

Survey of ethnoveterinary plants of Darjeeling Himalaya, India

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Abstract

Livestock plays an important role in the life of most of the ethnic communities all around the world. Uses of plant in the treatment of livestock by the ethnic people of Darjeeling Himalaya have been studied. The uses of plant parts and method of application have been discussed in detail in the present paper.

Key words: Darjeeling Himalaya, ethnoveterinary plant

INTRODUCTION

Darjeeling Himalayan region is an integral part of the Eastern Himalaya, lies between 26° 31' 05" - 27° 13' 10" N latitude and 87° 59' 30" - 88° 53' E longitude, and is the northern most district of the Indian state of West Bengal. The total area covered by the district is 3254.7 sq km of which 2329 sq km area is occupied by the hills with an altitudinal variation between 130 m to 3660 m amsl. The region harbours a large number of plant species with wide range of diversity and distribution (Das 1995, 2004; Bhujel 1996). The region was explored by a large number of botanists since eighteenth century and during 1848 - '49 Sir Joseph Dalton Hooker explored the region and made an immense contribution to the Flora of British India (Hooker 1849 – 1850).

Different groups of people inhabiting in this region from the time immemorial include the Nepali, Bhutia and Lepcha communities (O'Malley 1907). Most of the population of the district is concentrated in the villages located in far-flung areas, and depend completely on the forest resources for maintaining their day to day needs like medicine, fuel and fodder for domesticated animals. The existence of traditional knowledge on the uses of different plants is more common to the people living very close to the forest areas. However, the detail account of the uses of plants for the treatment of their domesticated animals of this region has not been documented so far for Darjeeling and Sikkim region. A few assorted publications on folklore and folk life studies have been made by Rai (2002), Bhujel (1996), Lama (1989), Biswas & Chopra (1956), Chettri *et al* (1992), Rai *et al* (1998), Rai & Das (2004), Rai *et al* (2007) and Das *et al* (2007). In the floristic works of Cowan & Cowan (1929), Grierson & Long (1983, 1984, 1987, 1991, 1999, 2001) and Noltie (1994, 2000) some subsidiary notes on the uses of ethnoveterinary plants have been provided.

Use of medicinal plants for the treatment of various ailments in animals is believed to have started when the animals were engaged in cultivation (Chettri *et al* 1992) and transportation. People are found to be concerned to animal health but the development of ethnoveterinary science is not found in practice. Only a few individuals were found knowledgeable in this line. However, the treatments for some common ailments of their domestic animals were known by many of the villagers. In the present work the following information are collected on the ethnoveterinary plants from the Darjeeling Himalayan region.

MATERIALS AND METHODS

Regular visits to selected areas were made and the people practicing ethnoveterinary medicine were identified, and they were contacted to develop necessary understandings and close relationship so that they feel free to divulge their traditional knowledge. After the interview the plant specimens in question were spotted and recognized with their help. These specimens were collected, recorded in the field notebook, processed into mounted herbarium sheets (Jain & Rao 1976). The plant identification and matching was done at the NBU-herbarium, BSHC and at CAL. For up-to-date nomenclature recent literature including Grierson & Long (1983, 1984, 1987, 1991, 1999, 2001) and Noltie (1994, 2000) and www.theplantlist.org has been used. The specimens are deposited in the herbarium of Taxonomy and Ethnobiology Laboratory, Kalimpong College, Kalimpong.

ENUMERATION

The enumeration of the recorded plants has been made alphabetically irrespective of their taxonomic position. The presentation include the botanical name, family, field number, local name and their uses. The abbreviations used are: **Fn** – field number, **Nep** – Nepali, **Lep** – Lepcha, **Ln** – local name. All field numbers are to be treated as “Rai *et Bhujel*”.

Acorus calamus Linnaeus [Acoraceae]; **Fn: 0459**; Ln: *Bojho* (Nep.), *Ruk - lop/Mong - lop* (Lep.).

Uses: Paste of rhizome is applied externally on sores and wounds of cattle and goat.

Alstonia scholaris (Linnaeus) R. Brown [Apocynaceae]; **Fn: 0557**; Ln: *Chhatiwan* (Nep.), *Purbo - kung* (Lep.).

Uses: Stem bark is mixed with the feed of pigs and goats feed as tonic to improve their health.

