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

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ABSTRACT: Hamirpur district is the most literate and smallest district of Himachal Pradesh. Due to favourable climatic conditions and suitable environment, this region serve as a good habitat for the growth of various varieties of medicinal herbs which are used for the treatment of various diseases and ailments. Snake are poisonous animals and they are found in every parts of study area. So snake bite is the common problem of this district. This paper provides the informatons about the ethnobotanical and traditional uses of local people of this district for snake treatment. This work is an effort to present the traditional phytotherapeutical and ethnobotanical observations recorded with respect to snake bite.

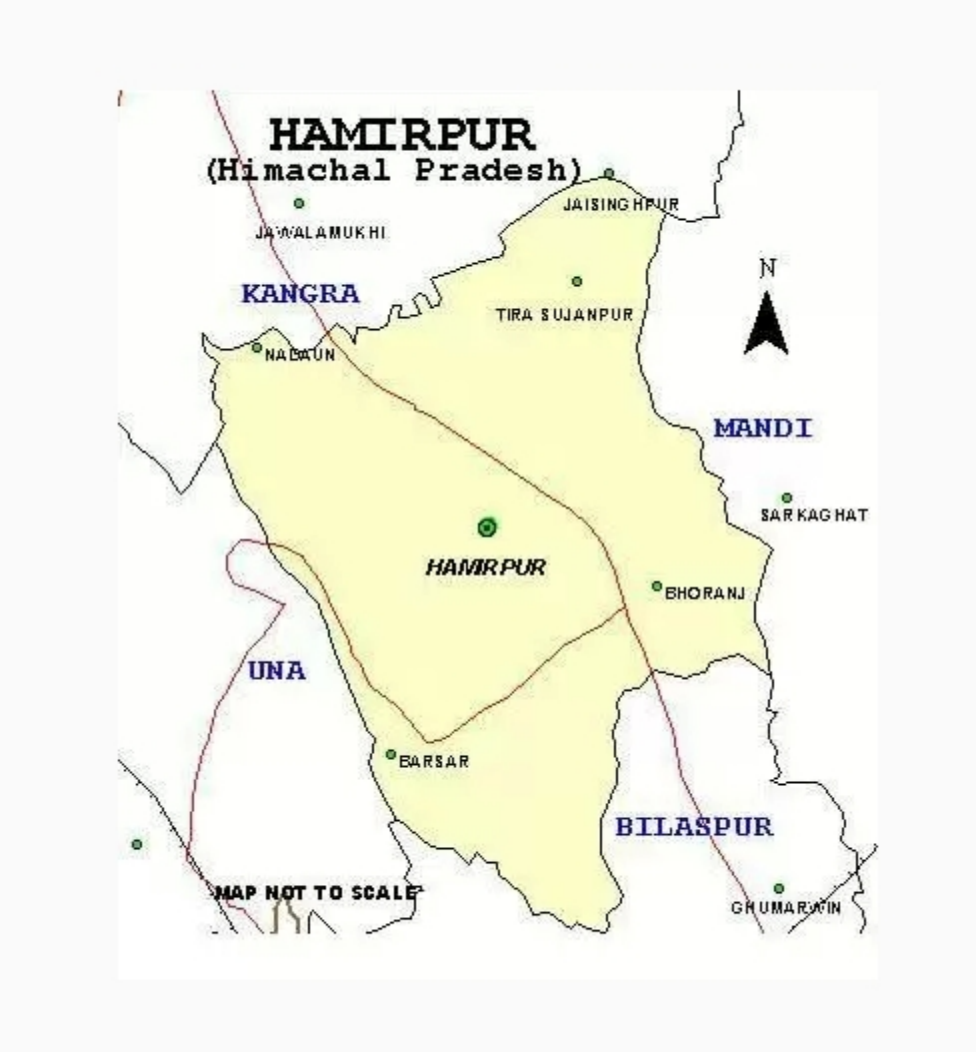
Key words: Phytotherapy, Ethnomedicine, Snake bite.

