

An Overview of Ethno-Veterinary Plants used in the Union Territory of Jammu and Kashmir (J&K)

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Abstract

Ethno-veterinary plants are traditionally used for general healthcare and disease treatment of the livestock. Plants have been used for treatment of not only human diseases but also diseases of the livestock since the domestication of animals during the course of civilization. But at present this practice is only prevalent in the tribal and rural populations. This indigenous knowledge regarding ethno-veterinary practices of local people is based primarily on the respective regional flora available in their surroundings. Therefore, all these medicinal plants need to be documented for their scientific screening in order to find out newer sources of ethno-veterinary drugs of herbal origin. The present paper aims at providing a detailed review of the studies done on ethno-veterinary plants of the Union Territory of J&K, which is a pre-dominantly rural area with major agricultural and pastoral population.

Keywords: indigenous use. Ethno-veterinary, livestock, traditional, medicine

Introduction

Human beings have been using plants for various purposes since their evolution on this planet. Apart from meeting the basic requirements of food, clothing, shelter and medicine; plants have been used for art, craft, jewellery, adornments, religious purposes and in numerous other ways to enrich human life since the dawn of civilization. The branch of botany dealing with traditional knowledge of all these aspects of plant use by indigenous people is referred to as Ethnobotany. Man has used medicinal plants for treating human as well as animal diseases. The plants traditionally used for general healthcare and disease treatment of the livestock are called Ethno-veterinary plants. The study of these plants is an important aspect of Ethnobotany which is sum total of all the relationships between man and plants. The primary research in this field, like all branches of ethnobotany, involves the documentation of all the plants used in traditional practices. This ensures preventing further loss of traditional knowledge as it is mostly passed on verbally to generations and there is no written record. The documented records of these plants can be further used for scientific investigations (Sikarwar and Tiwari, 2020). The present paper aims at reviewing the studies done on ethno-veterinary plants of the Union Territory of J&K, India. The review shall be helpful to identify the unexplored as well as underexplored areas of the field in order to document and preserve the traditional knowledge regarding ethno-veterinary plants for further research.

Study Area

The Union Territory of J&K has an approximate geographical area of 42,241 km² and is divided into 20 districts. The region being located in the Northwest Himalayas is habitat of diverse flora. The area is predominantly rural with mainly agricultural and pastoral livelihood. The Union Territory is home to different ethnic groups such as Kashmiri, Dogri, Bhaderwahi, etc and many tribes like Gujjars, Bakarwals, Gaddi, Sippi, Shina, Bot, etc also inhabit the area. People use locally available plant species in many ways including the ethnomedicinal and ethno-veterinary purposes. The multicultural population, various tribal groups, less urbanization and high plant diversity are responsible factors for rich traditional knowledge of this region.



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Objective of the Study

The aim of this study is to review the research done on ethno-veterinary plants of the Union Territory of J&K, identify the research gaps therein and also to document the plants used.

Review of Literature

The ethnoveterinary uses of plants in J&K have been studied by various botanists and veterinary scientists.

Sharma and Singh (1989) carried out ethnobotanical studies in northwest and Trans-Himalaya. They identified 18 ethno-veterinary medicinal plants used to treat livestock diseases in Jammu and Kashmir. Khuroo et al., (2007) observed the ethnoveterinary medicinal uses of 24 plant species from 15 families being utilized by the Gujjar tribe of Kashmir region. Sharma et al. (2012) investigated the ethnoveterinary remedies of diseases among milk yielding animals in District Kathua of Jammu and Kashmir. They enumerated 72 plant species which were used to cure common ailments of milk yielding animals in the district. Most of the species reported by them were from the family Fabaceae and leaves were found to be the most frequently used plant parts. They also determined the Informant Consensus Factor and Use-value for each species which indicated the high use of these plants in traditional ethno-veterinary practices of the region. Khan and Kumar (2012) identified ethnoveterinary values of 22 plant species used against snake bite in Poonch district of Jammu and Kashmir (India) to treat cows, buffaloes and horses.

Tariq and Tantry (2012) conducted preliminary studies on plants with anthelmintic properties in Kashmir Himalayas and identified the use of 44 plant species belonging to 26 families to kill the gastro-intestinal parasites in domestic animals e.g. cow and sheep. These remedies are sought due to lack of veterinary services in remote areas. Moreover these are considered to be sustainable, effective and safe alternatives to conventional anthelmintics.

