Ethiopian traditional veterinary practices and their possible contribution to animal production and management

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Summary: The wide variety of traditional veterinary practices maintained within different ethnic groups provides an indication of the potential usefulness of this neglected knowledge for the Ethiopian livestock husbandry.

In Ethiopia, as in other countries, traditional veterinary medicine involves the work of bone-setters, midwives, religious healers and people who claim the ability to communicate with devils. The knowledge of pastoralists in the areas of tick control, recognition of toxic plants, traditional surgery and traditional vaccination methods is described. Efforts by a Chinese veterinary team to promote traditional Ethiopian veterinary practices have been encouraging. Further evaluation of traditional veterinary practices is recommended as a condition for the integration of these practices with those of modern veterinary medicine. It is also suggested that this evaluation be coordinated and encouraged by the Veterinary Service of the Ministry of Agriculture in Ethiopia.

KEYWORDS: Ethiopia – Medicinal plants – Traditional medicine – Veterinary medicine.

INTRODUCTION

Ethiopia covers several ecological zones and therefore has a wide variety of natural resources, many of which are favourable to various species of plants and animals. Unfortunately, a large number of animal diseases also exist in the country, limiting livestock production.

The people of Ethiopia have used traditional methods to treat both human and animal diseases for generations. Traditional medicine is still widely practised in rural areas where modern public health and veterinary services are limited.

Different ethnic groups have traditional practices which are often distinct and unique. For example, in the highlands, traditional healers are referred to by such different names as woghesha (bone-setter), awalag (midwife), debtera (religious man), and tenkuwai and kallicha (fortune tellers or people able to communicate with devils). In many cases, the same individuals are approached for the treatment of both human and animal ailments. However, these healers always try to keep secret the herbs and
other ingredients which they use. This secrecy is increasingly being considered as causing a loss to the country as a whole, because such traditional healers are becoming fewer and fewer in number.

This paper will try to explain some of the traditional veterinary practices among cattle owners in Ethiopia and their potential contribution to the national livestock economy.

REVIEW OF SOME TRADITIONAL ANIMAL HEALTH MANAGEMENT PRACTICES

Cattle owners in Ethiopia have long been aware of serious diseases such as desta (rinderpest), afeigir (foot and mouth disease), abasenga (anthrax), abagorba (blackleg), gendi (trypanosomosis) and diseases caused by internal and external parasites, and of the zoonotic nature of diseases such as anthrax and rabies. Before the introduction of modern veterinary practice, traditional healers were usually the only people approached to attend to these livestock diseases. The various traditional practices included prevention of diseases, recognition of toxic plants, surgical intervention and crude vaccination methods. Some of these practices are outlined below.

Pastoralists commonly burn grazing land to control ticks. In addition, Somali pastoralists have used infusions from gabogado (Iphonia rotundifolia) leaves and roots as acaricides (5). It has also been reported that plants rich in salts were able to control ticks when fed to livestock by Somali herdsmen. In Alaba (Harsho Kebele district), cattle are given a bath of hot mineral water to control ticks (T. Mesfin, unpublished findings). The usefulness of hot mineral water treatment in killing and controlling external parasites has not been proved and is proposed as a topic for future research. However, it is common knowledge that skin lesions in camels and goats can be controlled by watering in crater wells with high salt concentration in the southern rangelands of Ethiopia (W. Godana, personal communication).

During shortages of animal feed, livestock graze without being selective and may sometimes die following the ingestion of toxic plants. Important toxic plants in Ethiopia include gonde (Oenanthe palustris) in Arsi (T. Mesfin, unpublished findings), Tacazzea yototacolla in Afar (6) and fern plant (Pterdium aquilinum) in Wollega (F. Gebreab and T. Lemecha, unpublished findings, 1980). In Arsi, cattle owners use sotira (Agauria salicifolia) as an antidote to gonde toxicity.

Traditional surgery is also commonly practised. For example, Boran pastoralists treat demodectic blepharitis by slitting the eyelids of affected cattle and removing the pustule (T. Mesfin, personal observations). Blood-letting from the ears of cattle is another popular practice. In Wolaita, midwives replace the prolapsed uterus efficiently using traditional methods and some are able to correct transverse presentation of the foetus during delivery in cows. Branding or firing at various points of the body of the animal is also a common practice for identification of animals and in the treatment of blackleg infection.

Prevention of infection is also a traditional practice. For example, in Shewa, rinderpest outbreaks were checked by spraying corrals and drenching healthy animals with diarrhoeic faeces taken from sick animals and diluted in water (1). As a means of preventing contagious bovine pleuropneumonia, Boran pastoralists cut the skin of healthy cattle on the face above the nostrils and place in the cut a piece of lung tissue
taken from an animal which has died from the disease. Afar pastoralists use the tail tip in the same way. These are crude forms of vaccination.

