



A Review on Ethno-Veterinary Medicine Practices and Indigenous Knowledge

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Abstract

The sector of livestock has not developed well especially in developing country beyond a subsistence type of venture, for different reasons of which animal diseases are among the top factors. Animal health could be managed traditionally via Ethno Veterinary Medicine (EVM) practices, which is a mode of identifying, use and integration of the local knowledge, related skills and custom procedures created by people for purpose of preserving health and welfare of working and productive animals Even though indigenous knowledge systems are rapidly disappearing under the influence of Western culture. In Ethiopia up to 80% of the population uses traditional medicine due to the cultural acceptability of healers and local pharmacopeias, the relatively low cost of traditional medicine and difficult access to modern health facilities. Traditional practitioners and spiritual healers are the most indigenous traditional knowledgeable and skilled individuals for traditional medicine practices. Traditional Drugs were administered using different routes, the main ones being, topical, oral and respiratory and are stored usually in containers such as bottles, papers, pieces of cloth, leaves and horns, and were kept anywhere at home. Conservation and utilization of medicinal plants, encouragement and exploitation of indigenous knowledge rich persons and further pharmacological study of medicinal plants should be recommended. The objective of the review paper was to document traditional veterinary medicine practices and medicinal plants used by indigenous people.

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Introduction

Millions of people around the world have an intimate relationship with their livestock. Animals provide them with food, cloth, labor, fertilizers, cash and act as a store of wealth and a medium of exchange [57]. Ethiopia has the highest number of livestock in Africa and the country is listed among the top 10 countries in the continent known for their livestock wealth. Despite this large number of livestock and its important economic potential but still the sector has not developed beyond a subsistence type of venture, whereas it also remained with low outputs for different reasons of which animal diseases are among the top factors [21].

Animal health could be managed traditionally via EVM practices which are a mode of identifying, use and integration of the local knowledge, related skills and custom procedures created by people for purpose of preserving health and welfare of working and productive animals [35]. According to the WHO, at least 80% of people in developing countries depend largely on indigenous practices for the control and treatment of various diseases affecting both human beings and their animals [0]. Research into EVM is often undertaken as part of a community-based approach that serves to improve animal health and provide basic veterinary services in rural areas [68].



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The ethno veterinary systems are ecosystem and ethnic-community specific and therefore, the characteristics, sophistication, and intensity of these systems differ greatly among individuals, societies and regions. However, they are facing the threat of rapid erosion because of rapid socio-economic, environmental and technological changes [43]. Even though indigenous knowledge systems are rapidly disappearing under the influence of Western culture, 80% of the world's populations exclusively rely on traditional medicine. Traditional medicines are sometimes the only source of therapeutics for nearly 80% of human population and 90% of livestock in Ethiopia. The persistence of ethno veterinary healthcare in Ethiopia is related to the high cost of treatment using modern veterinary drugs and the prohibitive distance of the veterinary stations from the rural areas [71]. Global utilization of medicinal plants has increased enormously over the last three decades [17].

The practice of EVM has lagged behind that of its counterpart modern veterinary medicine many times partly [48]. The identification and acquisition of this knowledge was and is by no means an easy task in the lives of people. It was a gradual process of trial and error mechanisms [88].

Despite ethno veterinary medicine being the equivalent body of knowledge for livestock that ethno medicine is for humans, it still lacks a high level of institutional backing from the World Organization for Animal Health OIE or from FAO [49]. Worldwide interest in documenting and validating ethno veterinary practices arose in the early 1980s, as people started to realize that ethno veterinary knowledge was disappearing. Elderly community members with this knowledge were dying and the introduction of modern practices made it difficult for the younger generations to appreciate and use the beliefs and practices of their ancestors [57]. And it has not yet been well documented, promoted, conserved and much effort is needed in research and integration activities in the country. There is a wide gap in our knowledge about ethno veterinary data and information from various parts of Ethiopia although we have rich and diverse ethno linguistic groups throughout the country.

Therefore, the objective of this paper is:

- To review on traditional veterinary medicine practices and medicinal plants used by indigenous people.