Ampelocissus barbata (Wallich) Planchon [Vitaceae] **Fn: 0695**; Ln: *Jarila lahara* (Nep.), *Mik - Thum - rik* (Lep.).

Uses: Stem juice is applied externally to cattle to remove ticks, mites and other external parasites.

Asparagus racemosus Willdnew [Asparagaceae] **Fn: 0521**; Ln: *Satamuli* (Nep.).

Uses: About 250 gm of crushed root is mixed with cattle feed and given to the milking cow to enhance lactation.

Bischofia javanica Blume [Phyllanthaceae] **Fn: 0407**; Ln: *Kainjal* (Nep.), *Sumong - kung* (Lep.).

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Uses: Juice of stem bark is administered orally to the cattle against poisoning by the foliage of *Bridelia retusa* (Linnaeus) A. Jussieu, *Bridelia verrucosa* Haines, *Lyonia ovalifolia* (Wallich) Drude and *Oxyspora paniculata* (D. Don) DC.

Brassica campestris* subsp. *dichotoma (Roxburgh) Grierson & Long [Cruciferae] **Fn: 0654**; Ln: *Tori* (Nep.).

Uses: Extracted seed oil is administered orally to calves suffering from indigestion and weakness.

Cannabis sativa Linnaeus [Cannabaceae] **Fn: 0101**; Ln: *Ganja/ Bhang* (Nep.).

Uses: Plant is given orally to the cattle and goats to treat food poisoning and indigestion.

Canarium strictum Roxburgh [Burseraceae] **Fn: 0570**; Ln: *Gokul dhup* (Nep.), *Narok - kung* (Lep.).

Uses: Gum extracted from the stem bark is dried and is mixed with capsicum fruit and then burnt to produce fumes, which is inhaled by goats to cure suffering from cough and diarrhoea.

Colebrookea oppositifolia Smith [Labiatae] **Fn: 0261**; Ln: *Dhusrey* (Nep.), *Kumhyem - kung* (Lep.).

Uses: Juice extracted from leaves and young shoots are applied externally on the eyes of cattle in case of poor vision or blindness.

Curcuma longa Linnaeus [Zingiberaceae] **Fn: 0466**; Ln: *Hardi* (Nep.).

Uses: Paste prepared from the powder of Hardi rhizome is applied externally on fractured bone of poultry, cattle and kept under bandage for 5 – 7 days.

Dendrophthoe falcata (Linnaeus f.) Etting [Loranthaceae] **Fn: 0371**; Ln: *Aijeru/Liso* (Nep.).

Uses: The whole plant is crushed with the rhizome of *Kaempferia rotunda* Linnaeus, root of *Laportea bulbifera* (Siebold & Zuccarini) Weddell and the prepared paste is plastered externally on fractured bone and sprains in cattles and keep under bandage for 5 – 7 days. The course of treatment is followed for 21 – 27 days by changing the paste as and when required. It promotes the articulation of bones.

Diploknema butyracea (Roxburgh) H.J. Lam [Sapotaceae] **Fn: 0269**; Ln: *Chiwri* (Nep.), *Yel - kung* (Lep.).

Uses: Dried stem bark is ground into fine powder and applied in the nose of cattle, goat and horse in case of leech infestation. It causes frequent sneezing in them that pushes the leeches out of their nose.

Equisetum debile Roxburgh ex Vaucher [Equisetaceae]: **Fn: 0071**; Ln: *Kurkure jhar* (Nep.).

Uses: The aerial part of plant is used as an effective medicine against urinary troubles of horses.

Hypericum choisyianum Wallich ex N. Robson [Hypericaceae] **Fn: 0001**; Ln: *Mahendi phul* (Nep.).

Uses: Strained juice prepared from the leaves and shoots (about 200 – 250 ml) is administered orally in domestic animals in case of urinary troubles. Sometimes the shoots are directly given as or mixed with fodder grasses.

Hypericum uralum Buchanan-Hamilton *ex* D. Don [Hypericaceae] **Fn: 0449**; Ln: *Urilo* (Nep.), *Tumbomri* (Lep.).

Uses: Juice extracted from the young shoots and leaves are administered orally to the cattle to cure urinary troubles.

Imperata cylindrica (Linnaeus) Ruschel [Gramineae] **Fn: 0179**; Ln: *Siru* (Nep.).

