

ETHNO-MEDICINAL PLANTS IN ANIMAL HEALTH MANAGEMENT IN INDIAN HIMALAYAN MOUNTAINS

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ABSTRACT

Natural ecosystems in the Himalayan mountain areas serve as a rich repository of numerous plants of ethno-medicinal value being used by local livestock-dependent communities in animal health management. This paper brings forth a comprehensive list of the plants indigenous to the Himalayan mountain areas which carry vital medicinal values and have been exploited by local people for millennia. Folk uses as well as medicinal uses of these plants have been elaborated. In the wake of on-going rapid agricultural transformation and globalization, use of plants of ethno-vet medicinal values and indigenous knowledge woven around the usage of such plants is fast vanishing. These, however, are very much alive in the Indian Himalayan region. Use of these uncultivated/ wild plants in the animal production systems by the smallholders in the poor countries of the South, indeed, poses a challenge to the systems operating in the industrialized countries of the North as well as to the rapidly going processes of globalization. Utilisation of these ethno-medicinal plants is cost-effective, affordable and time-tested and needs to be preserved and promoted.

Keywords: Himalayas, Ethno-Medicinal Plants, Health Management,

INTRODUCTION

Depending on seasonal differences in temperature and precipitation, pastoralists utilize different pastures in summer and winter, rousing their livestock from mountain areas to valley pastures in winter, or from wet-season to dry season pastures in arid regions. Their pastoral knowledge embraces a whole range of medicinal plants and their usage. Herders often make use of a ample range of Ethno botanical awareness about fodder plants and medical plants for animal use.

The rich and diversified flora of India provides the most valuable storehouse of medicinal plants. The healing properties of herbs have long been known and are documented in ancient manuscripts, such as the Sanskrit *Rig Veda*, *Garuda Purana* and *Agni Purana* (Holland, 1994). These treatises focus on the potential of plants and herbs to cure human ailments and diseases. But the botanical wealth of India also offers the people who tend livestock a rich reservoir which they can tap in their efforts to treat the diseases and ailments of the animals they have for so long depended upon. Given that Indian communities are traditionally rural in nature, a great deal of knowledge in this field has been accumulated over the years. And this indigenous veterinary knowledge is

also worth recording. There are no ancient manuscripts comparable to those mentioned above, but scientists are now documenting the various ethnoveterinary practices based on plant drugs (De 1969; Sebastine 1984; Sebastine and Bhandri 1984, Joshi and Singh, 2004). In the mountain areas or in other rural areas of India, pastoral people still keep the traditional veterinary practices based on the remedial power of the plants.

MATERIALS AND METHODS

This paper is based on students work during Himalayan excursion. The information has been derived from intensive interaction with farmers in the upper Himalayan areas. The farmers, often the pastoralists, who have been using plants of ethno-medicinal value, are replete with the knowledge about such native plants. Name of the plants and their therapeutic uses as recorded in this paper are part of their traditional knowledge system.

RESULTS AND DISCUSSION

Indian Central Himalayan Region, being the hub of medicinal and aromatic plants, recently attracted the attention of the number of pharmaceuticals hunters ever since the Uttaranchal government declared the region as Jadi-buti Pradesh (the State of Medicinal Plants). Numerous plants known for prevention and cure of virtually all human and livestock diseases and health related maladies are thriving in the diverse ecological niches ranging from lower hills to mid-altitude mountains to alpine meadows adjacent to perennial glaciers in the Himalayas. But, only a limited numbers of these plants have been identified and utilized for the cure of a few diseases. A large number of the plants occurring in all the niches are still to be identified, tested against various diseases and utilized on sustained basis. The Himalayan flora is a unique in the multitude of its values. People inhabiting and managing Himalayan environments are also replete with the knowledge of the utilization of a variety of Plants (Singh and Jardhari, 2001). Local inhabitants in the Himalayan Mountains would identify a particular endemic plant and elaborate its folk uses and medicinal uses. This ethnic wisdom is unique in itself, but has not been documented properly. An effort has been made to record the names of some of the commonly used plants and their folk uses as well as their medicinal uses for humans and pets (Table 1).