Description of ethno veterinary medicine and some related words

A simplistic definition of EVM is that it is the community based local or indigenous knowledge and methods of caring for, healing and managing livestock. It is treating of four times: the man, the animals, the plants and the soil, old African saying [57]. EVM is a scientific term for traditional animal health care that encompasses the knowledge, skills, methods, practices, and beliefs about animal health care found among community members [50]. This also includes social practices and the ways in which livestock are incorporated into farming systems. This knowledge is based on close observation of animals or the oral transmission of experience from one generation to the next [48,43]. This rich repository of local knowledge about almost all aspects of livestock care is inherent in most of the rural and tribal communities and pastorals [36].

Ethno Veterinary Practice can be practiced based on the three elements:

- ✓ Application of natural products like Medicinal plants,

minerals, products of animals and other ingredients like Honey, vegetable oils and butters, and salt;

- ✓ Appeal to spiritual forces and practices,
- ✓ Manipulation and surgery practices [28].

Ethno Veterinary medicine

It is dynamic and changing and developed by farmers in fields and barns, rather than by scientists in laboratories and clinics [49]. It could be a key veterinary resource and could add useful new drugs to the pharmacopoeia, and EVM can contribute to biodiversity conservation [74]. EVM is more environmentally friendly and often more socio-culturally acceptable and very suitable for use on small holdings by livestock keepers who can prepare the traditional remedies themselves [50]. The extent of knowledge and utilization of EVM differ according to the culture and prevailing socio-economic characteristics [44]. Many indigenous veterinary beliefs and practices persist in a wide majority of livestock raisers, particularly in the developing countries [39].

Ethno veterinary practice enhances economic sustainability, not only includes treatments but also includes people's ideas about disease causation, transmission including zoonosis, religious and cultural attitudes, beliefs and rituals, husbandry operations for overall good health, people's perception of relationship between environment and animal health care, and social organizations having know how about animal health care are also associated with it. Ethno veterinary also provides information, practices, tools and technologies, breeds and human resources like knowledgeable farmers, herders and local healers to share their knowledge [14,46].

In general, ethnoveterinary practices have been developed by trial and error and by actual experimentation [7]. EVM comprises of traditional surgical techniques, traditional immunization, magico-religious practices, and the use of herbal medicines to treat livestock diseases [75,27,97]. Ethoveterinary medicine provides traditional medicines, which are locally available and usually cheaper than standard treatments. Livestock holders can prepare and use homemade remedies with minimum expense. *another study by Yineger [99] as revealed that one of the traditional force which made the people of the area to rely on traditional medicines of ethno veterinary importance to veterinary ailments was inadequate numbers of veterinary clinics and shortage of veterinarians.*

Indigenous Knowledge

It refers to the accumulation of knowledge, rule, standards, skill, and mental sets, which are possessed by local people [24]. More and more natural and social scientists, veterinary practitioners, livestock owners and field workers in developing countries are becoming interested in medicinal plants and their therapeutic uses in caring for the livestock [48,43].

Traditional Medicine

It has been defined by the world health organization [94] as the sum total of all knowledge and practices whether explicable or not, used in the diagnosis, prevention and elimination of physical, mental or social imbalances and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing. This system of health care is also known as folk medicine, ethno medicine, or indigenous medicine [10].

Indigenous

It is something which is communicated from ancestors to descending; only by oral means. Thus the knowledge of traditional medicine both for man and animal is handed down from one generation to another through practical demonstrations or through oral communications. Ever since the life started on the earth, diseases and death coexisted with him and with their animals. Therefore efforts have been made to get relief out of it by using herbs in various forms as medicine from the very beginning of human civilization [10,37]. The WHO defines traditional medicine as health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses and maintain well-being [93].

History of ethno veterinary medicine

Ethno knowledge focusing on ethno veterinary animal health care has existed alongside human evolutionary history, taking many different forms. It comprises all ethno practices approaches and traditional knowledge applied by humans with a view to alleviating health constraints afflicting their livestock and hence, improves their production and performance [86] and all over the world and down through the ages, people, who keeps livestock have developed their own ideas and techniques for meeting the health and husbandry needs of their food, farm, and works animals [88].

Classic cases include ayurveda in india and acupuncture and herbal medicine in china, all of which are practiced for both animals and humans [95]. Traditional veterinary practices have been around for a long time and were the only medicine available until 19th century. Arabia was the world centre of veterinary and other medical knowledge in the early middle Ages. With the spread of Islam some of this knowledge made its way into Africa and was adopted by stock raisers [3].

