

Full Length Research Paper

Ethnozoological study of traditional medicinal animals used by the people of Kafta-Humera District, Northern Ethiopia

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Zootherapy is the healing of human ailments by using therapeutics based medicines obtained from animals. The present study reports the use of drugs of animal origin that have been practiced by the people of Kunama in Kafta-Humera district, Northern Ethiopia. Ethnozoological data was collected from 30 traditional healers who were selected based on their experience and recognition as experts from September to November, 2010. Sixteen species of medicinal animals were collected and identified for treating 18 different human ailments, of which about 44% were domestic animals. The traditional medicine were administrated orally (14, 63.6%) and dermatologically (8, 36.4%). Majority (17, 77.3%) of the remedy preparations did not have additive substances. Different parts and products of animals that were used for remedy preparations include bile, milk, blood, pancreas, urine, hair and fecal matter. The medicinal animals have various methods of preparation for different types of ailments like crushing, powdering, squeezing, direct use and cooking. Most of the traditional medicinal animal preparations were used in fresh form (16, 72.7%). Further studies concerning the conservation and management of the animal resources are needed. People of the study area should take care of their animal resources so as not cause total eradication.

Key words: Ethnozoology, Kafta Humera, medicinal animals.

INTRODUCTION

The traditional medical knowledge of indigenous people across the globe has played an important role in identifying living organisms which are important for treating human health problems and livestock. The investigation for new pharmaceuticals from naturally occurring biological material has been guided by ethnobiological data (Blakeney, 1999). Ingredients sourced from wild plants and animals are used in traditional medicines and as raw materials in the preparation of modern medicines and herbal preparations (Kang, 2003). According to the World Health Organization (1993), about 80% of the world people rely primarily on animal and plant-based medicines. Since ancient times, animals and their products have been used in the preparation of traditional remedies in various cultures (Lev, 2003).

The healing of human ailments by using therapeutics based medicines obtained from animals is called zootherapy (Costa-Neto, 2005). It plays a significant role in the healing practices, magic rituals and religions societies all over the world (Angeletti et al., 1992; Rosner, 1992). Zootherapy constitutes an important alternative in modern societies, among many other known therapies practiced worldwide (Alves and Rosa, 2005). Wild and domestic animals and their by-products such as hooves, skins, bones, feathers and tusks are important ingredients in the preparation of curative, protective and preventive medicine (Adeola, 1992; Angeletti et al., 1992).

Traditional medicines have been found to be an invaluable guide in present day to the screening of important modern drugs such as digitoxin, reserpine, tubocurarine, and ephedrine (Anyinam, 1995). Of the 252 essential chemicals selected by the World Health Organization, 8.7% came from animals (Dedeke et al.,

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Table 1. Background characteristics of sample respondents (n=30).

Item	Alternative	Count	Percentage
Sex	Male	21	70
	Female	9	30
Age	35-44	7	23.33
	45-60	8	26.66
	>60	15	50
Educational status	Illiterate	27	90
	Literate	3	10

2006). Loss of traditional knowledge has impact on the development of modern medicine (Alves and Rosa, 2005). It is important to document the traditional knowledge of human communities, since the majority of such communities are losing their socioeconomic and cultural characteristics (Alves and Rosa, 2005).

In Ethiopia, many ethnic communities are dispersed all over the country and these people mainly use local traditional medicine for their health care. Enormous work has been done on ethnobotany and traditional medicine in the country, but reports about entozoology of Ethiopia are still lacking. The present study was carried out to investigate the use of drugs of animal origin that have been practiced by the people of Kunama in Kafta-Humera District, Northern Ethiopia.

Study area

The study was conducted in Kafta-Humera District, Tigray National Regional State, Northern Ethiopia, specifically Hlet-Coca sub-district in Northern Ethiopia. The district is about 560 km to the West of Mekelle, the Capital City of Tigray Regional State, with an altitude ranging from 580 to 1820 m above sea level; and estimated population of 94,210 (Berhane and Ahmed, 2008). In the study district, there are 15 rural and two urban kebeles with a population of 70, 210 and 24,000 respectively, where households in rural kebeles are clustered in confined areas, but did not have municipality (lack of which identifies as rural setting). Most of the residents are returnees from Sudan after the cessation of civil war in Ethiopia (Berhane and Ahmed, 2008).

