



Traditional Phytotherapy for Snake Bites by the Local Rural People of Hamirpur District in Himachal Pradesh (India)

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ABSTRACT: An ethno-medicinal survey was undertaken in the Hamirpur district of Himachal Pradesh to collect the information from traditional health healers/rural people on the use of medicinal plants for the snake bites through questionnaire and personal interviews during study visits. The investigation reveals that local health healers/rural people used 16 plants belonging to 14 families for the treatment of snake bite. This study also reveals that many people of this region still continue to rely on traditional medicine for their primary health care. Recent trend shows a decline in the number of traditional health practitioners in the region since the young generation is not interested to continue this tradition. There is little documentation of ethno-medicinal knowledge was carried out in this region. In addition, several wild medicinal plants are declining in number due to destruction and unscientific collection of plants from forests. Hence there is an urgent need for exploration and documentation of the traditional knowledge in order to a certain the local ethno-medicinal plants. Therefore present study is an attempt to present ethno-medicinal observations recorded with respect to snake bite.

Key words: Phytotherapy, Ethnomedicine, Snake bite.

INTRODUCTION

Snakes are the poisonous animals. There are 3000 known species of snake and out of which around 300 species are poisonous. In India out of 260 species, 53 species are poisonous. Bites are mainly due to venomous species of the families Elapidae and Vipertidae. The common poisonous snakes in India mainly include cobra (NaJa-NaJa), common krait (*Bungarus caeruleus*) Russell's viper (*Daboia russelli*) and saw-scaled viper (*Echis carinatus*) etc.

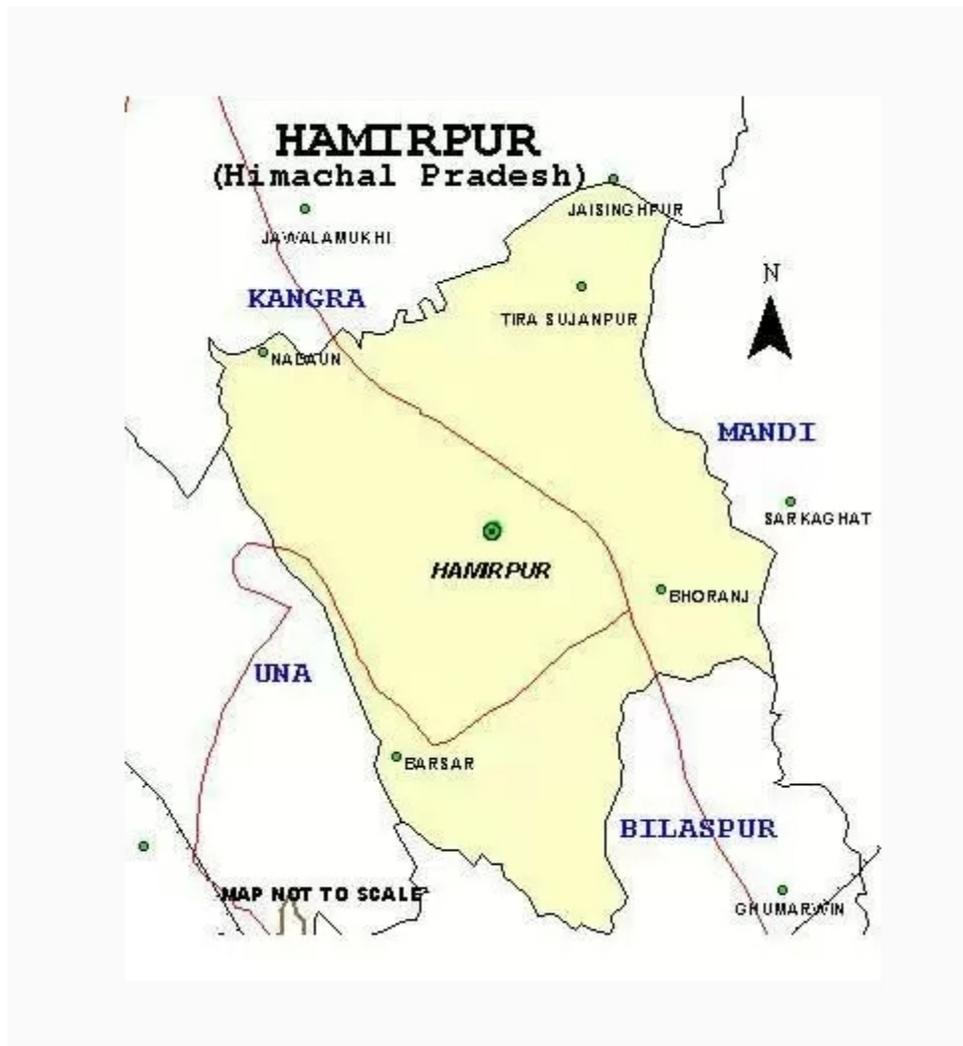
The snake venome is a complex mixture of enzymes including the pro-coagulant, non-enzyme proteins, peptides, carbohydrates, amines; lipids and metal ions. The venom exert neuro-toxic, cytotoxic and hemotoxic effects. Right from the beginning, the documentation of the traditional knowledge especially on the medicinal uses of plants, has provided many important drug of modern day. Even today this area holds much more hidden treasure as almost 80% of the human population in the developing countries is dependent on the plant resource for health care. The Himalayas have a great wealth of medicinal flora and traditional and folklore medicinal knowledge. Himachal Pradesh, one of the pioneer of Himalayan state is a rich repository of medicinal flora. Hamirpur district is also well known medicinal plant hotspot in the western Himalaya that has rich diversity of flora (Dhaliwal and

