the percentage share of producer varies between 32.67% for Meetha to 89.00% for Kalajeera. On an average the producer's share, the middleman's share and the trader's share in the consumer rupee was observed to be 60.88%, 16.75% and 22.37%, respectively.

Similarly the price spread for channel "2" for collectors and cultivators is presented in Table 7(a) and (b) respectively. The share of collector on gross return basis varies from 38.46% for Jambo to 91.67% for Kapur kachri. On an average, the collector's share of 61.02% was observed for this channel. The share of cultivator varies between 50 % in case of Gandrayan to 94.12% for Salampanja and on an average it was observed to be 66.21% for this channel.

Constraints in expansion of collection/ cultivation of MAPs and suggestions

Although there are many enthusiastic growers like Sh. Damodar Singh Rathod (Indira Priyadarshni Award Winner, 2002) and Sh. Hargobind Bhat who have been cultivating these species on large areas

Table 6(a)

Price spread in channel 1 for collector

Species	Price received by collector (Rs/kg)	Middleman's selling price (Rs/kg)	Trader's selling price (Rs/kg)	% PSCR	% MSCR	% TSCR
Meetha	159	200	300	53.00	13.67	33.33
Gandrayan	90	150	200	45.00	30.00	25.00
Jambo	120	220	260	46.15	38.46	15.38
Jhula	30	35	45	66.67	11.11	22.22
Kutki	90	125	180	50.00	19.44	30.56
Salampanja	650	750	850	76.47	11.76	11.76
Average				56.22	20.74	23.04

PSCR = Producer's share in Consumer's Rupee
MSCR= Middleman's share in Consumer's Rupee
TSCR= Trader's share in Consumer's Rupee

Table 6(b)

Price spread in channel 1 for cultivator

Species	Price received by cultivator (Rs/kg)	Middleman's selling price (Rs/kg)	Trader's selling price (Rs/kg)	% PSCR	% MSCR	% TSCR
Atees	850	900	1100	77.27	4.55	18.18
Meetha	98	200	300	32.67	34.00	33.33
Gandrayan	123	150	200	61.50	13.50	25.00
Ginjadi	80	125	150	53.33	30.00	16.67
Jambo	183	220	260	70.38	14.23	15.38
Jatamansi	48	60	105	45.71	11.43	42.86
Kalajeera	178	190	200	89.00	6.00	5.00
Kapur kachri	10	11	12	83.33	8.33	8.33
Kuth	50	80	125	40.00	24.00	36.00
Kutki	93	125	180	51.67	17.78	30.56
Pashanbhed	12	15	17	70.59	17.65	11.76
Reetha	6	9	12	50.00	25.00	25.00
Salampanja	700	750	850	82.35	5.88	11.76
Tejpat	12	18	27	44.44	22.22	33.33
Average				60.88	16.75	22.37

Table 7(a)

Price spread in channel 2 for collector

Species	Price received by collector (Rs/kg)	Trader's selling price (Rs/kg)	% PSCR
Meetha	130	300	43.33
Gandrayan	100	200	50.00
Jambo	100	260	38.46
Jhula	35	45	77.78
Kapur kachri	11	12	91.67
Kutki	100	180	55.56
Tejpat	19	27	70.37
Average			61.02

*PSCR = Producer's Share in Consumer's Rupee

Table 7(b)

Price spread in channel 2 for cultivator

Species	Price received by cukltivator (Rs/kg)	Trader's selling price (Rs/kg)	% PSCR
Meetha	130	300	43.33
Gandrayan	100	200	50.00
Ginjadi	90	150	60.00
Jambo	200	260	76.92
Kutki	90	180	50.00
Salampanja	800	850	94.12
Average			66.21

and are keen to provide all scientific inputs in their cultivation and management. However, they are facing problems due to poor quality of planting material, lack of technical know how, post harvest care, storage, primary processing, grading, and marketing. Besides this, lengthy and cumbersome procedure involved in processing of credit appears to discourage these framers from increasing the scales of cultivation.

The cultivators are facing difficulties because cultivation of medicinal plants does not give instant returns and the farmers have to wait for 2-3 years for the harvest, which increases the risk due to harsh climatic and unpredictable market conditions. The buy-back arrangements are at initial stages in the state and it may take some time before such arrangements are at place in the district. Most of the farmers are of the view that the Government should help them by fixing a support price for their produce. This mechanism may trigger cultivation at a larger scale but due to market limitations, it may not be a sustainable option in the long run. The trading centres like Tanakpur and Ramnagar are far away from cultivators and collectors. So they sell their produce to the local traders/ middlemen at lower price. The growers are of the opinion that markets or the processing units should be located in nearby areas so that the produce can be sold to them directly.

