

Role of Ethno-Medicine in Veterinary Practice

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Introduction

Ethno-medicine is a complex multidisciplinary system that encourages the use of plants and their products in a spiritual way in the natural environment, and it has been the source of healing for people for millennia (Williams, 2006). Similarly, ethnoveterinary medicine (EVM) is a scientific term used for traditional animal health care that encompasses the knowledge, skills, methods, practices, and beliefs about animal health care found among community members (McCorkle, 1986). It plays a key role in rural areas as a major source of medicine being used to cure animals. To keep animals healthy, traditional healing practices have been applied for centuries and have been passed down orally from one generation to the next generations. EVM also includes social practices and how livestock is incorporated into farming systems. Practices like prevention and curing of diseases by plants (Phytotherapy), bee products (Apitherapy), milk and dairy products, clay, rabbit fat, and swine lard, as well as manual removing of *Ixodidae* from the body of animals, use of fly larvae in the cleaning of suppurated wounds, and lighting the fire on pasture and rubbing parts of some plants and ashes on to the animal's skin as an insect repellent are also the part and partial of EVM. The "*Materia-medica*" consists mainly of plants in addition to other components such as earth and minerals and animal parts.

Historical Perspective

Ethno-veterinary practices were in vogue since time immemorial. In ancient India, Vedic literature, particularly Atharvaveda is a repository of traditional medicine including prescriptions for the treatment of animal diseases. Scriptures such as Skanda Purana, Devi Purana, Matsya Purana, Agni Purana, Garuda Purana, Linga Purana, and books written by Charaka, Susruta, Palakapya (1000 BC), and Shalihotra (2350 BC) documented treatment of animal diseases using medicinal plants. Yajurveda cites the importance of the growth and development of medicinal plants and Atharvaveda mentions the value of medicines in curing diseases. During the battle of Mahabharat, thousands of animals got hurt and also suffered from various diseases which were then treated with medicinal plants. Nakula and Sahadeva were the physicians of horses and cows, respectively.

Current Scenario

The role of ethnoveterinary medicine in the livestock sector is currently realized beyond dispute, especially in developing countries. It is also viewed as a potential tool to overcome the side effects of modern drugs and promote organic farming in both developing and developed nations. However, till the last quarter of the 20th century, EVM and other ethno-knowledge based systems were looked upon with suspicion and skepticism by modern veterinary researchers and practitioners. Lack of scientific documentation and validation, distortion and improper dissemination of traditional knowledge, concealment, declining herbal resources, non-availability of proper raw material, adoption of the intensive livestock production system, slow therapeutic response in acute conditions, and lack of interest of younger generation in traditional livestock rearing have contributed to the declining popularity of EVM practices. Simultaneously, the veterinary academic curricula also ignored the significance of the traditional healing practices, which were popular till the advent of the modern system of medicine. Despite all these odds, ignorance, and skepticism, almost 80% of people in developing countries remained dependent on traditional methods of healing and livestock keeping (NAVS, 2015).

Importance

Ethno-veterinary medicine often provides cheaper options than comparable modern drugs and the EVM products are locally available and more easily accessible. In the face of these and

other factors, there is increasing interest in the field of ethnoveterinary research and development. According to WHO, at least 80% of people in developing countries depend Largely on these practices for the control and treatment of various diseases that affect both animals and humans. Besides indigenous medicine, ethnic communities use forest products not only for household consumption but also for commercial purposes to generate community income; the conservation of biological resources is integrated with regional and national economies. Recently, interest in EVM practices has grown because they are much less prone to drug resistance and have fewer damaging side effects on the environment than conventional medicines. A large number of plants, plant extracts, and constituents have been identified as having anti-microbial, antiviral, antifungal, and many more therapeutic activities and are often considered immune enhancing.

Components of Ethno-veterinary Medicines

Plants and plant products are the most common identified ingredients of ethnoveterinary medicines, and more than 35,000 plants are known to have therapeutic properties. About 65% of ethnomedicine originating from plants are exclusively used for animals and the rest of the 35% is used for in both veterinary and human medicine (Tekle, 2015). Almost all parts of the plant including bark, leaves, stem, flowers, roots, seeds, and fruits are used in the preparation of EVM. The extent of plant, plant parts, and their product use differs with geographic locations and communities - that is, it is area specific. The most common forms of ethnoveterinary medicine preparations from plants are leaves/bark/roots decoction, extract, powder, ointment, paste, etc. Apart from plants, soil and minerals like edible earth from termite and anthills, and limestone are commonly used in the preparation of EVM decoctions and concoctions. Products and parts of animals like milk, butter, urine, dung, skin and hides, and bones are also ingredients of many ethnoveterinary medicines. Other ingredients like honey, vegetable oils, and butter, and salt are also many times used as a component of ethnoveterinary medicine. Ethno-veterinary medicine does not only comprise of herbal and traditional medicines but it also constitutes information, practices, beliefs, skills, tools and technologies, selection of breeds, and human resources (McCorkle, 1986).