Sharma, 1999, Singh, 1999). The traditional healers and old village peoples have a sound knowledge related to medicinal uses of plants around them. Traditional herbal medicines used by different communities in his region play an important role in alleviating different diseases. They are safe, effective and inexpensive. In the remote areas of Hamirpur district plants become the only source of medicine. However information on the uses of plants as traditional medicine has not been documented from various remote areas of Hamirpur district. The people of these communities, particularly the rural folk and old aged people have long been using the plants for their various ailments with the recent development undergoing in this region specially the rural folk gained access to the modern health care facilities, but still the rural folk at large prefer to stay with their traditional herbal medication due to easy availability, cost effectiveness and efficiency of traditional way of healing using medicinal plants (Rao, 1996). The climatic conditions prevailing in the region maintains on ideal habitat for the natural growth of variety of medicinal plants and herbs. These are the sources which provide the raw material for pharmaceutical, phytochemical, food, flavoring and cosmetic industries. Therefore the present study aims at exploring and documenting the plant used for the treatment incase of snake bite by different communities of Hamirpur district.

Study Area

Hamirpur district is situated between $76^{\circ}18'$ – $76^{\circ}44'$ East longitude and $31^{\circ}52'30''$ North Latitudes. The track is hilly covered by shivalik range and the

elevation varies from 450-1,100 meters. This region is rich in diverse flora and suitable for ethnobotanical exploration various plants are used for many diseases and for snake bite problems.



Methodology

The floristic surveys were conducted throughout the study period in different area of Hamirpur district, among the local people. The plant specimens were collected during these surveys were identified and preserved. The field data was compared with literature on medicinal plants of Himachal Pradesh; some literatures of ethnobotany have also been considered like Yadav and Suresh (2003) Pushpangadan and Kumar (2005). The 16 plants belonging to 14 families were reported here which are used for the treatment of snake bite.

The method, which are used to collect the data:

- (a). Plants were collected and preserved.
- (b). The information was collected from the elderly persons of the area.
- (c). Interviews were conducted during structured questionnaire prepared for traditional medicinal practitioners.
- (d). Plants were identified and nomenclature with the help of 'Flora of British India'. (Hooker 1872-1897).

RESULT AND OBSERVATIONS

Ethno-botanical study carried out in this region throws light on 14 Medicinal plants for the treatment in case of snake bite as shown in the Table 1.

