ETHNOVETERINARY USES OF MEDICINAL PLANTS AMONG TRADITIONAL HERBAL HEALERS IN ALAKNANDA CATCHMENT OF UTTARAKHAND, INDIA

P. C. Phondani1, R. K. Maikhuri1* and C. P. Kala2

1G.B. Pant Institute of Himalayan Environment and Development P. Box 92, Garhwal Unit, Srinagar Garhwal– 246 174, Uttarakhand, India
2Ecosystem & Environment Management, Indian Institute of Forest Management, Nehru Nagar, Bhopal– 462 003, Madhya Pradesh, India
E-mail: rkmaikhuri@rediffmail.com, prakashphondani@gmail.com, cpkala@yahoo.co.uk

Abstract

The people of far-flung rural areas still depend to a large extent upon plants and household remedies for curing veterinary ailments. The folk knowledge of ethnoveterinary medicine and its significance has been identified by the traditional communities through a process of experience over hundreds of years. The paper deals with 34 ailments commonly found in nine different categories of livestock/animals (i.e. buffalo, cow, oxen, sheep, goat, horse, mule, dog and cat) and their treatment with 73 medicinal plant species belonging to 70 genera and 45 families that occur in forests as well as close vicinity of the rural settlements. Out of the total population, majority of the people (more than 80%) was found dependent on traditional (herbal) system of treatments practiced by local herbal healers (Pashu Vaidyas), while rest of the people preferred modern (allopathic) system of treatments for curing veterinary ailments. In this study we observed that old aged people have more knowledge and experience particularly in remote areas for curing veterinary ailments. The traditional system of treatment is one of the most important prevailing systems in the area where modern veterinary health care facilities are rare or in very poor conditions.

Keywords: Ethnoveterinary uses, Medicinal plants, Veterinary ailments, Livestock, Traditional herbal healers, Alaknanda catchment

Introduction

Animal husbandry is the backbone of the rural sector of the Himalayan region and development of this sector may improve the living standard of rural communities. Livestock provides a wide range of services and products including animal power, wool and supplementary nutrition (Maikhuri, 1992). In spite of environmental compulsions and hardships of remote areas, the spectrum of livestock diversity in this region is rich and varied. This is evident from the occurrence of different breeds of sheep, goats, cattle, horses, mules, buffaloes and poultry etc. In these remote areas, where modern veterinary health curative systems are very poor, the traditional societies have evolved several indigenous veterinary health care practices to maintain a variety of livestock populations (Palni et al., 1998; Samal et al., 2004).

Ethnoveterinary medicines are used extensively and quite effectively for primary health care treatment to make domestic animals productive and healthy. The indigenous knowledge of the veterinary health care system acquired by traditional herbal healers (Pashu Vaidyas) is orally transformed from one generation to other. Over centuries, people have developed their own system of keeping animals healthy and productive using age-old home remedies, surgical and manipulative techniques, husbandry strategies and associated magico-religious practices. Cost, inaccessibility and other problems like side effects of modern animal health care system have encouraged the local people to rely on traditional rural wisdom. Ethnoveterinary practices are often cheap, safe, long time tested and based on local resources and strengths. These can provide useful alternatives to
modern animal health care systems (Kumar, 2002; McCorkle, 1995).

Alaknanda catchment and its adjoining areas have a rich tradition of indigenous medicines and traditional health care practices for curing various diseases of domestic animals. Besides the classical Ayurveda, traditional system of medicine is still popular all over India (Kala et al., 2005). Most of these systems are unique and are often known only to a few individuals and communities. These systems of healing domestic animals make use of many medicinal plants, most of which are endemic and some of them are at the verge of extinction due to over exploitation (Kala, 2005; Maikhuri et al., 1998). These indigenous practices play a crucial role in the livestock health care of traditional societies. However, due to changing socio-economic and cultural values of the traditional communities, the indigenous practices of livestock rearing is gradually declining from the region (Farooquee et al., 1996; Purohit et al., 2002).

The purpose of the present study was to (i) unravel the mode of application/use pattern of the medicine prepared from plants, and (ii) quantify the dependence of the local people on herbal and allopathic systems of veterinary health care.

