THE SCIENTIFIC FRONTIERS

Popular Article

OPEN ACCESS

Herbal and ethnoveterinary medicines in livestock treatment: Reviving traditional wisdom for sustainable animal health

Pravin Maruti Madabhavi[1] Rushikesh Mortale[2], Deepthi V[3], Kanhaiya Lal[1], Supriya Yadav[4]

[1]Assistant professor, Division of Pharmacology & Toxicology, [2]Assistant professor, Division of Poultry Science, [4]Assistant professor, Division of veterinary Microbiology, Shourabh College of Veterinary Science, Hindaun city, Rajasthan. [2]Phd Scholar, Division of Pharmacology & Toxicology ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly.

ARTICLE HISTORY

Received: February 10, 2026
Accepted: February 10, 2026
Published: March 1, 2026

Abstract

Livestock play a vital role in agriculture by providing milk, meat, manure, and draft power, making effective animal healthcare essential for sustainable farming systems. In many rural regions, traditional knowledge systems continue to contribute significantly to livestock health management. Herbal medicines and ethnoveterinary practices represent important traditional approaches used by farmers to prevent and treat animal diseases using locally available medicinal plants. These practices are based on indigenous knowledge developed through centuries of observation, experience, and interaction with the natural environment. Medicinal plants contain various bioactive compounds such as flavonoids, alkaloids, phenols, tannins, and terpenoids that exhibit antimicrobial, antioxidant, and anti-inflammatory properties, which contribute to their therapeutic effects in livestock treatment. Ethnoveterinary remedies are widely used for managing common animal health problems including digestive disorders, skin diseases, mastitis, parasitic infestations, and reproductive disorders. The use of herbal medicines offers several advantages such as low cost, local availability, minimal side effects, and environmental sustainability. However, challenges such as lack of scientific validation, gradual loss of traditional knowledge, and overexploitation of medicinal plant resources remain significant concerns. Integrating ethnoveterinary knowledge with modern veterinary science through research, documentation, and conservation efforts can enhance livestock healthcare and promote sustainable agricultural practices.

DOI: https://doi.org/10.5281/zenodo.19491304

***Corresponding author's email:** *pravinmadabhavi1999@gmail.com*

INTRODUCTION

Livestock play an important role in agriculture by providing milk, meat, manure, and draft power, making animal health management essential for sustainable farming systems. Traditional knowledge systems have long contributed to maintaining animal health in rural communities. Herbal medicines and ethnoveterinary practices represent important traditional approaches used by livestock keepers to prevent and treat animal diseases (Verma & Singh, 2008). Herbal medicines are preparations derived from plants or plant extracts that are used for therapeutic purposes. Medicinal plants have been used since ancient times in traditional systems such as Ayurveda, Siddha, and Unani for treating various human and animal diseases. It is estimated that nearly 80% of people in developing countries rely on traditional medicine, mainly based on plant resources, for primary healthcare (Verma & Singh, 2008).

HISTORY AND TRADITIONAL KNOWLEDGE IN LIVESTOCK HEALTHCARE

The use of medicinal plants in livestock healthcare has a long and rich historical background that dates back to ancient civilizations. Before the development of modern veterinary medicine, farmers and pastoral communities relied heavily on natural resources and traditional knowledge to maintain the health of their animals. Through continuous observation, experimentation, and experience, indigenous communities learned to identify plants with

therapeutic properties and developed effective herbal remedies for treating animal diseases. This traditional knowledge was not written in formal texts but was preserved and transmitted orally from one generation to the next within farming families and pastoral societies. Over centuries, such knowledge systems evolved into a structured form of healthcare for livestock known today as ethnoveterinary medicine (McCorkle, 1986). In many parts of the world, especially in Asia, Africa, and Latin America, traditional livestock healthcare practices are closely linked with local culture, ecology, and agricultural traditions. Farmers learned to observe the behaviour of animals and recognize symptoms of disease, and based on these observations they developed herbal treatments using locally available plants. In several cases, the discovery of medicinal plants was associated with observing animals themselves selecting certain plants when they were ill, which helped early communities identify useful herbal remedies. Over time, this accumulated knowledge formed the basis of traditional veterinary practices that are still used today in rural areas (Mathias-Mundy & McCorkle, 1989).

India has a particularly rich heritage of traditional animal healthcare. Ancient systems of medicine such as Ayurveda have described the medicinal properties of plants and their application in treating both human and animal diseases. Historical texts such as *Shalihotra Samhita*, one of the earliest veterinary treatises in the world, describe various plant-based treatments for animal diseases, including digestive disorders, wounds, infections, and reproductive problems. These traditional veterinary texts demonstrate that the use of herbal medicines in animal healthcare has been practiced for thousands of years (Mathias-Mundy & McCorkle, 1989).

