

## Documentation of Ethno-veterinary practices in Sikkim, India

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### Abstract

The livestock includes cattle, yaks, goats, pigs, fowls etc., is owned by all the communities of Sikkim. Rearing of livestock is a part of their rural life and it also plays an important role in uplifting the rural economy of state. Although modern veterinary medicine is well developed, most of the villagers still rely on the traditional practitioners and herbal medicines for health care of their livestock. The present paper deals with the documentation of indigenous knowledge of ethno veterinary practices in Sikkim.

**Key words:** Ethno veterinary, diseases, Sikkim.

### INTRODUCTION

The Indian state of Sikkim is located on the lap of the Eastern Himalaya between 27°10' - 28° 5' N latitudes and 87° 59' - 88° 56' E longitudes. It occupies an area of 7096 sq km with an altitudinal variation from 225 m in south, 6100 m in north and north-east and 8598 m in north-west. The state comprises of four districts viz., North, East, South and West districts. The Bhutias, Lepchas and Nepalis are three major ethnic groups inhabiting in the state and rearing of livestock and poultry is the main economic activities of these communities for the production of milk and milk products, meat and eggs. Rearing of livestock and poultry plays an important role not only in the economy of these people but also associated with their social and religious life (Sharma & Sharma 2010).

The use of ethno-veterinary medicines for animal health care practices is as old as the domestication of various livestock species (Sharma 2012.). The use of indigenous veterinary medicine is a cost effective treatment option for livestock, especially in primary health care (Punniamurthy 2010) in remote areas. Sikkim has very rich heritage of folk healers having vast knowledge of herbal medicine which is being practiced right from their ancestors for the health care of their livestock.

The traditional health practices are accessible, affordable and culturally acceptable. This traditional knowledge system has been orally passed on from one generation to the other without any written documentation. Due to sociocultural and other reasons this knowledge system is being eroded very fast. However, this traditional knowledge system is of much significance not only in the present regime of IRP, Patent Rights, etc., but also for new or alternative drug discovery. Keeping this in view, an attempt has been made to document the indigenous traditional knowledge system pertaining to veterinary practices in Sikkim and the present communication is the result of the above study.

## METHODOLOGY

Ethnobotanical surveys were undertaken in different parts of Sikkim during the years 2009–2012 for recording first hand information regarding the medicinal uses of plants for ethno-veterinary practices. While planning the field work various techniques suggested by different investigators (Jones 1941; Woodward 1956; Schultes 1960, 1962, 1963; Porteres 1961; Jain 1964, 1967, 1987, 1989; Croom 1983; Alcorn 1984 and Martin 1995) were taken into consideration. Information pertaining to use of the plant/plant part(s), method of preparation of the recipes, dose regime etc along with voucher specimen of the plants they are using has been collected. The plant specimens have been preserved following standard herbarium techniques (Jain & Rao 1977) and deposited in the herbarium of the Botany Department, Gauhati University (GUBH) for future reference. Provisional identification of the specimens were made with the help of available literature and confirmed by matching with pre-identified specimens in the BSHC Herbarium of the Botanical Survey of India.

## RESULTS

A total of 34 species of plants used by local healers for preparing ethno veterinary recipes and applied in curing of 15 ailments/problems of livestock has been documented which are enumerated below:

### 1. Fertility problem in cow

**Ingredients:** (i) rhizome of *Curcuma longa* Linnaeus (Zingiberaceae), and (ii) seeds of *Brassica campestris* Linnaeus (Brassicaceae)

**Local name:** (i) *Hardi*, (ii) *Tori*

**Method of treatment:** About 500 gm seed-powder of *Brassica campestris* and three tea-spoonful powder of *Curcuma longa* dried rhizome are mixed well and is divided into three equal doses and given once daily in the morning for 3 consecutive days.

### 2. Bleeding from broken horn in oxen

**Ingredients:** (i) rhizome of *Curcuma longa* Linnaeus (Zingiberaceae), (ii) stem bark of *Calotropis gigantea* (Linnaeus) R. Brown (Asclepiadaceae), and (iii) seeds of *Brassica campestris* Linnaeus (Brassicaceae).

**Local name:** i. *Hardi*, (ii) *Aank*, and (iii) *Tori*

**Method of treatment:** About 100 gm powder of *Curcuma longa* dried rhizome is mixed with 200 gm bark paste of *Calotropis gigantea* and one teaspoonful of seed oil of *Brassica campestris* and applied twice a day for a week.

### 3. Bone fracture of cattle

**Ingredients:** (i) bark of *Engelhardtia spicata* Leschenault ex Blume (Juglandaceae), (ii) *Acacia pennata* (Linnaeus) Willdenow (Mimosaceae), (iii) bark of *Schisandra neglecta* A.C. Smith (Schisandraceae), (iv) whole plant of *Viscum articulatum* Benth (Loranthaceae), (v) bark of *Terminalia bellerica* (Gaertner) Roxburgh (Combretaceae), (vi) seeds of *Lepidium sativum* Linnaeus (Brassicaceae), (vii) stem of *Saccharum officinarum* Linnaeus (Poaceae), (viii) rhizome of *Curcuma longa* Linnaeus (Zingiberaceae), and (ix) rhizome of *Kaempferia rotunda* Linnaeus (Zingiberaceae).