Ethno veterinary medicine was practiced as early as 1800B.C. at the time of King Hamurabi of Babylon who formulated laws on veterinary fees and charged for treating cattle and donkeys [61]. For more than a decade EVM has experienced a revival and several reports have been published. This growing interest in traditional practices had been encouraged by the recognition of some efficacious ethno veterinary medicinal products [47]. Until 1989, ethno veterinary practices were mostly carried out at individual level, with little coordination. In 1989 the Cameroon Ethno veterinary Council was founded [57].

In pre-historical, historical or present day societies, the following were and are still some of the reasons for recourse to supernatural approaches to animal health problems: African stock owners resort to supernatural approaches so as to cope with livestock health problems they do not understand, in case of a new disease emerging, it is considered as one of their usual ethno therapies in societies and it is considered when no effective alternative therapy is available [88].

Alhaji Eggi Sule was one of the first Ethno veterinarians to set up a medicinal plant garden in the Early 1990s in an attempt to improve access to medicinal plants and to conserve rare species in cameron [57].

Medicinal plants as traditional medicine

Medicinal plants have important contributions in the health-care system of local communities as the main source of medi-

cine for the majority of the rural population [95]. Medicinal plants play a key role in the development and advancement of modern studies by serving as a starting point for the development of novelties in drugs [58]. At present over 35,000 plants are known to have healing properties in the world [45]. Herbal approaches have been developed for the management of almost all conditions that currently challenge conventional veterinary medicine, including epilepsy, chronic kidney failure, chronic lameness, allergic skin disease and liver failure [95].

Ethiopian farmers and pastoralists rely on traditional knowledge, practices and locally available materials, plants in particular, to control and manage domestic animal diseases [32]. Some of known medicinal plants were kutintina (*Verbascum sinoiticum*), yemidir embuay(*Cucumis prophetarum*), gulo(*Ricinus communis*), astenager (*Datura stramonium*), atuch(*Verbena officinalis*), endawulla(*Kalanchoe petitiiana*), bisana (*Croton macrostachyus*), sire bizu(*Thalictrum rhynchocarpum*), amoch (*Rabus steudnerii*), kebericho(*Echinops kebericho*) and kulkual(*Euphorbia abyssinica*). *Monopsis Sellariodes*, *solanium anguivi Lam*, *Vigina spp*, *Nicotiana tabacum L*, *Argemone Mexicana L*, and *Platostoma Rotundifolium* etc. and they useful for different diseases [96,81,5].

Phytotherapy is the study of the use of extracts of natural origin as medicines or health-promoting agents. Phytotherapy medicines differ from plant-derived medicines in standard pharmacology [99]. Where standard pharmacology isolates an active compound from a given plant, phytotherapy aims to preserve the complexity of substances from a given plant with relatively less processing. Traditional phytotherapy is a synonym for herbalism and regarded as alternative medicine by much of Western medicine [45]. Using traditional medicinal plants is common and form the back bone of traditional therapy since the majority of the people depend on this traditional medicinal plants for their health care, and this global importance and utilization of medicinal plants has considerably increased in the last two decades [92,18].

Deep-rooted culture of plant use for successive generations might have played the role for a sentimental adherence of the community to ancestral medical traditions which are still held as highly valued heritage of the society [40]. It is not enough that they are useful but has disadvantage. One of the main disadvantages of traditional medicine is the lack of scientific proof of its efficacy. Lack of precise dosage which could lead to toxicity is also the other disadvantage of traditional medicine [18,31].

Threats and challenges to ethno veterinary medicine (plants) practices

Threats

Modernization coupled with poor storage format of ethno veterinary knowledge based on individuals' remembrance abilities and its transmission from generation to generation by word of mouth, has greatly endangered its survival and sustainability into the future [54,90]. Traditional veterinary practices is threatened by the western faith of denominations and their views that traditional practices are evil, satanic, sinful, poor reminiscence of new generations, the kind of lifestyle that does not embrace on traditional values of the society, cultural interaction, absence of official recognition of the role played by ethno practitioners in the prevention, control and treatment of livestock diseases conditions in some countries, traditional taboos, customs and together with these six factors make the young generation not

emulous enough to perpetuate the traditional morals of the society have also influence for the EVM practice [88]. Environmental degradation due to the need for fuel, urbanization, timber production, overharvesting, destructive harvesting, agriculture expansion, deforestation, overgrazing, drought and other related factors result into plant and animal species extinction [3]. And together with the death of true forest people without their knowledge being documented, loss of indigenous knowledge and habitat distraction Ethiopia's traditional medicine is faced with problems of continuity and sustainability [20]. Furthermore, the popularity of roots, rhizomes, stems and whole plants may also have negative consequence [70,28].

