

Ethno Botanical Uses of Some Xerophytic Plants Growing in Dry Habitat of Hamirpur District of Himachal Pradesh

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ABSTRACT: Xerophytes are the plants growing in relatively dry habitat. Xerophytes can withstand a prolonged period of drought uninjured and for this, they have specific adaptations such as reduced leaf surface area to check transpiration, leaves may be modified into phyllode, lamina of leaf may be very much segmented or long, narrow and needle like, stem may be modified into phylloclade or cladode, coating of hair, wax and spines on the stem and root system is extensive, penetrating very deep and root hairs and root caps are well developed. Xerophytes growing in the dry habitat and the areas where there is less rainfall. But there are some xerophytes which are grown in the dry habitat or in dry condition of Hamirpur district of Himachal Pradesh. This district is smallest district of Himachal Pradesh which is surrounded by dense forests and which are full of medicinal plants and other plants of ethno botanical importance. Traditional knowledge about local plants was used by the local people of this region. This traditional knowledge about particular floral diversity of an area is necessary for the identification of plants and their folk uses for the purpose such as for food, shelter, cloths, fodder fuel, in case of religious ceremonies and in case of primary health care. This research paper revealed the ethnobotanical uses of some xerophytic plants which are grow in dry habitat or in dry conditions in Hamirpur district of Himachal Pradesh.

Keywords: Ethanobotanical; traditional knowledge; xerophytes

INTRODUCTION

Ethno botany is the holistic approach which involves the reciprocal and dynamic aspect of interaction of indigenous people with plants (Schutles 1962; Ford, 1980). This approach includes the study of complex relationship between uses of plants and cultures. The major focus of this approach to emphasize that how the plants have been or are used, managed and perceived in human societies and also includes studies of plants which are used for food, fibers dyes, tannins and also medicinal and other useful plants, harmful plants, taboos and magico-religious belief about plants, material use, the act of domestication, conservation and improvement or destruction of plants (Ford 1978; Jain 1987b, 1995). The plants growing in the relatively dry habitat are called xerophytes. Xerophytes condition may be as a result of soil drought or atmospheric drought or both. The atmospheric drought is caused by excessive transpiration. Soil drought is due to inadequate absorption of water. It may be due to two reason- Actual shortage of water in the soil, it is called as physical dryness or there may be plenty of water in the soil but a plant is unable to absorb it. This can be because of cold soil, water logged condition, acid soils or in the presence of high salt concentration in the soil water. It is known as physiological dryness. The physical dryness is the characteristics of deserts, where the summer temprature are high, the atmosphere is dry and there is scanty rainfall. Physiological dryness is met in the cold desert where soil is frozen and covered with snow as in the tundra and alpine regions. Other physiological

deserts are saline and water logged soil as in salty marshes. Xerophytes are really drought resistant plants xerophytes is classified into three categories on the basis of morphology, physiology and life cycles such as- Ephemeral, Succulents and non- succulents. Xerophytes are mainly found in the desert or in dry areas but there some xerophytic plants which are grown in the dry habitat or in dry condition in Himachal Pradesh. Hamirpur district is the smallest district of Himachal Pradesh due to area wise and this district falls under Shivalik hills. These hills are full of forest with floristic plant diversity. Due to the favorable climatic conditions, this region act as a good reservoir for the growth of herbal plants and other plants of ethno botanical importance which are belonging to different families. Due to modernization there is advancement in technology, means and facilities which are helpful to raise the standard of life of people in this district yet the peoples have good faith in traditional knowledge regarding to ethnobotanical uses of plants especially for primary healthcare. The rural people of this district use the plants and their products for treatment of various health problems .They also use local plants and their products in various religious ceremonies such as from birth to death and other miscellaneous purposes. This paper emphasizes the ethnobotanical uses of some xerophytes which are growing in dry habitat or in dry condition of Hamirpur district of Himachal Pradesh.

The traditional knowledge about ethnobotanical uses flora of study area is degraded day by day .So there is the need of the conservation or preservation of tradi-

tional knowledge about the medicinal flora of study area for the benefit of future generation through recording and documenting that traditional knowledge. This step is also a necessary step for the conservation of those plant species among the flora of study area that are in danger of extinction.