All the observations are analyzed through PI diagram and histogram as shown in figure. The different parts used for the snake bite treatment are represented by Pi diagram:

Table 1.

Sr. No.	Plant Name	Family	Local Name	Part/s Used	Medicinal use
1.	<i>Achryanthes aspera</i> .	Amarnathaceae	Puth Kanda	Seeds	Seed paste is used in case of treatment of snake bite.
2.	<i>Albizia lebbek</i> Benth.	Mimosaceae	Shirish, Sirinh	Bark	Powdered bark is useful in case of snake bite wounds.
3.	<i>Argemone mexicana</i>	Papaveraceae	Bharbhand	Root	Root paste is also used in case of snake bite treatment.
4.	<i>Bauhinia variegata</i> Linn.	Fabaceae	Kachnar/ Kariala	Root	Root paste is used as antidote to snake poisoning.
5.	<i>Bombax ceiba</i> L.	Bombacaceae	Semal, Simul	Flowers and Fruits	Paste of flowers and fruits are used in case of the treatment of snake bits.
6.	<i>Butea monosperma</i> (Lamk.) Taub.	Fabaceae	Dhak, Palah, Plash and flame of forest	Resin/ Latex	Resin is used in case of treatment of snake-bits.
7.	<i>Cissampelos pareira</i> Linn.	Menispermaceae	Patindu, Batindu and Patha etc.	Roots	Roots paste is used as antidote to snake poison.
8.	<i>Costus speciosus</i> Smith.	Zingiberaceae	Kemuk, Kustha	Rhizome and Root	Rhizome and root paste is used in case of treatment of snake bit.
9.	<i>Euphorbia royleana</i> Boiss	Euphorbiaceae	Chhuien	Root	In case of snake bite decoction prepared from small roots and kali mirch is given to patient is a medicated drink.
10.	<i>Gloriosa superba</i> Linn.	Liliaceae	Nagardi	Root	Root paste is an antidote to snake bite.
11.	<i>Mentha longifolia</i> (L.) Hirds	Lamiaceae	Podina, Pudina	Leaves	Paste of leaves powder is used in case of treatment of snake bits.
12.	<i>Murraya koenigii</i> (L.) spreng.	Rutaceae	Gandhela, curry patta	Leaves	Decoction of leaves with butter act as febrifuge and also used in snake bite.
13.	<i>Murraya paniculata</i> (L.) Jack.	Rutaceae	Gandhela	Root	About 30ml. infusion prepared from shadily dried root powder of admistered orally for every one hour upto 2 days work as antidote for snake bite.
14.	<i>Rauvolfia serpentina</i> Benth. Ex. Kurtz.	Apoacynaceae	Sarpgandha	Root	Root paste is also act as antidote to snake venom.
15.	<i>Thalictrum foliolosum</i> DC.	Ranunculaceae	Pilijari, mirchadi	Root	The root paste is used against snake bite.
16.	<i>Verbascum thapus</i> Linn.	Scrophulariaceae	Jangli tambaku	Whole plant	The infusion of whole plant is given to snake bite patient.

