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Short communication

Anardana (dehydrated wild pomegranate arils) as livelihood option for rural communities in Chenab valley of Jammu and Kashmir

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ABSTRACT

The study was conducted in Ramban district of Jammu and Kashmir to document present status, scope and socio-economic profile of the families involved in the collection and trade of *anardana* (*Punica granatum* L. '*Dhruni'*) towards better livelihood options for the rural communities. A random survey of Ganote, Dharam, Gool, Farmoot, Sangaldan, Gundi, Maha kund, and Chaderkot revealed that each household in these areas collects 400-500 kg of dried seed, with per household annual collection touching about 550-625 kg in Kanga and Parmote villages of Ramban. Study also revealed that the annual income from *anardana* was highest in Kanga village (Rs. 2,85,900/ ha) with 57.19% contribution to total household income, while it was lowest in Ganote Rs. 1,76,500/ ha (41.11%). However, its commercial potential is yet to be tapped. Good '*anardana*' fetches a price ranging between Rs. 300 to 400 per kg at village level, where the local commission agents working on behalf of traders at Jammu, Amritsar or Delhi procure in bulk. Some produce from nearby areas is also brought to Ramban market where it is sold in open auction. It was found that in addition to fulfilling the domestic needs, each household engaged in collection of '*anardana*' adds an average of Rs. 60,000 to their annual income.

Keywords: *Anardana,* livelihood, non-timber forest products, socio-economics.

Anardana (*Punica granatum* L.), locally referred to as '*Dhruni*,' is an important fruit tree growing wild in hilly tracts and forests of Jammu and Kashmir state between 1000-2500 mean sea level (Saxena *et al*., 5). It also grows in upper extremities of sub-tropical forests in northern regions of India including Himachal Pradesh, Uttarakhand and Punjab. The pomegranate is a fruit-bearing deciduous shrub or small tree growing between 5 and 8 m (16-26 ft) tall. This small tree grows wild in Ramban, Rajouri, Doda and Udhampur districts where it forms extensive patches on open dry slopes. The fruits are harvested for its fleshy seeds, which are sundried to make '*anardana*', a product of commerce used in medicinal and culinary preparations. Collection of ripe fruits usually starts during August and continues upto October (Dhandar and Singh, 1). The seeds, commonly known as '*anardana*' are separated by hand and dried by spreading (Fig. 1). The conventional utilization of wild pomegranate fruit lies in the drying seeds along with pulp, which constitute the product ''*Anardana*'' (Pruthi and Saxena, 4). The dehydrated seeds are acidic (7.8-15.4%) and help in improving mouth-feel and digestion. *Anardana* is widely used as acidulent in culinary preparations and has HIGH vitamin C and minerals (Ca, Zn, Mn), and usefulness for making various digestive and other Ayurvedic medicines (Mahajan *et al*., 2).

The Jammu & Kashmir have a large variety of miscellaneous non-timber forest products (NTFP) species that are collected by its people for self-use or petty sale to generate a part of their annual income. Much of the data on the contribution of NTFPs to household economy in Jammu and Kashmir is still

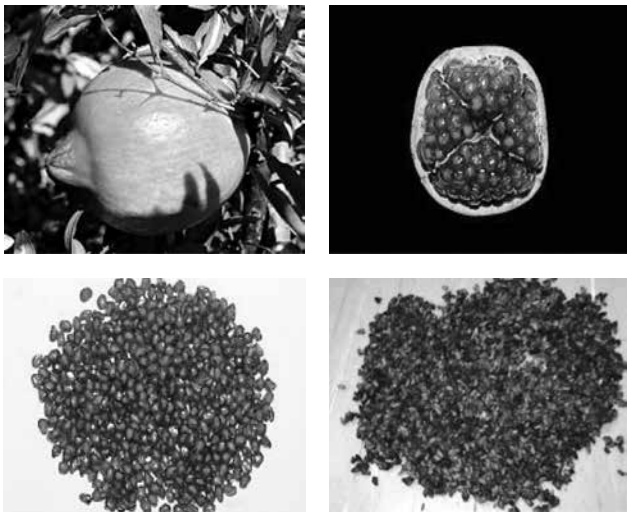

Fig. 1. Preparation of dehydrated aril *'anardana'* from sour pomegranate *'Dhruni'*.