INTRODUCTION

Snakes are the poisonous animals because their venome exerts neuro-toxic, cytotoxic and hemotoxic effect. Snake venome is a complex mixture of enzymes of pro-coagulant, non enzyme proteins, peptides, carbohydrates, amines, lipids and metal ions. In India out of 260 species, 53 species are poisonous. Bites are mainly due to two poisonous and venomous species of the snake families *i.e.* Elapidae and Vipertdae. The most common poisonous snakes in India are cobra (NaJa-NaJa), common krait (Bungarus caeruleus) Russell's viper (Daboia russelli) and saw-scaled viper (Echis carinatus) etc. The Himachal Pradesh have a great wealth of flora of medicinal flora and traditional medicinal knowledge associated with them. Himachal. 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). Local people and old village peoples have a high amount of quality of knowledge associated to the medicinal uses of plants around them. Traditional herbal medicinal therapies used by local people of this study area play an important role in cure different diseases. They are safe, effective and inexpensive (Kaur, *et. al*). The growth of these medicinal herbs and other plant resources in the study area provide the raw material for pharmaceutical, phytochemical, food, flavouring and cosmetic industries. Therefore the present study helps to keep the record of traditional uses of 16 medicinal plants belonging to14 families which are used for the treatment in case of snake bite by local people.

Study Area

Hamirpur district is situated between 76°18' – 76°44' East longitude and 31°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), Prakash and Aggarwal (2010)and Kharwal and Rawat (2012). 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 in the form of herbarium.

(b). The information was collected from the old 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 H.J and Wadhwa Flora of Himachal Pradesh and flora of B.S.I.

RESULT AND OBSERVATIONS

Ethno-botanical study carried out in this region throws light on 16 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.	*Achryanthes* aspera.	Amarnathaceae	Puth Kanda	Seeds	Seed paste is used in case of treatment of snake bite.
2.	*Albizia lebbek* Benth.	Mimosaceae	Shirish, Sirinh	Bark	Powdered bark is useful in case of snake bite wounds.
3.	*Argemone mexicana*	Papaveraceae	Bharbhand	Root	Root paste is also used in case of snake bite treatment.
4.	*Bauhinia variegata* Linn.	Fabaceae	Kachnar/ Kariala	Root	Root paste is used as antidote to snake poisoning.
5.	*Bombax* ceiba L.	Bombacaceae	Semal, Simul	Flowers and Fruits	Paste of flowers and fruits are used in case of the treatment of snake bits.
6.	*Butea monosperma* (Lamk.) Taub.	Fabaceae	Dhak, Palah, Plash and flame of forest	Resin/ Latex	Resin is used in case of treatment of snake-bits.
7.	*Cissampelos pareira* Linn.	Menispermaceae	Patindu, Batindu and Patha etc.	Roots	Roots paste is used as antidote to snake poison.
8.	*Costus speciosus* Smith.	Zingiberaceae	Kemuk, Kustha	Rhizome and Root	Rhizome and root paste is used in case of treatment of snake bit.
9.	*Euphorbia royleana 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.	*Gloriosa superba* Linn.	Liliaceae	Nagardi	Root	Root paste is an antidote to snake bite.
11.	*Mentha longifolia* (L.) Hirds	Lamiaceae	Podina, Pudina	Leaves	Paste of leaves powder is used in case of treatment of snake bits.
12.	*Murraya koenigii* (L.) spreng.	Rutaceae	Gandhela, curry patta	Leaves	Decoction of leaves with butter act as febrifuge and also used in snake bite.
13.	*Murraya paniculata* (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.	*Rauvolfia serpentina* Benth. Ex. Kurtz.	Apoacynaceae	Sarpgandha	Root	Root paste is also act as antidote to snake venom.
15.	*Thalictrum foliolosum* DC.	Ranunculaceae	Pilijari, mirchadi	Root	The root paste is used against snake bite.
16.	*Verbascum thapus* Linn.	Scrophulariaceae	Jangli tambaku	Whole plant	The infusion of whole plant is given to snake bite patient.