**Local name:** (i) *Thulo Mauwa*, (ii) *Arari*, (iii) *Kursinglo*, (iv) *Harchur*, (v) *Barro*, (vi) *Chausor*, (vii) *Ukho*, (viii) *Haldi*, and (ix) *Bhuichampa*

**Method of treatment:** The bark of *Engelhardtia spicata*, *Schisandra neglecta*, *Terminalia bellerica*, seeds of *Lepidium sativum*, stem of *Saccharum officinarum*, rhizome of *Curcuma longa*, *Kaempferia rotunda* and branches of *Viscum articulatum* in equal parts are crushed and boiled in about three litres of water till it turns into gummy paste. This gummy paste is spread over a paper and applied on the fractured part and then bandaged. The application is allowed to remain unchanged for a month during which the wound is healed.

#### 4. Bone dislocation of cattle

**Ingredients:** (i) rhizome of *Kaempferia rotunda* Linnaeus (Zingiberaceae), (ii) branches of *Viscum articulatum* Bentham (Loranthaceae), and (iii) grains of *Zea mays* Linnaeus (Poaceae)

**Local name:** (i) *Bhui champa*, (ii) *Harchur*, and (iii) *Makai*

**Preparation:** Dried branches of *Viscum articulatum* along with dried rhizome of *Kaempferia rotunda* and grains of *Zea mays* in equal parts and a little sugar are crushed and made into powder and boiled it in about two liters of water till it turn into gummy paste. The paste is applied and bandaged on dislocated bones.

#### 5. Cold sickness in goat.

**Ingredients:** (i) fruits of *Datura metel* Linnaeus (Solanaceae), (ii) bulb of *Allium cepa* Linnaeus (Alliaceae), and (iii) resin of *Canarium strictum* Roxburgh (Burseraceae).

**Local name:** (i) *Dhaturo*, (ii) *Piaz* and (iii) *Gokul dhoup*

**Method of treatment:** The fruit of *Datura metel*, bulb of *Allium cepa* and resin of *Canarium strictum* in equal parts are crushed and made into paste and given about 100gm orally, thrice daily for 5 consecutive days .

#### 6. Cough in cattle

**Ingredient:** (i) bulb of *Allium sativum* Linnaeus (Alliaceae)

**Local name:** (i) *Lasun*

**Method of treatment:** 2 – 3 bulbs of *Allium sativum* are crushed and made into paste and is given along with feeds, twice daily for 3 consecutive days.

#### 7. Cuts and wounds in cattle.

**Ingredients:** (i) whole plant of *Drymaria cordata* (Linnaeus) Roemer & Schultes (Caryophyllaceae), and (ii) leaves of *Acorus calamus* Linnaeus (Acoraceae)

**Local name:** (i) *Abijalo* and (ii) *Bojo*

**Preparation:** The paste of whole plant of *Drymaria cordata* or the leaf paste of *Acorus calamus* is applied to cuts and wounds.

#### 8. Diarrhoea in cow

**Ingredients:** (i) fruit of *Litsea cubeba* (Loureiro) Persoon (Lauraceae), (ii) tender shoots of *Cannabis sativa* Linnaeus (Cannabaceae), (iii) fruits of *Rhus chinensis* Miller (Anacardiaceae), and (iv) rhizome of *Acorus calamus* Linnaeus (Acoraceae)

**Local name:** (i) *Siltumbur*, (ii) *Ganja*, (iii) *Bhakmilo* and (iv) *Bojo*

**Method of treatment:** The infusion of about 100 gm of dried fruits *Litsea cubeba* and 200 gm of fresh tender shoots of *Cannabis sativa* given twice daily for 3 consecutive days.

Decoction of about 250 gm dried fruits of *Rhus chinensis* is given thrice daily for 3 consecutive days.

Decoction of about 250 gm rhizome of *Acorus calamus* is given thrice daily for 4 consecutive days.

### 9. Dog bite in cow and buffalo

**Ingredients:** (I) fruits of *Datura metel* Linnaeus (Solanaceae), (ii) root-stock of *Smilax ferox* Wallich ex Kunth (Smilacaceae), (iii) whole plant of *Equisetum diffusum* D. Don (Equisetaceae), (iv) rhizome of *Tectaria macrodonta* (A.L. Fée) C. Christensen (Dryopteridaceae), (v) rhizome of *Curcuma caesia* Roxburgh (Zingiberaceae), (vi) root of *Mirabilis jalapa* Linnaeus (Nyctaginaceae), and (vii) bark of *Betula utilis* D. Don (Betulaceae)

**Local name:** (i) *Kalo Dhaturu*, (ii) *Kukurdainu*, (iii) *Salli*, (iv) *Kalo Nigro*, (v) *Kalo Hardi*, (vi) *Lankasani*, and (vii) *Saur*.

