



A Monthly e Magazine  
ISSN:2583-2212

March, 2023; 3(03), 405-412

Popular Article

## Ethnobotany in Veterinary Medicine

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<https://doi.org/10.5281/zenodo.7761063>

### Abstract

Medicinal plants play an immense role in the treatment of diseases in animals. Numerous applications of herbs as medicines have been estimated since times immemorial. Traditional knowledge on the use of herbs might be of great advantage in the treatment of livestock in future. It might also prove as an option for livestock farmers who are not allowed to use allopathic drugs under certified organic programs or who cannot afford to use allopathic drugs for minor health problems of livestock.

**Key-words:** Allopathic drugs, Diseases, Herbs, Livestock, Medicinal plants

### Introduction

World Health Organization defines traditional medicine as the “the sum total of the knowledge, skills, and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness” (WHO, 2012). The traditional knowledge related to the use of medicinal plants in treatment of livestock diseases is facing an inevitable danger of disappearing (Anyniam, 1995). So far, ethnoveterinary medicine



has been neglected in favour of human ethnomedicine. Although a number of ethnobotanical inventories concerning the use of medicinal plants in human and animal health have been completed (Bouquet and Debray, 1974; Bellomaria and Kacou, 1995; Adjanohoun and AkéAssi, 1979; Koné *et al.*, 2002), the ethnoveterinary medicine is poorly described. Within strict limitations, some of the chemically synthesised allopathic veterinary medicinal products are being used wherever necessary (Schweizerische, 2012). Ethnoveterinary research can be defined as the “systematic investigation and application of veterinary folk knowledge, theory and practise” (McCorkle, 1986). In developing countries, animal health care is often based on the use of self-made preparations, particularly when access to western veterinary products is difficult or too expensive for the local farmer (Nyamanga *et al.*, 2008). According to an estimate, *Matricaria recutita* L., *Calendula officinalis* L., *Rumex obtusifolius* L., *Coffea arabica* L., *Hypericum perforatum* L., and *Urtica dioica* L. are among the most recurrently used medicinal plants (Vogl-Lukasser *et al.*, 2006; Rudolph, 2008; Joos, 2010; Schmid *et al.*, 2012). European Council and Swiss regulations of organic agriculture emphasize the use of “phytotherapeutic products”, “homeopathy”, and “micronutrients” for the treatment of livestock diseases. “Chemically synthesised allopathic veterinary medicinal products including antibiotics” may be used where necessary, but only within strict limitations (EEC, 2012; Schweizerische, 2012).

### **Ethno-veterinary medicine (EVM)**

Ethno-medicine is a sub-field of ethnobotany or medical anthropology that deals with the study of traditional medicines: not only those that have relevant written sources (e.g. traditional Chinese medicine, Ayurveda), but especially those for which knowledge and practices have been orally transmitted over the centuries. In every culture and society people are dealing with the animals in their own ways, these traditional/local or indigenous knowledge and methods/practices for caring, healing, and managing livestock comes under the umbrella of ethno-veterinary medicine. EVM or ethno-veterinary research was defined by McCorkle as: “The holistic, interdisciplinary study of local knowledge and its associated skills, practices, beliefs, practitioners, and social structures pertaining to the healthcare and healthful husbandry of food, work, and other income-producing animals, always with an eye to practical development applications within livestock production and livelihood systems, and with the ultimate goal of increasing human well-being via increased benefits from stock raising” (Martin *et al.*, 2001). Ethno-veterinary



medicines/remedies are practical in use, effective and cheap. They rely on local plants or easily available materials. They reflect centuries of experience of application and learning through trial-and-error (Jabbar *et al.*, 2006). Many non-western traditions of veterinary medicine exist, such as acupuncture and herbal medicine in China, Tibetan veterinary medicine, or Ayurveda in India. These traditions have written records that go back thousands of years; for example Jewish sources in the Old Testament and the Talmud, and the 400 years old Sri Lankan palm leaf records of veterinary treatments (Acharya and Anshu, 2008).

Some of the main plants used in the preparation of herbal remedies for livestock are described below:

#### **Chamomile flowers (*Matricaria recutita*)**

Chamomile is used to treat gastrointestinal diseases, skin afflictions and sores, metabolic dysfunction, infertility and diseases of female genitals, while being administered both internally and externally (Vogl-Lukasser *et al.*, 2006; Reichling *et al.*, 2008). The Mediterranean equivalent of Chamomile- *Chamaemelum nobile* L. can be administered orally to treat bloating of ruminants in spring as well as other diseases (Akerreta *et al.*, 2010).

#### **Marigold flowers (*Calendula officinalis*)**

According to some findings from in vitro and in vivo pharmacological studies, marigold preparations are used in the treatment of gastrointestinal disorders, diseases of female genitals, treatment of wounds, and injuries of the musculoskeletal system (Reichling *et al.*, 2008).

#### **Ivory coast (*Cochlospermum planchonii*)**

Decoction of this plant is administered orally on an empty stomach (0.5 L for calf and small ruminants; 1 L for adults cows), once daily. It acts as a febrifuge and tonic in cattle, sheep and goats (Koné and Atindehou, 2008).