METHODS

In order to acquire ethnozoological information about the medicinal animal and their products used in traditional medicine, a study was conducted from September to November, 2010. The ethnozoological data (local name of animals, mode of preparation and administration, part of the animal used and ingredients added)

were collected through semi-structured interview (Yirga, 2010a, b; Zerabruk and Yirga, 2011) with 30 informants (21 males and 9 females). The selection of informants was based on their experience, recognition as experts and knowledge concerning traditional medicine and their age ranged from 35 to 65 years. Plates of each medicinal animal were collected on spot for identification. Identification of the medicinal animals was done in Mekelle University, using internet, by comparison with collected plates and illustrations.

RESULTS

Most of the traditional healers were illiterate (90%) and were males (70%) and 76.7% were older than 45 years (Table 1). Sixteen species of medicinal animals were collected and identified for treating 18 different human ailments of which about 44% were domestic animals (Table 2). The traditional medicine were administrated orally (14, 63.6%) and through dermal (8, 36.4%). Majority (17, 77.3%) of the remedy preparation did not have additive substance while the remaining had different additive substance like cheese, sugar, water, garlic, soot and black lead. Different parts and products of animals were used for remedy preparations including bile, milk, blood, pancreas, urine, hair and fecal matter (Table 2). The medicinal animals have various methods of preparation for different types of ailments like crushing, powdering, squeezing, direct use and cooking (Figure 1). Most of the traditional medicinal animal preparations were used in fresh form (16, 72.7%). Goiter, tinea vesicular, night blindness, abdominal cramp and migraine headache were some of the important diseases in the study area (Table 2).

DISCUSSION

People in Northern Ethiopia used various animal species located in their immediate surroundings and remote areas to cure their diseases and improve their health. Nature has been the source of medicinal agents for

Table 2. List of medicinal animals, diseases treated, ingredients added, and condition of animals used in the study area.

Vernacular name	Species name	Family	Diseases treated	Ingredients added	Condition of animal used	Parts used
Dumu	<i>Felis domesticus</i>	Felidae	Goiter	None	Fresh	Urine
Derho	<i>Gallus domesticus</i>	Phasianidae	Tenea vesicular	None	Fresh	Bile
Kinfz	<i>Paraechinus aethiopicus</i>	Erinaceidae	Abdominal cramp	None	Dry	Stomach
			Diarrhea	None	Fresh	Bile
			Abdominal cramp	None	Fresh	Bile
Gimel	<i>Camelus dromedarius</i>	Camelidae	Stanbic pain	None	Fresh	Milk
			Migraine headache	None	Fresh	Whole animal
Teli	<i>Capra hircus</i>	Bovidae	Dandruff	Water	Fresh or dry	Fecal matter
Adigi	<i>Equus asinus asinus</i>	Equidae	Common cold	None	Fresh	Milk
Bege	<i>Ovis aries</i>	Bovidae	Night blindness	None	Fresh	Pancreas
Tsidenay			Heart failure	None	Fresh	Haney
Zibe	<i>Crocuta crocuta</i>	Hyaenidae	Tuberculosis	None	Fresh or dry	Meat
			Sexual attraction	Soot and black lead	Dry	Lip
Mefles	<i>Phacochoerus aethiopicus</i>	Suidae	Arthritis	None	Fresh	Blood
Harmaz	<i>Loxodonte africana</i>	Elephantidae	Migraine headache	Water	Fresh or dry	Fecal matter
Agazen	<i>Cervus elaphus</i>	Cervidae	Urinary retention	None	Fresh	Urine
Beray	<i>Bos taurus</i>	Bovidae	Malaria	None	Fresh	Urine
Hibey	<i>Erythrocebus patas</i>	Cercopithecidae	Muscle spasm	None	Fresh	Buttock
Nhiby	<i>Apis mellifera</i>	Apidae	Allergic	Cheese and sugar	Fresh	Honey
			Burn	None	Fresh	Honey
			Common cold	Milk and garlic	Fresh	Haney
Mantile	<i>Oryctolagus cuniculus</i>	Leporidae	Burn	None	Dry	Hair

thousands of years and a number of modern drugs have been isolated from natural sources based on their use in traditional medicine (Ghorbani et al., 2006). In the present study,

sixteen species of medicinal animals were collected and identified for treating 18 different human ailments from Kunama in Kafta-Humera district, Northern Ethiopia. About 15 to 20% of the

Ayurvedic medicine in India is based on animal-derived substances (cheese, milk, meat, eggs, chicken, sea shell and animal parts) (Unnikrishnan, 1998). Jain et al. (2007) reported