EMV Practices and Livestock Welfare

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The magnitude of the problem of maintaining livestock health, reproduction and production, And improving breeds is a gigantic task considering the large livestock population and economic conditions of the majority of livestock farmers of the world including in India. The modern system of treatment for animals has limitations of affordability due to costly medicines, their side effects, antibiotic resistance, toxicities, and drug residues for animals and humans. The lack of proper and complete treatment of various diseases may lead to a significant decrease in animal production and substantial financial losses to the livestock sector. Therefore, there is a need to find out and adopt a way to make available cost-effective and reliable remedies for use in livestock and poultry by utilizing the local resources to substitute the expensive medicines with alternate therapeutic options. WHO has also recommended actively promote natural herbal medicines and also take initial steps to conserve and cultivate medicinal plants. In many developing countries, livestock farmers and herders interface indigenous ethnoveterinary knowledge and modern veterinary health care systems to treat their livestock. However, the latter is often unavailable due to either staffing problems in agriculture and veterinary extension services or because synthetic drugs are expensive (McCorckle, 1986). Therefore, ethnoveterinary medicines play an important role in the animal health care system as it is perceived to be simple, cost-effective, environment-friendly, contextually appropriate and culture-based. In general, EVM practices are not only restricted for treatment of animal diseases but also involves a myriad of disciplines with all aspects of people's knowledge and practices in livestock healthcare, productivity, and performance that include their diagnostic and ethological understandings; preventive, primitive, and therapeutic skills and treatment; and a wide range of health-related management techniques (Lans *et al.*, 2007). In developing countries, EVM practices are also recognized as a potential resource that can play a pivotal role in grassroots development and poverty alleviation and empowering people by enhancing the use of their traditional knowledge and natural resources. It holds a specific value where modern allopathic veterinary medicines are often inaccessible or unaffordable for livestock farmers and the majority of them are continue to rely on EVM, even though they increasingly integrate modern veterinary approaches with their traditional practices. In India, the traditional knowledge system is found in two distinct forms: (i) formal codified system of knowledge of diseases and healing for both humans and animals, whose principles and practices were



formulated and codified in the form of Ayurveda, Sidhha, and Unani-Tibb and (ii) informal systems which evolved over thousands of years through innovation and experiences of communities and passed from one generation to next-generation mainly through oral preaching. Yet, there are many similarities between these two forms of traditional knowledge, and both are classified as 'Ethno-veterinary medicine', which are being used by traditional healers and livestock farmers across the country. Many communities like Bakharwal in Jammu and Kashmir, Darmior Dormi and Bhotiya in Uttarkhand, Raika and Rabari in Rajasthan, Tharu in Uttar Pradesh, Adi-Yadavas in central and northern India, Raipipal and Charan in Gujarat, Santhal in Jharkhand, Konars and Toda tribes in Southern India possess the great wisdom of traditional knowledge on animal husbandry and healthcare practices for livestock. Besides treatment of diseased animals, EVM also includes traditional animal husbandry practices such as housing types, grazing strategies, supplementary feeding, and calf rearing, and many of such practices are still valuable for sustainable livestock development and to improve health and productivity of animals. For example - the grazing practices evolved by many such traditional pastoralist communities have been based on their observational experience and knowledge of selective foraging behavior of animals, including self-medication and avoidance of toxic plants by animals. These practices can be an efficient way to prevent worm infestations and plant toxicities. Goat keepers in some areas of Assam and Gujarat keep their animals in traditional goat houses with a raised platform. Interestingly, multitier goat houses have been developed commercially with the raised floor at ground level and are becoming popular amongst commercial goat farmers in India. Besides these traditional practices and methods, sometimes magico-religious practices and idioms embody practical veterinary and management acumen. Treatments like the feeding of saint-blessed salt are potentially effective for some maladies; and seemingly oute Ethno-etiologicals like evil winds can dictate appropriate curative or preventive actions (McCorkle, 1986). As EVM practices characteristically promote the traditional practices and facilitate conservation, protection, and propagation of floral biodiversity, so it can also bridge the gap between natural resources and their human management for future use. EVM practices also support emerging agri-business opportunities such as organic animal husbandry and herbal farming. It is expected that the current global herbal market valued at US\$120 billion would rise to



nearly US\$7 trillion by 2050, and India ranks the world's second-largest exporter of herbs with an 8.13% share after China (28%) (NAVS, 2015).

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