MATERIALS AND METHODS

During this field work ethno botanical observations were collected from the rural people dominated areas and other well vegetational areas of the Hamirpur district of Himachal Pradesh. The information about the utility of plants as food, fodder, medicines and for other purposes by the rural people of the district was recorded. The Performa of field book suggested by Jain and Goel (1995) was followed for observations during the survey. The data were collected by interviews, observations and participation with the peoples. On reaching a village or locality, rapport was established with one or two persons and contact was then established with other peoples of the locality. Generally, two types of interviews were taken, first of individuals and secondly of groups of individuals. Persons were selected at random on the way or gathering information from individuals from the study area. In group interviews, more than one individual were approached and their interviews were taken. Interviews were taken at different sites and when situation demanded. In field with the ambient vegetation before them, the peoples were prompted to remark on the utility of species as food, fodder and medicines especially when explained by a group. A group of rural peoples was taken to the field and specimens of ethnobotanically important plants were collected along with notes. Immediately after returning to field, the day's collection were pressed between newspapers and kept under heavy pressure for a sweating period of 12 – 24 hours (lesser even during rains). Rapid change method of dryers was adopted for drying. Usually after many change, individual specimens within the blotter were kept between corrugated sheets. Dissecting and sketching of the specimens were followed by their detailed description, which were taken as clues for identification upto species level. Various floras, monographs revisions and icons were consulted for identifications of these. J.D. Hooker's Flora of British India. T. Cooke's flora of Presidency of Bom-

bay. J.F. Dutchies Flora of Upper Gangetic platns, M.M. Bhandari's Flora of the Indian Desert, V. Singh & R.P. Pandey's Ethnobotany of Rajasthan, Chowdhary, H.J. and Wadhwa Flora of Himchal Pradesh, Flora of FRI Dehradun and Flora of BSI were frequently consulted ones.

Study Area: Hamirpur district is situated between 76°18' to 76°44' East longitudes and 31°25' to 31°52' North latitudes. It is situated at an attitude of 785 meter Hamirpur is mainly a hilly terrain. It is not a typical hilly and chilly type of climate in Hamirpur district as it is closer to plains. During winter, the climate is cold but pleasant, and then woollens are required. During summer the temperature is hot and then cottons are recommended. Temperature does sometime cross the 44 degree Celsius mark into summers. This region possesses unique floral diversity and rich herbal or medicinal wealth which needs exploration This paper explore about the 16 xerophytic plant species plant species of study area which are of ethno botanical importance.

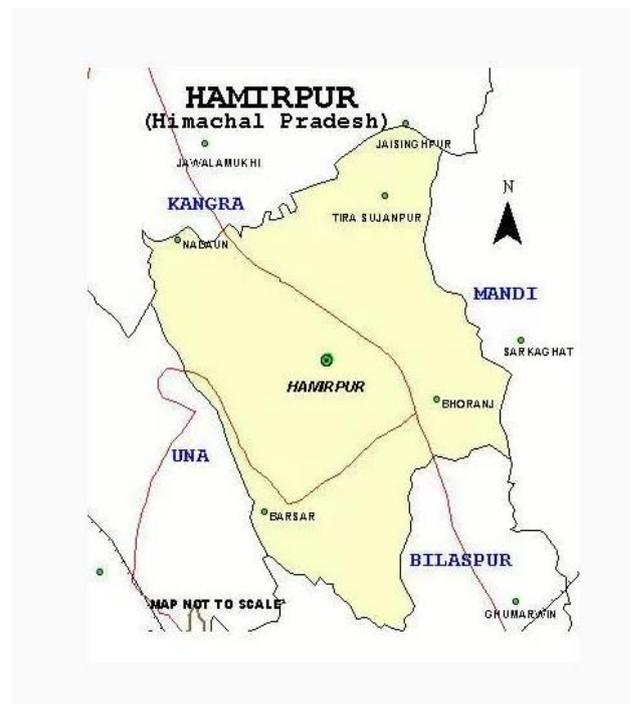


Figure 1: Map of study area

RESULTS AND DISCUSSION

A list of Xerophytic plants species which are growing in dry habitat along with their ethnoboatanical uses which are shown in the Table 1.

Table 1: List of Xerophytic plants species growing in dry habitat along with their ethnobotanical uses