It should be mentioned that medicinal plants types change according to habitat type right from lower hills to high Himalayas. This study pertains to the districts of Chamoli which lies towards the interior of the Central Himalayan region. Picture of any other region would be somewhat different.

Table 1. Ethno-medicinal valuation of some of the plants

| Botanical name | Folk use | Medicinal use for humans and pets |
|--|---|---|
| <i>Berberis asiatica</i> Rox.ex Dc. | Roots are used as a daruharidra for eye disease. An extract prepared by digesting in water sliced pieces of roots, stem and branches is used as Resout and is used in case of ophthalmia. In Baluchstan, leaves are administered as cure for Jaundices. | Roots are bitter in taste. They heal ulcers, urethral discharge, skin diseases, ear and eye diseases, useful in ophthalmia, jaundice, disease of mouth and fever, an antidote to snake venom. |
| <i>Viola serpens</i> Wall. | Fresh leaves and flowers of this plant are collected by local inhabitants and given in the form of tea in asthma and bronchitis. | Used in sprain, roots are given as an emetic. Leaves are used as an emollient and laxative. Flowers have diaphoretic properties. |
| <i>Angillica glauca</i> | Roots are mixed with condiments for flowering purpose and small pieces are also eaten to cure indigestion | Rootstock is aromatic and used as condiment. It is also used in removing Flatulence and dyspepsia and it has aromatic, stimulant, carminative, diaphoretic and expectorant properties. Rootlets are particularly rich in essential oils and aromatic compounds. |
| <i>Carum carvi</i> Linn. | Seeds are collected and used as condiments especially for flavoring purposes | Seeds have carminative, anti-emesis, diuretic, expectorant and aromatic properties. The essential oil is extracted from seeds and used in ayurvedic therapy. |
| <i>Morina longifolia</i> | Pate of roots with water is applied on cuts and boils | Roots are aromatic and locally used as poultice on boils. |
| <i>Artimisia sacrorum</i> Ladib. | The whole plant is given to horses in head infection. Leaves are used as anthelminthic | The aerial parts yield essential oil which is used in perfumery industries. It is supposed to be anti malarial. |
| <i>Sassurea obvallata</i> Wall. | Flowers are offered in the prayer of lord Shiva. In temples like Rudranath none other this flower is offered to lord shiva. It is also used in Tibetan Medicines in Ladakh. | The roots are applied on cuts and bruises. smell of the flower causes giddiness |
| <i>Rheum emodi</i> Wall. | The rhizome paste with water is applied on cuts, burns, sprains and in joint pains. | The rhizome is used on cuts and wounds. The root powder is as purgative. The rhizome is commercially collected and sold for purpose of medicines. It is used Tibetan medicines too. |
| <i>Taxus baccata</i> Linn. | Red aerial part of ripe seed is edible. Leaves are pounded and paste is given orally for treating asthma and other bronchial disorders and indigestion | In recent past a popular drug taxol has been extracted from the leaves and bark of <i>taxus baccata</i> . It is being used in curring ovarian cancer in women |