At the other extreme, spiritual practice is also widely used in Ethiopian traditional veterinary medicine. Amulets are tied round the horns to avoid 'evil eyes'. Counting individual cows is considered to bring bad fortune to the owners, and it is believed that rabies (*yabid wusha beshita*) should not be mentioned when healthy dogs are nearby. For many diseases, prohibition of drinking water for sick animals is also common, especially after a local treatment; this is probably intended to prevent the spread of contagious diseases.

Some countries (China and India) have recognised the effectiveness of traditional practices in treating livestock diseases and promote the production of herbal preparations which are commercially available to veterinary practitioners. Some of the experiences of foreign specialists in Ethiopia are outlined below.

The experience of a Chinese veterinary team in Ethiopia

Between 1974 and 1976, a Chinese veterinary team in Ethiopia reported the preparation of twenty-two kinds of medicine in the form of powder, tincture and ointment for the treatment of livestock wounds, gastro-intestinal diseases, respiratory diseases, skin diseases, pain and pyrexia (Chinese Veterinary Mission at Bahir Dar, unpublished findings).

Among these preparations, eucalyptus leaf oil was reported as bacteriostatic against *Staphylococcus aureus*, *Escherichia coli* and *Bacillus anthracis*. The Chinese veterinary team also reported details of the treatment of 33,384 animals. Of these, 70% were treated using herbal preparations produced from Ethiopian herbs. The report also included the effectiveness of *metere* (*Glinus lotoides*) against *Moniezia* and *Thysaniezia* spp. (C.Y. Chang, unpublished findings, 1978).

Indian herbs (*Ayurvedic medicines*) evaluated in Ethiopia

An efficacy test was conducted by A. Tigeneh and F. Gebreab (unpublished findings) on four commercial preparations produced by the Bhartiya Bootee Bhawan Company in India. The preparations were known by their trade names (Herminsa, Afron, Cofgon and Diadisco). Only the composition of Diadisco and Cofgon was explained in the report. Diadisco was found to be an effective anthelmintic, and Afron was found to be useful for the treatment of tympanitis.

The Ethiopian experience

Few scientific studies or evaluations have been conducted in Ethiopia. Of the well-documented studies, Lemma (3) reported *endod* (*Phytolacca dodecandra*) to be an effective molluscicidal which helps in the control of schistosomosis and fasciolosis in humans and animals. Even the raw berry of this plant proved effective in the reduction of schistosomes in a five-year study conducted in Adwa on human patients (4). In addition, much work has been conducted on the isolation of various saponins, namely Lemmatoxins A, B and C. *Kosso* (*Hagenia abyssinica*) was found to be effective against *Moniezia* spp. in sheep in an experiment carried out in the Asela Regional Veterinary Laboratory (T. Obsa, unpublished findings, 1989). The use of this medicament against human tapeworms is also very well known. 'Propolis alcohol' preparation has been found effective for the treatment of infectious bovine keratoconjunctivitis in the Asela Regional Veterinary Laboratory (G. Takele and A. Zerihun, unpublished findings, 1991).
Despite the above evidence, many veterinarians do not recognise the importance of traditional veterinary practices. Some think of traditional practices as mere superstition. Others see traditional medicine as the domain of 'quacks'. Some veterinarians even argue that the active ingredient of a particular herb should be known before it may be used as a treatment. On account of these views, little work has been done to promote traditional medicine. However, experience in other countries has shown that traditional medicine could be useful if applied as an integral part of modern veterinary medicine. After all, several modern treatments are simply pharmacological formulations of crude plant extracts.

**POTENTIAL IMPACT OF TRADITIONAL VETERINARY MEDICINE IN ETHIOPIA**

Ethiopia has great potential for economic development, but is currently among the poorest countries of the world. Exports of both live animals and processed meat are limited due to poor hygiene conditions. The animal health service in Ethiopia is gradually being improved but cannot yet deliver complete services. One of the constraints on the national Veterinary Services is the lack of available drugs due to the limited foreign currency which the country can afford to spend on imported 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.

According to slaughterhouse records in the Bale administrative district (Dodola, Adaba, Goba and Robe), 7,171 (57%) of 12,683 animals slaughtered between 1985 and 1989 were found to be infected with liver fluke (*Fasciola hepatica*). In Bahir Dar, the Chinese veterinary team reported that 156 (88.6%) of 176 animals examined around Lake Tana were found positive for *Fasciola hepatica*. If this parasite exists in 10% of the total cattle population of 27 million, this would mean that 2.7 million cattle are possibly affected every year. Treatment would therefore cost approximately 2.7 million birr (US$540,000), even if cattle owners were charged only 1 birr (US$0.20) per animal. This illustrates the high cost that Ethiopia would have to pay to address only one of the diseases existing in the country.