Bhardwaj et al. (2013) explored the ethnoveterinary uses of plants of district Bandipora of Jammu and Kashmir, India and reported utilization of 33 species of plants in the area.

Sharma and Manhas (2015) reported 41 ethnoveterinary plants for the treatment of camels in Shiwalik regions of Kathua district of Jammu & Kashmir. The high values of Informant Consensus Factor revealed the tried and tested treatment of camels by using these plants. Khateeb et al. (2015) studied the use of 38 species of plants in ethnoveterinary practices used for the treatment of 24 animal diseases in Doda district, Jammu & Kashmir.

Ahmad et al. (2017) reported the ethnoveterinary uses of 32 plants by pastoralist tribes in Kashmir Himalaya viz, Gujjars, Bakarwals, Chopans and Gaddies. They

observed that this valuable local knowledge has turned increasingly fragile and susceptible to rapid erosion owing to reasons like replacement of traditional resources with modern systems; documentation and preservation of this knowledge is thus an urgent matter. Dar and Dar (2018) documented ethnoveterinary uses of 29 plant species from 21 families being utilized by Gujjar and Bakerwal community in Hirpora Wildlife Sanctuary of Kashmir Himalaya after interviewing about 100 informants. Bhellum and Bhellum (2020) have also reported the use of plants in traditional ethno-veterinary practices by various tribes in the western Himalaya of Jammu & Kashmir India.

Kubra et al. (2020) reported use of some plant parts and extracts in ethno-Veterinary Anthelmintic practices in Kashmir Valley. They stressed on the need to validate the uses by ample experimental research so as to avoid the possible cytotoxicity by using these anti-parasite plants. Dutta et al. (2021) did documentation of veterinary practices from Gujjar and Bakarwal tribes of District Poonch, Jammu & Kashmir. They undertook a systematic ethnobotanical survey in 12 villages and collected the data from the local inhabitants using semi-structured questionnaires and analyzed quantitatively using use-value (UV), relative frequency of citation (RFC), informant consensus factor (ICF) and fidelity level (FL). They reported the widespread use of 31 plant species from 24 families in the region.

The study revealed that atleast 160 plant species are used for various ethno-veterinary purposes across J&K. About 84 of these plant species (enlisted in Table 1) have been reported by two or more authors, indicating their high ethnobotanical value in the region.

Table I : Ethno-veterinary Plants Used in J&K: Botanical names and respective families

S.No.	Botanical Name	Family	S.No	Botanical name	Family
1.	<i>Acacia arabica</i>	Fabaceae	37	<i>Euphorbia thomsoniana</i>	<i>Euphorbiaceae</i>
2.	<i>Actaea spicata</i>	Ranunculaceae	38	<i>Ficus carica</i>	<i>Moraceae</i>
3.	<i>Achillea millifolium</i>	Asteraceae	39	<i>Fritillaria roylei</i>	<i>Liliaceae</i>
4.	<i>Aconitum chasmant hum</i>	Ranunculaceae	40	<i>Geranium wallichiana</i>	<i>Geraniaceae</i>
5.	<i>Aconitum leave</i>	Ranunculaceae	41	<i>Glycine max</i>	<i>Fabaceae</i>
6.	<i>Aconitum violaceum</i>	Ranunculaceae	42	<i>Inula racemose</i>	<i>Asteraceae</i>
7.	<i>Aconitum heterophyllum</i>	Ranunculaceae	43	<i>Inula royleana</i>	<i>Asteraceae</i>
			44	<i>Juglans regia</i>	<i>Juglandaceae</i>

8.	<i>Acorus calamus</i>	Acoraceae
9.	<i>Ajuga bracteosa</i>	Lamiaceae
10	<i>Ajuga parviflora</i>	Lamiaceae
11	<i>Allium cepa</i>	Liliaceae
12	<i>Allium sativa</i>	Liliaceae
13	<i>Alnus nitida</i>	Betulaceae
14	<i>Arsaema flavum</i>	Araceae
15	<i>Arsaema jacquimontii</i>	Araceae
16	<i>Arsaema propinquum</i>	Araceae
17	<i>Anglica glauca</i>	Apiaceae
18	<i>Artemisia absinthium</i>	Asteraceae
19	<i>Artemisia maritima</i>	Asperaceae
20	<i>Asparagus adscendens,</i>	<i>Asparagaceae</i>