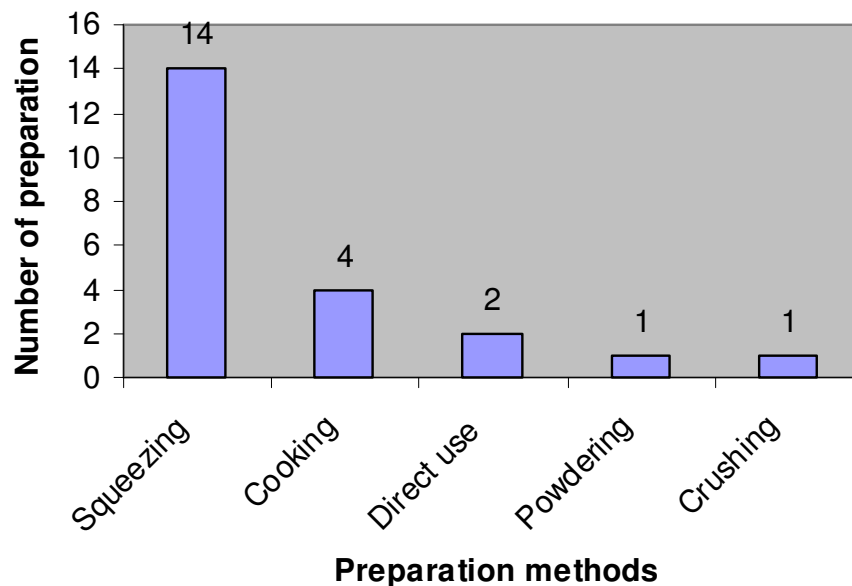


Figure 1. Methods of preparation of traditional medicinal animals' remedies in the study area.

from 85 remedies used to cure various ailments in Rajasthan, India.

Majority of the traditional healers were older than 45 years. It is not easy to get their traditional medicinal information in Ethiopia as they considered their indigenous knowledge a professional secret, only to be passed orally to their older son, at their oldest age (Jansen, 1981). Traditional healers in Ethiopia held their indigenous knowledge in secret (Yirga, 2010a; Zerabruk and Yirga, 2011).

Animals are not only used in traditional medicines but are also increasingly needed as raw materials in the preparation of modern medicines. Nearly 8.7% of the 252 essential chemicals selected by the World Health Organization came from animals (Dedeke et al., 2006). There has been increasing attention paid to animals as sources for new medicines (Jain et al., 2007). They have been methodically tested by pharmaceutical companies as sources of drugs for modern medical science (Kunin and Lawton, 1996) and the current percentage of animal sources for producing essential medicines is quite significant (Jain et al., 2007). Medicinal folklore has proved to be an invaluable guide in present day to the screening of important modern drugs such as digitoxin, reserpine, tubocurarine and ephedrine (Anyinam, 1995).

However, the traditional knowledge is eroding very rapidly, which calls for urgent action to document all related data before the traditional knowledge is lost forever. The knowledge with the traditional healing practices using animals is now fast disappearing due to modernization (Jain et al., 2007). Loss of traditional knowledge has much impact on the development of

modern medicine. Most (56%) of the traditional medicinal animals were wild animals. Indigenous people have been collecting medicines from local plants and animals without threatening the population dynamics of the species because of the low level of harvesting (Jain et al., 2007). There is massive loss of wildlife across the globe due to over-hunting (Robinson and Bennett, 2000, 2002; Bennett et al., 2002) and over-fishing (Boehlert, 1996; Steneck, 1998; Jennings and Kaiser, 1998; Jennings et al., 2001) which has been causing severe constraints on the availability and accessibility of plant and animal species used for medicinal purposes (Anyinam, 1995).

Sixteen species of medicinal animals were collected and identified for treating 18 different human ailments along with their parts used and the mode of administration. Further studies concerning the conservation and management of the medicinal animal are needed. Training the local people on resource use, value, management and conservation, would be of paramount importance since it helps animals' resources to be utilized in a sustainable way.

