Ethnoveterinary Plants of Uttarakhand State of India including those with Galactogogue Properties

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Abstract

The Central Himalayas have the great diversity of plants and natural resources. Himalayan people have close relationship with nature for their basic needs like food, fuel, fodder, medicine, etc. Animal husbandry is the prime occupation of Himalayan society and the major source of their income. In health care system of their cattle, they use their own traditional medicine system, which is based on the ancient cultural traditions. Naturally nearby available resources like plants, minerals etc. are the primary source of medicine for the treatment of various diseases and disorders. Present paper deals with the 45 medicinal plants species used in ethnoveterinary medicines in the study area besides many of these practiced as galactogogue.

Keywords: Ethoveterinary medicines, Galactogogue, Central Himalaya.

Introduction

McCorkle (1986) defined the systematic concept of ethno-veterinary medicine as dealing with the folk beliefs, knowledge, skills, methods and practices pertaining to the health care of animals. Subsequently McCorkle *et al.* (1996) gave a description of ethno-veterinary research as the holistic interdisciplinary study of the local knowledge and the socio-cultural structures and the environment associated with animal health care and husbandry.

In India, domestication of dogs, buffaloes, elephants, and fowls occurred between 6000 and 4500 BC. According to Somvanshi (2006), "cattle husbandry was well developed during the Rigvedic period (1500-1000 BC) and the cow (Kamdhenu) was adored and considered the 'best wealth' of mankind.

The Central Himalayan Region covers the new state of Uttarakhand where livestock occupy a very important place in human life and play an integral part of agriculture-based economy. More than 70% of the rural population of Uttarakhand Himalaya depends upon animals for their economical needs. In this region, every land cultivating family, attempts to maintain a pair a cow and a buffalo for milk. Dairy is the main component of income of Himalayan people. For enhancing the production of milk, they use locally available natural resources like plant and plant products. The present communication deals with the traditional uses of plants to treat various veterinary diseases and disorders practiced by the ethnic tribes and people of Uttarakhand Himalaya.

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The present study updates the earlier reports on ethnoveterinary plants of the study area (Gaur *et al*., 1992, Samal *et al*., 2002 and 2003, Tiwari and Pande, 2004; Bisht *et al*., 2004, Tiwari and Pande, 2005; Pande *et al*., 2006, Tiwari and Pande, 2006; Tiwari and Pande, 2006a,b; Shah *et al*., 2007 ; Tiwari *et al*., 2007 ; Pande *et al*., 2007; Shah *et al*., 2008 ; Tiwari and Pande, 2009, Tiwari and Pande, 2010; Tiwari and Pande, 2011; Tiwari *et al*., 2011 and Agnihotri *et al*., 2012).

Methodology

Based on medicinal plants explorations in the study area between 2008-2011, special attention was paid to record their ethnoveterinary uses, particularly those widely employed for galactogogue application. The data were collected through interviewing local folk medicine men and old-aged people well reputed in the area (Fig. 1-18). Botanical specimens of all such folk drug plants were collected with the help of local people and identified at the camp. In most of the cases, information recorded on their folk medicinal claims have been cross-checked in other localities as well. Voucher specimens of all folk drugs duly identified have been deposited in the herbarium of botany department of Kumaon University, S.S.J. Campus, Almora (Uttarakhand), for future reference and study.

1. Uttarkashi **2.** Tehri **3.** DehraDun **4.** Rudraprayag
5. Haridwar **6.** Pauri **7.** Chamoli **8.** Pithoragarh
9. Bageshwar **10.** Almora **11.** Champawat **12.** Nainital
13. Udham Singh Nagar