45	<i>Juniperus communis</i>	<i>Cupressaceae</i>
46	<i>Juniperus macropoda</i>	<i>Cupressaceae</i>
47	<i>Malva sylvestris</i>	<i>Malvaceae</i>
48	<i>Matricaria chammomila</i>	<i>Asteraceae</i>
49	<i>Morus alba</i>	<i>Moraceae</i>
50	<i>Musa paradisiaca,</i>	<i>Musaceae</i>
51	<i>Nelumbo nucifera</i>	<i>Nelumboaceae</i>
52	<i>Nepeta cataria</i>	<i>Lamiaceae</i>
53	<i>Nepeta laevigata</i>	<i>Lamiaceae</i>
54	<i>Nymphaea alba</i>	<i>Nymphaeaceae</i>
55	<i>Ocimum basilicum</i>	<i>Lamiaceae</i>
56	<i>Oryza sativa</i>	<i>Poaceae</i>
57	<i>Peganum harmala</i>	<i>Nitrariaceae</i>

21	<i>Asparagus filicinus</i>	Asparagaceae
22	<i>Asplenium dalhouseae</i>	Aspleniaceae
23	<i>Azadirachta indica,</i>	Meliaceae
24	<i>Barleria cristata</i>	Acanthaceae
25	<i>Brassica campestris,</i>	Brassicaceae
26	<i>Brassica nigra</i>	Brassicaceae
27	<i>Cannabis sativa</i>	Cannabinaceae
28	<i>Cassia fistula</i>	Fabaceae
29	<i>Chenopodium album</i>	Chenopodiaceae
30	<i>Curcuma longa</i>	Zingiberaceae
31	<i>Datura stramonium</i>	Solanaceae
32	<i>Daucus carota</i>	Apiaceae
33	<i>Delphinium denodatum</i>	Ranunculaceae

58	<i>Phyllanthus emblica</i>	Phyllanthaceae
59	<i>Pinus wallichiana</i>	Pinaceae
60	<i>Platanus orientalis</i>	Platanaceae
61	<i>Plectranthus rugosus</i>	Lamiaceae
62	<i>Plumbago zeylanica</i>	Plumbaginaceae
63	<i>Populus alba</i>	Salicaceae
64	<i>Populus nigra</i>	Salicaceae
65	<i>Prunella vulgaris</i>	Lamiaceae
66	<i>Punica granatum</i>	Punicaceae
67	<i>Ranunculus muricatus</i>	Ranunculaceae
68	<i>Raphanus sativus</i>	Brassicaceae
69	<i>Rumex nepalensis</i>	Polygonaceae

			70	<i>Rumex patientia</i>	<i>Polygonaceae</i>
34	<i>Delphinium elatum</i>	<i>Ranunculaceae</i>	71	<i>Saccharum officinarum</i>	<i>Poaceae</i>
35	<i>Eruca sativa</i>	<i>Ericaceae</i>	72	<i>Salix alba</i>	<i>Salicaceae</i>
36	<i>Euphorbia royleana</i>	<i>Euphorbiaceae</i>			
73	<i>Sedum rhodiola</i>	<i>Crassulaceae</i>	79	<i>Tinospora cordifolia</i>	<i>Menispermaceae</i>
74	<i>Silene vulgaris</i>	<i>Caryophyllaceae</i>	80	<i>Trachyspermum ammi</i> ,	<i>Apiaceae</i>
75	<i>Swertia petiolata</i>	<i>Gentianaceae</i>	81	<i>Urtica dioica</i>	<i>Urticaceae</i>
76	<i>Tamarindus indica</i> ,	<i>Fabaceae</i>	82	<i>Valeriana jatamansi</i>	<i>Caprifoliaceae</i>
77	<i>Taraxacum officinale</i>	<i>Asteraceae</i>	83	<i>Verbascum thapsus</i>	<i>Valerianaceae</i>
78	<i>Thymus serpyllum</i>	<i>Lamiaceae</i>	84	<i>Vigna mungo</i>	<i>Fabaceae</i>

Conclusion

The ethno-veterinary Plants of J&K need to be explored further as investigations have not been carried out in all the districts of the Union Territory. Moreover these plants have not been documented for all the tribes of this region, most of the studies are focused only on the two major tribes i.e. Gujjars and Bakerwals.

The studies conducted so far in this regard have culminated in documentation only. No further research has been carried out. Therefore, there is need not only for documentation of the traditional knowledge regarding ethno-veterinary plants of the region, but also further research in this field.

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