A traditional medicine possesses pharmacological properties and therefore, they had possible therapeutic effect [70]. The study established that traditional or herbal medicines were having good or better acceptance level but there were challenges and constraints that made the traditional medicine usage under limitation. The result indicated that imprecise dosage, low hygiene, the secrecy of some healing methods, absences of written records about the patients; modernization and other were the challenges and constraints for the practice of traditional medicines in the area. Absence of precise dosage was the most important challenge or drawback for the practice of traditional medicine in the area and this describes standardization is a challenge and cited as one of the most important shortcomings of the traditional health care system in Ethiopia [2,73]. Ethno veterinary studies conducted in Pakistan by Hussein [33] also reported the lack of standardized doses in traditional prescriptions of livestock remedies is a challenge. And this problems or challenges of traditional healers might be due to that the absence of getting training, absences of well organized or associated works between modern veterinary practitioner and traditional healers.

Challenges

According to the report by Sujon et al. [73] the major problems associated with the use of herbal medicine relates to:

- lack of scientific evaluation,
- Cultural infiltration

Cultural infiltration leads to the erosion of human intellectual capital this means the movements of the people is leading to loss of farming communities, languages and indigenous cultures. the decline could be attributed to a numbers of issues including high adoption of conventional drugs, difficulty in tracing the needed plants, lack of knowledgeable people and information concealment, and lack of documented information on the use of medicinal plants, selfishness and request for payment in return of knowledge sharing, invasion of western systems and involvements of pastoralist in administrative domain weaken the traditional system, in some instance totally replaced by modern system [55]. According to Sheldon et al [66] the main factor to be considered for conservation and sustainable use of medicinal plants is the particular plants harvested for its curative value the way it's harvested. Herbal preparation that involves roots, rhizomes, bulbs, barks, stems or whole parts have effects on the survival of the mother plants [18].

Quality and standardization of ethno pharmacological practices is as important as preservation and conservation of indigenous knowledge. Standardization of medicinal plants utilization in live stock managements is urgently needed not only to improve efficacy and promote conservation but also safeguard

animals' products consumers. Currently natural habitants of many valuable plants are being lost to other land uses or being degraded as a result of population security and other livelihood needs. The finding of the current study revealed that ethno veterinary medicinal plants were under serious threats like: drought, deforestation, fire, overgrazing, agricultural expansion and others however drought, deforestation and fire are the main threats [99].

Medicinal plants were threatened by different factors the most one is absence of strict conservational activities. This might be due to:

- ✓ lack of awareness by local peoples and
- ✓ Lack of governmental encouragements for conservational and sustainable utilization of those locally available medicinal plants.

The healers in consultation with government officials should take care not to eradicate the medicinal plant species altogether. Awareness creation among the traditional healers and community at large is important in order to preserve the indigenous medicinal plant species [100].

Ethno veterinary medicine in Ethiopia

Ethiopia is home to many languages, cultures and beliefs which have in turn contributed to the high diversity of traditional knowledge and practices of the people which, among others, includes the use of medicinal plants to cure such diversified diseases and possible causative agent. The EVM provides traditional medicines which are locally available and usually cheaper than standard treatments. In Africa, up to 80% of the population uses traditional medicine for primary health care and over one-third of the population in developing countries lack access to essential medicines [20]. 80% of the Ethiopian population depends on tradition medicine for their health care [98].

Traditional practitioners in Ethiopia include bonesetters called wogesha, traditional midwifery or birth attendants called yelimdawalaj respectively in Amharic, hydrotherapy, massage, cupping, counter-irritation, surgery, tooth extractors, and herbalists, as well as debtera, tenquay, and spiritual healers such as weqaby and kalicha [91].

Plants have played crucial role as a source of traditional medicine in Ethiopia from the time immemorial to combat different ailments and human sufferings [38]. The plant materials include seeds, berries, roots, leaves, bark or flowers are used for medicinal value [6]. Ethiopia is believed to be home for about 6,500 species of higher plants with approximately 12% are endemism. Lemma reported endod to be an effective molluscicidal which helps in the control of schistosomosis and fasciolosis in humans and animals [77].