Table 2. . Lists of plants which are used by the farmers

| Name of the Plants | Therapeutic applications |
|---|---|
| <i>Agele Marmelos</i> (bael or bel fruit) | The fruit is roasted and the contents carefully removed. A paste is prepared with water and used as a poultice to treat swollen and painful joints. |
| <i>Allium cepa</i> (onion) | A mixture of 250 gm onion bulbs and 250 gm solidified jaggery (unrefined brown sugar made palmwine derived from fruit of the toddy palm <i>Borassus flabelifer</i> L.) is pounded a dry paste. This is administrated orally each morning for ten consecutive days, to stimulate the virility and reproductive performance of bulls. |
| <i>Ceiba pentandra</i> (kapok, white silk-cotton tree) | The leaves are pounded together with fermented boiled rice water and extract is administered to cows orally as remedy for reproductive problems. Approximately 500 ml three times a day for three consecutive days. |
| <i>Caltropis gigantean</i> (gigantic swallow root, ginat milk weed, swallow wort) | A handful of leaves are crushed and given orally to cattle to make them more alert and active. |
| <i>Cissus quadrangularis</i> (quadrangular cissus) | The whole plant is crushed into paste and given orally to newborn calves to facilitate removal of the placenta: after swallowing the paste, the calf will start to vomit. |
| <i>Datura metel</i> (hindu datura) | A seed paste mixed with water is applied to the patella (knee cap) area in cattle, to relieve pain and swelling. The paste is also used to treat eczema and other skin problems. |
| <i>Erythrina suberosa</i> | The leaf paste is mixed with water and given orally to cattle as a cure for severe coughing and bronchitis. |
| <i>Lablab purpureus</i> (hyacinth bean) | The leaf paste is applied to boils and sores to draw out the pus. |
| <i>Leucas aspera</i> | The leaf paste is applied to wounds to promote healing. |
| <i>Luffa acutangula</i> (chinese okra) | The leaf paste is applied to the neck region of cattle to treat the swelling and sores of yoke gall. |
| <i>Musa xparadisiaca</i> (french plantain) | The flowers and fruits are crushed and made into a paste with dry ginger (<i>Zingiber officinale</i>), pepper (<i>Piper nigrum</i>), black myrobalan (<i>Terminalia chebula</i>), nutmeg (<i>Myristica fragrans</i>) and karanda (<i>Carissa carandas</i>); this is given orally to cattle for all forms of serve diarrhea. |
| <i>Piper Betle</i> (betal pepper) | Ten betal leaves and 20 gm of dry black pepper are made into paste and given orally to cattle as cure for digestive disorders and flatulence. This is repeated two to three times. |
| | I addition, in the treatment of cataracts, the person tending the cattle will often chew a mouthful of betel leaves and then spit directly into the animals' eye. This treatment is given in the morning, and repeated on three consecutive days. |
| <i>Solanum surattense</i> (nightshade) | The leaves of this plant are made into a paste with thuthuvalai (<i>Solanum trilobatum</i>) and hot water. The extract is mixed in neem oil (<i>Azadriachta indica</i>) and given orally to cattle as remedy for all types of chronic cough. |
| <i>Tamarindus indica</i> (Indian tamarind) | The leaf paste is applied as a poultice, to reduce pain and swelling in the joints of cattle. |
| <i>Tribulus terrestris</i> (Ground burnut) | The seed paste is given orally to new born calves to facilitate removal of the placenta. |
| <i>Zingiber officinale</i> (ginger) | A paste made up which consists of 10gm each of dry ginger, pepper, asafetida (<i>ferula asafetida</i>), and sweet flag (<i>Acorus calamus</i>) in hot water. This extract is administered orally to cattle as cure for gastric problems. |

Regular practice

Livestock-dependent community farmers have to deal with various health problems occurring amongst their animals, the most common of which are fractures and diseases like abdominal discomfort, flatulence and convulsions. Many of these ailments can be treated by the people who tend the animal themselves, because the ingredients or materials required are easily available. In the case of broken bones, for example, the people use bamboo sticks to support the fractured bone. Often they make a fine paste of powdered black gram seeds and egg white, which they place on the site of the fracture or they apply gingerly oil to the spot twice daily.

Some livestock diseases require the assistance of a specialist. Since the government veterinary dispensary is far away, people have to rely on traditional veterinary practices as a first line of treatment. The traditional knowledge of plant based remedies for the treatment of animal rests with the medicine men, all of whom belong to one family of hereditary indigenous practitioners. Skills and experience are passed on from one generation to the next by word mouth, and are guarded like secrets. The medicine man collects the plants needed for particular veterinary application, either directly from the forest or from the local shops (Rajan and Sethuraman, 1997). Table 2 presents some ethno-medicinal plants and their therapeutic applications

CONCLUSION

Ethno-medicinal plants found in diverse Himalayan habitats are impregnated with certain active principles useful in curing virtually all livestock diseases and ailments. These plants should be protected, preserved, grown and promoted in their natural habitats. Efforts must be made to compare the efficacy of medicinal plants with the modern medicines. Active principles associated with Himalayan plants must be isolated and identified. This cost-effective, affordable and easily accessible system of health management must be recognized and promoted in the interest of the marginalized mountain pastoralists.

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