

Ethnoveterinary Uses of Plants for Injuries in Central Himalaya: A Review

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Abstract

Central Himalaya is very rich in traditional knowledge. Ethnic people and tribes of Central Himalaya are practicing traditional practices against various animal diseases and disorders. This traditional information were transmitted by word of mouth from one generation to next generation. Due to modernization, this valuable information are vanishing very rapidly. Therefore, there is an urgent need to document this empirical knowledge. Present paper deals with ethnopharmacological attributes of 100 plants which are used in treatment of various injuries in animals and suggests their phytochemical and pharmacological investigations to validate such claims.

Key words: Ethnoveterinary, Central Himalaya, Injuries.

Introduction

Diseases and disorders are basic problems for both the human beings and animals. Living beings have always been fighting with diversified types of injuries like bone fracture, burns, wounds, cuts, broken horns, etc. since prehistoric periods. Livestock keepers who live close to their animals often have detailed information on various injuries, their causes and control. Treatments of animal injuries are differing widely across societies, and even within a single community among gender, age, education, and caste. Women are keen observers of injuries effecting cattle, due to their association with milking and have knowledge about problems related to lactation, milk letdown, milk quality, etc. (Tiwari and Pande, 2010).

Present investigation deals with the uses of plants to cure internal and external injuries in Central Himalaya region. The Central Himalayan Region covers the new state of Uttarakhand (embodying the Kumaon and Garhwal), which came into existence on November 9, 2000 as the 27th state of India, is bounded by China (Tibet) on the north, Nepal on the east, Uttar Pradesh on the south and Himanchal Pradesh on the north-west and lies between 28° 53' 24" and 31° 27' 50" N latitude and between 77° 34' 27" and 81° 02' 22" E longitudes. In Uttarakhand Himalaya, livestock occupies a very important place in human life. It is an integral part of agriculture-based economy of Uttarakhand. More than 70% of the rural population of Uttarakhand Himalaya depends upon animals for their economic needs. In this region, every land-cultivating house, attempts to

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maintain a pair of bullocks for ploughing purpose, a cow and a buffalo for milk and calves for replacement of bullocks. In remote and higher altitude regions, the people are also maintaining sheep for wool and horses/mules for transport purpose (Tiwari and Pande, 2011). The people of Uttarakhand most commonly use surrounding resources like plants, plants parts, animal parts, minerals, etc. to cure internal and external injuries.

Methodology

Extensive field and published literature surveys were made in the Uttarakhand Himalaya during 2008 to 2011 to collect the desired information (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; Tiwari and Pande, 2006b; 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). During the survey, data were gathered from the knowledgeable persons who practice and had experience about animal husbandry and veterinary medicines. The information was further verified by cross checking from different aged men and women. Voucher specimens are preserved in Kumaon University, S.S.J Campus, Almora. The folklore data, presented plant-wise (table 1) include botanical and vernacular names of plants followed by part used and their application.

Results and Conclusions

Present study deals with a total of 100 medicinal plants which are used by people of Central Himalaya to cure various internal and external injuries. Out of 100 plants; 47 plant species are used to cure bone fracture; 47 to cure wounds; 17 in the treatment of broken horns, 12 to cure internal injuries like sprain, swelling, etc.; 10 to cure cuts and 2 in the treatment of burn by ethnic people and tribals of Central Himalaya (Figure 1). This documentation of plants and their uses in various internal and external injuries are very useful to inventing new promising pharmaceuticals in the field of veterinary medicines reward.