Uses: The young shoots (3 or 7 in number) with some pieces of young shoots of *Thysanolaena latifolia* (Roxburgh *ex* Hornemann) Honda is given to the mother cow to smoothen the expulsion of placenta when the same is fails come out in naturally.

Iris clarkei Baker *ex* Hooker *f.* [Iridaceae] **Fn: 0446**; Ln: *Bojho* (Nep.).

Uses: Freshly collected stem is crushed and the extract is applied externally on the bruises and wounds of cattle, goat, sheep and horses.

Leucosceptrum canum J.E. Smith [Labiatae] **Fn: 0081**; Ln: *Ghurpis* (Nep.).

Uses: Freshly collected stem bark is mixed with the rhizome of *Kaempferia rotunda* Linnaeus, roots of *Urtica ardens* Link, *Laportea bulbifera* (Siebold & Zuccarini) Weddell and aerial parts of *Viscum liquidambaricolum* Hayata. It is pounded to make paste which is plastered to the cattle and goat in case of bone fracture, joint dislocation and is bandaged for 5 – 7 days. The treatment is followed till recovery.

The paste of flower is mixed with the same amount of turmeric powder (*Curcuma longa* Linnaeus) and half the amount of carbon powder (formed by the firewood). The mixture is administered orally to the poultry in case of epidemics.

Milletia pachycarpa Benthham [Leguminosae: Papilionoidae] **Fn: 0666**; Ln: *Karkus* (Nep.), *Karkus* (Lep.).

Uses: Root extract is applied externally on cattle and goat to kill ticks, mites and other parasites.

Potentilla lineata Treviranus [Rosaceae]: **Fn: 0155**

Uses: Root is fed to the pigs by local people as tonic.

Premna scandens Roxburgh [Labiatae] **Fn: 0379**; Ln: *Kalo – gineri* (Nep.), *Chepchurldum* (Lep.).

Uses: Stem branches are given to the cattle and goats when they are affected by the poisonous plants like *Lyonia ovalifolia* (Wallich) Drude, *Bridelia verrucosa* Haines, *Bridelia retusa* (Linnaeus) A. Jussieu and *Oxyspora paniculata* (D. Don) DC.. The veterinary witch-doctor touches the ailing cattle and goats with this plant. It takes 2 – 3 days to hasten recovery. However, over feeding of this plant causes poisoning.

Selinum wallichianum (DC.) M.B. Raizada & H.O. Saxena [Umbelliferae]: **Fn: 0756**; Ln: *Bhut kesh* (Nep.)

Uses: Freshly collected stem is crushed along with the rhizome of *Kaempferia rotunda* Linnaeus, *Gonostegia hirta* (Blume *ex* Hasskarl) Miquel, and phyloclad of *Viscum*

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liquidambaricolum Hayata. The prepared paste is plastered on fractured bone in cattle and keep under bandage for 3 – 5 days. It is continued for 21 – 27 days till recovery. Foliage is fed to cattle and goat in case of diarrhoea.

Stephania glabra (Roxburgh) Miers [Menispermaceae] **Fn: 0121**; Ln: *Panhelo tamarke* (Nep.).

Uses: Root-tuber is used as pot for drinking water to poultry, it keeps the poultry free from epidemic diseases.

Stephania japonica (Thunberg) Miers [Menispermaceae] **Fn: 0450**; Ln: *Tamarke* (Nep.), *Kantin/Kunthey* (Lep.).

Uses: Small pieces of root-tuber is mixed with cow feed for the treatment of ulcer and diarrhoea.

Swertia chirayita (Roxburgh ex Fleming) Karsten [Gentianaceae] **Fn: 0526**; Ln: *Chirowto* (Nep.), *Ringkin/Rrungkayon* (Lep.).

Uses: Decoction of the whole plant is given to the local poultry against fever and epidemic.

Tetradium fraxinifolium (Hooker f.) T.G. Hartley [Rutaceae] **Fn: 0306**; Ln: *Khanakpa* (Nep.).

Uses: The foliage is given to the cattle in case of stomach trouble.

DISCUSSION

In the present study twenty-six plants from twenty-one different families have been recorded those are used for the treatments of domesticated animals by the local people. Common ailments of the animals were bone fracture, injury, wounds, indigestion, urinary trouble, poisoning by fodder and infestation by the parasites. Of the recorded species, plants like *Acorus calamus*, *Alstonia scholaris*, *Asparagus racemosus*, *Cannabis sativa*, *Curcuma longa*, *Hypericum urala*, *Stephania japonica*, *Swertia chirayita* etc. are well known medicinal plants. However, the efficacy of such uses of these plants are yet to be scientifically verified.

