

**The Use of Ethnoveterinary Medicine in Goats in Lentsweletau
Village in Kweneng District of Botswana**

Setlalekgomo M.R. and Setlalekgomo T.

J Vet Adv 2013, 3(7): 197-202

DOI: 10.5455/jva.20130717124808



The Use of Ethnoveterinary Medicine in Goats in Lentsweletau Village in Kweneng District of Botswana

*¹Setlalekgomo M.R. and ²Setlalekgomo T.

¹Botswana College of Agriculture, Private Bag 0027, Gaborone, Botswana.

²University of Botswana, Private Bag 0022, Gaborone, Botswana.

Abstract

The study was conducted to document the use of ethnoveterinary medicine in goats in Lentsweletau village in Kweneng district of Botswana. Structured questionnaires were used to collect information from 30 goat owners. The respondents were 53.33% females and 46.67% males. Seventy percent of the respondents used both modern and traditional medicine, 16.67 % used modern medicine only, 10 % used traditional remedies only and 3.33% used no medication on their goats. Nineteen ailments were reported, of which pasteurellosis and contagious abortion were the most frequent. The study revealed 13 plant species and other non-plant remedies which were commonly used in the treatment of diseases and the control of intestinal parasites in goats. *Aloe spp.* (mokgwapha) was the most frequent plant used (17.65 %). The plant was used to treat diarrhoea, cough and mange. Leaves and roots were the most frequently used plant parts used (35.29% each), followed by whole plant (23.54 %) and lastly the bark (5.88 %). Several non-plant remedies were reported. These included animal products like pig's fat and a ground body of a dead old millipede. The medicinal value of the EVM documented in the present study should be confirmed in the laboratory so that they could be safely used by resource-limited farmers in the village.

Keywords: Diseases, ethnoveterinary medicine, goats, lentsweletau, traditional medicine.

* Corresponding author: Botswana College of Agriculture, Private Bag 0027, Gaborone, Botswana.

Received on: 25 Jun 2013

Revised on: 07 Jul 2013

Accepted on: 17 Jul 2013

Online Published on: 28 Jul 2013

Introduction

Almost all farmers over the world use indigenous knowledge in conjunction with modern veterinary medicine to treat livestock diseases (for example Yineger et al., 2007). The resource-limited farmers use herbal medicines mostly to treat their livestock (Alamgir and Uddin, 2010; Masika and Maphosa, 2010; Mizaei-Aghsaghali, 2012) because they are cheaper while modern drugs are expensive and unaffordable to them. The application of indigenous knowledge in the treatment of livestock diseases is referred to as ethnoveterinary medicine (Khan et al., 2012; Gabalebatse et al., 2013). The use of ethnoveterinary medicine is important in Botswana, as some farmers may not afford to buy veterinary drugs and do not know how to handle and administer vaccines to their animals (Moreki et al., 2010).

Ethnoveterinary medicine is an indigenous knowledge system which should be passed on from one generation to another in the community so that it is not forgotten. It should be documented and preserved for future generations. Despite the fact that ethnoveterinary medicine is used all over the world, it is not well documented in some areas hence the importance of this study. The objectives of the study were to investigate the type of ailments experienced by goats in Lentsweletau village and the type of medication farmers use to treat their goats for each ailment, whether modern or traditional.

Materials and Methods

Study Site

The study was conducted at Lentsweletau village in Kweneng district of Botswana from February to March 2013. The village is located at 24° 22' 47" S x 25° 51' 0" E, about 60 km north of Gaborone, the capital city of Botswana.

Data Collection

Data were collected by means of questionnaires. The questionnaire was divided into general information and sections on diseases of goats experienced in the village and medication

used to treat them. The questionnaires were administered by calling at the respondents' homes and asking them questions. Where the respondents could not read or did not understand English, the questions were read and interpreted to them in Setswana and their responses recorded in English. The questionnaires were administered by one person to minimise the errors in data collection. The information obtained from the questionnaires was analysed using statistical and simple percentage methods.