#### **Broad-leaved dock (*Rumex obtusifolius*)**

Preparations of Broad-leaved dock roots when administered orally are used in the treatment of gastrointestinal disorders, diarrhoea and externally for skin afflictions and sores. Leaves of this herb are used either as an ointment after processing or by direct application onto skin, to treat skin afflictions and sores, mastitis, and injuries of the musculoskeletal system. The cooling effect of the leaves is considered beneficial in case of inflammations (Rudolph, 2008; Joos, 2010; Schunko *et al.*, 2010; Schmid *et al.*, 2012).



### **African birch (*Anogeissusleio carpus*)**

Preparations of this plant are used to treat intestinal worms, gastrointestinal disorders and bites. Ground, dry fruit of this plant is mixed with the bran of *Pennisetum glaucum* L. or *Sorghum bicolor* (Linn) Moench and salt, and is then fed to the animal. Also a preparation of the ground leaves is administered orally as well as applied opically on the wound, once daily for 3 days. The main targets of this plant are cattle, sheep and goats (Ake Assi, 1992; Bizimana, 1994).

### **Sodom apple (*Calotropisprocera*)**

This plant is used to treat stomach ailments and cold in cattle. The ground leaves of *Calotropis* are added to water and lemon, filtered, and then administered orally (0.5 L), once daily (Koné and Atindehou, 2008).

### **Coffee beans (*Coffeaarabica*)**

Coffee beans are used to treat gastrointestinal disorders, metabolic dysfunction,infertility, and diseases of female genitals when the infusion administered orally and in combination with schnaps (Vogl-Lukasseret al., 2006; Rudolph, 2008; Joos, 2010; Schmidet al., 2012).

### **Spike thorn (*Maytenussenegalensis*)**

Preparations of this plant are used to treat diarrhoea and intestinal worms in calf, and dog bites in cattle. Decoction of *Maytenus* is administered orally (33 cL) to calf, twice daily; ground leaves are pressed, while the juice is applied to the left eye and the right nostril, and applied topically on the wound (Koné and Atindehou, 2008).

### **St. John's wort (*Hypericum perforatum*)**

Preparations made from St. John's wort flowers were used for treatment of skin afflictions and sores (Vogl-Lukasseret al., 2006; Joos, 2010). This herb is also used to treat the diseases of female genitals, mastitis, and injuries at the musculoskeletal system (Joos, 2010; Schmid et al., 2012). It also possesses antidepressant, antibacterial, antiviral, anti-proliferative, and anti-inflammatory properties and the oil prepared from this medicinal plant is used to treat wounds (Reichling et al., 2008).

### **English karaya gum (*Sterculia setigera*)**

It is used to treat intestinal worms, skin diseases and also acts as a tonic, appetizer, and artificial pain reliever. Decoction of *Sterculia* is administered orally as beverage (33 cL-1 L) to



cattle, sheep and goats, twice daily. The stem barks are mixed with water and poured on the uterus to facilitate/stimulate the birth process; hot stem bark is placed on the affected body part, and the burnt seeds are ground, mixed with shea butter and applied topically on the skin (Koné and Atindehou, 2008).

### **Linseeds (*Linum usitatissimum*)**

Linseeds were either used directly, or as infusions and decoctions. They were administered orally against gastrointestinal disorders, infertility, diseases of female genitals, and for general strengthening. Intravaginal/intrauterine administration was mentioned to treat inflammation of the uterus. Externally applied infusions and decoctions were used to treat injuries of the musculoskeletal system. Similar uses of linseed have been reported from Safiental, Austria, and Tuscany (Uncini *et al.*, 2001; Vogl-Lukasser *et al.*, 2006; Grabowski, 2010; Joos, 2010). In veterinary medicine, linseeds are used as a mild laxative (Reichling *et al.*, 2008).

### **Stinging nettle (*Urtica dioica*)**

Stinging nettle is used to treat four different animal species (cattle, goats, pigs and donkeys) (Schmid *et al.*, 2012). This herb is used in treatment of diseases like infertility, altered or sore skin, and metabolic dysfunction, diseases of female genitals and for general strengthening. In case of veterinary medicine, it is also used to increase urinary flow during bacterial and inflammatory diseases, and when administered orally, acts as an adjuvant treatment in rheumatic ailments. This herb apparently shows antihypertensive, analgesic, local anaesthetic, antiphlogistic, antirheumatic and diuretic properties (Reichling *et al.*, 2008).

### **Conclusions**

Ethno-veterinary medicine is the main resort for treating various diseases and ailments of livestock. Herbal remedies are mostly used as decoctions, pounded fresh plants or powdered plant material to treat diseases of the skin, eyes, gastrointestinal and respiratory tracts. Administration is oral in most cases, followed by topical applications, and drops to treat ears and eyes. Nearly half of the plants are reported for use in all common ruminants, i.e. cattle, sheep and goats, and the vast majority of the remaining preparations are aimed at cattle only. This review contributes to a growing knowledge of the traditional veterinary medicine used, ensuring a thorough documentation and ex-situ conservation of these ethno-veterinary practices.



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