Materials and Methods
Study area

Uttarakhand state is known for the origin of sacred rivers like the Ganga, Bhagirathi and Alaknanda. The river Alaknanda has its source in the Satopanth and Bhagirath kharak glaciers, which rise from the eastern slope of Chaukhamba peak (7138masl.) of Rudraprayag district in Uttarakhand state of India. The catchment of Alaknanda river extends between 29° 58' 34" to 31° 04' 20" N latitudes and 78° 34' 31" to 80° 17' 54" E longitudes. It narrows down towards west and tapers off at Devprayag making confluence with the river Bhagirathi and forms the holy Ganga. The Alaknanda catchment stretches in four districts of Garhwal region of Uttarakhand viz., Chamoli, Rudraprayag, Pauri and Tehri. The present study was carried out in a total of 107 villages in 8 valleys (i.e. Niti, Urgam, Berahi, Nandakini, Pinder, Mandakini, Bhilangana and Binsar) covering 4 districts (i.e. Chamoli, Rudraprayag, Tehri and Pauri) in Alaknanda catchment and its adjoining areas of Uttarakhand. These areas are inhabited by tribal and non-tribal communities (Figure 1). They mainly occupy the forested regions and have a total population of 27,295 with average family size of 5-6 persons. The rural settlements are located in the altitudinal limit of 1400 to 3000 m asl. These communities have their own culture, tradition and religious beliefs. The major occupation of these communities has been sheep and goat rearing and farming, with peasant farming taking primacy over pastoralism in contemporary time. Almost all the households are involved in agriculture through subsistence farming.

![Figure 1: Location map of the study area in Uttarakhand, India](image-url)
Data collection

In-depth survey was undertaken from April 2007 to December 2008 to collect data and information on the use of different medicinal plant species which are used for curing animal ailments by traditional herbal healers (Pashu Vaidyas) in various remote valleys of the Alaknanda catchment of Uttarakhand. Ethnoveterinary information acquired by tribal and non-tribal communities was collected using semi-structured and structured questionnaires. Extensive field visits were made to local herbal healers for gathering information and for identification and places/localities/habitat of occurrence of medicinal plants in the study area and mode of their utilization for curing particular animal ailment. Randomly selected households and headman, elders, traditional healers, local people and veterinary doctors of the study areas were consulted and interviewed to understand the dependency on traditional (Herbal) and modern (Allopathic) system of treatments for curing animal ailments among various categories of animals. Perception of local people during field trips were recorded under different categories of socio-demographic characters’ such as gender, education, age groups and healing experience so as to assess the responses as well as their preferences to know the status of traditional animal health care system.

Besides, workshops and village level meetings in different localities of the study area were conducted time and again in which various groups of people (Traditional herbal healers, local people, Ayurvedacharya, medical doctors, scientists, social workers and school teachers) were invited to participate and to help in documenting their indigenous knowledge on medicinal plants used for managing domestic animal diseases. The information on the use of specific plants species and preparation of herbal medicine and application practices for curing animal ailments collected during the field visit as well as during the workshops/meetings were cross-checked more than two times. The collected plant specimens were identified with the help of regional floras (Naithani, 1985; Gaur, 1999) and taxonomists. Voucher specimens are deposited in the herbarium of G. B. Pant Institute of Himalayan Environment and Development, Garhwal Unit, Srinagar Garhwal, Uttarakhand, India.

Figure 2: Dependency on herbal and allopathic system of treatments away from the road head for curing veterinary ailments

Results and Discussion

The present study showed that the local people of Alaknanda catchment use several ethnoveterinary practices for curing animal ailments. A total of 73 medicinal plant species (i.e. *Trachyspermum ammi*, *Lyonia ovalifolia*, *Curcuma domestica*, *Bombax ceiba*, *Vigna mungo*, *Coriandrum sativum*, *Allium cepa*, *Zingiber officinale*, *Angelica glauca*, *Piper nigrum*, *Sesamum orientale* etc.) of different plant groups (i.e., 41 herbs, 10 shrubs, 18 trees and 4 climbers) belonging to 70 genera and 45 families are being used extensively for curing 34 animal ailments (i.e., bloat, mastitis, poisoning, foot and mouth disease, dermatitis, cataract, hematuria, arthritis, burning, pneumonia, dysentery, sprain etc.) commonly found in nine different type of livestock/animals (i.e. buffalo, cow, oxen, sheep, goat, horse, mule, dog and cat). All these medicinal plant species are collected by local communities from the surrounding areas, forests and alpine meadows and are being used as remedies for various animal ailments. About 33 plant species are used for curing more than one disease, whereas about 8 medicinal plant species are used alone to cure abdominal pain and related diseases (Table 1). The study revealed
that in the remote areas where majority of the old generation are illiterate and less educated, they possess good knowledge of traditional healing expertise for curing animal ailments (Table 2).