Sr. No.	Scientific name	Family	Local name	Parts used	Folk uses
1.	<i>Acacia nilotica</i> Delile .	Fabaceae	Kikar, Babul	Bark, Gum, Leaves, Pod, Flowers, Twigs and Wood	Bark powder is useful in the treatment of skin diseases and bleeding piles. Fresh leaves chewed twice a day for five days to cure mouth sores. Twigs used for scouring teeth. Wood used as agriculture implements. Gum along with latex of <i>Calotropis procera</i> is given to cure diabetes and also given to stop bleeding, urinary and vaginal discharges .Bark is also used as a substitute for soap. Brushed leaves are applied to sore eyes in children ,eaten in throat infection and poultice is used in sore eyes. The pod is favourite food for cattle, sheep and goats, used in impotency and effective in urogenital disorders.
2.	<i>Agave americana</i> L.	Agavaceae	Keur, chatyan and kevda	Leaves, shoot	"Maanu" which is the tender shoot of this plant is edible. Its leaves are used to tie the bundle of wood and grasses. Its leaves also used as fodder. Fibers extracted from semi dried leaves of this plant by thatching which are used for making ropes.
3.	<i>Aloevera</i> (L.) webb and benth	Liliceaceae	Kawer, Kurian, (Kwarei-n) kawarya	Leaves, Latex, Flower Fruits and whole plant	Aloe vera plant is used for the treatment of many disease like piles, ulcer, and arthritis decoction of it's leaves with 'ajawain' (<i>Trachyspermum ammi</i> Linn.) and black pepper (<i>Piper nigrum</i> Linn) given to cattle for seven days for stomach disorder. Leaf with vegetables used for algomenorrhoea. Leaves are considered good for the joint pains and it's latex (pulp) is applied to heal the boils and burns. Also the latex (pulp) roasted in deshi ghee to cure the 'Pitta' diseases (liver ailment). Plant is considered good for the treatment of diabetes .Plant is also cultivated for ornamental purpose
5	<i>Asparagus abscondens</i> Roxb.	Liliaceae	Shans bain, Sansfan	Roots, Twigs, Leaves and Whole plant	Mixture of it's roots with "Gur" jaggery is given to animals for stomach disorder. Poultices of roots, twigs and leaves is applied on stomach to cure menorrhagia. Roots is considered emetic plant is regarded as sacred and worshipped during marriages. The roots are used to increase the milk yield in cattle and also to get germ free milk.
6	<i>Bryophyllum calycinum</i> Salisb.	Crassulaceae	Pathaer chat, Gillar pathar	Leaves and Whole plant.	Roasted leaves applied to cure wounds and boils. Leaves eaten raw and considered antilithic. Leaves poultices with mustard oil is applied on swelling to relief the pain. Leaves are also prescribed for the treatment of kidney stone. Whole plant is cultivated

					for ornamental purpose.
7	<i>Calotropis gigantea</i> Linn.)	Asclepidaceae	Safed , aak	Leaves and root	Powdered flower are used in cough, cold, asthma, and digestive problems .Powered root is used in dysentery. Latex is applied on swelling Fresh milky latex is applied locally twice a day for seven days to cure scabies and ring worm. Extract of root and leaves is useful in case of rheumatism.The paste of roots and leaves is useful in case of syphilis.
8	<i>Euphorbia roy leana</i> Boiss.	Euphorbiaceae	Chhue-in, Chaparc hoo,	Phylloclade, Stem pith , Latex and Roots.	Part of crushed stem considered antiseptic. Pith slices mixed with wheat dough fed to the cattle for stimulating ovulation and also to avoid abortion after conception. Latex is applied for suppuration of boils. Few drops of latex applied on the proximal end of infected tail of cattle to check infection (nanain). Decoction which is prepared from inner portion of stem is eaten raw. Decoction prepared from small roots and Kali mirch (Black pepper) is given to the patient as medicated drink .Phylloclade is planted during the boys birth ceremony
9	<i>Euphorbia splendens</i> Bojer. ex. Hook.	EEu phorbiaceae	Doodhli, Kante Bali	Wh ole plant	Whole plant is grown in the pot for ornamental purposes. The latex of this plant is use for hepatitis an d abdominal ecedema
10	<i>Neruium indicum</i> Mill.	Apocynaceae	Kaner	Stem,Root, Bark, Seeds,Flowers and Leaves.	Stem and leaves paste is used to cure itching. The extract of root, bark, seeds and leaves is useful in case of swelling, leprosy, skin diseases and ulcers. Alcoholic extract of root, bark, leaf, and flowers show anti-bacterial activity. The wood is used for making hooka tubes. The bark and wood are used in preparation of poison for killing rats.
11	<i>Opuntia dillenii</i> Haw.	Cactaceae	Danda Thaur	Stem and female cone	Stem paste with milky latex is applied externally for relieving aches and rheumatic pain. Burning of female cone is used as torch light as pinaceae.
12	<i>Randia dumetorum</i> (Retz.) Poir.	Rubiaceae	Rara, Rada	Root and Fresh fruits	Poultices of fresh root are good against foot infections in animals. Root paste is rubbed on the boils as an antiseptic. One tea spoon of powdered fruit and "Ajwain" is taken with "Gur" to cure stomachache
13.	<i>Solanum surattense</i> Burm. F.	Solanaceae	Choti-Kandayi, Laghu-kantakari	Stem, Leaves, Seeds and Fruit	2-3 gram of powered stem and fruit with water is taken two times for checking fever and chest pain. Seeds are kept in nose to check sneezing. Smoke of its seeds and Ajawain is inhaled to cure dental problems.
14	<i>Solanum</i>	Solanaceae	Kandayi,	Whole plant	Smoke of seeds and Ajawain (<i>Trachysper-</i>