Study Area : Location map of Uttarakhand State of India

Table 1: Ethnoveterinary plants of Uttarakhand State of India

S. No.	Plant species	Family	Local name	Part used	Galactogogue and Other ethnoveterinary medicinal uses
1.	*Achyranthes aspera* L.	Amaranthaceae	Latjeera, Saji-basi	Root	Dog bite
2.	*Amaranthus caudatus* L.	Amaranthaceae	Marsha	Leaf	Cough, skin diseases, dysentery, haemachuria
3.	*Ampelocissus rugosa* (Wall.) Planch.	Vitaceae	Chhipari	Leaf	Galactogogue
4.	*Asparagus curillus* Buch.-Ham. ex Roxb	Liliaceae	Karua, Karu	Root	Gastric troubles
5.	*Asparagus racemosus* Willd.	Liliaceae	Jirani, Kaunta	Root	Haemachuria, gastric troubles, cuts, wounds, indigestion, skin diseases
6.	*Bergenia ciliata* (Royle) Raizada	Saxifragaceae	Pathar-chat, Silpara	Whole plant	Lactation, mastitis, intestinal worm, haemachuria, hydrophobia
7.	*Cicer arietinum* L.	Fabaceae	Chana	Seed	Internal parasites, skin diseases, eczema, scabies, strength
8.	*Cirsium wallichii* DC.	Asteraceae	Kendeiya, Kandra, Bungsee, Kateri, Kanyakan	Whole plant	Eye diseases, sun stroke, haemachuria
9.	*Clematis nepalensis* DC.	Ranunculaceae	Kanjul	Leaf	Galactogogue
10.	*Cryptolepis buchanani* Roem. & Schult.	Asclepiadaceae	Dudil	Leaf	Galactogogue
11.	*Curcuma domestica* Vallars	Zingiberaceae	Haldi	Rhizome	Injury, eye diseases, mastitis, mouth blisters, neck sore, heat strokes, wounds, sprains, haematuria, skin diseases, cracked nipple, external parasites, burn, bone fracture, hoof diseases, indigestion
12.	*Debregeasia longifolia* (Burm. f.) Wedd.	Urticaceae	Tusyaru	Leaf	Bone fracture
13.	*Dendrophthoe falcata* (L. f.) Etting.	Loranthaceae	Banda, Ban	Leaf	Galactogogue
14.	*Echinochloa crusgalli* (L.) P. Beauv.	Poaceae	----------	Seed	Skin irritation
15.	*Echinochloa frumentacea* (Roxb.) Link	Poaceae	Madira	Seed	Bone fracture, diarrhoea, infertility
16.	*Euphorbia heterophylla* L.	Euphorbiaceae	Dudil-ghas	Whole plant	Galactogogue
17.	*Fagopyrum esculentum* (L.) Moench.	Polygonaceae	Ugal	Seed	Mouth diseases, hoof diseases
18.	*Ficus auriculata* Lour.	Moraceae	Timul, Timla	Leaf	Prolapse of uterus