In rural and mountainous regions where access to modern veterinary services is limited, traditional knowledge continues to play a vital role in livestock healthcare. Indigenous communities have developed a wide range of plant-based treatments to manage common livestock diseases such as bloat, mastitis, diarrhoea, wounds, skin infections, and parasitic infestations. These remedies often involve the use of plant parts such as leaves, roots, bark, seeds, and fruits, which are prepared in the form of pastes, decoctions, powders, or infusions. Many of these treatments have been found to be effective due to the presence of bioactive compounds such as alkaloids, flavonoids, tannins, and essential oils that possess antimicrobial and anti-inflammatory properties. Traditional herbal healers play an important role in preserving and practicing ethnoveterinary knowledge. In many Indian villages, these healers are commonly known as Pashu Vaidyas. They possess extensive knowledge about medicinal plants, disease symptoms, and herbal preparation techniques. Farmers often consult these healers for advice on treating animal diseases, especially when modern veterinary facilities are not readily available. Pashu Vaidyas collect medicinal plants from forests, fields, and surrounding environments and prepare herbal formulations according to traditional methods. Their knowledge is usually based on long-term experience and has been passed down through generations (Phondani *et al*., 2010).

IMPORTANCE OF HERBAL MEDICINES IN LIVESTOCK TREATMENT

Herbal medicines play a significant role in livestock healthcare, particularly in rural and developing regions where access to modern veterinary services may be limited. Medicinal plants have been used for centuries to prevent and treat various animal diseases due to their natural therapeutic properties. These plants contain a wide range of bioactive compounds such as flavonoids, alkaloids, phenols, tannins, glycosides, and terpenoids. These phytochemicals are responsible for many pharmacological activities including antioxidant, antimicrobial, anti-inflammatory, and immunomodulatory effects, which help in maintaining animal health and improving resistance to diseases.

The presence of these biologically active compounds enables herbal medicines to act against pathogens, reduce inflammation, and promote healing in affected tissues. For instance, flavonoids and phenolic compounds are well known for their strong antioxidant properties, which help neutralize harmful free radicals and protect cells from oxidative damage. Oxidative stress is often associated with many diseases in animals, including metabolic disorders, infections, and organ damage. Herbal medicines are also important because they can enhance digestion, stimulate appetite, improve immunity, and support overall physiological functions in livestock. Many plant extracts have been reported to possess protective effects against tissue damage caused by toxins, infections, or environmental stress. For example, certain medicinal plants show antioxidant and protective effects that help prevent cellular injury and support organ function in animals (Negi & Mirza, 2020).

Another advantage of herbal medicines is their relatively low toxicity and minimal side effects when used appropriately compared with synthetic drugs. In addition, the use of herbal remedies helps reduce dependence on antibiotics and chemical drugs, thereby minimizing the risk of drug residues in animal products and the development of antimicrobial resistance. Because of these benefits, herbal medicines are increasingly being recognized as an important component of sustainable and eco-friendly livestock healthcare systems.

ADVANTAGES OF ETHNOVETERINARY PRACTICES

Ethnoveterinary medicine offers several advantages in livestock healthcare:

1. **Low cost:** Herbal medicines are generally inexpensive compared to modern veterinary drugs (Phondani *et al*., 2010)
2. **Local availability:** Medicinal plants are often easily available in forests and agricultural fields.
3. **Cultural acceptance:** Farmers are familiar with traditional remedies and trust their effectiveness.
4. **Reduced side effects:** Herbal medicines are usually considered safer when used properly.
5. **Environmental sustainability:** Plant-based treatments are eco-friendly and biodegradable.

COMMON MEDICINAL PLANTS USED IN LIVESTOCK TREATMENT

A wide variety of medicinal plants are used in ethnoveterinary medicine for the prevention and treatment of livestock diseases. Traditional farmers and herbal healers have long relied on locally available plant resources to manage common animal health problems. Ethnoveterinary surveys conducted in different regions have documented numerous plant species belonging to various botanical families that are used for therapeutic purposes in livestock healthcare. These plants are used to treat a wide range of conditions including digestive disorders, wounds, skin infections, parasitic infestations, respiratory problems, and reproductive disorders (Phondani *et al*., 2010).