	<i>Viarum Dunal.</i>		Ban- bhin- di	Fruits and Seeds	<i>mum ammi</i> Linn.) is inhaled to cure dental problems. Freshly prepared extract of plant material is mixed with black pepper (<i>Piper nigrum</i> Linn.) and which are used for checking fever and used in case of asthma. Fruit powder and seed power is useful in case of menstrual complaints, wounds and as contraceptives.
15	<i>Thevetia neriifolia</i> Juss.	Apocynaceae	Peeli kaner	Leaves and Whole plant	Powdered leaves with honey (1 tea spoon thrice daily till cure) are prescribed as blood purifier. Whole plant is planted in the temple yard as an ornamental purpose
16	<i>Ziziphus Jujuba</i> Mill.	Rhamnaceae	Baer	Fruit, Leaves and Stem	Fruit is edible. Leaves are used as cattle feed. .Poultices of roots is applied to the affected parts in case of internal injuries. Powdered root bark is mixed with wheat dough which is given to the cattle to restores the normal functioning of their bodies. Twigs are used as fuel. Fruit is also considered sacred and offered to appease lord Shiva on the day of "Maha Shivratri". A long branch of tree is also used by the bridegroom to touch it to the "Toran" before entering the bride house at the time of marriage in Brahmins and Rajputs. A magico-religious belief about this plant is that : a branch of this plant is kept near the burial place believing that the evil spirit of deceased person would not cause harm to the close relatives



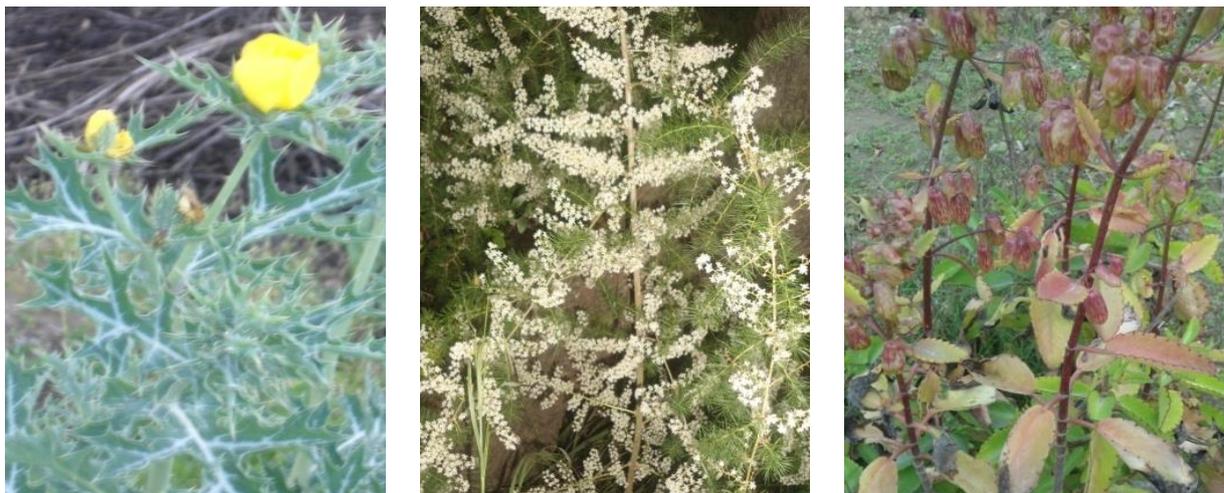


Figure 2: *Acacia nilotica* (Fabaceae), *Agave americana*(Agavaceae), *Aloevera* (Lilicaceae), *Argemone Mexicana* (Papaveraceae) *Asparagus abscondens* (Liliaceae) and *Bryophyllum calycinum* (Crassulaceae), respectively

