

**ETHNOVETERINARY PRACTICE IN CHIRO DISTRICT WESTERN
HARARGE, ETHIOPIA**

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Summary

The study was carried out in western Hararghe Zone, Chiro District of Oromia Regional State of Ethiopia from December 2007 to March 2008 to generate information on the ethnoveterinary practice used for the treatments of animal diseases. Information was collected by direct interview of 11 known healers and 35 livestock owners. Eighteen plant species were collected, compressed, and brought to Haramaya University for botanical classification. Root, leaves, fruits, and other plant parts were recorded that could be employed to treat sick animals. The most widely practiced administration of medicinal plant preparations was oral administration of infusion, decoction, juice (72.72%), followed by topical application of paste (poultice), sap, and other formulations (22.72%). Most (74.28%) of the livestock owners interviewed, frequently use herbal preparations to treat their sick animals, where as the remaining (25.71%) preferred the complementary use of both herbal preparations and modern drugs. Knowledge of medicinal plants can empower livestock owners to solve animal health problems cost effectively.

Key words: Ethnoveterinary, Animal diseases, Healers, Plant

Introduction

Ethno knowledge focusing on ethnoveterinary animal health care has existed along side human evolutionary history, taking many different forms. Today's traditional medicine, as undoubtedly the oldest form of medicine and probably evolved simultaneously with the evolution of human beings. It comprises all ethnoveterinary 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 (1, 2).

The knowledge is passed on verbally from generation to generation. Husbandry strategies and associated medico-religious practices, taken together these constitute what is known as ethnoveterinary medicine (3).

Ethnoveterinary medicine is a scientific term for traditional animal health care and encompasses the knowledge, skills, methods, practices and beliefs about animal health care found among the members of a community. The knowledge may vary not only from region to region but also among and with in communities. It has been developed through trial and error and deliberate experimentation. Like any other knowledge system, ethnoveterinary knowledge is very dynamic in its evolution, management and practice (1, 2, 4).

In Ethiopia, people used traditional methods to treat both human and livestock diseases for generations. It is still widely practiced in rural areas where modern health care services are limited and even in areas where conventional veterinary service is available. It is deep rooted and rational practice for pastoral communities that can contribute better to animal health management. Ethnoveterinary practice has therefore, proved it self to be a potential resource for the community based animal health care activities (5).

Conventional veterinary service has been playing paramount role both in control and prophylaxis of livestock diseases during the last three decades. However, complete coverage both in preventive and curative practices have never been attained since it was tied up with several constraints including in adequate manpower, scarcity of logistics, erratic supply of drugs and high cost of drugs (6).

Cutbacks in modern veterinary services mean that livestock owners cannot rely on veterinary services for control of various important livestock diseases. Thus the pastoralists who occupy remote, in accessible areas of the arid and semi-arid lowlands are highly vulnerable to such problems (7). Consequently, the majorities of rural stock raisers are far from the site of veterinary station and became vulnerable to such problems. The easiest and most practical solution to this type of problem, therefore, is to develop socially acceptable and effective remedies from reasonably cheap sources that can be used complementarily to that of modern veterinary medicine (6).

Pharmacotherapy is one of the most important means of controlling livestock diseases, but it is possible only if livestock owners can afford to cover the cost of treatments. Cost of treatment is therefore an important determinant of the usefulness of veterinary drugs.

As a wide spread as it is, the practice of ethnoveterinary medicine has lagged behind that of its counter part (modern veterinary medicine) many times partly because the practice was secretly done and its information hidden in the gray literature (2).

With pressure from an increasing human population and declining per-capita production of food in Africa, there is an urgent need to develop marginal resources such as the semi-arid and arid lowlands and optimize their use through appropriate livestock production. In Ethiopia as well as in most developing countries, animal diseases 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 (6).

Despite its enormous potential, however, little effort has been made to exploit this treasure at national level. Unless it is documented and presented for scientific investigation it will sink in to oblivion or lost forever (5). In recent years however increasing attention has been paid to ethnoveterinary practices and knowledge. There is a growing acceptance that some of these practices have therapeutic value and that they should be documented before this knowledge is lost (8).