Traditional veterinary healthcare has enormous potential; however, this potential has not yet been exploited at the national level [82]. Recently, serious attempts have been made by the Institute of Biodiversity Conservation and Research (IBCR) on scientific research to develop medicinal plants for three major livestock diseases. The major diseases identified by the Institute were tapeworm infestation, mastitis and dermatophilosis [27].

In Ethiopia as well as in most developing countries, animal disease remains one of the principal causes of poor livestock performance, leading to an ever increasing gap between the

supply of, and the demand for, livestock products [71]. Traditional medicine has maintained its popularity in all regions of the developing world and its use is rapidly spreading in the industrialized countries. WHO estimates that in several African countries traditional birth attendants assist in a majority of births [90].

In Ethiopia up to 80% of the population uses traditional medicine due to the cultural acceptability of healers and local pharmacopeias, the relatively low cost of traditional medicine and difficult access to modern health facilities. In 2000 only 9.45% of all deliveries in Ethiopia were attended by trained attendants and health workers. The rest were attended by traditional birth attendants or relatives [38].

The majority of livestock raisers in Ethiopia are geographically remote from the sites of veterinary stations, and those that are closer to the sites may not afford the fees for services. The inadequate funding at the national level for the prevention and control of animal diseases adds to the burden, especially among pastoralists who live in the remote arid and semi-arid lowland parts of the country. Therefore, a reasonable solution would be to complement modern veterinary health care with traditional care [71]. It is estimated that about 90% of the livestock population are treated with traditional medicines. In some parts of the country, livestock diseases such as anthrax (*quruba*), black leg (*aba gurba*), anaplasmosis (*afreera*), ascariasis (*wosfat*), abscess (*ebach*), leeches (*alqt*), trypanosomiasis, lymphangitis (*gub gub*), stomatitis (*yaf qusil*), and coccidiosis (*fengel*) have been treated using various natural plant product combinations [64,27].

The role of live stocks to human being

Demand for animal's products in sub-sahara Africa and generally in developing countries is likely to rise significantly because of population growth, urbanization and rising income in face of relatively low levels of consumption at present. This increase in demand for livestock products raises profound implications for food security, poverty alleviation and the environment. Increased livestock production in fact, contributes to improve food and poverty alleviation in the developing country in several ways [25].

Generally, animal could provide us meat, milk, wool, hide, hair, bones, manure, serving as financial instruments, drafting purpose, for entertainment or sport, many animals have been man's best partners in war and used for traveling, Animals are also used as tools like Dogs, for example, have a keen sense of hearing and smell, and animal used for the purpose of drug detection [15].

Traditional medicine practitioners and practices

Healers obtain their drugs mainly from natural substances and in descending order of frequency these constitute plants, animals and minerals. Drugs are prepared in various dosage forms including liquids, ointments, powders and pills. Drugs are also prescribed in a non-formulated form and additives are usually incorporated and more than one drug is used in a single dosage form [18,38]. In addition to traditional medicinal practices by professional healers, there is also an old tradition of self-care in the home and another, more recently evolved sub-system of lay care of transitional medicine [26].

Traditional practitioners include bone setters birth attendants, tooth extractors, (called '*Wogasha*' and '*yelimd awalaj*' respectively in amharic) *herbalists*, as well as '*debtera*', '*ten-*

quay' (witch doctors), and spiritual healers such as '*wegaby*' and '*kalicha*' [60,56].

Religious practices play a large part in the healing process for Ethiopians such as praying and going to church. Holy water for Orthodox Christians (called '*tsebel*' in Amharic) or '*zemzem*' in the case of Moslems is also frequently used for a wide variety of illnesses. Ethiopians believe that holy water cures when it is drunk or bathed in [38].

The ways are also as diverse as the different cultures. Healing in Ethiopian traditional medicine is not only concerned with curing of diseases but also with the protection and promotion of human physical, spiritual, social, mental and material well-being [11,38]. Members of the Orthodox Christian clergy are called the *debteras* and members of the Muslim community are known as *kalichas*. *Debteras* usually look upon mental disorders as possession by evil spirits, which are thus treated mostly by praying and using holy water or eventually exorcising the evil spirit. By means of the *degmit*, the *debteras* claim to have the ability to perform miracles, which are believed to be manifested by the reactions of their patients. *Tsebel* is commonly used to ward off evil spirits from patients who are believed to be possessed by the devil. *Kitabs* are worn for the purpose of protecting oneself against the evil eye or *buda*, as well as snake and scorpion bites [38,34].