Out of the total population, more than 80% were found dependent on traditional system of treatments practiced by local healers, while rest of the people preferred allopathic system of treatments for curing animal ailments. It was also observed that people living in the remote/far flung areas (10-30 km. away from road head) depend almost totally on plant based treatments for curing animal ailments (Figure 2). It was observed that a variety of the diseases in livestock (i.e. snakebite, bone fracture, broken horns, worm on wounds, vomiting, cough and yoke galls etc.) are still totally managed through traditional system of treatment (Figure 3). However, for some of the diseases, people bring their livestock for allopathic treatment (i.e. sterility, foot and mouth disease, uterus disorder, cataract etc.).

With regard to prevention and modern management of animal diseases, majority of local people are not aware of it as only 41.60% local people vaccinate a few animals which are productive and more important to them (Meena et al., 2007). It was also found that among the local people, women, confidently use the local remedies for curing animal diseases. The traditional societies, though convinced of the efficacy of local medicines, have as their major constraints/limitations to its wider use as the effort involved in preparation of the medicine and availability of ingredients, since large number of medicinal plants have become quite rare and not easily available. Very limited studies have been carried so far on the traditional system of health care practiced by local communities in the livestock sector of the Himalaya in particular and India in general. However, few studies carried out during recent past focused on the identification of livestock diseases prevailing in the region as the major cause of the animal deaths. The study carried out by Meena et al. (2007) reported that during last five years, infectious, parasitic and respiratory diseases accounted for nearly 60 percent of all livestock deaths in Kumaon region of Uttarakhand state in India. In areas/regions that are either remotely located or isolated from the mainstream development, local people still use medicinal plants and also apply other traditional practices for curing livestock diseases and thus animal death reported from those areas was comparatively less (Chauhan et al., 1994; Jithendran and Bhat,1999).

It was found that besides traditional herbal healers, every elderly person both man and woman in the villages had sound knowledge and deep understanding about medicinal use of some plants, especially those species which are often used for curing common diseases like pneumonia, bloat, poisoning, cough, debility, bone fracture, wounds, cuts etc. The younger generation, though poor in knowledge of medicinal plants, still had faith in the efficacy of herbal system of treatments for curing animal ailments. Usually, people preferred to consult traditional herbal healers for curing livestock diseases although they knew some medicinal...
Table 1: Indigenous uses of medicinal plants for curing veterinary ailments