19.	*Ficus palmata* Forssk.	Moraceae	Beru, Fedu	Leaf	Wounds
20.	*Ficus sarmentosa* Buch.-Ham. ex Sm.	Moraceae	Dhyar-lagul	Leaf	Bone fracture
21.	*Glycine max* (L.) Merr.	Fabaceae	Bhatt	Seed	Mouth disease, dysentery, diarrhoea, mastitis, skin diseases, indigestion, gastric troubles
22.	*Glycine soja* Sieb.	Fabaceae	Kao-bhatt	Seed	Strength, scabies
23.	*Grewia optiva* J.R. Drumm. ex Burrett	Tiliaceae	Bhimal, Bhekua	Leaf	Indigestion, throat infection, constipation, sprains, dysentery
24.	*Hordeum vulgare* L.	Poaceae	Jau	Seed	Post-calving care, itching, haematuria, strength, dysentery, skin diseases
25.	*Musa paradisiaca* L.	Musaceae	Kela	Fruit	Indigestion, gastric troubles, mastitis, haematuria, flatulence, diarrhoea
26.	*Opuntia stricta* (Haw.) Haw.	Cactaceae	Nagfani	Stem	Galactogogue
27.	*Oryza sativa* L.	Poaceae	Dhan	Seed	Post-calving care, strength, neck sore, bone fracture
28.	*Parthenocissus semicordata* (Wall.) Planch.	Vitaceae	Laduli, Laderi	Whole plant	Bone fracture, eye disorders
29.	*Phoenix humilis* Royle ex Becc.	Arecaceae	Khajoor	Leaf	Galactogogue
30.	*Pimpinella diversifolia* DC.	Apiaceae	Teroi, Phoree	Seed	Indigestion, stomachic
31.	*Quercus floribunda* Rehder	Fagaceae	----------	Leaf	Galactogogue
32.	*Quercus leucotrichophora* A. Camus	Fagaceae	Banj	Leaf	Mastitis, bone fracture, increase food poisoning, constipation, foot & mouth disease
33.	*Quercus semecarpifolia* Sm.	Fagaceae	Banj	Leaf	Yolk sore, carbuncles, food poisoning, pimples, constipation
34.	*Quercus glauca* Thunb.	Fagaceae	Lattu-banj	Leaf	Galactogogue
35.	*Rubia manjith* Roxb. ex Fleming	Rubiaceae	Manjeeth	Whole plant	Sunstroke, skin diseases
36.	*Saccharum officinarum* L.	Poaceae	Gud (jaggery)	Stem	Diarrhoea, fever, strength, sunstroke, stomachic, pimples, chickenpox, cough, wounds
37.	*Sonchus oleraceus* L.	Asteraceae	Dudiya	Root	Galactogogue
38.	*Tinospora cordifolia* (Willd.) Miers ex Hook. f. Thoms.	Menispermaceae	Gurg	Stem	Stomach disorders, fever, hoof diseases, strength, diarrhoea, skin diseases, sunstroke, haematuria, tympany, heat stroke

39.	*Trachyspermum ammi* (L.) Sprague	Apiaceae	Ajwain	Seed	Diarrhoea, gastric troubles, mouth blisters, anorexia, hoof diseases, constipation
40.	*Trifolium alexandrium* L.	Fabaceae	Barseem	Whole plant	Galactogogue
41.	*Triticum aestivum* L.	Poaceae	Gehun	Seed	Skin infection, stomachache, indigestion, anaemia, diarrhoea, flatulence, strength, burn
42.	*Urtica ardens* Link	Urticaceae	Sisun	Leaf	Bone fracture, haematuria, neck sore, yolk sore
43.	*Urtica dioica* L.	Urticaceae	Sisona	Whole plant	Haematuria, rheumatism, neck sore, wounds, internal injury
44.	*Vigna mungo* (L.) Hepper.	Fabaceae	Mash	Seed	Bone fracture, regulate fertility, food poisoning
45.	*Vigna radiata* (L.) R. Wilczek	Fabaceae	Moong	Seed	Bone fracture, sprains, wounds, broken horn, constipation

Fig. 1: A view of Malari village in Niti valley (Chamoli district) of Central Himalaya

Fig. 2: A view of Niti village (Chamoli district) in Central Himalaya

Fig. 3: A view of Laspa village in Johar valley (Pithoragarh district) of Central Himalaya

Fig. 4 : A view of Upali-Pau village in Rawain area (Uttarkashi district) of Central Himalaya

Fig. 5: Survey / Collection of ethnoveterinary plants in progress

Fig. 6: A native lady in process of milking the buffalo

Fig. 7: *Achyranthes aspera* L.

Fig. 8: *Bergenia ciliata* (Royle) Raizada

Fig. 9: *Dendrophthoe falcata* (L. f.) Etting.

Fig. 10: *Ficus palmata* Forssk.

Fig. 11: *Parthenocissus semicordata* (Wall.) Planch.

Fig. 12: *Quercus glauca* Thunb.

Fig. 13: *Cryptolepis buchanani* Roem. & Schult.

Fig. 14: *Debregeasia longifolia* (Burm. f.) Wedd.

Fig. 15: *Fagopyrum esculentum* (L.) Moench.