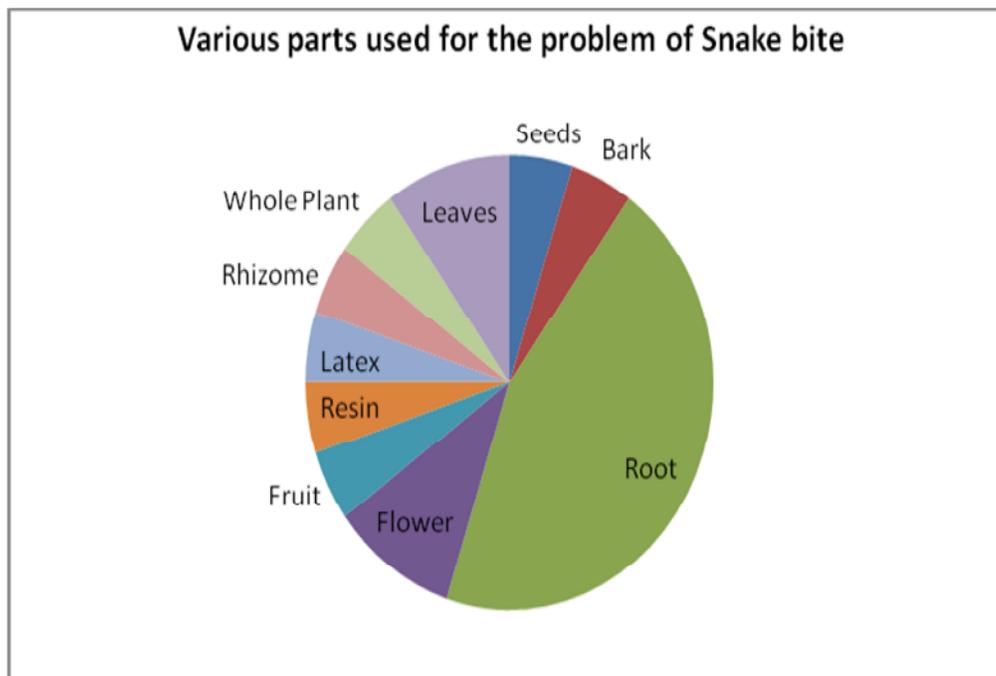
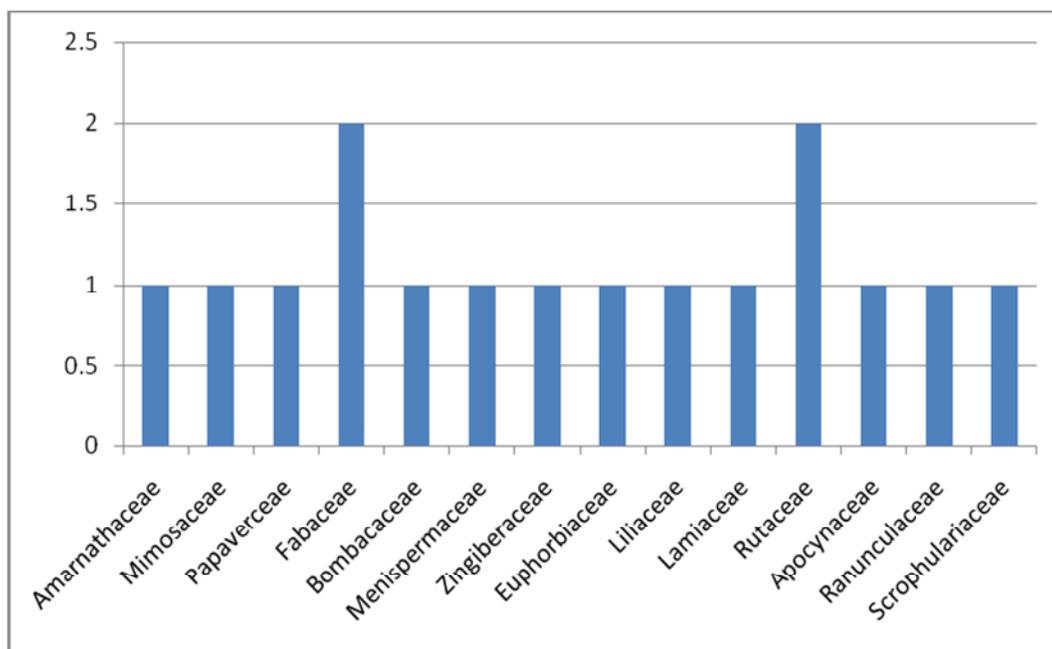


Fig. 1. The number of the different plant parts used for snake bite treatment.



DISCUSSION

Ethnobotany is totally in virtually a new field of research, if in this field plants investigated thoroughly and systematically, it will yield result of great value of the archeologists, anthropologist, plant geographer,

ethnobotanist, linguistics, botanists and phytochemists. After the time of Harshberger (1896) to the present date, several authors have tried to give a description of subject ethnobotany and its scope, methodology, its various disciplines sub-disciplined and potential etc.