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of ailments</th>
<th>Local name</th>
<th>Symptoms</th>
<th>affected animals</th>
<th>Plant species used (Vernacular name-Family)</th>
<th>Use pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Blot</td>
<td>Afara</td>
<td>Gloating of stomach</td>
<td>Buffalo, Cow, Oxen, Sheep</td>
<td>Trachyspermum ammi (Ajawain-Umbelliferae)</td>
<td>Seeds of Trachyspermum ammi and rhizome of Zingiber officinale, Ferula asafoetida and fruit of Piper nigrum mixed and grinded with water and paste is used to cure blot.</td>
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<td></td>
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<td></td>
<td>Lycopersicon esculentum (Tamater-Solanaceae)</td>
<td>Fruit is applied.</td>
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<td>Citrus medica (Nimbu-Rutaceae)</td>
<td>Fruit juice is applied.</td>
</tr>
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<td>2.</td>
<td>Mastitis</td>
<td>Thanela</td>
<td>Blocking of the milk hole udder</td>
<td>Buffalo, Cow, Goat</td>
<td>Lycium ovalifolia (Anyar-Ericaceae)</td>
<td>Bark of Lycium ovalifolia is grinded to powder and mixed with ash of Quercus leucotricophora and its smoke is used.</td>
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<td></td>
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<td></td>
<td>Curcuma domestica (Haldi-Zingiberaceae)</td>
<td>Rhizome of Curcuma domestica is mixed with oil of Brassica campestris and rubbed to cure mastitis.</td>
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<td></td>
<td>Bombax ceiba (Semal-Bombaceae)</td>
<td>Bark of Bombax ceiba mixed with seeds of Glycine max and grind with water to eat.</td>
</tr>
<tr>
<td>3.</td>
<td>Poisoning</td>
<td>Vish</td>
<td>Saliva from the mouth</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat</td>
<td>Vigna mungo (Kali dal-Fabaceae)</td>
<td>Seed powders mixed with water and apply to drink.</td>
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<td></td>
<td>Coriandrum sativum (Dhana Umbelliferae)</td>
<td>Seeds powder mixed with water and applies to drink.</td>
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<td></td>
<td>Allium cepa (Pyaj-Liliaceae)</td>
<td>Bulb is grinded and mixed with black salt and used to drink with water.</td>
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<td></td>
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<td></td>
<td>Zingiber officinale (Adrak-Zingiberaceae)</td>
<td>Rhizomes of Zingiber officinale grind and mixed with black salt and apply to eat.</td>
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<td></td>
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<td></td>
<td>Angelica glauca (Choru-APIaceae)</td>
<td>Roots powder mixed with tea to drink.</td>
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<td></td>
<td>Piper nigrum (Kali mirch-Piperaceae)</td>
<td>Powders of Piper nigrum mixed with water and apply to drink.</td>
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<td></td>
<td>Sesamum orientale (Til-Pedaliaceae)</td>
<td>Seeds are grind with water and used to cure poisoning.</td>
</tr>
<tr>
<td>4.</td>
<td>Cough</td>
<td>Khansi</td>
<td>Frequent coughing</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog</td>
<td>Dendrocalamus strictus (Banss-Poaceae)</td>
<td>Green leaves of Dendrocalamus strictus grind with seeds of Hordeum vulgare and used to eat.</td>
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<td></td>
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<td></td>
<td>Oryza sativa (Dhan-Poaceae)</td>
<td>Seeds are boiled with water and juice (Mund) is applied.</td>
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<td>5.</td>
<td>Fasciolasis Chhipadi</td>
<td>Growth of hard knot on the surface of thyroid gland</td>
<td>Buffalo, Cow, Oxen</td>
<td>Zanthoxylum armatum (Timru-Rutaceae) Bark of <em>Zanthoxylum armatum</em> milled with pod of <em>Capsicum annuum</em> and used to eat. <em>Oryza sativa</em> (Dhan-Poaceae) Inflorescence is directly applied to eat.</td>
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<td>6.</td>
<td>Anorexia Bhook na lagna</td>
<td>Stops eating fodder</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog</td>
<td>Terminalia chebula (Haira- Combretaceae) Seeds of <em>Trachyspermum ammi</em> and bark of <em>Terminalia chebula</em>, Rhizome of <em>Cuminum cyminum</em>, seeds of <em>Raphanus sativus</em> grind and mixed with black salt and used to eat.</td>
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<td>7.</td>
<td>Indigestion Apach</td>
<td>Bleaches out chewed food</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog, Cat</td>
<td><em>Piper nigrum</em> (Kali mirch-Piperaceae) Grind <em>Piper nigrum</em> and mixed with black salt with water and used to eat.</td>
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<td>8.</td>
<td>Constipation Kabj</td>
<td>Dung is extra solid</td>
<td>Buffalo, Cow, Oxen</td>
<td><em>Bombax ceiba</em> (Semal-Bombaceae) Milled the bark of <em>Bombax ceiba</em> with water and make a solution and used to eat. <em>Cassia fistula</em> (Amaltas- Caesalpiniaceae) Pod of <em>Cassia fistula</em> directly used to eat.</td>
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<td>9.</td>