Fig. 16: *Oryza sativa* L.

Fig. 17: *Quercus floribunda* Rehder

Fig. 18: *Quercus leucotrichophora* A. Camus

Results and Discussion

Present study deals with a total of 45 ethnoveterinary medicinal plants species widely used by the people of Central Himalaya. Of these, 34 are for treatment of various animal diseases and disorders like stomach disorders, fever, hoof diseases, to gain strength, diarrhoea, skin diseases, sunstroke, haematuria, tympany, heat stroke, foot and mouth diseases etc., and 16 viz. *Amaranthus caudatus* L., *Cicer arietinum* L., *Curcuma domestica* Vallais, *Echinochloa crusgalli* (L.) P. Beauv., *Echinochloa frumentacea* (Roxb.) Link, *Fagopyrum esculentum* (L.) Moench., *Glycine max* (L.) Merr., *Glycine soja* Sieb., *Hordeum vulgare* L., *Musa paradisiaca* L., *Oryza sativa* L., *Saccharum officinarum* L., *Trachyspermum ammi* (L.) Sprague, *Triticum aestivum* L., *Vigna mungo* (L.) Hepper., *Vigna radiata* (L.) R. Wilczek are commonly cultivated in the study area and practiced very frequently in daily food habits of people of Uttarakhand. It is evident from the tabel-1 that the leaves of 16 species; seeds of 13 species; whole plant of 7 species; roots of 4 species; stems of 3 species and fruits and rhizomes of 1 species, each are used as the galactagogue.

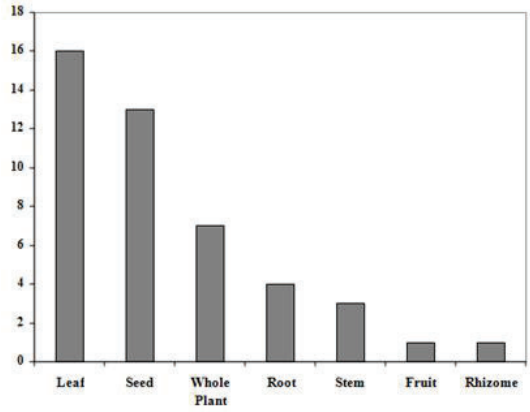

Table 1: Plant and plant parts used as galactagogue

However, this important ethno-veterinary knowledge of plants is in danger of being lost due to rapid modernization of the area and has so far survived only by being passed on orally from one generation to next. It is, therefore,

very important to undertake ethno-veterinary explorations of plants in such uninvestigated areas and record this valuable field data before this knowledge goes in eternity. Nevertheless, detailed chemical and pharmacological investigations of all plants used in ethnoveterinary medicines including those as galactogogue are suggested with a view to develop new drugs of natural origin.

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References

Agnihotri, A. K., Tiwari, Lalit, Rai, Nitin, Sharma, Rajeev Kr. and Sikarwar, R.L.S., 2012. Traditional healthcare Uses of Wild Plants prevalent in Haldwani Forest Area, Central Himalaya. *Res. & Rev.: J. Phar. Sci. Tech*. (in press)

Bisht, Nisha, Pande, P. C. and Tiwari, Lalit, 2004. Ethno-veterinary practices of Kapkot block of Bageshwar district, Uttaranchal. *Asian Agri-History* 8(4): 209-314.

Gaur, R. D., Bhatt, K.C. and Tiwari. J. K., 1992. An ethnobotanical study of Uttar Pradesh Himalaya in relation to veterinary medicines. *J. Indian bot. Soc.*, 72: 139-144.

McCorkle C.M., 1986. An introduction to ethnoveterinary research and development. *Journal of Ethnobiology* 6(1): 129-149.

McCorkle C.M., Mathias-Mundy E and Schillhorn Van Veen T.W., 1996. *Ethnoveterinary Research and Development*, IT Publications.

