

Bio-Diversity of Wild Fruits in Chamba District of Himachal Pradesh

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Wild fruits were the valuable source of food for the prehistoric man, who nestled in caves. As the civilization flourished, they gathered and passed on important information on the use of these fruits from generation to generations. Consequently, the present day horticulture came into existence. The wild species of these fruit plants yield edible fruits and grow throughout the Chamba district of Himachal Pradesh, contributed a lot directly or indirectly to cultural heritage of the state (Table-1). These fruits are consumed in abundance by the local people, residing in the remote areas of the district, as these are in plenty in their natural habitat (CSIR 1950; Parmar and Kaushal, 1982). Some of these

wild fruit species produce small, juicy fruit with excellent taste and can be used in processing industries. Some of these fruits are of therapeutic use and have proven useful to cure many ailments. These fruits not only have nutritional and medicinal value assault (Table 2), but also provide stable income to the tribal people living in very remote areas. Fruit growing in present days has become a challenging job because of their susceptibility to insect-pests and disease as well as overriding need to manage them through chemicals. Besides these factors, the ever changing climatic conditions adversely affect the growth as well as the fruit yield.

Table 1. Wild fruit diversity of Chamba District of Himachal Pradesh

Species	English Name	Local Name	Name of Village	Latitude and Longitude	Altitude (m above sea level)	Frequency of occurrence
<i>Punica granatum</i> L.	Wild Pomegranate	Daru	Chamba, Saru Chaned, Pukhri, Koti	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(700-900)	Abundant
			Tissa, Tikaregarh	N 32° 1' and 32° 35' E 75° 59' and 76° 26'	(1800-2000)	Frequent
			Garola	N 32° 11' and 32° 41' E 76° 22' and 76° 33'	(2300)	Frequent
<i>Prunus padam</i> L.	Wild Cherry	Paja	Chamba, Gajnoi	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(900-1600)	Occasional
			Lahru, Kakira Tunuhatti	N 32° 15' and 32° 38' E 75° 50' and 76° 10'		Occasional
			Salooni	N 32° 15' and 75° 38' E 75° 50' and 76° 10'	(1000-4600)	Occasional
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'	(1800-2000)	Occasional
<i>Rubus ellipticus</i> Smith	Wild raspberry	Aakhren	Chamba, Saru Kiani, Chaner	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(900)	Frequent
			Chawari, Lahru	N 32° 15' and 32° 38' E 75° 50' and 76° 10'	(600-800)	Frequent

Species	English Name	Local Name	Name of Village	Latitude and Longitude	Altitude (m above sea level)	Frequency of occurrence
<i>Carissa spinarum</i> L.		Garna, Kara unda	Salooni	N 32° 15' and 75° 38' E 75° 59' and 76° 26'	(1700-1900)	Frequent
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'		Frequent
			Laharu, Chawari Sinhunta, Kakira Kamla	N 32° 15' and 32° 38' E 75° 50' and 76° 10'	(600-2000)	Frequent
			Chamba, Sarol, Kiani Sundla	N 32° 32' and 32° 43' E 75° 59' and 76° 21'		Frequent
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'		Occasional
<i>Emblica officinalis</i> Gaertn.	Indian gooseberry	Amla, Aonla	Chamba, Rajnagar, Parihar	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(700-900)	Frequent
<i>Murraya koenigii</i> L.	Curry leaf plant	Kurru Patta	Laharu, Chawari Sinhunta, Kakira	N 32° 15' and 32° 38' E 75° 50' and 76° 10'	(700-1000)	Abundant
<i>Phoenix sylvestris</i> Roxb.	Wild date palm	Khajoor	Udaipur Chamba Rajpura	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(750-900)	Occasional
			Kakira, Lahru	N 32° 15' and 32° 38' E 75° 50' and 76° 10'		Abundant
<i>Ficus palmata</i> Forsk.	Wild Fig	Dhura, Fagura	Sherpur, Saru, Sarol, Chamba, Kiani, Udaipur	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(700-2000)	Frequent
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'		Occasional
<i>Ficus roxburghii</i> Wall.		Trimbal, Trimal	Sinhunta, Chowari,	N 32° 15' and 32° 38' E 75° 50' and 76° 10'	(700-900)	-do-
			Manjir, Sundla, Rajpura, Kiani, Rajnagar, Saru	N 32° 32' and 32° 43' E 75° 59' and 76° 21'		-do-
<i>Berberis aristata</i> DC	Indian Barberry	Kaimbal	Chamba, Dharwala, Dunali, Brehli, Masrund, Sandhi, Mani, Sarol,	N 32° 32' and 32° 43' E 75° 59' and 76° 21'		Frequent
			Dalhousie, Khajiar,	N 32° 15' and 32° 38' E 75° 50' and 76° 10'	(700-2000)	-do-
			Tissa,	N 32° 15' and 32° 38' E 75° 50' and 76° 10'		-do-