<td>Foot and Mouth disease Khuri</td>
<td>Infection of mouth and hoops</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat</td>
<td><em>Acacia catechu</em> (Supari-Mimosaceae) Bark of <em>Acacia catechu</em> boiled with water for making a solution and used eat. <em>Mangifera indica</em> (Aam-Anacardiaceae) Leaves directly used to eat <em>Allium cepa</em> (Pyaj-Liliaceae) Bulb is grind and mixed with black salt and used to drink with water <em>Picrorhiza kurrooa</em> (Kutaki-Scrophulaceae) Dried roots milled along with sugar and drink with water. <em>Lyonia ovalifolia</em> (Anyar-Ericaceae) Buds of <em>Lyonia ovalifolia</em> milled with bark of <em>Juglans regia</em> and make a solution with mustard oil and paste is applied externally.</td>
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<tr>
<td>10.</td>
<td>Dermatitis Damri</td>
<td>White patches and hair loss from the skin</td>
<td>Buffalo</td>
<td><em>Stephania glabra</em> (Gindaru-Menispermacaeae) Grind of <em>Stephania glabra</em> and used to eat with water. <em>Eucine coracana</em> (Koda-Poaceae) <em>Urgenia indica</em> grind with <em>Eucine coracana</em> and used to eat with water. <em>Glycine max</em> (Bhatt-Fabaceae) Seeds of <em>Glycine max</em> is milled and used to eat with water <em>Quercus leucotrichophora</em> (Banji-Fagaceae) Ash is externally used.</td>
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<td>11.</td>
<td>Cataract Phula</td>
<td>White rashes on the surface of eye ball</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog, Cat</td>
<td><em>Berberis aristata</em> (Kinnor-Berbridaceae) Root decoction (juice) and few drops applied to cure eye infection. <em>Oxalis corniculata</em> (Bhilmori-Oxalidaceae) Leaves juice is used to cure eye infection.</td>
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<tr>
<td>No.</td>
<td>Disease</td>
<td>Common Name</td>
<td>Symptoms</td>
<td>Animals</td>
<td>Plant Species</td>
<td>Preparation</td>
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<td>12</td>
<td>Hematuria</td>
<td>Khumi peisab</td>
<td>Bleeding with urine</td>
<td>Buffalo, Cow, Oxen</td>
<td><em>Dalbergia sissoo</em> (Sisham-Fabaceae)</td>
<td>Green leaves directly used to eat.</td>
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<td></td>
<td><em>Lawsonia inermis</em> (Mehandi-Lythraceae)</td>
<td>Green leaves directly used to eat.</td>
</tr>
<tr>
<td>13</td>
<td>Arthritis</td>
<td>Jod dard</td>
<td>Swelling in the joints and hamstrung mussels</td>
<td>Buffalo, Cow, Oxen, Sheep, Horse, Mule</td>
<td><em>Calotropis procera</em> (Aak-Asclepiadaceae)</td>
<td>Leaves of <em>Calotropis procera</em> and bulb of <em>Allium sativum</em> fried with mustard oil and rubbed on infected part.</td>
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<td></td>
<td><em>Trigonella foenum</em> (Methi-Fabaceae)</td>
<td>Seeds of <em>Trachyspermum ammi</em>, Rhizome of <em>Curcuma domestica</em>, Leaves of <em>Trigonella foenum</em> and <em>Dendrocalamus strictus</em> grind and mixed with <em>Piper nigrum</em> and used to eat with water.</td>
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<td>14</td>
<td>Pneumonia</td>
<td>Garmi bukhar</td>
<td>Increase body temperature and running nose</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Dog</td>
<td><em>Megacarpaea polyandra</em> (Barmoa-Brassicaceae)</td>
<td>Root decoction of <em>Megacarpaea polyandra</em> mixed with sugar and drink to cure Pneumonia</td>
</tr>
<tr>
<td>15</td>
<td>Burning</td>
<td>Jalna</td>
<td>Burns on the skin</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog, Cat</td>
<td><em>Triticum aestivum</em> (Gahu-Poaceae)</td>
<td>Seeds are grind and make a paste used externally.</td>
</tr>
<tr>
<td>16</td>
<td>Sprain</td>
<td>Moch aana</td>
<td>Sprain on the foot</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog, Cat</td>
<td><em>Urtica parviflora</em> (Kandali-Urticaceae)</td>
<td>Fresh leaves are rubbed on the infected part.</td>
</tr>
<tr>
<td>17</td>
<td>Dysentery</td>
<td>Peichis</td>
<td>Frequent loose motion</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Dog</td>
<td><em>Glycine max</em> (Bhatt-Fabaceae)</td>
<td>Seeds of <em>Glycine max</em> is milled and used to eat with water.</td>
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<td></td>
<td><em>Allium cepa</em> (Pyaj-Liliaceae)</td>
<td>Bulb is grind and mixed with black salt and used to drink with water.</td>
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<td></td>
<td><em>Mentha arvensis</em> (Podina-Lamiaceae)</td>
<td>Milled fresh leaves and mixed with black salt and used to eat with water.</td>
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<td></td>
<td><em>Raphanus sativa</em> (Muli-Brassicaceae)</td>
<td>Grind the underground part and used to eat with water.</td>
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<td></td>
<td><em>Aconitum heterophyllum</em> (Atis- Ranunculaceae)</td>
<td>Root paste used to eat with water.</td>
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<td></td>
<td><em>Elucine coracana</em> (Koda-Poaceae)</td>
<td>Seeds are grind and used to eat with water.</td>
</tr>
<tr>
<td>18</td>
<td>Lice and Ticks</td>
<td>Joon padna</td>
<td>Itching on the skin</td>