Therefore the present study aims in documenting the various traditional veterinary practices of Chiro District, western Hararghe, Ethiopia agro-pastoralists and envisage its possible contribution to animal production and health management.

Materials and Methods

Description of the study site

The study was conducted in western Hararghe Zone of Oromia regional state of Ethiopia, Chiro District which is located between 9⁰05 longitude and 40⁰52'E latitude. Altitude ranges from 1500 to 2980m above sea level and mean annual temperature and rainfall ranges between 15⁰C to 31⁰C and 700 to 900 mm respectively.

Agriculture is the main occupation of the population of the area. The agricultural activities are mainly mixed type with cattle rearing and crop production under taken side by side. Major annual crops include sorghum, maize, bean, barley, teff, wheat, and pea and from cash crop chat are widely produced.

According to the information obtained from the agricultural office the total livestock population of the district was estimated at, 64,450 cattle, 41,937 sheep, 24,912 goat, 260 horse, 11,963 donkey, 449 camels, 36,647 poultry, 2071 dog, 3176 cat, 5363 beehives.

Sampling method

Information on different aspects of ethnoveterinary medicine in the study area was collected by direct interviewing of known healers and common livestock owners who were willing to share the knowledge and to explain at depth the foundation of their skill and practice.

Wodeyti, Medich, Najabas, Kiliso, Wachu, Chiro kala and Shekadam were the selected peasant association selected from the district for the study. A total of 11 traditional healers and 35 livestock owners were selected and interviewed by administering a questionnaire consisting of a mixture of open and closed ended questions in face to face interviews. The interview was made to highly knowledgeable older healers and livestock owners who were respected by the society.

The questions asked focused on determining:

- i. Which cattle diseases are known in the community and
- ii. How they are treated. Interviews were conducted in local language. The interviews were supplemented by direct observation and plant specimens were collected and transported for botanical identification to the Plant Science Department of Haramaya University.

Ideas, theoretical and philosophical notations, methods observed and described or presented by healers were registered.

Data management and analysis

Data from the study were reviewed and all incomplete responses were excluded. The data were then analyzed both qualitatively and quantitatively; responses from the open ended questions were grouped into classes that expressed similar ideas while percentage, based on valid responses only, were calculated from closed ended questions.

Results

The traditional healers and livestock owners in the study area seemed to have tremendous indigenous knowledge and skills in disease control, which they have developed over generations. Some degree of difference was found between activities of any of the livestock owners and healers. A particular livestock owner was found to treat his or her own animals. In case the treatment trial of herdsmen failed to work, a healer in the vicinity was consulted, either transported to the patients or the patient walked up to the healers homestead. Only ailments that the healers fail to treat were reported or brought to the clinic.

A total of 18 different plant species used to treat wide range of livestock disease situations were collected and submitted to the Plant Science Department of Haramaya University for Botanical Classification (table 1).

Table1: Medicinal plants used by the traditional healer in the study area; their indications, part used, route of administration and forms of preparations.

Local name	Botanical name	Part used	Route of administration	Preparation	Indication
Kamona	<i>Anethum foeniculum</i>	Shoot Root Leaf	Oral	Infusion	Bloody urine
Dargi	<i>Achyranthus aspera</i>	Root	Oral	Mixture with other plants	Blackleg
Bakanisa	<i>Croton macrostachyus</i>	Leaf	Topical	Infusion Juice	Bloat Ringworm
Buri	<i>Kolonchos petitiona</i> A. Rich <i>Cissus rotundifolia</i>	Root Leaf	Topical	Heated and tied on the swollen part	Abscess maturation
Wof kolo	<i>Lantana camara</i>	Leaf	Oral	Leaf pounded and fed to animal with feed	Internal parasite
Hadas	<i>Myrtus communis</i>	Leaf Stem	Oral	Grinded/ Chewed	Many disease condition
Much Arab	<i>Polygonum spp</i>	Leaf	Tropical	Pounded	Wound healing Abscess maturation
Martess	<i>Plumbago zeylenica</i>	Leaf	Oral	Decoction / infusion	Many disease condition
Geshe	<i>Rhamnus prinoides</i>	Leaf	Oral	Pounded and mixed with water	Diarrhea Internal parasite
Kobo	<i>Ricinus communis</i>	Leaf Stalk	Oral Tropical	Infusion Fomenting	Retained fetal membrane Maturation of abscess

Table 1. Continued...