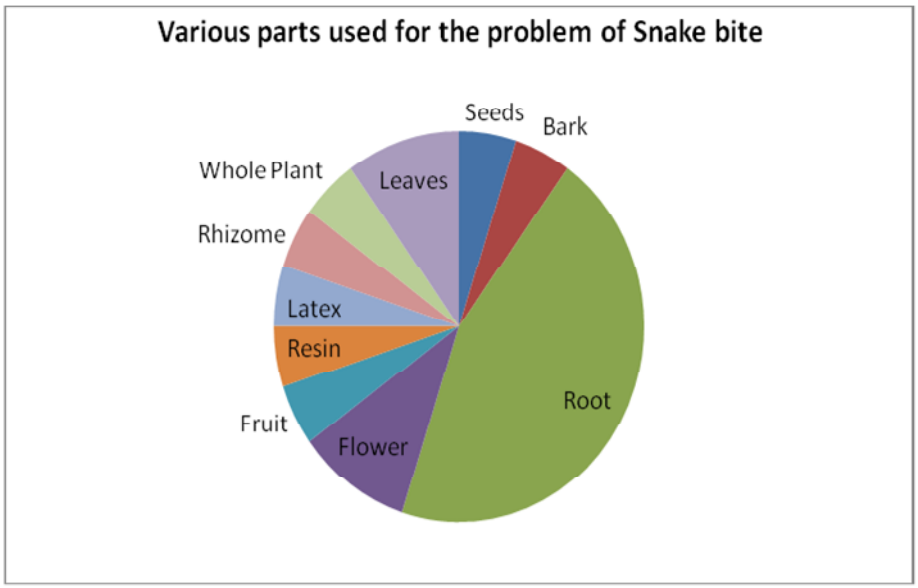
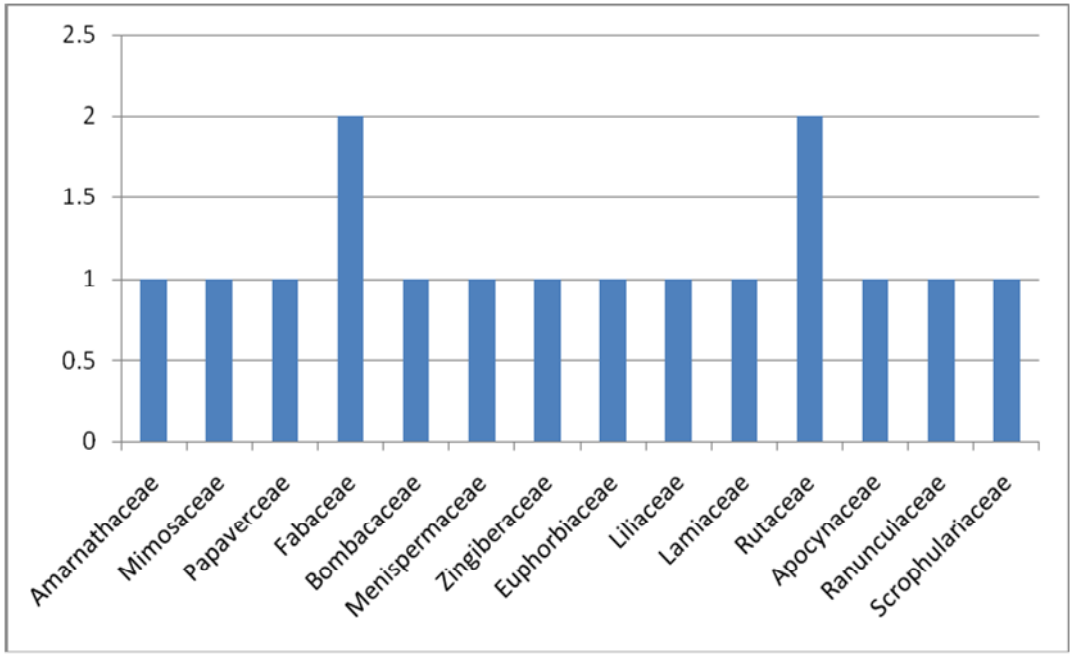


Fig. 1. The number of the different plant parts used for snake bite treatment.