<td>Buffalo, Sheep, Goat, Dog</td>
<td><em>Artemisia nilagirica</em> (Koda-Poaceae)</td>
<td>Milled the leaves and juice is applied externally.</td>
</tr>
<tr>
<td>Infection (Ectoparasite)</td>
<td>Cat</td>
<td>(Kunja-Asteraceae)</td>
<td>Acorus calamus (Buch-Araceae)</td>
<td>Apply corn powder externally through mixing coconut oil and used externally.</td>
<td>Sapindus mukorossi (Reetha-Sapindaceae)</td>
<td>Mature fruit is grind with water and paste is externally applied to cure lice and ticks infection.</td>
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<tr>
<td>19. Endo parasite</td>
<td>Peit main keera</td>
<td>Discharge of worms in the dung</td>
<td>Buffalo, Cow, Oxen</td>
<td>Asculus indica (Panger-Hippocastanaceae)</td>
<td>Mature fruit is milled with water and apply to drink.</td>
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<tr>
<td>20. Sterility</td>
<td>Banjhpan</td>
<td>Obesity and eccentric behave</td>
<td>Buffalo, Cow, Goat, Sheep</td>
<td>Hordeum vulgare (Jau-Poaceae)</td>
<td>Seeds are milled of Hordeum vulgare and Triticum aestivum with Trigonella foenum and make a powder is used to eat with water.</td>
<td>Urtica dioica (Kandali-Urticaceae)</td>
</tr>
<tr>
<td>21. Uterus disorder</td>
<td>Jair</td>
<td>Placenta membrane is held up inside the womb</td>
<td>Buffalo</td>
<td>Myrica esculenta (Kafal-Myricaceae)</td>
<td>Bark boiled with water and used externally.</td>
<td>Picrorhiza kurrooa (Kutaki-Scrophulaceae)</td>
</tr>
<tr>
<td>22. Bone fracture</td>
<td>Hadi tootna</td>
<td>Swelling on the fracture part</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat, Horse, Mule, Dog, Cat</td>
<td>Vanda testacea (Laguli-Orchidaceae)</td>
<td>Grind the leaves to make a paste and apply on fractured part. The fractured part is supported by Dendrocalamus strictus.</td>
<td>Agave americana (Ramban-Agavaceae)</td>
</tr>
<tr>
<td>23. Broken horns</td>
<td>Seeng tootna</td>
<td>Shelling off outer layer of horn concomitant bleeding</td>
<td>Buffalo, Cow, Oxen, Sheep, Goat</td>
<td>Tagetusa erectus (Genda-Asteraceae)</td>
<td>Milled the fresh leaves and juice is applied externally.</td>
<td>Rehum emodi (Dolu-Polygonaceae)</td>
</tr>
<tr>
<td>No.</td>
<td>Condition</td>
<td>Symptoms</td>
<td>Ancient Remedies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
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<td>-----------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Yoke galls</td>
<td>Kandha aana</td>
<td>Chemicals</td>
<td>Bark oil is applied externally.</td>
<td>Chemicals</td>
<td>Bark oil is applied externally.</td>
</tr>
<tr>
<td>26.</td>
<td>Diphtheria</td>
<td>Kand Rohni</td>
<td>Chemicals</td>
<td>Root paste is externally used to cure broken horns.</td>
<td>Chemicals</td>
<td>Root paste is externally used to cure broken horns.</td>
</tr>
<tr>
<td>27.</td>
<td>Abdominal pain</td>
<td>Peit Shool</td>
<td>Chemicals</td>
<td>Seeds grind and make a paste is used to join the broken parts.</td>
<td>Chemicals</td>
<td>Seeds grind and make a paste is used to join the broken parts.</td>
</tr>
<tr>
<td>28.</td>
<td>Debility</td>
<td>Kamjori</td>
<td>Chemicals</td>
<td>Seeds grind and make a paste is used to join the broken parts.</td>
<td>Chemicals</td>
<td>Seeds grind and make a paste is used to join the broken parts.</td>
</tr>
<tr>
<td>29.</td>
<td>Acidity</td>
<td>Gais</td>
<td>Chemicals</td>
<td>Seeds grind and make a paste is used to join the broken parts.</td>
<td>Chemicals</td>
<td>Seeds grind and make a paste is used to join the broken parts.</td>
</tr>
<tr>
<td>30.</td>
<td>Vomiting</td>
<td>Ulti</td>
<td>Chemicals</td>
<td>Fresh green leaves are directly applied to cure vomiting.</td>
<td>Chemicals</td>
<td>Fresh green leaves are directly applied to cure vomiting.</td>
</tr>
<tr>
<td>31.</td>
<td>Skin disease</td>
<td>Makku</td>
<td>Chemicals</td>
<td>Oil is obtained from the bark and rubbed.</td>
<td>Chemicals</td>
<td>Oil is obtained from the bark and rubbed.</td>
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<tr>
<td>No.</td>
<td>Condition</td>
<td>Local Treatment</td>
<td>Scientific Name</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
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</tr>
</tbody>
</table>
| 32.  | Glactogogue Drying up of milk gland | Buffalo, Cow, Sheep, Goat | *Grevia optiva* (Bheemal-Tiliaceae) | Fresh green leaves are directly applied to cure glactogogue.  
|      |                         |                          | *Vigna mungo* (Kali dal-Fabaceae) | Seeds of *Vigna mungo* is soaked with water for overnight then grind with water and used to cure glactogogue.  
|      |                         |                          | *Musa paradisiaca* (Kela-Musaceae) | Mature fruit is applied.  |
| 33.  | Wounds on back Wounds and boils on the back | Horse, Mule | *Brassica compestris* (Sarsoo-Brassicaceae) | Oil is used externally.  |
| 34.  | worm on wounds Simmering worms inside the wounds | Buffalo, Cow, Oxen, Horse, Mule, Sheep, Goat | *Prunus persica* (Aaru-Rosaceae) | Leaf paste is externally used to cure germs on wounds.  |
Table 2: Perception of local people (n = 150) on the basis of socio-demographic characters and their response preference towards herbal treatments for curing veterinary ailments