Local name	Botanical name	Part used	Route of administration	Preparation	Indication
Hidi	<i>Solanum incanum</i>	Leaf Root	Tropical Oral	A handful leaf pounded and applied on bleeding part Pounded and mixed	Blood clotting Skin diseases Colic Blackleg
Gura hare	<i>Verbasum spp</i>	Leaf	Oral	In combination with other plant	Diarrhea Internal parasite
Ebecha	<i>Vernonia amygdalina</i>	Leaf	Oral	Pounded and mixed with salt	Chronic diarrhea Internal parasite
Hidabude	<i>Withonia sonmifera</i>	Root	Oral	Combination form	Blackleg
Kinin zaaf	<i>Melia azederach</i>	Leaf	Oral	Pounded mixed with water	Against various disease conditions
Haregoge	<i>Momordica foetida</i>	Root	Oral	In combination with other plant	Blackleg
Talatum	<i>Ruta chalapensis</i>	Leaf Fruit	Oral	Pounded and mixed with water	Colic Mixed and given with other plants for many diseases
Jiniras	<i>Senecio handensis</i>	Leaf	Oral	Fed to animal Pounded and mixed with water	Blackleg

The most widely practiced route of administration of medicinal plant preparations was oral administration of infusion, decoction and juice (72.72%) followed by topical application of paste (poultice), sap, and other formulations (22.72%).

Most (74.28%) of the livestock owners interviewed, frequently use herbal preparations to treat their animals, where as the remaining (25.71%) preferred the complementary use of both herbal preparations and modern drugs. The most frequently employed plant parts are leaves (30.09%) followed by roots (28.57%), fruits are also used to some extent (14.28%).

Specific practices

The common livestock diseases, conditions observed by farmers and traditional medicaments used in the study area are summarized in table 2.

Physical therapy

The most widely used physical therapy was cauterization. It was commonly used for a number of diseases including immature abscess, lymphadenitis, lameness, foot and mouth disease, hernia, chronic wound and acute wound made by incision. Glown metal rod or sickle locally termed *gubaa* was used to perform cauterization. They use cauthery as “first veterinary aid” to treat any newly emerging diseases.

Surgical interventions

Dystocia

The term dystocia is locally called *allati*; the healers will thoroughly wash their hands and the perennial area of the animals with water. Then they will perform retropulsion, manual traction or foetotomy depending on the defect identified. It is also a common practice to drench eggs.

Vaginal or Uterine prolapse

Treatment procedures required casting of animals and manual replacement of the uterus into the pelvis. The manipulative procedure adopted was suturing by using a material referred to as ‘*fooya*’

Abscess treatment

Healers have good experience in distinguishing between mature and immature absences. If the absence is mature they glow sickle in fire and incise at the pointing of abscess and the pus is pushed out by digital pressure and a handful leaf of *Polygonum spp*s made into paste and topically applied on the wound

Retained fetal membranes

It is reported as post-partum complication, the treatment procedures adopted by livestock owners include manual traction and use of big stone or wood hanged on the retained placenta.

Castration

It was usually performed at the off set of rainy season and beginning of dry season. Closed castration locally named ‘*tumaa*’ was frequently carried out using a hammering material (blunt iron rod or wooden hammer) and a thick long stick. A strong sudden blow to spermatic cord with a hammering material will be given to crush.

It was not uncommon to find open castration especially in case of cryptorchid testis locally called “*gunee*” being carried out on cattle, equines and goat.