On the other hand, *Phytolacca dodecandra* (endod) is one available traditional resource which has not been widely used to control the snails which transmit fasciolosis. This could help to curb the high incidence of infestation, for example in the Bale and Lake Tana districts.

Elsewhere, in Bolivia for example, 30,000 sheep were effectively treated against liver fluke using an extract of *Aspidium filizmas* (8). This plant is not indigenous to Ethiopia, but importing the germ plasm and cultivating the plant could guarantee a self-sustaining service to cattle owners; this would be preferable to developing a dependence on imported drugs which may not be available at all times.

As noted earlier, not only has traditional medicine been practised for a long time, but it has often served as the basis for modern methods. Cinchena bark was used as an antimalaria treatment for centuries before quinine was isolated. Atropine from *Atropa belladonna* and strychnine from *Strychnos nux vomica* are other examples of the contribution of herbs to modern medicine. *Enselaal* (*Foeniculum vulgare*) is reported to be carminative and galactogenic (7), and is even used in the treatment of blepharitis.
Although not yet evaluated, many plants from southern rangelands are used by Borana pastoralists in livestock treatment. These include *hagaarsu* (*Commiphora erythraea*) which is given to female animals and women to help the removal of afterbirth (reported by R. Wilding in 1984 in an internal paper of the International Livestock Centre for Africa entitled: ‘A preliminary checklist of plants used in Borana economy’). The root of the *harkeena* tree (common name) is used as a medicine to encourage cows to lactate, and *koboo* is used as a treatment for scabies.

Traditional practice contains potential knowledge, although this remains largely unexplained. In Arsi, cattle owners feed their cattle on *bole* (mineral soil) after mixing this with red soil. A chemical analysis of these soils revealed a higher percentage of phosphorus in the red soils than in the *bole* samples taken from various lakes in the Rift Valley (2). This explains why cattle owners mix the red soil with *bole*.

However, few traditional medicines have been analysed to determine the active ingredients. This appears to be important prior to the extensive recommendation of such treatments. However, isolation of the active ingredients should not be a precondition if clinical observation supports the effectiveness of a particular herb which is claimed to be useful by traditional healers. For example, the search for an effective remedy for streptothricosis in the Asela Regional Veterinary Laboratory has not yet succeeded, although cattle owners have suggested that herbs such as *bissana*, *girawa* and others can be effective in the treatment of this disease.

In some instances, modern medicine may not be very precise in action. For example, when thalidomide was taken by pregnant women in Europe, this sometimes caused congenital deformities in their offspring. Aspirin can also cause cerebral haemorrhaging in new-born babies (8). Carbon tetrachloride, once used as a treatment against liver fluke, is also toxic and is no longer recommended for use.

**LIMITATIONS OF TRADITIONAL MEDICINE**

The fact that some herbs are available only in certain seasons often limits the application of traditional medicine. Moreover, some of the preparations are mixtures of many kinds of plants which may be difficult to find at the same time.

Traditional medicine is sometimes also combined with supernatural practices such as prayer, incantation and chanting which give power to *tenkuwais*, *kallichas* and *debteras*.

Traditional ‘vaccinations’, such as those mentioned for rinderpest and contagious bovine pleuropneumonia, are in no way comparable to modern biological products, as the traditional ‘vaccines’ may have adverse effects. However, adequate vaccination has not been a problem in Ethiopia, as sufficient quantities of modern vaccines are produced for the major diseases.

**RECOMMENDATIONS**

As a consequence of recurrent drought and rapid deforestation, Ethiopia is losing much of its plant genetic resources. Therefore, a national campaign is urgently required to identify, collect and document important traditional medicinal plants. These should then be evaluated to provide reliable information on the most useful plants to be conserved.
Traditional knowledge of medicine is communicated verbally from generation to generation, which means that modifications may have been introduced at various stages, and the surviving information may dwindle due to the advance of modern medicine and the decline of tradition. To save this valuable information, an association of traditional healers should be formed. Traditional healers should be given some incentive, such as being appointed as veterinary scouts. 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.