Plants were also used as tonic, enhancement of milk secretion and control of epidemic particularly for the poultry fowls. Traditional knowledge system of the ethnic community of this region is diverse and rich as the plant species.

LITERATURE CITED

- Bhujel, R.B. 1996. *Studies on the dicotyledonous flora of Darjeeling district*. Ph.D. thesis, University of North Bengal, Darjeeling.
- Biswas, K.P. & Chopra, R.N. 1956. *Common medicinal plants of Darjeeling and Sikkim Himalayas*, Government Printing Press, Alipur, Calcutta.
- Chettri, R.; Rai, B. & Khawas, D.B. 1992. Certain medicinal plants in the folk life of Darjeeling and Sikkim hills, India. I : used for the treatment of ailments in domestic animals. *J. Econ. Tax. Bot. Adl. Ser.* 10: 393 – 398.
- Cowan, A.M. & Cowan, J.M. 1929. *The trees of north Bengal including shrubs, woody climbers, bamboos, palms and tree ferns*. Bengal Secretariat Book Depot. Calcutta.

- Das, A.P. 1995. Diversity of angiospermic flora of Darjeeling hills. In: A. K. Pandey(Ed.), *Taxonomy and Biodiversity*. CBS Publishers & Distributors, Delhi. Pp. 118 – 127.
- Das, A.P. 2004. Floristic studies in Darjiling hills. *Bull. Bot. Surv. India* 43(1-4): 1 – 18.
- Das, A.P.; Ghosh, C.; Sarkar, A. & Biswas, R. 2007. Ethnobotanical Studies in India with Notes on Terai-Duars and Hills of Darjiling and Sikkim. *NBU J. Pl. Sci.* 1: 67 – 83.
- Grierson, A.J.C. & Long, D.G. 1983 - 2001. *Flora of Bhutan*. Vol.1(1-3); Vol.2(1-3). Royal Botanic Garden, Edinburgh.
- Hooker, J. D. 1849 – 1850. Botanical mission to India, Calcutta to Darjeeling in Sikkim – Himalaya. *Hook. J. Bot.* 1: 1 -14, 41 - 56, 81 - 89, 113 - 120, 129 -136, 161 - 175, 226 - 233, 274 - 282, 301 - 320, 331 - 336, 361 - 370. 1894; 2: 11 - 23, 52 - 59, 88 - 91, 112 - 118, 115 - 151, 161 - 173, 213 - 218, 224 - 249. 1850.
- Jain, S.K. & Rao. R.R. 1976. *A handbook of field & herbarium methods*. Today & Tomorrow's Publisher, New Delhi.
- Lama, P.C. 1989. A preliminary report on the ethnobotanical importance of the Sukia pokhari region of Darjeeling Himalayas. *J. Beng. Nat. Hist. Soc. n.s.* 8(1): 56 – 62.
- Noltie, H. J. 1994, 2000. *Flora of Bhutan* Vol. 3(1 & 2). Royal Botanic Garden. Edinburgh.
- O'Malley, L.S.S.1907. *Darjeeling district gazetteer*. Gyan Publishing House, New Delhi.
- Rai, P.C. & Das, A.P. 2004. Ethnobotanical significance of the flora of Neora Valley National Park in Darjeeling district of West Bengal (India). *Bull. Bot. Surv. India* 43(1-4): 337 – 355.
- Rai, P.C.; Sarkar, A.; Bhujel, R.B. & Das, A.P. 1998. Ethnobotanical studies in some fringe areas of Sikkim and Darjeeling Himalayas. *J. Hill Res.* 11(1): 12 – 21.
- Rai, S.K.2002. *Studies on the ethnobotany of Darjeeling Himalaya*. Ph.D. thesis, University of North Bengal, Darjeeling.
- Rai, S.K.; Bhujel, R.B. & Das, A.P. 2007. Ethnobotanical studies in Darjiling Himalaya in relation to birth, marriage and death. In *Advances in Ethnobotany*, ed. A.P. Das & A.K. Pandey. Pp. 51 – 59.