Different parts of medicinal plants of veterinary use have been used except flower part and also different methods of preparation and modes of application were used for remedy preparation, however the widely used plant parts in the preparation of remedies in the study area were root, followed by leaf. The widely utilization of root and leaf parts of medicinal plants in the community might be due to the anti illness effects of their potential for different ailments similarly Yineger [99] and Voeks [87] reported that the findings of root and leaf to be the most harvested plants parts used for ethno veterinary remedy preparation might be associated with traditional beliefs, about a powerful therapeutics effect or anti illness effects of leaf and root parts for treating various ailments. However, completely flower part of the plants was not practiced in the locality for medicinal value, it might be due to that beliefs, flower parts of the plants do not contain anti illness potential for ailments and it might be that the local community is not adapted culturally or not experienced or inherited from previous senior indigenous knowledge experienced persons. Leaves were frequently used as part of the ethno veterinary medicinal plants in central zone of tigray, northern Ethiopia [100].

Several methods of applications or administration of traditional remedies depending on the particular disease to be treated was adapted. Crushing or pounding, fumigation, squeezing, powdering, concoction and smoke were methods of preparation in the study area. However crushing or pounding and squeezing were the two most methods of preparations in the area as the respondents revealed. Another study revealed that crushing and soaking or boiling of medicinal plants is the common method for drugs extraction or preparation [19]. Depending on the active ingredient to be extracted, application routes, and the medicinal objective preparation methods of ethno veterinary medicine differs [50].

Application of traditional veterinary medicines

Ethnoveterinary medicines can be administered in many different ways including oral, followed by topical routes, though

inhalation, surgical, nasal, injection and auricular routes are also used at lower level. Most of medicinal plants are used by through oral route followed by topical route. The traditional drug is usually drunk for internal condition or applied topically for external infection [13]. A single medicinal plant was found to be applied in different routes depending up on the preparation and type of the disease needed to be treated. The different dosage forms for the preparation of different remedy; however liquid preparation is the most common dosage form. Study by [77] revealed that liquid preparation was reported to be the predominant dosage form of traditional remedy preparation.

Components of ethno veterinary practices

Ethno veterinary term 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/traditional healers [71].

Advantages and disadvantages of ethno veterinary medicines

EVM has many advantages; as source of modern medicine (drugs), affordability, locally available and easily accessible, culturally appropriate and understood, effective, comfortably animal metabolize plants and plant extracts and user friendly. For common diseases and more chronic conditions such as colds, skin diseases, worms, wounds, reproductive disorders, nutritional deficiencies and mild diarrhea, EVM has much to offer and can be a cheap and readily available alternative to costly imported drugs [71]. Globally, the ethno veterinary medicinal plant knowledge, similar to other several studies have been carried out, many reports written and numerous conferences and workshops held [84,100,29].

Ethiopian context, the traditional knowledge on ethno veterinary practices by local healers who are knowledgeable and experienced in traditional systems of treatment is important [62], but their knowledge are not documented and is dwindling fast [52,29]. Consenting parties, and the knowledge of traditional practice in most cases has descended through oral folk lore. The secret of information retained by traditional healers is relatively less susceptible to distortion but less accessible to the public [18,1]. It is widely believed in Ethiopia that the skill of traditional health practitioners is 'given by God' and knowledge on traditional medicines is passed orally from father to a favorite child, usually a son or is acquired by some spiritual procedures. Traditional Healing knowledge is guarded by certain families or social groups [89].

Traditional spiritual healers are known by different names, depending on the communities where they practice including *debtera*, *tenquay* (witch doctors), *weqaby* and *kalicha* [60,34]. The study of ethno-veterinary practices is a growing area of inter-disciplinary research having immense potential to understand various nuances of folk knowledge on domesticated animals.

In general, ethno veterinary practices have been developed by trial and error and by actual experimentation [8]. It comprises of traditional surgical techniques, traditional immunization, magic religious practices and the use of herbal medicines to treat livestock diseases [9,55]. Ethiopia is believed to be home for about 6,000 species of higher plants with approximately 10% endemism [29].