Some of the commonly used medicinal plants include ginger (*Zingiber officinale*), turmeric (*Curcuma longa*), black pepper (*Piper nigrum*), coriander (*Coriandrum sativum*), and onion (*Allium cepa*). Ginger is widely used to improve digestion, stimulate appetite, and relieve gastrointestinal disturbances such as bloat and indigestion in livestock. Turmeric is well known for its strong anti-inflammatory, antimicrobial, and wound-healing properties, and it is commonly applied to wounds, infections, and inflammatory conditions. Black pepper is often used as a digestive stimulant and is sometimes combined with other herbs to enhance their medicinal effects. Coriander seeds are used to relieve digestive problems and improve appetite, while onion has antimicrobial and immune-boosting properties that help animals resist infections. These medicinal plants are often used individually or in combination to prepare herbal remedies such as decoctions, powders, pastes, and infusions that can be administered orally or applied externally. In many traditional practices, combinations of multiple plant ingredients are used because they are believed to enhance therapeutic effectiveness and provide broader health benefits to animals. The therapeutic value of these medicinal plants is largely due to the presence of various phytochemicals such as flavonoids, phenolic compounds, alkaloids, tannins, and terpenoids. These compounds possess important biological activities including antimicrobial, antioxidant, anti-inflammatory, and immunomodulatory effects. Such properties help in controlling infections, reducing inflammation, protecting tissues from oxidative damage, and supporting the overall health of livestock (Negi & Mirza, 2020). Because of these beneficial properties, medicinal plants continue to play an important role in traditional livestock healthcare systems and are increasingly being studied for their potential use in modern veterinary medicine.

HERBAL REMEDIES FOR DIGESTIVE DISORDERS IN LIVESTOCK

Digestive disorders such as indigestion, diarrhoea, bloat, and constipation are common in livestock. Traditional herbal remedies are widely used to treat these conditions (Phondani *et al*., 2010).

Examples include:

Fennel seeds to improve digestion and relieve gas (Verma & Singh, 2008).

Ginger and turmeric mixtures to stimulate appetite (Verma & Singh, 2008).

Bael fruit pulp to treat diarrhoea (Phondani *et al*., 2010).

Cumin seed extracts to reduce indigestion (Verma & Singh, 2008).

These plants contain compounds that stimulate digestive enzymes, reduce inflammation, and improve gut health (Negi & Mirza, 2020).

HERBAL TREATMENTS FOR SKIN DISEASES AND WOUND HEALING

Skin diseases such as wounds, dermatitis, and infections frequently affect livestock. Herbal remedies have long been used for wound healing and skin protection (Phondani *et al*., 2010).

Common treatments include:

Neem leaves paste for treating skin infections and wounds (Verma & Singh, 2008).

Turmeric powder mixed with oil applied to wounds for its antimicrobial effect (Negi & Mirza, 2020).

Aloe vera gel for burns and skin irritation (Verma & Singh, 2008).

Garlic pastes used as a natural antiseptic (Negi & Mirza, 2020).

These herbs promote wound healing by reducing microbial infection and inflammation (Negi & Mirza, 2020).

USE OF HERBAL MEDICINES IN MASTITIS MANAGEMENT

Mastitis is a major disease affecting dairy animals and leads to reduced milk production and economic losses. Several herbal remedies are traditionally used to manage mastitis (Phondani *et al*., 2010).

Common ethnoveterinary practices include:

Application of turmeric paste on the udder (Verma & Singh, 2008)

Use of neem leaf extracts (Phondani *et al*., 2010)

Administration of herbal decoctions with anti-inflammatory properties (Negi & Mirza, 2020)

These herbs possess antibacterial and anti-inflammatory compounds that help reduce infection and swelling in the udder (Negi & Mirza, 2020).

HERBAL CONTROL OF INTERNAL AND EXTERNAL PARASITES

Parasites such as worms, ticks, and lice are major problems in livestock production. Herbal medicines provide natural alternatives to chemical anthelmintics (Phondani et al., 2010).

Examples include:

Neem leaves used to control external parasites (Verma & Singh, 2008).

Garlic extracts used as natural anthelmintics (Negi & Mirza, 2020).

Papaya seeds to remove intestinal worms (Phondani *et al*., 2010).

Tobacco leaf preparations to kill ectoparasites (Phondani *et al*., 2010).

These plants contain compounds that disrupt the life cycle of parasites and help control infestations naturally (Negi & Mirza, 2020).