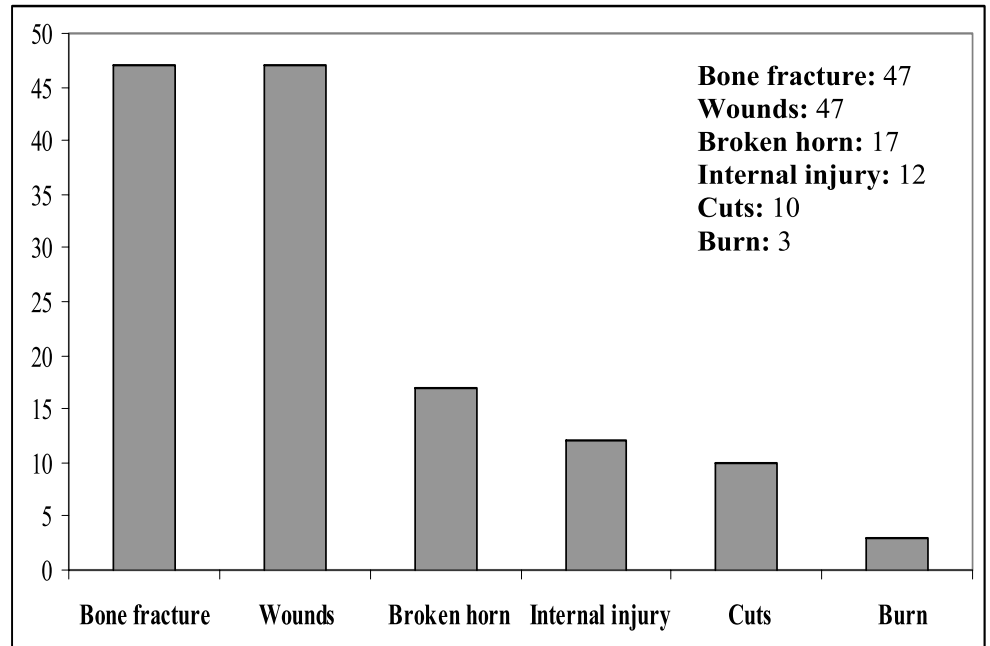


Fig. 1: Plant used in various internal and external injuries

Table-1: Plants used to cure injuries

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
1.	<i>Acorus calamus</i> L.	Araceae	Boja	Rhizome	Wounds
2.	<i>Agave americana</i> L.	Agavaceae	Ram-bansh	Leaf	Bone fracture, broken horn
3.	<i>Ajuga bracteosa</i> Wall. ex Benth	Lamiaceae	Ratpatti	Whole plant	Wounds
4.	<i>Anemone vitifolia</i> Buch.-Ham. ex DC.	Ranunculaceae	Mudeela	Root	Broken horn, wounds
5.	<i>Artemisia roxburghiana</i> Wall. ex Bess.	Asteraceae	Kunjaa	Leaf	Wounds, cuts
6.	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Nim	Leaf	Broken horn, burn
7.	<i>Barleria cristata</i> L.	Acanthaceae	Catserna	Leaf	Wounds
8.	<i>Bauhinia variegata</i> L.	Caesalpiniaceae	Kwairare	Bark	Internal injury
9.	<i>Berberis aristata</i> DC.	Berberidaceae	Kashmoi	Stem	Wounds

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
10.	<i>Berberis asiatica</i> Roxb. ex DC.	Berberidaceae	Kilmodu	Stem	Wounds
11.	<i>Bergenia ligulata</i> (Wall.) Engler	Saxifragaceae	Silpadi	Rhizome	Bone fracture, wounds
12.	<i>Betula alnoides</i> Buch.-Ham. ex D. Don.	Betulaceae	Katbhoj	Bark	Wounds
13.	<i>Betula utilis</i> D. Don	Betulaceae	Bhooj	Stem	Internal injuries, wounds, cuts
14.	<i>Boehmeria macrophylla</i> Hornem.	Urticaceae	Aanch	Bark	Bone fracture
15.	<i>Bombax ceiba</i> L.	Bombacaceae	Semal	Bark	Bone fracture, broken horn
16.	<i>Boschniakia himalaica</i> Hook. f. & Thoms. ex Hook. f.	Orobanchaceae	Ganelu	Whole plant	Wounds, cuts, broken horn
17.	<i>Brassica campestris</i> L.	Brassicaceae	Sarson	Seed	Bone fracture, burn, cuts
18.	<i>Buxus wallichiana</i> Baill.	Buxaceae	Papari	Bark	Bone fracture
19.	<i>Caltha palustris</i> L.	Ranunculaceae	Kushnya	Root	Broken horn
20.	<i>Canna indica</i> L.	Cannaceae	Kali haldi	Root	Wounds
21.	<i>Cannabis sativa</i> L.	Cannabaceae	Bhang	Leaf	Bone fracture, wounds
22.	<i>Carpinus viminea</i> Wall.	Betulaceae	Chamarmau	Bark	Bone fracture, wounds
23.	<i>Caryopteris odorata</i> (D. Don) Robinson	Verbenaceae	-----	Leaf	Bone fracture
24.	<i>Chenopodium album</i> L.	Chenopodiaceae	Bethuwa	Leaf	Wounds, cuts