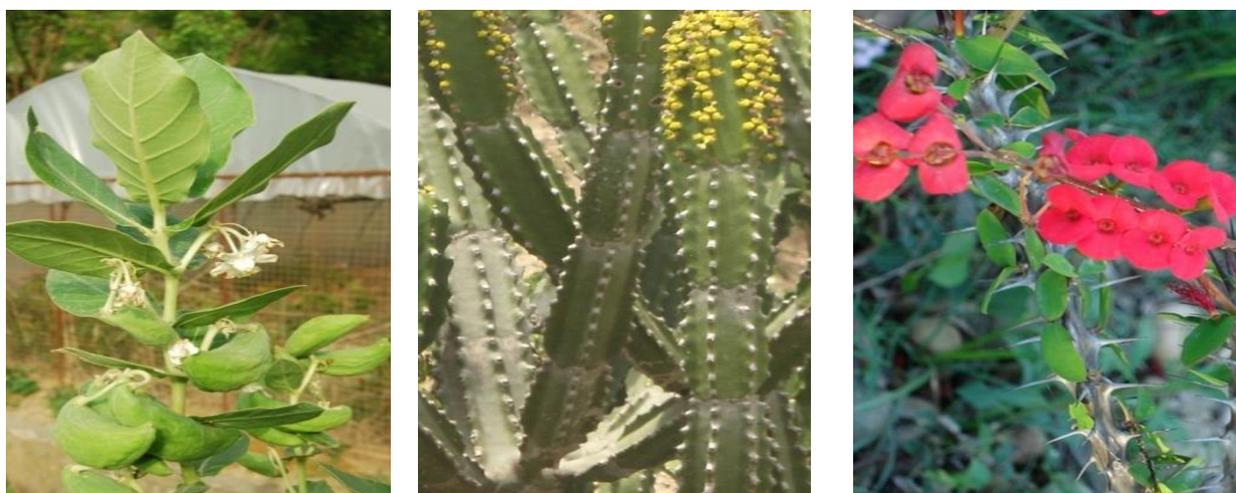


Figure 3: *Callotropis gignata* (Asclepidaceae), *Euphorbia roy leana* (Euphorbiaceae) and *Euphorbisplendens* (Euphorbiaceae), respectively

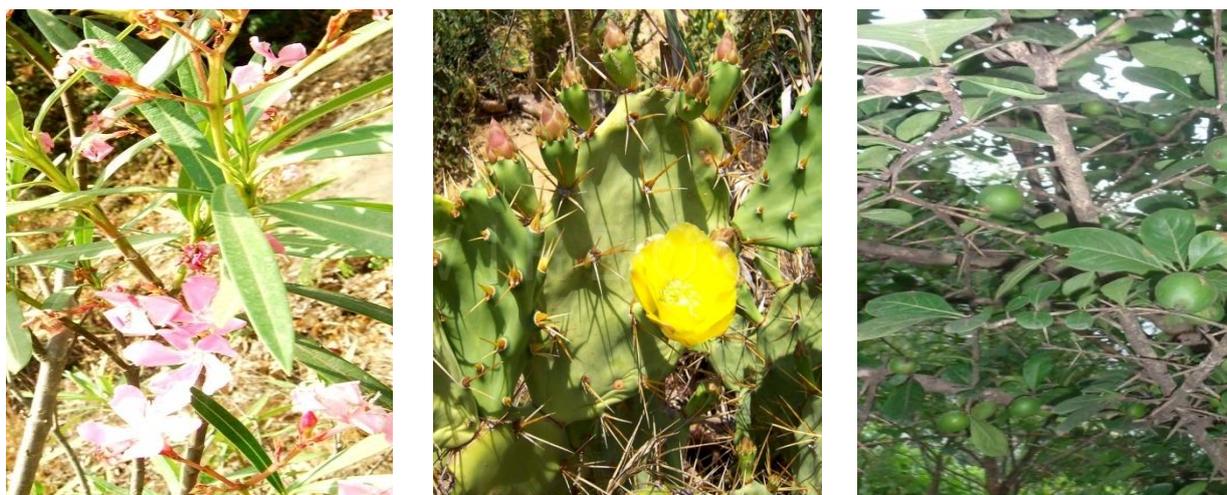


Figure 4: *Neruim indicum* (Apocynaceae), *Opuntia dillenii* (Cactaceae) and *Randia dumetorum* (Rubiaceae), respectively



Figure 5: *Solanum surattense* (Solanaceae), *Solanum Viarum* (Solanaceae), *Thevetia Nerifolia* (Apocynaceae) and *Ziziphus Jujuba* (Rhamnaceae), respectively

CONCLUSIONS

Traditional knowledge about the local floral diversity and about the use of local plants for fulfilling their daily life requirements such as for food, fodder, fibre, shelter, in religious ceremonies and mainly primary health care should be recorded and preserved. So, that next generation should get benefit of the traditional knowledge of folk uses of local floral diversity and their plant based traditional phototherapy for the treatment of various health problems. This step will prove necessary step in the conservation of traditional knowledge and about the protection of local plants of ethnobotanical importance of study area.

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