Results and Discussion

Demographic Characteristics

Females were the main owners and carers of goats, constituting 53.33% of the total respondents while males constituted 46.67% (Table 1). This may be due to the fact that most women in villages stay at home with children while men go to work. The 46.67% of the respondents were aged 20-35 years followed by those aged 36-45 years (30.00%) and lastly those aged 46 years and above (23.33%).

Table 1: The demographic characteristics of respondents.

Variable n=30	Category	Number of respondents	% of respondents
Gender	Male	14	46.67
	Female	16	53.33
Age (years)	20 - 35	14	46.67
	36 - 45	9	30.00
	46 and above	7	23.33
Marital status	Single	23	76.67
	Married	5	16.67
	Widowed	2	6.66

Goats' Diseases Control and Management

Seventy percent of the respondents in this study said they used both modern and traditional medicine to treat goat diseases. The 16.67 % of the respondents said they used modern medicine alone while the 10 % of the respondents said they used traditional remedies alone. Some respondents (3.33%) said they did not use any medication on their goats (Table 2). This may be due to lack of

knowledge of what remedies to use for certain ailments or lack of money to buy modern medicine. In cases where farmers cannot afford modern medicine, traditional medicine can help in alleviating pain or saving the life of the animal concerned, hence the need of documenting ethnoveterinary medicine and passing on the indigenous knowledge from one generation to another.

Table 2: Goats' disease control and management in Lentsweletau village in Kweneng district of Botswana.

Variable n=30	Number of respondents	% of respondents
Modern medicine	5	16.67
Traditional medicine	3	10.00
Modern and traditional medicine	21	70.00
No medicine	1	3.33

Goats' Diseases and Medicine/Remedies Used by Goats' Owners

The respondents reported nineteen ailments/diseases experienced by goats in their village (Table 3). The most common diseases

reported were pasteurolosis and contagious abortion (11.72% each). The least common diseases reported were wounds and mastitis (0.78% each).

Table 3: Goats' diseases reported by goats' owners in Lentsweletau.

Ailment	%Frequency of report
Pasteurolosis (madi)	11.72
Internal parasites (dibokwana)	9.38
Gallsickness	2.34
Contagious abortion (pholotso)	11.72
Ticks (external parasites)	6.25
Retained placenta (motlhana)	7.03
Eye diseases (matlho)	10.94

Foot rot (tlhakwana)	10.16
Diarrhoea (letshololo)	2.34
Dystokia (go harelwa)	3.13
Mange (sekwape)	7.81
Orf (scabs form around mouth and nostrils, <i>makgomokwane</i>)	5.47
Botulism	2.34
Cough	3.13
Diphtheria (sebeta)	1.56
Boils	1.56
Wounds	0.78
Heart water	1.56
Mastitis	0.78
TOTAL	100.00

The plants and plant parts used by goats' owners to treat goats' ailments are shown in Table 4. The plant parts used were leaves, roots, barks and whole plant. The leaves and the roots were the commonly used plant parts (35.29% each), followed by whole plant (23.54 %) and lastly the bark (5.88 %). The use of parts of plants in EVM in the present study is in accordance with the study by Finch et al. (2003) where livestock owners used roots (59%), leaves (26%) and whole plant (13%) for medicinal purposes.

Out of the thirteen plant species used in the treatment of diseases and the control of intestinal parasites in goats in Lentsweletau village, *Aloe spp.* (mokgwapha) was the most frequent plant used (17.65 %). According to Mwale et al. (2006), *Aloe vera* leaf and juice may be used internally or externally in animals. This agrees with the present study where goats' owners peeled the juicy leaves of aloe and applied them the wounds as well as feed the goats with the leaves to control diarrhoea and cough.

The treatment of diarrhoea by the use of *Terminalia serecea* was reported in the present

study and in other studies. For example, a decoction of the roots of *T. serecea* was reported to cure diarrhoea and to relief colic in humans by Drummond and Moll (2002). According to Moreki et al. (2010), the respondents mentioned that *T. serecea* was used for the treatment of internal parasites in livestock. Gabalebatse et al. (2013) also reported the use of *T. serecea* by all the ethnic groups in Ngamiland district in Botswana in the treatment of diarrhoea in livestock. *T. serecea* seems to be an invaluable medicinal plant for man and his animals. The use of *Spirostachys africanum* and *Dicerocaryum eriocarpum* in the treatment of retained placenta had also reported in cattle (Van der Merwe et al., 2001; Moreki et al., 2012).