The traditional knowledge on ethnoveterinary practices by local healers who are knowledgeable and experienced in traditional systems of treatment is important, but their knowledge are not documented and is dwindling fast [9].

Potential impacts of traditional veterinary practices in ethiopia

Ethiopia has great potential for economic development, but is currently among the poorest country of the world [17]. Exports of both live and animals and processed meat are limited due to hygiene condition. The animals' health service in Ethiopia is gradually being improved but cannot yet deliver complete service [99] and one of the constraints on the national veterinary service is the lack of available drugs due to the limited foreign currency which the country can afford to spend on improved veterinary drugs. At present there are many veterinarians working in Ethiopia, but they are unable to deliver services satisfactorily to meet the needs of cattle owners [23].

According to slaughter house records in the bale administrative area and Bahirdar town many animals slaughtered between 1985 and 1989 were found to be infected with fasciola parasite, if this parasites exists cattle are possibly affected every year and Ethiopia would be suffered with treatment cost [51]. On the other hand, *phytolacca dodecandra* or *endodd* (Amharic) is one available traditional resource which has not been widely used to control snail which transmitte fasciollosis that would help the incidence of infestation [77].

Improving of traditional medicine and practitioners in ethiopia

Understanding indigenous knowledge, attitudes and practices of traditional communities about occurrence, treatment, prevention, control and local importance of different livestock ailments and traditionally used medicinal plants against respective ailments is crucial to design and implement meaningful animal health improvement and production strategies [40].

strategies for improvement of traditional medicine and practitioners are; Identification and registration of the traditional medicine practitioners, encouraging the formation of a strong national association for traditional medicine practitioners, assess the need for training of the selected and registered traditional medicine practitioners and designing appropriate skill upgrading training programs, introduction of the role and importance of traditional medicine to the public, Include medicinal plants and indigenous knowledge in the school curriculum [23,99].

Conclusion and recommendations

In general, Traditional knowledge always provides a baseline for further phytochemical and pharmacological investigation. The application of traditional medicine to veterinary medicine has been termed as ethnoveterinary medicine which is mainly concerned with folk beliefs, knowledge, skills, methods and practices which are used in the healthcare of animals and comprises of traditional surgical techniques, traditional immunization, magico-religious practices, and the use of herbal medicines to treat livestock diseases. In Ethiopia, modern investigation on herbal remedies for human ailments has been going on for a while. Traditional veterinary medicine, especially, the use of medicinal plants in the treatment of livestock diseases, needs to be scientifically explored. Traditional remedies of Medicinal

plants of veterinary importance might not be well protected, as a result can be threatened and lost. Ethiopia is believed to be home for about 6,000 species of higher plants with approximately 10% endemism. Religious practices play a large part in the healing process for Ethiopians such as praying and going to church. Drugs were administered using different routes, the main ones being, topical, oral and respiratory.

Based on the above conclusions the following Recommendations are forwarded:

- Indigenous knowledge and practices should be supplemented by scientific methods to evaluate the safety, efficacy and dosage of the common medicinal plants through phytochemical and antimicrobial experimentation to determine appropriate mode of delivery, drug development and dosage in pharmacological laboratory while the plants is potentially toxic when used consecutively for a long period of time, further work will focus on the pharmacological properties.
- Awareness creation among the traditional healers and community at large are important measures to preserve their indigenous medicinal plant species knowledge. Because medicinal plants are facing extinction, indicating that conservation may be the only way out. Everybody and stakeholders (forestry and environmental protection office, departments and bureau) should give attention to protect from destruction.
- The government should identify and organize those indigenous knowledgeable persons and their golden knowledge should be used for the country development as well as training of those healers should be addressed.
- A national campaign is urgently required to identify, collect and document important traditional remedies of veterinary used plants; those should be evaluated to provide reliable information on most useful plants to be conserved.
- Formulation of a national drug policy for herbal medicines should be addressed and develop legislative protocols that facilitate use of ethno veterinary medicine.
- Traditional healers should be given some incentive, such as being appointed as veterinary scouts and valuable information, an association of traditional healers should be structured. Such an initiative would also expose traditional practitioners to training in modern veterinary medicine, and would narrow the differences and reduce the bias between the two approaches, leading to better integration.

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