Schutles (1960) had written on tapping our heritage ethnobotanical lores. He had suggested three methods of ethnobotany among the primitive peoples. He also gave some examples of the plant used during ancient period. Schutles (1962) outlined the role of ethnobotanist in the search of new medicinal plants. So, this was a paper on subject of ethnobotany on specialized line *i.e.* medicinal plants, archeological plant remain, notes on plant collections and herbaria, literature survey and field studies. Jain, *et. al.* (1963), highlighted the native plant remedies for snakebite among adibasis of central India. Jain (1964) wrote on the role of botanist in fold lore research. He writes that folklore research involve the study of all aspect of intellectual and material culture of indigenous or

backward people. Jain (1965c) outlined the prospects by some new or less known medicinal plants resources. Sharma (1976) studied some useful wild plant of Himachal Pradesh. Uniyal and Chauhan (1982) studied commercially important medicinal plant of the Kullu forest division in H.P. Jain (1986) gave an overview of the subject ethnobotany, and indication of the significant research during last thirty year in this field and also showed how ethnobotany is an interdisciplinary science. Schutles (1986) tried to bring the attention of scientists to ethnobotanical conservation. For many years, he has been engaged on the studies in pristine forest of the Amazon and other regions of tropical South America.



Achryanthes aspera
(Amaranthaceae)



Albizia lebbek Benth.
(Mimosaceae)



Argemone mexicana
(Papaveraceae)



Bauhinia variegata Linn.
(Fabaceae)



Bombax ceiba L.
(Bombacaceae)



Butea monosperma (Lamk.) Taub.
(Fabaceae)



Cissampelos pareira Linn.
(Menispermaceae)



Costus speciosus Smith.
(Zingiberaceae)



Euphorbia royleana Boiss.
(Euphorbiaceae)



Gloriosa superba Linn.
(Liliaceae)



Mentha longifolia (L.) Hirds
(Lamiaceae)



Murraya koenigii Spreng.
(Rutaceae)



Murraya paniculata (L.) Jack.
(Rutaceae)



Rauwolfia serpentina Benth. Ex
Kurtz. (Apocynaceae)



Thalictrum foliolosum DC.
(Ranunculaceae)



Verbascum thapus Linn.
(Scrophulariaceae)

Arora (1987) described ethnobotany and its role in the domestication and conservation of native plant genetic resources. He gave the detail account of this important area where ethnobotany has still a great to do. Manilal (1989) had thrown light on the linkage of ethnobotany with other science and disciplines. The important fields like food and nutrition, defense and survival, sociality and culture, religion, medicine, art and literature, mythology, anthropology, archeology, forestry, and agriculture, economics, language, history and politics and conservation etc. are the major field to the research is linked.

Uniyal (1989) highlighted the Garwhal Himalaya in his "Notes on the Ethnobotany of Lahoul, a province of the Punjab". Brij Lal *et al* (1996) described the plants used as ethnomedicine and supplement food by Gaddis of Himachal Pradesh, India. Kapur (1996) highlighted the traditionally important medicinal plant of Bhaderwah hills. Chauhan (1999) described the medicinal and the aromatic plants of Himachal Pradesh. Singh S.K. (1999) worked on the ethno-botanical study of the useful plants of the Kullu district in Himachal Pradesh. Sharma *et al* (2000) studied the ethnobotanical studies of Gaddi- a tribal community of the Kangra district, Himachal Pradesh. Singh and Kumar (2000) studied the ethnobotanical wisdom of Gaddi tribe in the western Himalaya (Himachal Pradesh) Thakur (2001) described the ethnobotany of Rawalsar (Mandi District), Himachal Pradesh. Sharma *et al* (2003) gave an account on the commercial importance of medicinal and aromatic plants of Parvati Valley (Himachal Pradesh). Thakur *et al* (2004) described the