Moreki et al. (2010) attributed the wide use of traditional remedies in health management in poultry in Southern and Western Districts of Botswana to lack of knowledge in the use of chemical remedies and their high price in most rural areas. This may be the case in the present study. Guéye (1999) argues that EVM is the only option for most of village farmers in Africa because there are almost no veterinarians in African rural areas.

Table 4: Plants used in ethnoveterinary medicine, plant parts used and goats' diseases treated

Plant species used	Part of plant used	Diseases treated
<i>Senna italic (Sebeta)</i>	Roots	Pasteurollosis
<i>Nicotiana tabacum (Tobacco)</i>	Leaves	Internal parasites
<i>Thamnosma rhodesica (Moralala)</i>	Whole plant	Contagious abortion
<i>Spirostachys africanum (morukuru)</i>	Bark	Retained placenta
<i>Dicerocaryum eriocarpum (makanangwane)</i>	Roots	
<i>Burkea africana (monato)</i>	Bark	
<i>Nicotiana tabacum. (Snuff)</i>	Leaves	Eye diseases
<i>Boscia albitrunca (motlopi)</i>	Leaves	

<i>Urginea sanguinea (sekaname)</i>	Roots	Foot rot
<i>Grewia flavescens (mokgomphatha)</i>	Roots	
<i>Terminalia sericea (mogonono)</i>	Roots	Diarrhoea
<i>Aloe sp (mokgwapha)</i>	Leaves	
<i>Aloe sp (mokgwapha)</i>	Leaves	
<i>Harpagophytum procumbens (sengaparile)</i>	Roots	Mange
<i>Aloe sp (mokgwapha)</i>	Leaves	Cough
<i>Moringa oleifera</i>	Whole plant	
<i>Senna italica (sebeta)</i>	Whole plant	Diphtheria

In addition to ethnobotanical medicine, Lentsweletau village goats' farmers used other remedies including ethnozoological ones (Table 5). They used ground old whitish dead millipede to treat eye diseases and pig's fat to treat mange in goats. In northeast India, black millipede is used to treat tuberculosis in man (Chinlapianga et al., 2013). The other rare indigenous knowledge information recorded was the treatment of mastitis by milking the ailing goat on a heated small anthill (Table 5).

Several remedies were used in the treatment of pasteurullosis in goats in this study (Table 5). The

cutting of the ear to blood let was the most common remedy used (57.14 %) followed by the cutting of the tail (21.43 %), salty water given orally (14.29%) and lastly the potassium permanganate dissolved in water given orally (7.14 %). Soapy water was reported to treat three ailments in the present study; internal parasites, retained placenta and dystokia. The use of soapy water has also been reported in the treatment of retained placenta in cattle by Moreki et al. (2012). Most respondents use salty water (72.73%) than soapy water (27.27 %) in the treatment of retained placenta in this study unlike in cattle where

Table 5: Goats' diseases and remedies used for treatment other than medicinal plants.

Ailment	Medication/remedy used	Frequency of report
Pasteurullosis	Cut ear to blood let	8
	Salty water given orally	2
	Cut tail to blood let	3
	Potassium permanganate in water	1
Internal parasites	Soapy water given orally	7
Gallsickness	Tar	1
Ticks (external parasites)	Dip	5
	Tick grease	1
	Used motor oil	2
	Paraffin	2
	Bath with soapy water	1
Retained placenta	Salty water	8
	Soapy water	3
Eye diseases	Ground sugar	11
	Ground old whitish dead millipede	3
Foot rot	Grease tick	5
	Paraffin	3
	Candle mixed with paraffin	1
	Used motor oil	2
	Warm water with paraffin	1
	Grease	1
Dystokia	Sunlight soap in water	4
Mange	Used motor oil applied to skin	4
	Tick grease	1
	Pig's fat	1
Orf (scabs form around mouth and nostrils)	Tick grease	2