Bone setting

Several pieces of wooden materials were smoothed and flattened on one side, perforated and notched at both ends and assembled together. It was assembled over the fractured site with its center lying against the fracture and tied firmly and remains in place for 6 weeks or 4 weeks.

Dehorning and hoof trimming

These were husbandry practices, which were carried out when there was hoof overgrowth and horn deformity with the aid of hot iron materials during dry season while sharp knife was employed during wet season.

Discussion

The literature on ethnoveterinary botanicals is extensive. People inhabiting different ecological zones use different plants and plant parts for the treatment of diseases. The pharmaceutical value and concentration of active ingredients in each plant varied depending on climatic and edaphic factors.

Different models of application and preparation were used depending on the perceived diagnosis and which plant parts were intended for use. These remedial approaches have been established among communities other than western Hararghe. However, most of the plants recorded in this study have been noted else where in Ethiopia and other parts of the world to have medicinal value.

The species *Melia azederach*, *Myrtus communis*, *Senecio handensis*, *Plumbago zylanica* and *Vernonia amygdalina* are used treat more than one ailments. Use of similar plants to cure both animal and human diseases is common practice in traditional medicine. Some of the plants inventoried here have other uses in the community; for example, some are used in human medicine, or as food, while others are used as fire wood. Generally, efforts aimed at conserving plants can be improved if the species selected for conservation have many different uses, as multiple used can motivate people to conserve species.

Some of diseases mentioned by farmers in this study indicated symptoms of disease. The naming of disease by local people when compared to the western veterinary medicine system, at times did not distinguish between diseases and symptoms of diseases. This is because local disease nomenclature is based on symptoms of disease, where as under western veterinary science, disease are named according to etiological information (3).

As a consequence, several uniquely named animal health problems may allude to the same disease when defined by western veterinary science, or conversely, certain local terms may encompass several different diseases (9).

Table 2. Common livestock diseases, conditions observed by farmers and traditional medicaments used in the study area

Diseases (Scientific and local name)	Species affected	Signs and symptoms	Traditional treatment used
Anthrax (Abasanga)	Cattle	Sudden death breeding from all body orifice	
Blackleg (Abagorba)	Cattle	Crepitating sound of skin of the shoulder and thigh area	- Root of <i>Momordica foetida</i> (a) leaf of <i>Verbascum spp</i> (b) root of <i>Withonia somnifera</i> (c) chopped minced and drenched orally in 1 liter of water
Pasteurellosis (Gororsa)	Cattle Ovine	Salivation	- Incising of skin where the crepitating sound noticed - <i>Ruta chelipensis</i> and two unidentified plants locally called barbarisha and kontoma pounded and drenched orally in one liter of water
Foot and mouth disease (Massa)	Cattle	Lesion on the mouth and leg and salivation	- Management practice used: keep the animal at home until lesions disappear - Fomentation of the mouth area using hot stone brought from the river - Insert bride in the mouth of the animal
Pneumonia (Somba)	Cattle	Coughing	- A plant locally called hudusalim pounded and mixed in 1 liter of water and given as drench - Management practice will be done like change of feed from roughage to concentrate

Table 2. Continued...

Diseases (Scientific and local name)	Species affected	Signs and symptoms	Traditional treatment used
Diarrhea (Albati)	Cattle, sheep and goat	Soften sometimes watery faces	<ul style="list-style-type: none"> - Leaf of <i>Rhamnus prinoides</i> chopped and mixed with 1 liter of water drenched orally with salt. - Prevent the animal from drinking water until diarrheas stop
Bloat (Bokoka)	Cattle	Distention of abdomen	<ul style="list-style-type: none"> - A solution made from paper powder and common juice drenched orally in 2 liter of water - Hitting of the left Para lumbar fossa by the leaf of croton macrostachyus
Dystocia (Allati)	Cattle, sheep and goat	Unable to give birth	<ul style="list-style-type: none"> - Drenching of egg - Manual traction by hand
Abscess	All species	Localized swelling in different parts of the body	<ul style="list-style-type: none"> - Incising using red hot iron - If it is immature they make paste of soil and tied on the part, paste of <i>Polygonum spp</i>, root of <i>Cissus rotundifolia</i> and stalk of <i>Ricinus communis</i> topically applied on the swollen part
Wound	All species	Open or closed wound	<ul style="list-style-type: none"> - Ashes of charcoal, CaCo₃ (chalk) and ashes of battery directly applied on the wound - Leaf of <i>Polygonum spp</i> make to paste and applied directly on the wound
Bloody urine	Cattle	Red urine	<ul style="list-style-type: none"> - A plant called <i>Anethum foeniculum</i> pounded and mixed with water and given orally