characterization of some traditional fermented food and beverages of Himachal Pradesh. Warman (2004) studied the medicinal commercial religions and ornamental properties of various trees of India in "Trees of India" Kala (2005) described on the ethno-medicinal botany of the Atapani in the Eastern Himalaya Region of India. Jain *et al* (2006) worked on the Ethnobotanical Survey of Sariska and Siliserh Regions in Alwar district of Rajasthan, India. Brij Lal and Singh (2008) find out the indigenous herbal remedies to cure skin disorders by natives of Lahaul Spiti, Himachal Pradesh. Prakash & Aggarwal (2010) highlighted the traditional uses of medicinal plants of lower foot-hills, Himachal Pradesh. Kaur, *et al* (2011) studied the uses of plants in control of different diseases in Mandi district, Himachal Pradesh. Kharwal and Rawat (2012) studied ethnobotanical uses of herbal shampoo of Shivalik hills, Himachal Pradesh. Singh, *et al* studied ethnobotany of higher plant in Spiti cold desert of western Himalayas.

The present study revealed the information of plants used for snake bite treatment. These plants are arranged in alphabetical order; with their family, local name, part/ parts used and folk use. The present study includes 16 plants belonging to 14 families for snake bite treatment. The predominant families are Fabaceae and Rutaceae with 2 plant species and other families with one plant species is used for treatment of snake bite. Out of 16 plant species, roots of 9 plant species, Leaves and flowers of 2 plant species, and seed, bark, fruit, resin, latex, rhizome and whole plant of 1 plant species used for the treatment of the snake bite treatment.

CONCLUSION

The present observations revealed that the local people of Hamirpur district of Himachal Pradesh particularly those living in remote and high altitude areas are largely dependent upon the surrounding plant resources to meet their day-to-day requirements. In addition to the above mentioned species, the local people also use many other plants. These plants form an integral form of their lifestyle and hence have always been revered.