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
25.	<i>Cinnamomum tamala</i> Nees ex Eberm.	Lauraceae	Kirkiria	Bark	Broken horn
26.	<i>Cirsium verutum</i> (D.Don) Spreng.	Asteraceae	Biskanara	Root	Wounds
27.	<i>Coelogyne cristata</i> Lindl.	Orchidaceae	Harjojan	Whole plant	Bone fracture, internal injury
28.	<i>Colebrookea oppositifolia</i> Sm.	Lamiaceae	Bursong	Leaf	Bone fracture
29.	<i>Corydalis cornuta</i> Royle	Fumariaceae	Balsam jar	Root	Wounds
30.	<i>Costus speciosus</i> (Koen. ex Retz.) Sm.	Zingiberaceae	Keol	Root	Internal injuries
31.	<i>Curcuma angustifolia</i> Roxb.	Zingiberaceae	Tikhur	Root	Bone fracture, wounds
32.	<i>Curcuma domestica</i> Vallars	Zingiberaceae	Haldi	Root	Bone fracture, broken horn, wounds
33.	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Agasilair	Whole plant	Bone fracture, internal injury
34.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Dub	Whole plant	Bone fracture, Internal injury, broken horn
35.	<i>Cynoglossum zeylanicum</i> (Vahl. ex Hornem.) Thunb. ex Lehm.	Boraginaceae	Chitkari	Leaf	Wounds
36.	<i>Debregeasia longifolia</i> (Burm. f.) Wedd.	Urticaceae	Tusara	Stem	Bone fracture
37.	<i>Debregeasia salicifolia</i> (D. Don.) Rendle	Urticaceae	Syanru	Stem	Bone fracture

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
38.	<i>Dendrobium amoenum</i> Wall. ex Lindl.	Orchidaceae	Harjojan	Whole plant	Bone fracture
39.	<i>Dendrocalamus strictus</i> (Roxb.) Nees	Poaceae	Bans	Wood	Bone fracture
40.	<i>Drimia indica</i> (Roxb.) Jessop.	Liliaceae	Pinnar	Bulb	Bone fracture, wounds
41.	<i>Echinochloa frumentacea</i> (Roxb.) Link	Poaceae	Madira	Seed	Bone fracture
42.	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Bhangru	Root	Wounds
43.	<i>Eupatorium adenophorum</i> Spreng.	Asteraceae	Kharna	Leaf	Wound, cut
44.	<i>Euphorbia pilosa</i> L.	Euphorbiaceae	Chuplya	Latex	Wounds, cuts
45.	<i>Fagopyrum esculentum</i> (L.) Moench.	Polygonaceae	Ugal	Root	Internal injuries
46.	<i>Ficus palmata</i> Forssk.	Moraceae	Beru	Latex	Wounds
47.	<i>Ficus sarmentosa</i> Buch.-Ham. ex Sm.	Moraceae	Beduli	Bark	Bone fracture
48.	<i>Filipendula vestita</i> (Wall. ex G.Don) Maxim.	Rosaceae	-----	Leaf	Wounds
49.	<i>Galinsoga parviflora</i> Cav.	Asteraceae	Khusari-gha	Whole plant	Wounds
50.	<i>Geranium wallichianum</i> D.Don. ex Sweet.	Geraniaceae	Neenai	Root	Bone fracture
51.	<i>Girardinia diversifolia</i> (Link) Fries.	Urticaceae	Kandeli-marsu	Root	Bone fracture
52.	<i>Grewia optiva</i> J.R. Dumm. ex Burrett	Tiliaceae	Bhimal	Bark	Bone fracture

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
53.	<i>Gymnadenia orchidis</i> Lindl.	Orchidaceae	-----	Root	Wounds, cuts
54.	<i>Hypericum oblongifolium</i> Choisy	Hypericaceae	Peoli	Whole plant	Wounds
55.	<i>Juglans regia</i> L.	Juglandaceae	Akhod	Bark	Bone fracture, broken horn
56.	<i>Lannea coromandelica</i> (Houtt.) Merr.	Anacardiaceae	Kalmina	Root	Bone fracture
57.	<i>Lantana camara</i> L.	Verbenaceae	Kuri-ghas	Leaf	Wounds
58.	<i>Lens culinaris</i> Medik.	Fabaceae	Masoor	Seed	Broken horn
59.	<i>Litsea glutinosa</i> (Lour.) Robinson.	Lauraceae	Chandna	Bark	Bone fracture
60.	<i>Litsea monopetala</i> (Roxb.) Pers.	Lauraceae	Katmara	Bark	Bone fracture
61.	<i>Luisia trichorhiza</i> (Hook.) Blume	Orchidaceae	-----	Root	Bone fracture
62.	<i>Micromeria biflora</i> (Buch.-Ham. ex D. Don) Benth.	Lamiaceae	Garur-buti	Whole plant	Wounds
63.	<i>Morina longifolia</i> Wall. ex DC.	Morinaceae	Bishkandara	Root	Wounds
64.	<i>Myrica esculenta</i> Buch.-Ham. ex D. Don	Myricaceae	Kaphal	Bark	Bone fracture
65.	<i>Neolitsea pallens</i> (D. Don) Momiyana & Hara	Lauraceae	Cirar	Seed	Wounds
66.	<i>Nicotiana tabacum</i> L.	Solanaceae	Tamakhu	Leaf	Wounds
67.	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Tulasi	Leaf	Wounds
68.	<i>Oryza sativa</i> L.	Poaceae	Dhan	Seed	Bone fracture
69.	<i>Paris polyphylla</i> Sm.	Liliaceae	Satwa	Rhizome	Wounds