Information contained in various reports – such as ‘Some common medicinal and poisonous plants used in Ethiopian folk medicine’ (A. Getahun, unpublished findings, 1976) and ‘Eise debdabe’ (in Amharic) (G. Abate, unpublished findings, 1989) – should be evaluated scientifically to provide reliable information to veterinarians and cattle owners. In the main, these records contain information obtained from traditional healers with regard to their practices. The evaluation should be performed in both laboratories and clinics. Regional veterinary laboratories possess the equipment necessary for such evaluations. A good example is provided by the Bahir Dar Laboratory, where a Chinese veterinary group produced twenty-two preparations; unfortunately this work was discontinued when the Chinese team left the country. The Asela Veterinary Laboratory has successfully undertaken an experiment on the efficacy of *Hagenia abyssinica* in treating sheep against *Moniezia* spp.

Regional veterinary laboratories should preferably be situated near a livestock farm, such as the farm in Asela where poultry, sheep and dairy animals are available for experimental observations. Ministry of Agriculture ranches, such as the sheep ranch which is under construction in Kokosa (Bale district), should also help in undertaking experimental observations. At the Kokosa sheep farm, the ecology is ideal for liver fluke infestation. Adjacent to the farm is another district called Nensebo where *endod* grows abundantly. Future programmes at the ranch are scheduled to include snail control using the raw berry of *endod*.

To enrich existing traditional practice, medicinal plants which have already been approved in other countries could be imported. This would involve the importation of seeds and subsequent cultivation to maintain a continuous supply of herbal drugs. A good example is provided by *Atriplex* (salt bush), which is imported as a forage plant in the lowlands. The ability of this plant to control ticks should be tested in the future. The plant could then be cultivated extensively, making it available throughout the year.

The authors propose that a unit should be created within the national Veterinary Department to coordinate and guide experiments and, when plants are found to be effective, to ensure plant production on a sufficient scale. This unit should include professionals from a variety of disciplines, such as veterinarians, plant taxonomists, anthropologists, pharmacologists and biochemists. These professionals should be responsible for delivering lectures on traditional medicines for veterinary field professionals and students in veterinary-oriented institutions.

**CONCLUSION**

Traditional veterinary medicine has a potential contribution to make to the Veterinary Services in Ethiopia and in other countries, as livestock health and
production can be improved by such methods, thereby ultimately benefiting livestock owners. Several traditional practices have been scientifically evaluated as effective and therefore should not be confused with 'quackery'.

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**LES PRATIQUES VÉTÉRINAIRES TRADITIONNELLES EN ÉTHIOPIE ET LEUR POSSIBLE CONTRIBUTION À LA PRODUCTION ANIMALE ET À SA GESTION.** - T. Mesfin et T. Obsa.

**Résumé:** L'éventail des pratiques vétérinaires traditionnelles auxquelles recourent différents groupes ethniques en Éthiopie donne une indication des bénéfices que l'élevage de ce pays pourrait tirer de la valorisation de ces connaissances en général négligées.

En Éthiopie, comme ailleurs, la médecine vétérinaire traditionnelle fait appel à des rebouteux, des empiriques, des guérisseurs religieux ou d'autres personnes réputées communiquer avec les démons. Les auteurs décrivent les connaissances des éleveurs concernant la lutte contre les tiques, l'identification des plantes toxiques, la chirurgie et les méthodes de vaccination traditionnelles. Les efforts entrepris par une équipe de vétérinaires chinois pour promouvoir ces pratiques traditionnelles sont encourageants. Ces pratiques doivent faire l'objet d'une évaluation plus approfondie avant d'être intégrées dans la médecine vétérinaire moderne. Les auteurs suggèrent également que les Services vétérinaires du ministère de l'Agriculture éthiopien coordonnent et favorisent une telle évaluation.

**MOTS-CLÉS:** Éthiopie - Médecine traditionnelle - Médecine vétérinaire - Plantes médicinales.

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**Resumen:** Las prácticas veterinarias etíopes tradicionales se caracterizan por su diversidad según los distintos grupos étnicos del país. El conocimiento de estas prácticas muy poco estudiadas puede ser de gran interés para la producción animal nacional.

Como en otros países, la medicina tradicional se vale en Etiopía de ensalmadores, médicos empíricos, curanderos por arte religioso, y otras personas que se pretenden en contacto con los demonios. Los autores se refieren a los conocimientos con que cuentan los ganaderos en cuanto a lucha contra las garrapatas, identificación de plantas tóxicas, cirugía y métodos de vacunación tradicionales. Consideran alentadores los esfuerzos realizados por un equipo de veterinarios chinos para promover estas prácticas tradicionales. Estas deberían ser objeto de estudios de mayor fiabilidad antes de poderse integrar en la medicina veterinaria moderna. Sugieren, por último, que quepa a los Servicios veterinarios del Ministerio de Agricultura de Etiopía la tarea de favorecer y coordinar esta necesaria evaluación.
REFERENCES