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REFERENCES

- Arora, R.K. (1987), Ethnobotany and its role in domestication and conservation of native plant genetic resources. In: Jain S.K. (ed.): A Manual of Ethnobotany Scientific Publishers, Jodhpur PP 94-102.
- Brij Lal, Vats S.K., Singh R.D. and Gupta A.K. (1996), Plants used as ethnomedicine and supplement fund by the Gaddis of Himachal Pradesh, India, in : Jain S.K. (ed) Ethnobiology in Human Welfare, New Delhi.
- Brij Lal & K.N. Singh (2008), Indigenous herbal remedies used to cure skin disorders by the natives of Lahaul-Spiti in Himachal Pradesh, *Indian Journal of Traditional Knowledge*. Vol. 7(2) : 237-241.
- Chauhan, N.S. (1999), Medicinal and aromatic plants of Himachal Pradesh, (Indus Publishing Company, New Delhi).
- Dhaliwal DS and Sharma M. (1999), Flora of Kullu District, Dehradun, BSMPS.
- Harshberger, J.W. (1896), The purpose of ethnobotany. *Bot. Gaz.*, 21: 146-158.
- Jain, S.K. and C.R. Tarafder (1963), Native plant remedies for snakebite among adibasis of central India. *Indian Med. Jour.*, 57: 307-309.
- Jain, S.K. (1964), The role of a botanist in folklore research. *Folklore* April, 1964.
- Jain, S.K. (1965c), On the prospectus of some new or less known medicinal plant resources. *Indian Medical Journal* December: 67-79.
- Jain, S.K. (1976b), Ethnobotany its scope and study. *Indian Mus. Bull.*, 2: 39-43.
- Jain, S.K. (1986), Ethnobotany. *Interdisciplinary Science Reviews* 11(3): 285-292.
- Jain, S.K. (1987c), Ethnobotany-its scope and various sub disciplines. In S.K. Jain (ed.) A manual of Ethnobotany. Scientific Publishers, Jodhpur.
- Kala, C.P. (2005), Ethnomedicinal botany of the Aptani in the Eastern Himalaya Region of India. *Journal of Ethnobiology and Ethnomedicine* 2005, 10(11).
- Kapur, S.K. (1996), Traditionally important medicinal plants of Bhaderwah Hills Jammu, Province - II, 62-69. In Maheshwari, UC. (ed.); Ethnobotany in South Asia. J. Econ, Taxon Bot. Additional series, 12. Scientific Publishers, Jodhpur (India).
- Kaur, Ismeet, Sharma Shalini and Lal Sukhbir (2011), Ethnobotanical survey of Medicinal plants used for Different diseases in Mandi district, Himachal Pradesh, *International Journal of research of Pharmacy and Chemistry*, 1(4).
- Kharwal ,Anjna D. and Rawat Dhiraj S. (2012), Ethnobotanical notes on indigenous herbal shampoos of Shivalik hills, Himachal Pradesh,(India). *Plant Science Feed*. 2(6): 88-90.
- Manilal, K.S. (1989), Linkages of ethnobotany with other sciences and "disciplines. *Ethnobotany* 1: 15-24.
- Negi, P.S. and Subramani, S.P. (2002), Ethnobotanical study in village Chhitkul of Sangla Valley, Kinnaur district, Himachal Pradesh, *J. non-timber forest prod.* 9(3-4): 113-120.
- Prakash Vipin and Aggrawal Ashok (2010), Traditional uses of ethnomedicinal plants of lower foot-hills, Himachal Pradesh.
- Rao RR., (1996), Traditional knowledge and sustainable development: Key role of ethnobotanists.
- Schultes, R.E. (1960), Tapping our heritage of ethnobotanical lore. *Econ. Bot* 14: 257-262.
- Schultes, RE. (1962), The role of the Ethnobotanist in the search of new medicinal plants. *Lloydia*, 25(4): 257.
- Schultes, R.E. (1986), The reason for ethnobotanical conservation. *Bull. Bot. Sur. India*. 28(1-4): 203-224.
- Sen Sharma, P. (1995), Plants in Indian Puranas_ An Ethnobotanical Investigation. Naya prakash, Calcutta.
- Sharma, O.P. (1976), Some useful wild plants of Himachal Pradesh, College of Biosciences, HPU, Shimla.
- Sharma, P.K. and Chauhan N.S. (2000), Ethnobotanical studies of Gaddi-a tribal community of Kangra district, Himachal Pradesh, in : Kohli, R.K.,

- Singh H.P, Vij S.P, Dhar K.K., Batish D.R. and Dhiman B.K. (eds) Man and Forest, Punjab University Chandigarh, 301-302.
- Sharma, P.K., Chauhan, N.S. & Brij Lai (2003), Commercially important medicinal and aromatic plants of Parvati Valley, Himachal Pradesh, *J Econ Tax Bot*, **27**(4): 937-942.
- Singh, K.K. and Kumar, K. (2000), Ethnobotanical wisdom of Gaddi tribe in western Himalaya (Bishen Singh, Mahendra Pal Singh, Dehra Dun).
- Singh, S.K. (1999), Ethnobotanical study of useful plants of Kullu district in Northwestern Himalaya, *India, J. Econ Tax. Bol*, **23**(1): 185-198.
- Thakur, N. Savitri and Bhalla, T.C. (2004), Characterization of some traditional fermented foods and beverages of Himachal Pradesh, *Indian J Traditional Knowledge*, **3**(3): 325.
- Thakur, S. (2001), Study on the ethnobotany of Rewalsar (Mandi District, Himachal Pradesh, India) Ph.D. thesis, Himachal Pradesh University, Shimla.
- Uniyal, M.R. and Chauhan, N.S. (1982), Commercially important medicinal plants of Kullu, Forest Division of Himachal Pradesh, *Nagarjuna*, **15**(1) 4.
- Warman, C.K. (2004), Trees of India, (Medicinal commercial, Religious and ornamental). CBS Publishers and Distributors Darya Ganj, New Delhi, India.