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in infancy; possible reasons may be non-availability of data and lack of interest at departmental and institutional level in the subject. In addition to this, most of the plants have been an important source of products used in a variety of industries. These species need to be cultivated and conserved extensively through various government and non-government agencies through different *ex-situ* or *in-situ* programmes. This will help in boosting the local economy of the region as well as conserving these valuable medicinal resources. The present investigation was carried out with the objectives to study the status and scope of '*anandana*' towards better livelihood options for the rural communities and to study the socio-economic profile of the families involved in the collection and trade of the '*anardana*'.

Ramban district is located at 33° 14' N and 75° 17' E longitudes in the lap of Pirpanjal range of the mighty Himalaya. Ramban district is 1,156 m above msl. The boundary line of Ramban district encompasses hill station Patnitop as its southern most point, Assar on its eastern edge, Gool to the west and Banihal to the north. Terrine terrain of district Ramban is tough and hilly. Ramban shares its boundary with Reasi, Udhampur, Doda, Anantnag and Kulgam. The climate of the district varies according to altitude. The temperature rises as high to 42°C in the low-lying areas like Ramban town located in between steep mountains on the banks of Chenab River and drops to sub-zero in the high altitudes. Pirpanjal hills are considered as the gold mine of biodiversity where vegetation of several distinct zones and forest types like evergreen forests, broad leaved mix forests, scrub land and grassy pasture are predominant. Pine forests are found in the steep dry slopes and in the lower regions fruit trees like peach, lemon, olive, apricot and pomegranate are present. Middle and upper ranges have grassland type of vegetation. Majority of the population (95%) is rural and depends on agriculture and its allied sectors. The farmers have very small holdings ranging from 1-2 ha. In addition to livestock rearing, the inhabitants generally practice traditional farming and grow maize, wheat, mustered, peas and potatoes.

The present study was conducted during the year 2014-15 in the rural pockets of Ramban district of Jammu & Kashmir. For the purpose of study, 10 villages were randomly selected from the representing areas to obtain the primary data regarding the collection and trade of '*anardana*' in this region. Households (10%) living in these villages were surveyed as per procedure followed by Pfoze *et al.* (3). The information on '*anardana*' and their traditional uses was gathered through well structured questionnaires, interviews and observations with local people. The questionnaires was designed to meet the objectives of the study, tested in the field and standardized for the purpose. The secondary data was collected from research journals and various records and project reports of the forest department.

During the present study, total 200 resource persons were interviewed through questionnaires, of which 178 were male and 22 were female. All the resource persons identified were in the age group of 35-85 years out of which 85 were between age group of 30 to 50 and rests were above 50 years old (Table 1). The perusal of the secondary data collected from village amenities directory Ramban (Table 2) revealed that the maximum and minimum geographical area of 2448.8 and 235.1 ha was reported in Gool and Sangaldan villages, respectively. The total population of 20,003 was recorded from all the 10 sampled villages, out of which 10% of households living in these villages were surveyed.

The study conducted on the role of '*anardana*'in livelihood for the people of rural communities in Ramban district revealed that the annual income from '*anardana*' was highest in Kanga village Rs. 2,85,900/- ha with 57.19% contribution to total household income and found lowest in Ganote Rs. 1,76,500/ ha with 41.11% contribution to total household income (Table 3). A critical analysis of data also revealed that *Anardana* has a fair share amounting to 48.78% in the net income of every household in the study area. Although the study is restricted only to the role of '*anardana*' in the livelihood of people of Ramban, but it can be well inferred that it does has a role to play in the economy of the state (Table 3).

A random survey of Ganote, Dharam, Gool, Farmoot, Sangaldan, Gundi, Maha kund, Chaderkot area revealed that each household in these areas collects 400-500 kg of dried seed, with annual collection of dry seeds touching about 550-625 kg in Kanga and Parmote villages of Ramban. Collection of ripe fruits usually starts during August and continues

Table 1. Age group of informants.

Age group	Male	Female
> 70	17	-
61-70	29	-
51-60	59	10
41-50	49	12
30-40	24	-

Table 2. Composition of geographical area and population size of villages in Ramban district.

Pilot area (village)	Village-wise area (ha)			Population		
	Geographical	Cropped	Irrigated	Male	Female	Total
Ganote	1,651.5	200.3	0.8	1,065	1,032	2,097
Kanga	1,158.6	76.5	32.4	875	869	1,744
Dharam	1,582.7	189.8	10.9	1,431	1,310	2,741
Gool	2,448.8	498.9	29.9	3,495	3,221	6,716
Farmoot	723.6	112.9	13.4	390	225	615
Sangaldan	235.1	87.4	24.3	376	334	710
Gundi	2,140.4	189.0	17.8	1,335	1,215	2,550
Maha kund	419.7	194.6	3.6	948	826	1,774
Chaderkot	322.54	23.45	2.0	617	439	1,056
Pernote	796.8	143.3	14.9	1,256	1,172	2,428
Total	10,683.0	1572.8	135.1	10,532	9,471	20,003

Source: Village Amenities Directory (6)

Table 3. Comparison of net annual income per household from '*anardana*' with traditional crops and labour.