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, enthnobotanist, 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 pristline forest of the Amazon and other regions of tropical South America.

Achryanthes aspera
(Amarnathaceae)

Albizia lebbek Benth.
(Mimosaceae)

Argemone mexicana
(Papaveraceae)

Bauhinia variegata Linn.
(Fabaceae)

Bombax ceiba L.
(Bombacaceae)

Butea monosperma (Lamk.) Taub.
(Fabaceae)

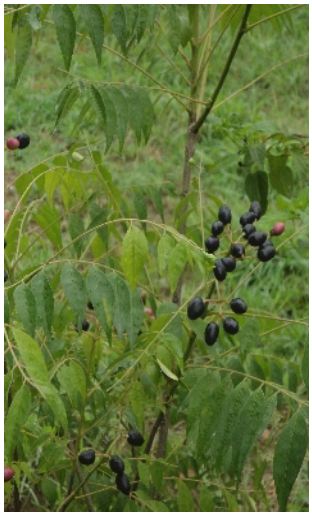
Cissampelos pareira Linn.
(Menispermaceae)

Costus speciosus Smith.
(Zingiberaceae)

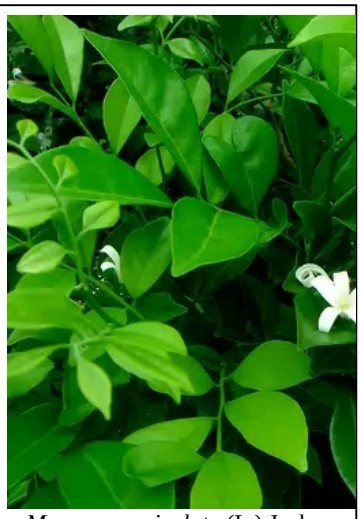
Euphorbia royleana Boiss.
(Euphorbiaceae)

Gloriosa superba Linn.
(Liliaceae)

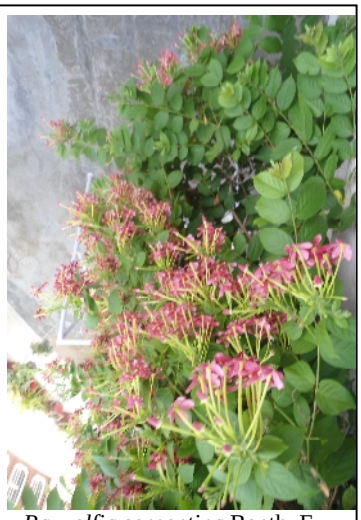
Mentha longifolia (L.) Hirds
(Lamiaceae)



Murraya koenigii Spreng.
(Rutaceae)



Murraya paniculata (L.) Jack.
(Rutaceae)



Rauvolfia serpentina Benth. Ex
Kurtz. (Apocynaceae)

Thalictrum foliolosum DC.
(Ranunculaceae)

Verbascum thapus Linn.
(Scrophulariaceae)

Arora (1987) described ethnobotany and it's 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 tradionally 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 inthe western Himalya (Himachal Pradesh) Thakur (2001) described the ethnobotany of Rawalsar (Mandi District), Himachal Pradesh. Sharma *et. al* (2003) gave an account on the commercially 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 Himalya 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 Pradash. 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 area and high altitude areas are largely depends upon the local plant resources to meet their daily requirements and earning their livelihood. In addition to these plant species, the local people also use many other plants for various ethnobotanical purposes. These plants form an integral form of their lifestyle and hence have always been revered.

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