Pande, P.C., Lalit Tiwari and H.C. Pande, 2006. *Folk Medicine and Aromatic Plants of Uttaranchal Himalaya*. Bishen Singh Mahendra Pal Singh, Dehradun, India.

Pande, P.C., Tiwari, Lalit and Pande, H.C., 2007. Ethnoveterinary plants of Uttaranchal-a review. *Indian Journal Traditional Knowledge* 6(3): 444-458.

Samal, P.K. and Anubha Shah, Sushil Tiwari, Bhupender Mehara and D.V. Agrawal, 2003. Indigenous animal health care practices in India Central Himalaya: empirical evidences. *Indian J. Traditional Knowledge* 2(1): 40-50.

Samal, P.K., Anubha Shah, S.C. Tewari and D.K. Agrawal, 2002. Indiginous animal health care practices and their relevance to bioresources conservation in Indian Central Himalaya. *Interational J. Sustain. Dev. World Ecol*. 8: 167-178.

Shah, Rohita, Pande, P.C. and Tiwari, Lalit, 2007. Folklore biomedicine for some veterinary diseases and disorders in Western part of Almora District. In: *Traditional Knowledge Systems and Archaeology: with Special Reference to Uttarakhand* (Eds. D.P. Agrawal, Manikant Shah and Sameer Jamal). Aryan Books International, New Delhi.

Shah, Rohita, Pande, P.C. and Tiwari, Lalit, 2008. Traditional veterinary herbal medicines of western part of Almora district, Uttarakhand Himalaya. *Indian Journal Traditional Knowledge* 7(2): 355-359.

Somvanshi R., 2006. Veterinary medicine and animal keeping in ancient India. *Asian Agri-History* 10(2): 133-146.

Tiwar,i Lalit and Pande, P.C., 2010. Himalayan medicine system and its Ayurvedic perspectives. *Asian Agri-History*, 14(3): 261-272.

Tiwari, Dolly, Pande, P.C. and Tiwari, Lalit, 2007. Ethno-veterinary herbal medicines of Dwarahaat area of Uttaranchal Himalaya. *Indian Forester* 133: 379-390.

Tiwari, Lalit and Pande, P.C., 2004. Traditional veterinary practices in south-eastern part of Chamoli district, Uttaranchal. *Indian Journal Traditional Knowledge* 3(4): 397-406.

Tiwari, Lalit and Pande, P.C., 2005. Traditional Veterinary Medicinal Plants of Bhilangana Valley of Tehari district, Uttaranchal Himalaya. *Asian Agri History* 9(3): 253-262.

Tiwari, Lalit and Pande, P.C., 2006. Ethno-veterinary medicines of holy Doonagiri hills of Uttaranchal. *Journal Economic Taxonomic Botany* 30: 151-162.

Tiwari, Lalit and Pande, P.C., 2006a. Indigenous veterinary practices of Darma valley of Pithoragarh district, Uttaranchal Himalaya. *Indian Journal Traditional Knowledge* 5(2): 201-206.

Tiwari, Lalit and Pande, P.C., 2006b. Ethnoveterinary plants of Uttarkashi district, Uttaranchal, India. *Ethnobotany* 18(1&2): 139-144.

Tiwari, Lalit and Pande, P.C., 2009. Ethnoveterinary Plants of Johar Valley of Pithoragarh district, Uttaranchal Himalaya. VEGETOS 22(1): 55-62.

Tiwari, Lalit and Pande, P.C., 2010. Ethnoveterinary Medicines in Indian Perspective: Reference to Uttarakhand Himalaya. *Indian Journal Traditional Knowledge* 9(3): 611-617.

Tiwari, Lalit and Pande, P.C., 2011. Traditional animal husbandry practices of Central Himalaya. *Asian Agri-History* 15(4): 263-282.

Tiwari, Lalit, Sharma, Rajeev Kr., Amminuddin and Pande, P.C., 2011. Notes on therapeutic potential of Unani medicinal plants in ethnoveterinary medicine. *Hippocratic Journal of Unani Medicine* 6(4): 131-144.