Village	Net income per household (in Rs yr^{-1} ha^{-1})				Contribution of '*anardana*' to total household income (%)
	Crop	*Anardana*	Labour	Total	
Ganote	1,57,825	1,76,500	95,000	4,29,325	41.11
Kanga	1,19,000	2,85,900	95,000	4,99,900	57.19
Dharam	1,59,587	1,89,250	94,000	4,42,837	42.74
Gool	1,40,800	1,77,862	90,000	4,08,662	43.52
Farmoot	1,12,912	2,61,275	94,000	4,68,187	55.81
Sangaldan	1,45,612	2,61,187	92,000	4,98,799	52.36
Gundi	1,37,225	1,79,437	92,400	4,09,062	43.87
Maha kund	1,14,250	2,29,650	92,400	4,36,300	52.64
Chaderkot	1,27,225	1,99,437	92,400	4,19,062	47.59
Parmote	1,19,250	2,19,650	92,400	4,31,300	50.93
Mean	1,33,368	2,18,014	92,960	4,44,343	48.78

upto October. The fruits are usually hand plucked by bending the branches with the help of a long stick. The seeds, commonly known as '*anardana*' are separated by hand and dried by spreading. After keeping some produce for self use the remaining stock is sold (Mahajan *et al*., 2). Good '*anardana*' fetches a price ranging between Rs. 300 to 400 per kg at the village level, where the local commission agents working on behalf of traders at Jammu, Amritsar or Delhi procures it. Some produce from nearby areas is also brought to Ramban market where it is sold in open auction. It may be noted that in addition to fulfilling the *bonafide* domestic needs, each household engaged in collection of *'anardana'* adds an average of Rs. 60,000 to its annual income. The rind also has good medicinal value and is used by India's herbal industry. However, its commercial potential is yet to be tapped because mainly of the difficulty in drying the rind. Its traditional uses, however, include preparing of ink for writing on *Takhti* by school children, in dying leather, for making FYM by mixing with cattle dung.

Anardana has a fair share amounting to 48.78% in the net income of every household in the Chenab valley of Jammu & Kashmir. Although the study is restricted only to the role of Anardana in the livelihood of people of Ramban, but it can be well inferred that it does has a role to play in the economy of the state. The state harbours a large variety of miscellaneous NTFP species that are collected by its people for self-use or petty sale to generate a part of their annual income. *Punica granatum* of Ramban district

and its adjoining areas, which not only finds its way in international markets but is also, sold at local markets @ 300-400 Rs/kg of seeds. About 1,100 tonnes of *Anardana* is produced annually valued at Rs. 38 crores at current market price. These are just examples to highlight the importance of wild collected *Anardana* in the state and their impact on the rural economy. Survey also revealed that each household in these areas collects 400-500 kg of dried seed, with per household average annual collection of dry seeds touching about 550-625 g. It may be noted that in addition to fulfilling the *bona-fide* domestic needs, each household engaged in collection of '*anardana'* adds an average of Rs. 60,000 to its annual income.

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REFERENCES

1. Dhandar, D.G. and Singh, D.B. 2002. Current status and future needs for the development of pomegranate. **In**: *National Horticulture Conference: Programme and Discussion Papers*, New Delhi, pp. 12.

2. Mahajan, B.V.C., Chopra, S.K. and Sharma, R.C. 2004. Processing of wild pomegranate (*Punica granatum* L.) for anardana: Effect of thermal treatments and drying modes on quality. *J. Food Sci. Tech.* **29**: 327-28.

3. Pfoze, N.L., Kumar, Y. and Myrboh, B. 2012. Survey and assessment of ethno-medicinal plants used in Senapati district of Manipur state, Northeast India. *Phytopharmac.* **2**: 285-311.

4. Pruthi J.S. and Saxena A.K. 2005. Studies on *anardana* (dried pomegranate seeds). *J. Fd. Sci. Tech*. **21**: 296-99.

5. Saxena, A.K., Manan, J.K. and Berry, S.K. 1987. Pomegranate post harvest technology, chemistry and processing. *Indian Food Pack*. **41**: 43-46.

6. Village Aminities Directory. 2012. *Village Amenities Directory*, Govt. of Jammu and Kashmir, India.

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