Species	Name English	Local Name	Name of Village	Latitude and Longitude	Altitude (m above sea level)	Frequency of occurrence
			Salooni	N 35° 15' and 75° 38' E 75° 50' and 76° 26'		-do-
<i>Pyrus pashia</i> Buch-Ham	Wild Pear	Kainth	Entire Chamba	N 32° 10' and 33° 13' E 75° 45' and 77° 33'	(645-2400)	Frequent
<i>Prunus armeniaca</i> L.	Wild Apricot	Chir	Chamba, Kiani, Udaipur, Sarol, Kundi	N 32° 32' and 32° 43' E 75° 45' and 76° 21'		Occasional
			Bharmour, Garola	N 32° 11' and 32° 41' E 76° 22' and 76° 33'	(800-2400)	Frequent
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'		-do-
			Salooni	N 35° 15' and 75° 38' E 75° 50' and 76° 26'		-do-
<i>Fragaria indica</i> Andr.	Wild Strawberry	Akhren	Lodoo, Sarol, Udaipur, Khajiar, Rajnagar, Bathri	N 32° 32' and 32° 43' E 75° 59' and 76° 21'		Occasional
			Salooni	N 32° 15' and 75° 38' E 75° 50' and 76° 10'	(800-2000)	-do-
			Tissa Tikarigarh	N 32° 1' and 32° 35' E 75° 59' and 76° 26'		-do-
<i>Syzygium cumini</i>		Jaman Jamun	Chamba, Sarol	N 32° 32' and 32° 43' E 75° 59' and 76° 21'	(600-1500)	Occasional
			Chowari, Lahru, Sinhuta, Samot	N 32° 15' and 32° 38' E 75° 50' and 76° 10'		-do-
<i>Olea cuspidata</i>	Wild olive	Kahu	Saru, Chamba, Bakani, Phukhari, Koti, Sundla, Manjir, Lanji	N 32° 32' and 32° 43' E 75° 59' and 76° 21'		Abundant
			Mehla	N 32° 20' and 32° 38' E 75° 25' and 76° 02'	(900-2300)	-do-
			Garola	N 32° 11' and 32° 41' E 76° 22' and 76° 33'		-do-
<i>Ziziphus nummularia</i> (Burm. F.) Wight.	Wild Ber	Beri	Saru, Rajpura, Sarol, Rajnagar, Kiani, Udaipur	N 32° 32' and 32° 43' E 75° 59' and 76° 21'		Occasional
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'	(900-1900)	-do-
			Salooni	N 35° 15' and 75° 38' E 75° 50' and 76° 10'		-do-

Species	Name English	Local Name	Name of Village	Latitude and Longitude	Altitude (m above sea level)	Frequency of occurrence
<i>Juglans regia</i> L.	Wild seedling of walnut	Khor	Holi, Garola, Khani, Bharmour, Kundi	N 32° 11' and 32° 41' E 76° 22' and 76° 33'		Abundant
			Tissa	N 32° 1' and 32° 35' E 75° 59' and 76° 26'	(1800-2400)	-do-
			Salooni	N 35° 15' and 75° 38' E 75° 50' and 76° 26'		-do-
<i>Pinus gerardiana</i> Wall.	Wild seedlings of Neoza Pine	Chillgoja	Ulansa Khani	N 32° 11' and 32° 41' E 76° 22' and 76° 33'	(2300-5000)	Frequent
			Pangi	N 33° -06' E 76° - 24'		-do-
<i>Corylus avellana</i> (wild seedlings)	Filbet	Thangi	Pangi	N 33° - 06' E 76° -24'	(5000)	Abundant