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
70.	<i>Parthenocissus semicordata</i> (Wall.) Planch.	Vitaceae	Dhyar-lagul	Stem	Bone fracture
71.	<i>Pinus roxburghii</i> Sarg.	Pinaceae	Sowl, Kulain	Resin	Bone fracture, broken horn
72.	<i>Pinus wallichiana</i> A.B. Jackson	Pinaceae	Chir	Bark	Bone fracture
73.	<i>Piper longum</i> L.	Piperaceae	Pipli	Root	Internal injury, wounds
74.	<i>Prunus cerasoides</i> D.Don	Rosaceae	Paya	Resin	Bone fracture
75.	<i>Prunus persica</i> (L.) Betsch.	Rosaceae	Aaru	Leaf	Wounds
76.	<i>Pyracantha crenulata</i> (D.Don.) M. Roem.	Rosaceae	Ghingharu	Leaf	Burn
77.	<i>Pyrus pashia</i> Buch.-Ham. ex D.Don.	Rosaceae	Mehal	Fruit	Bone fracture
78.	<i>Quercus leucotrichophora</i> A. Camus	Fagaceae	Banj	Bark	Bone fracture, broken horn, internal injury
79.	<i>Quercus semecarpifolia</i> Sm.	Fagaceae	Banj	Bark	Bone fracture
80.	<i>Reinwardtia indica</i> Dumort.	Linaceae	Basant	Leaf	Wounds, cuts
81.	<i>Rheum australe</i> D.Don	Polygonaceae	Archa	Root	Bone fracture, cuts, wounds, internal injury, broken horn
82.	<i>Rumex hastatus</i> D.Don	Polygonaceae	Almoru	Whole plant	Wounds
83.	<i>Saccharum officinarum</i> L.	Poaceae	Ganna	Stem	Wounds

Sl. No.	Name of Plant	Family	Vernacular Name	Plant Part	Disorders
84.	<i>Schleichera oleosa</i> (Lour.) Oken.	Sapindaceae	Kusum	Seed	Wounds
85.	<i>Senecio graciliflorus</i> DC.	Asteraceae	Kikret	Whole plant	Wounds
86.	<i>Styrax benzoin</i> Dryand	Styracaceae	-----	Leaf	Bone fracture
87.	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Jamun	Bark	Internal injury
88.	<i>Tagetes erecta</i> L.	Asteraceae	Hajari	Whole plant	Broken horn
89.	<i>Tamarindus indica</i> L.	Caesalpiaceae	Imli	Bark	Wounds
90.	<i>Taxus baccata</i> L. subsp. <i>wallichiana</i> (Zucc.) Pilger	Taxaceae	Thuner	Bark	Bone fracture
91.	<i>Trichosanthes bractreata</i> (Lam.) Voigt.	Cucurbitaceae	Indrain	Stem	Wounds
92.	<i>Tridax procumbens</i> L.	Asteraceae	Kateri	Whole plant	External injury
93.	<i>Ulmus wallichiana</i> Planch	Ulmaceae	Chamrua	Bark	Bone fracture
94.	<i>Urtica ardens</i> Link	Urticaceae	Kandali	Leaf	Bone fracture
95.	<i>Urtica dioica</i> L.	Urticaceae	Bhicchughas	Whole plant	Wounds, internal injury
96.	<i>Vanda cristata</i> Lindl.	Orchidaceae	Harjojan	Whole plant	Bone fracture
97.	<i>Vigna mungo</i> (L.) Hepper.	Fabaceae	Mash	Seed	Bone fracture
98.	<i>Vigna radiata</i> (L.) R. Wilczek	Fabaceae	Moong	Seed	Bone fracture, broken horn
99.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Ber	Root	Wounds, cuts
100.	<i>Ziziphus nummularia</i> (Burm.f.) Wight & Arnott.	Rhamnaceae	Ber	Leaf	Broken horn



Using splints of *Dendrocalamus strictus* for give support during bone fracture in calf



Acorus calamus



Wound in the chin of horse



Colebrookea oppositifolia



Debregeasia salicifolia



Ficus palmata



Myrica esculenta

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