ROLE OF HERBAL MEDICINES IN REPRODUCTIVE HEALTH OF LIVESTOCK

Herbal remedies are also used to improve reproductive health in livestock. Traditional practices include (Phondani *et al*., 2010):

Use of ashwagandha and shatavari to enhance fertility (Verma & Singh, 2008).

Herbal decoctions to assist in parturition (Phondani *et al*., 2010).

Use of certain plants to treat uterine infections and retained placenta (Phondani *et al*., 2010).

These remedies support hormonal balance and reproductive function in animals (Negi & Mirza, 2020).

ROLE OF VETERINARIANS AND FARMERS IN PROMOTING ETHNOVETERINARY MEDICINE

Veterinarians and farmers play a crucial role in the preservation and promotion of ethnoveterinary medicine. Veterinarians can contribute by scientifically evaluating traditional herbal remedies, identifying their active compounds, and validating their safety and efficacy through research and clinical studies. They can also guide farmers on the correct identification of medicinal plants, proper preparation of herbal formulations, and appropriate dosages to ensure effective and safe treatment of livestock diseases. In addition, veterinarians can help integrate useful ethnoveterinary practices with modern veterinary medicine to develop sustainable and cost-effective animal healthcare systems. Farmers, on the other hand, serve as the primary custodians of traditional knowledge, as many ethnoveterinary practices have been developed and preserved through their experiences over generations. By sharing their knowledge with researchers and younger generations, farmers help conserve valuable indigenous knowledge related to medicinal plants and animal healthcare. Collaboration between veterinarians, farmers, and researchers is therefore essential for documenting, validating, and promoting ethnoveterinary medicine as a complementary approach to modern livestock healthcare (McCorkle, 1986; Phondani *et al*., 2010).

FUTURE PROSPECTS OF HERBAL MEDICINES IN LIVESTOCK HEALTHCARE

Growing concerns about drug resistance, environmental sustainability, and food safety have increased interest in herbal medicines for livestock healthcare. Advances in phytochemistry and pharmacology may help identify new plant-based therapeutic agents for veterinary use. With proper scientific validation and quality control, herbal medicines have strong potential to become an important component of modern veterinary healthcare (Wanzala *et al*., 2005).

CONCLUSION

Herbal and ethnoveterinary medicines represent a valuable traditional knowledge system that has supported livestock healthcare for centuries. These practices rely on locally available medicinal plants and indigenous knowledge developed through generations of experience. Herbal remedies offer several advantages, including affordability, accessibility, environmental sustainability, and minimal side effects. Numerous medicinal plants have been identified for treating various livestock diseases such as digestive disorders, skin infections, parasitic infestations, and reproductive problems. However, challenges such as lack of scientific validation, loss of traditional knowledge, and overexploitation of medicinal plants must be addressed. Integrating ethnoveterinary medicine with modern veterinary science, promoting conservation of medicinal plants, and encouraging research on plant-based therapies are essential steps toward sustainable livestock healthcare. By combining traditional wisdom with modern scientific approaches, herbal medicines can contribute significantly to improving animal health, supporting rural livelihoods, and promoting sustainable agriculture.

REFERENCES

Mathias-Mundy, E., & McCorkle, C. M. (1989). *Ethnoveterinary medicine: An annotated bibliography*. Iowa State University.

McCorkle, C. M. (1986). An introduction to ethnoveterinary research and development. *Journal of Ethnobiology, 6*(1), 129–149.

Miara, M. D., Bendif, H., Ouabed, A., Rebbas, K., Ait Hammou, M., Amirat, M., Green, A., & Teixidor-Toneu, I. (2019). Ethnoveterinary remedies used in the Algerian steppe: Exploring the relationship with traditional human herbal medicine. *Journal of Ethnopharmacology*.

Negi, K., & Mirza, A. (2020). Nephroprotective and therapeutic potential of traditional medicinal plants in renal diseases. *Journal of Drug Research in Ayurvedic Sciences, 5*(3), 177–185.

Phondani, P. C., Maikhuri, R. K., & Kala, C. P. (2010). Ethnoveterinary uses of medicinal plants among traditional herbal healers in Alaknanda catchment of Uttarakhand, India. *African Journal of Traditional, Complementary and Alternative Medicines, 7*(3), 195–206.

Verma, S., & Singh, S. P. (2008). Current and future status of herbal medicines. *Veterinary World*, 1(11).

Wanzala, W., Zessin, K. H., Kyule, N. M., Baumann, M. P. O., Mathias, E., & Hassanali, A. (2005). Ethnoveterinary medicine: A critical review of its evolution, perception, understanding and the way forward. *Livestock Research for Rural Development, 17*(11).