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Characteristics</th>
<th>Responses (%)</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Gender</td>
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</tr>
<tr>
<td></td>
<td>Male</td>
<td>46.7</td>
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<tr>
<td></td>
<td>Female</td>
<td>53.3</td>
</tr>
<tr>
<td>2.</td>
<td>Education</td>
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<tr>
<td></td>
<td>Literate</td>
<td>43.4</td>
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<tr>
<td></td>
<td>Illiterate</td>
<td>56.6</td>
</tr>
<tr>
<td>3.</td>
<td>Age</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤ 20</td>
<td>19.7</td>
</tr>
<tr>
<td></td>
<td>21-50</td>
<td>33.1</td>
</tr>
<tr>
<td></td>
<td>≥ 51</td>
<td>47.2</td>
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<tr>
<td>4.</td>
<td>Healing Experience</td>
<td></td>
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<tr>
<td></td>
<td>≤ 20</td>
<td>27.0</td>
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<tr>
<td></td>
<td>21-50</td>
<td>34.6</td>
</tr>
<tr>
<td></td>
<td>≥ 51</td>
<td>38.4</td>
</tr>
</tbody>
</table>

...plants themselves. They perceived that the effectiveness of the herbs was connected to the knowledge of the exact nature of animal diseases. It was difficult to extract indigenous knowledge base, particularly related to medicinal plants from local communities. Even some traditional herbal healers those having little outside exposure do not pass information to their family members and others.

Conclusion

The traditional culture and indigenous knowledge of tribal and non-tribal communities in Alaknanda catchment has a series of challenges during recent past. Lack of scientific validation is the major reason for non-adoption of ethnoveterinary medicine by field veterinarians and trained main power. Experiences indicate that some of the practices are good while many of them are much effective. Scientific evolution, besides understanding the technology of the clientele helps ascertain the degree and direction of change through formal research and will be rewarding in adoption by the veterinarian. It must be born in mind that validation of ethnoveterinary practices will require flexibility, creativity and dedication in research application. There is an urgent need of a comprehensive analysis and documentation of indigenous knowledge of curing animal ailments in the Alaknanda catchment particularly in remote areas. The revitalization of these indigenous systems can provide self-reliance in primary health care and can even contribute to the frontiers of veterinary system of medicine. The present study conducted in remote areas showed that most technical persons are aware of traditional knowledge systems but they don't use them because these are not properly validated.

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References