Table 2. Indigenous knowledge/economic use of wild fruits

Name of fruit	Potential value
Wild Pomegranate	Extract from leaves and fruits are used to cure indigestion and to strengthen gums. Ripe fruits cure soar throat, brain diseases and chest ailments. Fruit is a rich source of vitamin 'C'. Fruit rind contains yellow pigment and it is used for dying clothes. Seeds are used for preparing 'chutney' (sauce).
Wild Cherry	Plant, flower in autumn and attract honeybees. The wood is used for making local plough, as well as other agricultural implements. This fruit is still unexplored for dessert and medicinal purpose.
Wild Raspberry Karaunda	An unexplored fruit, of good desert quality and can be used for squash, ice-cream jam preparations. The fruits are eaten raw. This is thorny bush and it is used as a fencing material for agricultural fields. The leaves are the best green fodder for goats and sheep. The root of the bush is used as snake repellent and also to cure rheumatism.
Aonla	Fruits are used in curing jaundice and digestive disorders; and leaves are used to make ointments to cure skin infections. Fruit is rich in vitamin C and is used in pickles and morra making. This fruit is also used as a principal ingredient of famous ayurvedic preparation (triphala and chyavanprash).
Curry leaf Plant	Fruits are very sweet and rich in vitamin C. The leaves of plant are used as spice and twigs as "Datan" (for cleaning teeth). Roots, bark and leaves are used in curing poisonous animal bites. The oil extracted from leaves has antibiotic and anti-fungal properties.
Wild Date palm	Fruits are rich in iron and having good dessert quality. Plant has dissected leaves which are used to make brooms, fans and flower mats. Fruits are effective in heart and abdominal disorders.
Wild Fig	Fruits act as demulcent and laxative. Fruits are juicy and have good dessert quality. Raw fruits are used as vegetable.
Trimal	Fruits have good dessert quality and can be used for quality jelly making. In rural areas its broad leaves are used for 'patal' (plates) making.
Indian Barberry	Fruits are of good dessert quality. Roots are used in making an alcoholic drink. Fruits are used as laxative and used to cure ulcer and ophthalmia. Plant serve as a good flora for honeybees.
Wild Pear	Fruits are of good dessert quality, wood is used to make agricultural implements, plants is used as root stock for pear.
Wild Apricot	Fruits have good dessert quality, seeds are also eaten. The edible oil extracted from seed is also used to cure ear ailments. The extracted oil is used as baby oil.
Wild Strawberry Jamun	Fruits are edible. Twigs, leaves and fruits are used in control of diabetes.
Wild Olive	Leaves are used as green fodder, wood is generally used to make agricultural implements.

Name of fruit	Potential value
Wild Beri	Fruit are edible and also used in chutany making. Plants are used as fencing material to protect agricultural field from wild animals.
Wild Walnut	Nuts are edible and plant having good timber quality.
Neozia Pine/ Filbert	Nuts are edible and good source of energy.

Source : Watt (1889); Kirtikar and Basu (1935); Chopra *et al.*, (1958); Dastur (1962); Jain (1968); Gautam and Purohit (1974); Parmar and Kaushal (1982); Latha (2002).

By relying upon only few commercial fruits for their livelihood, the growers also face high financial risks. So, the diversification in horticulture is a need of the hour. The trees of these wild fruit species grow only in forests or wastelands. Due to deforestation and land clearing, trees of these fruits are decreasing in numbers at a very fast rate and a result may face the situation of oblivion in a few decades. The valuable traits of these fruits such as their resistance to biotic and abiotic stress and vigour can be incorporated in their cultivated relatives through systematic crop improvement programme (Singh *et al.*, 2000). Very few attempts have been made by the horticulturists to exploit the genetic potential of these fruits. In the light of above, there is an exigency to conserve the existing biodiversity of the Chamba as well as the western Himalays by identifying, collecting and domesticating these species which are still unexplored. This in turn will serve for the generations as a food bowl and also diversify and sustain the food producing agriculture.

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