	Tar	1
Boils	Tick grease	1
	Battery coal	1
	Battery coal	1
Wounds	Battery coal	1
Mastitis	Milk the goat on a heated small anthill	1

Conclusion

The Lentsweletau village goats' owners have a rich heritage of ethnoveterinary knowledge. The heritage includes medicinal plant and animal usage. No written records of ethnoveterinary medicine in the study site were encountered. The scientific validation and the safety and efficacy of the medicinal plants and animals, and other remedies recorded in this study are required, so that they could form an alternative cost effective strategy in the village.

Acknowledgements

The authors will like to thank the respondents of the questionnaire for providing a valuable content of the study.

References

Alamgir M, Uddin SJ (2010). Recent advances on the ethnomedicinal plants as immunomodulatory agent. In: Ethnomedicine: A source of complementary therapeutics, Chattopadhyay, D. (Ed.) Res. Signpost Kerala India. pp: 227-244.

Chinlampianga M, Singh RK, Shukla AC (2013). Ethnozooological diversity of Northeast India: Empirical learning with traditional knowledge holders of Mizoram and Arunachal Pradesh. Indian J. tradit. Knowl., 12(1): 18-30.

CSO (Central Statistics Office) (2002). The 2001 Botswana Population and Housing Census. Gaborone: Ministry of Finance and Development Planning.

Drummond RB, Moll EJ (2002). Keith Coates Palgrave Trees of Southern Africa. Struik Publishers, Cape Town, South Africa. 225: 345-346, 666-667.

Gabalebatse M, Ngwenya BN, Teketay D, Kolawole DO (2013). Ethno-veterinary practices amongst livestock farmers in Ngamiland District, Botswana. Afr. J. Tradit. Complement Altern Med., 10(3): 490-502. <http://dx.doi.org/10.4314/ajtcam.v10i3.16490>.

Guéye EF (1999). Ethnoveterinary medicine against diseases in African villages. World's Poultry Scie. J. 35: 187-198.

Khan MA, Khan MA, Hussain M (2012). Ethno veterinary medicinal uses of plants of Poonch Valley Azad Kashmir. Pak. J. Weed Sci. Res., 18(4): 495-507.

Maphosa V, Masika PJ (2010). Ethnoveterinary uses of medicinal plants: a survey of plants used in the

ethnoveterinary control of gastro-intestinal parasites of goats in the Eastern Cape Province, South Africa. Pharm. Biol., 48(6): 697-702. DOI: 10.3109/13880200903260879.

Mizaei-Aghsaghali A (2012). Importance of medical herbs in animal feeding. A Review. Ann. Biol. Res., 3: 918-923.

Moreki JC, Tshireletso K, Okoli IC (2012). Potential use of ethnoveterinary medicine for retained placenta in cattle in Mogonono, Botswana. J. Anim. Prod. Adv., 2(6): 303-309.

Moreki JC, Poroga B, Dikeme R, Seabo D (2010). Ethnoveterinary medicine and health management in poultry in Southern and Western Districts, Botswana. Livestock Research for Rural Development 22(6). Retrieved May 30, (2013), from <http://www.lrrd.org/lrrd22/6/more22107.htm>.

Mwale M, Bhebhe E, Chimonyo M, Halimani TE (2006). The in vitro studies on the effect of *Aloe vera* ((L) Webb. and Berth.) and *Aloe spicata* (L.F.) on the control of coccidiosis in chickens. International Journal of Applied Research in Veterinary Medicine 4(2): 128-133.

Van der Merwe D, Swan GE, Botha CJ (2001). Use of ethnoveterinary medicinal plants in cattle by Setswana-speaking people in the Madikwe area of the North West Province of South Africa. J. S. Afr. vet. Ass., (2001) 72(4): 189-196.

Yineger H, Kelbessa E, Bekele T, Lulekal E (2007). Ethnoveterinary medicinal plants at Bale Mountains. J. Ethnopharmacol., 112: 55-70.