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REFERENCES

Adeola MO (1992). Importance of wild animals and their parts in the

- culture, religious festivals, and traditional medicine, of Nigeria. *Environ. Conserv.* 19: 125-134.
- Alves RRN, Rosa IL (2005). Why study the use of animal products in traditional medicines? *J. Ethnobiol. Ethnomed.* doi:10.1186/1746-4269-1-5
- Anageletti LR, Agrimi U, Curia C, French D, Mariani-Costantini R (1992). Healing rituals and sacred serpents. *Lancet*, 340:223-225.
- Anyinam C (1995). Ecology and ethnomedicine: exploring links between current environmental crisis and indigenous medical practices, *Soc. Sci. Med.*, 40: 321-329.
- Bennett EL, Milner-Gulland EJ, Bakarr M (2002). Hunting the world's wildlife to extinction. *Oryx*, 36: 328-329.
- Berhane H, Ahmed A (2008). Assessment of Insecticide Treated Nets Coverage for Malaria Control in Kafta-Humera District, Tigray: Possession versus Use by High-risk Groups. *Ethiop. J. Health Dev.*, 22: 259-267.
- Blakeney M (1999). What is Traditional Knowledge? Why should it be Protected? Who should Protect it? For Whom? Understanding the Value Chain. UNESCO- IPO/IPTK/RT/99/3.
- Boehlert GW (1996). Biodiversity and the sustainability of marine fisheries. *Oceanography*, 9: 28-35.
- Costa-Neto EM (2005). Animal-based medicines: biological prospection and the sustainable use of zootherapeutic resources. *Ann. Acad. Bras. Cienc.*, 77: 33-43.
- Dedeke GA, Soewu DA, Lawal OA, Ola M (2006). Pilot Survey of Ethnozooological Utilisation of Vertebrates in Southwestern Nigeria, Indilinga. *Afr. J. Indigenous Knowl. Syst.*, 5: 87-96.
- Ghorbani A, Naghibi F, Mosaddegh M (2006). Ethnobotany, Ethnopharmacology and Drug Discovery. *Iranian J. Pharm. Sci.*, 2: 109-118.
- Jain A, Katewa SS, Galav PK, Nag A (2007). Unrecorded Ethnomedicinal Uses of Biodiversity from Tadgarh-Raoli Wildlife Sanctuary, Rajasthan, India. *Acta Botanica Yunnanica*, 29: 337-344.
- Jansen PCM (1981). Spices, Condiments and Medicinal plants in Ethiopia: Their Taxonomic and agricultural significance. Centre for Agricultural Publishing and Documentation. Wageningen, The Netherlands.
- Jennings S, Kaiser MJ (1998). The effects of fishing on marine ecosystems. *Adv. Mar. Biol.*, 34: 203-351.
- Jennings S, Kaiser MJ, Reynolds JD (2001). *Marine fisheries ecology*. Blackwell Science.
- Kang SP (2003). Question of attitude: South Korea's Traditional Medicine Practitioners and Wildlife Conservation. TRAFFIC East Asia, Hong Kong.
- Kunin WE, Lawton JH (1996). Does biodiversity matter? Evaluating the case for conserving species. In: Gaston KJ (ed). *Biodiversity: a biology of numbers and differences*. Blackwell Science, Oxford; 283-308
- Lev E (2003). Traditional healing with animals (zootherapy): medieval to present-day Levantine practice. *J. Ethno. Pharmacol.*, 86: 107-118.
- Robinson JG, Bennett EL (2000). Carrying capacity limits to sustainable hunting in tropical forests. In: Robinson JG, Bennett EL (Ed). *Hunting for Sustainability in Tropical Forests*. Columbia University Press, New York. pp. 13-30.
- Robinson JG, Bennett EL (2002). Will alleviating poverty solve the bush meat crisis? *Oryx*, 36: 332-332.
- Rosner F (1992). Pigeons as a remedy (segulah) for jaundice New York State J. Med., 92: 189-192.
- Steneck RS (1998). Human influences on coastal ecosystems; does over fishing create trophic cascades? *Trends Ecol. Evol.*, 13: 429-430.
- Unnikrishnan PM (1998). Animals in Ayurveda. *Amruth* 1:1-15.
- WHO (1993). *Guidelines on Conservation of Medicinal Plants*. Switzerland.
- Yirga G (2010a). Assessment of indigenous knowledge of medicinal plants in Central Zone of Tigray, Northern Ethiopia. *Afr. J. Plant Sci.*, 4(1): 6-11.
- Yirga, G. (2010b). Ethnobotanical Study of Medicinal Plants in and Around Alamata, Southern Tigray, Northern Ethiopia. *Curr. Res. J. Biol. Sci.*, 2(5): 338-344.
- Zerabruk S, Yirga G (2011). Traditional knowledge of medicinal plants in Gindeberet District, Western Ethiopia. *South Afr. J. Bot.*, doi:10.1016/j.sajb.2011.06.006