**Method of treatment:** The fruits of *Datura metel*, root-stock of *Smilax ferox*, rhizome of *Curcuma caesia* and *Tectaria macrodonta*, roots of *Mirabilis jalapa*, bark of *Betula utilis* and whole plant of *Equisetum debile* in equal parts are crushed and made into powder. About 200 gm of the powder is given with water twice daily for 10 consecutive days.

### 10. Fever in cattle

**Ingredients:** (i) seeds of *Heracleum wallichii* DC. (Apiaceae), (ii) seeds of *Litsea cubeba* (Loureiro) Persoon (Lauraceae), and (iii) fruits of *Fagopyrum esculentum* Moench (Polygonaceae)

**Local name:** (i) *Chimphing*, (ii) *Sil-timbur* and (iii) *Phaper*

**Method of treatment:** About 100 gm seeds of each of *Heracleum wallichii* and *Litsea citrata* along with the fruits of *Fagopyrum esculentum* are crushed and made into paste and given to the cattle, thrice daily for 4 consecutive days.

### 11. Foot and mouth diseases in cow

**Ingredients:** (I) leaves of *Azadirachta indica* A. Jussieu (Meliaceae) and (ii) fruits of *Fagopyrum esculentum* Moench (Polygonaceae)

**Local name:** (i) *Nimpat* and (ii) *Phaper*

**Method of treatment:** About 25 – 30 ml of leaf juice of *Azadirachta indica* is given thrice daily for 10 days and the paste of the fruits of *Fagopyrum esculentum* is applied externally.

### 12. Intestinal worms in calf

**Ingredients:** (i) roots of *Coix lacryma-jobi* Linnaeus (Poaceae) and (ii) seeds of *Brassica campestris* Linnaeus (Brassicaceae)

**Local name:** (i) *Bhirgaulo* and (ii) *Tori*

**Method of treatment:** About 50 ml root extract of *Coix lacryma-jobi* is given twice daily for 3 consecutive days. Or about 50 – 70 ml of *Brassica campestris* seed-oil is given twice daily for 3 consecutive days.

### 13. Retention of placenta in cow, buffalo and goats.

**Ingredients:** (i) leaves of *Thysanolaena latifolia* (Roxburgh ex Hornemann) Honda

(Poaceae), (ii) leaves of *Saccharum officinarum* Linnaeus (Poaceae) and (iii) *Zea mays* Linnaeus (Poaceae)

**Local name:** (i) *Amloso* (ii) *Ukho* (iii) *Makai*

**Method of treatment:** Leaves of *Thysanolaena latifolia* or *Saccharum officinarum* are fed to the **cow and buffalo** after the delivery. However, grains or powder of grains of *Zea mays* are fed to goats.

#### 14. Infestation of ticks in dog and calf

**Ingredients:** (i) tender shoots of *Lyonia ovalifolia* (Wallich) Drude (Ericaceae), and (ii) *Nicotiana tabacum* Linnaeus (Solanaceae).

**Local name:** (i) *Angeri*, and (ii) *Surti*

**Method of treatment:** Fresh juice or paste of tender shoots of *Lyonia ovalifolia* mixed with little amount of common salt is applied externally, twice daily for a week.

Juice of fresh leaves of *Nicotiana tabacum* is applied all over the body, twice a day for a week.

#### 15. Yoke gall in ox

**Ingredients:** (I) rhizome of *Curcuma longa* Linnaeus (Zingiberaceae), and (ii) seeds of *Brassica campestris* Linnaeus (Brassicaceae)

**Local name:** (i) *Hardi* and (ii) *Tori*

**Method of treatment:** About 100 gm powder of *Curcuma longa* dried rhizome mixed with seed-oil *Brassica campestris* is applied on yoke gall, twice daily for 10 consecutive days.

### DISCUSSION

Sikkim is rich in ethnic diversity and has a rich heritage of folk healers having vast traditional knowledge about plant resources of their ambient vegetation. Although attempts have been made to study the medico-ethno botanical aspects of Sikkim by a number of workers (Hajra & Chakrabarty 1981; Bennet 1983; Kumar *et al* 1994; Rai & Sharma 1994.; Sinha & Chauhan 1997; Maity *et al* 2003.) associated with human health care system but, so far, no work has been done for the documentation of ethno-veterinary practices prevalent in Sikkim-Himalaya for animal health care.

Livestock is an integral part of ethnic communities of Sikkim and plays an important social, economic and religious role in their life. The large sections of the population in rural areas are still rely on ethno-veterinary medicine for the treatment of various ailments such as cuts and wounds, bone fracture, retention of placenta, poisonous bites, foot & mouth diseases, fertility problem, etc. These indigenous veterinary medicines are accessible, affordable and culturally highly acceptable to them.

Despite having the rich ethno-veterinary knowledge among various ethnic communities, the proper documentation of their knowledge is yet to initiate. Therefore, there is urgent need to take up such survey and conservation of traditional knowledge generated by ethnic veterinary practitioners.

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