The strategy by the stock owners of western Hararghe to employ a mixture of both ethnoveterinary and western veterinary medicine is pragmatic one, because, ethnoveterinary medicine is locally suited to the treatment of livestock diseases. However, ethnoveterinary medicine is reportedly ineffective against epidemics and fatal endemic diseases such as anthrax and pneumonic pasteurellosis and for these, western veterinary medicine is more appropriate (10). Farmers also employ materials other than plants, eg. powder soap and ashes, as well as special methods such as branding, massaging with hot water and making cuts on the skin to treat cattle (table 2). Use of materials other than plants or standardized western drugs have also been noticed on the local markets & else where. For example, the use of antihelmenthic drug, albendazole, is common among the farmers every where in the village (5).

The use of cautery as a means of treating veterinary complications seems to be panacea as many workers from different parts of the world described it. The immunological processes involved in cauterization appear to be a kin of counter irritant principle, in which chronic inflammatory conditions are changed to acute ones. This increases blood circulation to the cauterized area and provokes the many cellular and humoral immune systems of the body. Similarly the intervention techniques mentioned for detachment of retained fetal membrane are harmful and may lead to endometrial damage, which might cause prolonged uterine involution and persistent corpus luteum with subsequent infertility problems. Manual detachment techniques are contraindicated in modern veterinary practice (10).

Some of the treatment procedures adopted by the farmers are parallel to that of conventional veterinary practices. For instance, apart from lack of anesthesia and strict asepsis, the procedure involved in relieving dystocia is comparable to that of used in modern veterinary obstetrics. Similar procedures in treating dystocia cases were documented in Borana pastoralist, central highland of Ethiopia. Slightly different, but similar techniques of dystocia manipulations have also been reported in Sudan, Kenya and different African countries (11). The method adopted by healers against blackleg is effective, even though, they fail to describe the mechanism behind and justify it scientifically. They understand the problem of virulence and hence they expose the causative agents to the oxygen by tearing the skin where the crepitating sound diagnosed and aimed at reducing the virulence of the causative agent.

The result of this study showed that the impact of traditional practices on livestock disease control is estimated to be 74.28%, which is greater than the impact of conventional veterinary services (25.71%). Previous report has shown that the impact of traditional practices was 40%, while the combined use of traditional and conventional practices accounts for 85% of disease control inputs. The higher figure in this study is due to the fact that western Hararghe agro-pastoral area is relatively less accessible to modern animal health facilities compared to the central highland of Ethiopia.

The western Hararghe agro-pastoralists have stood on their own for centuries to control animal health problem. This knowledge of the livestock owners forms a basis for the emerging and developing participatory epidemiology.

Conclusion

Ethnoveterinary medicine is an alternative practice for animal health care. If they are well documented, validated and integrated with the modern medical practice; they are channels to utilize the naturally available resources and indigenous knowledge. Recognizing the value of this indigenous knowledge empowers livestock owners to attempt to solve their animal health problems in a cost effective way.

In general herbal preparations are crude and could potentially be toxic. Research is therefore needed to determine optimal doses and concentrations of the preparations and to identify the side effects of the remedies. Moreover the efficacy of the preparations, techniques and practices need to be investigated to identify promising plants/techniques for use in livestock development proposal and the documentation and conservation of medicinal plants is therefore highly recommended.

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