The cultivation of medicinal plant is being adopted by the farmers purely for economic reasons and with the expectations of higher returns than agriculture. The State Government is trying its best to involve more and more people in the cultivation of medicinal plants and people are also adopting it because agriculture is not so much rewarding in the hills. This has tremendous potential in Uttaranchal but dedicated efforts would be required by all those who are engaged in promoting this activity such as Govt. agencies, industries/manufacturers like Dabur, Hamdard, Baidyanath, Zandu, NGOs, research and training institutions etc. UAFDC or Bheshaj Sangh may explore the possibilities of establishing primary processing units at local level in consultation with manufacturers. It will greatly reduce the transportation cost besides generating employment at local level. The state of Uttaranchal has now been declared as Medicinal Plants Export Zone (MPEZ) and districts of Uttarkashi, Pithoragarh, Dehradun, Haridwar, Udham Singh Nagar and Nainital have been selected under its first phase. This will also help in promotion of medicinal plant collection/ cultivation in Pithoragarh district, which can be developed into a promising centre for growth, development and trade of medicinal plants.

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SUMMARY

The status of collection, cultivation and marketing of medicinal and aromatic plants was studied in Pithoragarh District of Uttaranchal. The primary information was collected as per structured questionnaires from collectors/cultivators belonging to twelve villages spread over two blocks namely Munsiyari and Didihat. The important species being collected were observed to be Jhula, Reetha and Tejpat. The cultivators seem to be growing greater quantities of Atees, Gudhvach, Indrayan, Jambo, Jatamansi, Kalajeera, Kutki, Pashanbhed, Reetha, Sameva and Tejpat. The most favoured market channel was observed to be Producer Middlemen Trader Consumer which was being adopted by 50% collectors and 90% cultivators. The producer's share in consumer's rupee in case of collection varied between 45-76.47% for different species with an average of 56.22%. Similarly the producer's share in consumer's rupee for cultivated species varied between 32.67- 89% with an average of 60.88%. The paper also discusses the recent changes introduced by Uttaranchal Govt. in marketing of these medicinal and aromatic plant species.

पिथौरागढ़, उत्तरांचल में औषध और सौरभिक पादपों के संग्रह, कृषि और विपणन करने की वर्तमान स्थिति

एन०एस० बिष्ट, मोहित गेरा, ज़फर सुलतान व एम०एस० गुंसाई

सारांश

औषध और सौरभिक पादपों के संग्रह, कृषि और विपणन करने की वर्तमान स्थिति का अध्ययन उत्तरांचल के पिथौरागढ़ जिले में किया गया । इसकी प्राथमिक जानकारी पहले से तैयार कर ली गई प्रश्नावली के अनुसार दो विकासखण्डों अर्थात् मुनसियारी और डीडीहाट में फैले बारह गांवों के संग्रहकर्ताओं/कृषिकर्ताओं से इकट्ठा की गई । जो महत्वपूर्ण जातियां संग्रह की जा रही हैं वे झूला काईघास, रीठा और तेजपात पाई गई । कृषिकर्ता अतीस, गुड़बच, इन्द्रायन, जंबो, जटामांसी, काला जीरा, कटकी, पाषाणभेद, रीठा, समेला और तेजपात अधिक मात्रा मे उगाते प्रतीत होते हैं । बाज़ार धाराओं में सबसे ज्यादा पंसद की गई धारा उत्पादनकर्ता - बिचौलिया - व्यापारी - उपभोक्ता रही जिसे 50% संग्रहकर्ताओं और 90% कृषिकर्ताओ ने अपनाया हुआ है । उत्पादनकर्ता का अंश संग्रहकरण विधि में उपभोगकर्ता के रूपए का 45 - 76.47% के बीच विभिन्न पादपजातियों में रहता पाया गया जिसका औसत 56.22% बनता है । इसी प्रकार, कृषिकृत पादपजातियों के लिए उत्पादनकर्ता का अंश उपभोगकर्ता के रूपए का 32.67 - 89% के बीच तथा उनका औसत 60.88% रहता पाया गया । अभिपत्र में उन नये परिवर्तनों का भी विवेचन किया गया है जो उत्तरांचल सरकार द्वारा औषध और सौरभिक पादपों का विपणन करने के क्षेत्र में शुरू किए गए हैं ।

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