

Traditional Zoothereapeutic Studies in Degu'a Tembien, Northern Ethiopia

Tsegazeabe H. Haileselasie

Department of Biology, Zoology and Aquatic Ecology Research Group, Mekelle University

Tel.: +251914405483

Abstract: There is evidence that human beings are familiar with use of animals and plants for food, cloth, medicine, etc. since the distant past. In Ethiopia, many ethnic communities which are dispersed all over the country has been totally dependent on local traditional medicinal system for their health care. Thus, the aim of this study was to take an ethno zoological field survey among Tigray people (main tribal group of Degu'a Tembien). In order to document the ethno zoological information about animal and their products prevalent among the people in Degu'a Tembien district, a study was carried out from September, 2010 to January, 2011. Data was collected through semi-structured questionnaire and open interview with 25 purposively selected respondents. Then the name of animal and other ethno zoological information were documented. Based on the ethno zoological survey, a total of 23 animal species were used in 45 different medicinal purposes including cold, weakness, burn, cough, paralysis and blister and for other religious/and ritual purposes. Based on the ethno zoological survey, 9 mammals, 7 birds, 1 reptile, 5 arthropods are used in traditional zootherauptics in the study area. Furthermore, the meat of cow used to relieved fever and cough has the highest FL (96%) and House fly has the lowest FL (20%) used to treat. Some endemic and rare species such as Abyssinian black winged love bird (*Agapornis taranta*) and Ethiopian Highland Hare (*Lepus starcki*) are also mentioned as important medicinal resources in trado-zoothereapeutic practices. The results showed that ethno zoological practices have been an important alternative medicinal practice for the people residing in the study area. So, there is an urgent need to properly document to keep a record of the ethno zoological knowledge of the area. It is hoped that this information will be useful for further research in the field of ethno zoology, ethno pharmacology and conservation point of view.

Keywords: Biodiversity, degu'a tembien, ethno zoology, tigray, zoothereapy

INTRODUCTION

There is evidence that human beings are familiar with use of animals and plants for food, cloth, medicine, etc., since time immemorial (Gaski *et al.*, 1994; Judith, 2005). In recent times the study of this long stayed interrelationship between human and their biotic resources has evolved into different disciplines under the umbrella of ethno biology. All these disciplines are aimed at documenting the time tested knowledge of ethno botany and ethno zoology rooted in the culture of different society (Young, 2007). Ethno zoology deals with the study of relationship between the human societies and the animal resources around them (Solvan *et al.*, 2004). This has been documented in different part of the world by different authors. However, ethno zoological studies and zootherauptic investigations are limited in Ethiopia in general and Tigray region in particular. Zootherauptics which refers to the healing of human ailments by using therapeutics based on medicine obtained from animals themselves or ultimately derived from them/or and their parts (Solvan *et al.*, 2004). The Zoothereapeutic resources constitute the essential ingredients in different traditional systems

and since ancient times animals, their parts and their products have constituted part of the inventory of medicinal substances used in various cultures (Rosner, 1992; Lev and Amar, 2000; Kakati and Doulo, 2002; Costa-Neto, 2005; Alves and Rosa, 2007). An estimate from the world health organization indicated that about 80% of the world populations depend primarily on animal and plant based medicines (WHO/IUCN/WWF, 1993). Ethiopian was not without native doctors, called "Hakims" whose skillful use of herbs plus faith cured many patients for centuries (Chris, 1978). Rosenfeld in the book "the medical history of Menilek II, Emperor of Ethiopia (1844-1913)" indicated that there was a "generous use of amulets, incantation and distasteful porridges made of animals insides" practiced in treatment of the sick in Ethiopian history. Furthermore, such immense knowledge has come down to modern times through folklore as various practices became a part of tradition amongst various ethnic groups in the country Ethiopia. This is vast information knowledge and calls an urgent investigation into bioactive components. However, there is a lot to be done in documenting into each every part and parcels of different fauna-based trado-medicinal practice of each

culture and save the time tested knowledge before it get lost as a result of urbanization and western orthodox medicine. To this end this study was aimed at investigating Traditional zoo therapeutic practice in Degu'a Tembien of Tigray, Northern Ethiopia.

MATERIALS AND METHODS

Description of the study area: Degu'a Tembien is one of the 36 administrative districts of Tigray regional state, Northern Ethiopia (Fig. 1). It is located between 13°39'N 39°10'E and 13.65°N 39.167°E longitude and latitude, respectively at an elevation of 2625 m above sea level. It is bordered by Saharti Samre in the South, Enderta and Wukro districts to the East and North East; Hawzen district to North; Kola Tembien to the West and Tanqua Abergelle district to the South West. Hagereselam is the administrative capital of the district.

Sampling and data collection: Data on fauna-based trado-medicinal practice (local name of animals or/and their parts, mode of preparation and administration) were collected through semi-structured questionnaire, interviews and focus group discussion with selected residents of Degu'a Tembien district from September,

2010 to January, 2011. Twenty six selected respondents (21 men and 5 women), were used to collect information about traditional knowledge regarding use of animals and their products used in traditional zootheapeutics. These respondents were local herbalists, healers, farmers and midwives and church intellectuals ("debtera") between 26-65 age groups. The selection of informants was based on their experience and recognition as "knowledgeable members" concerning traditional zootheapeutics (so called 'expert' by the local people).

The modes of preparation of remedies (like the ingredients and meditation (if any)) and how the medicines are administered were also collected during the interview. Furthermore, information on how the respondents acquired their knowledge of folk medicine was asked. The scientific names of animals were identified by using relevant and standard literature after the "local name" of typical animal is cited by the respondents. In cases where more than one scientific name for a typical animal is available in literature '??' is indicated next to the zoological name (Appendix A).

Data analysis: For the data analysis, Fidelity Level (FL) which demonstrates the percentage of respondents

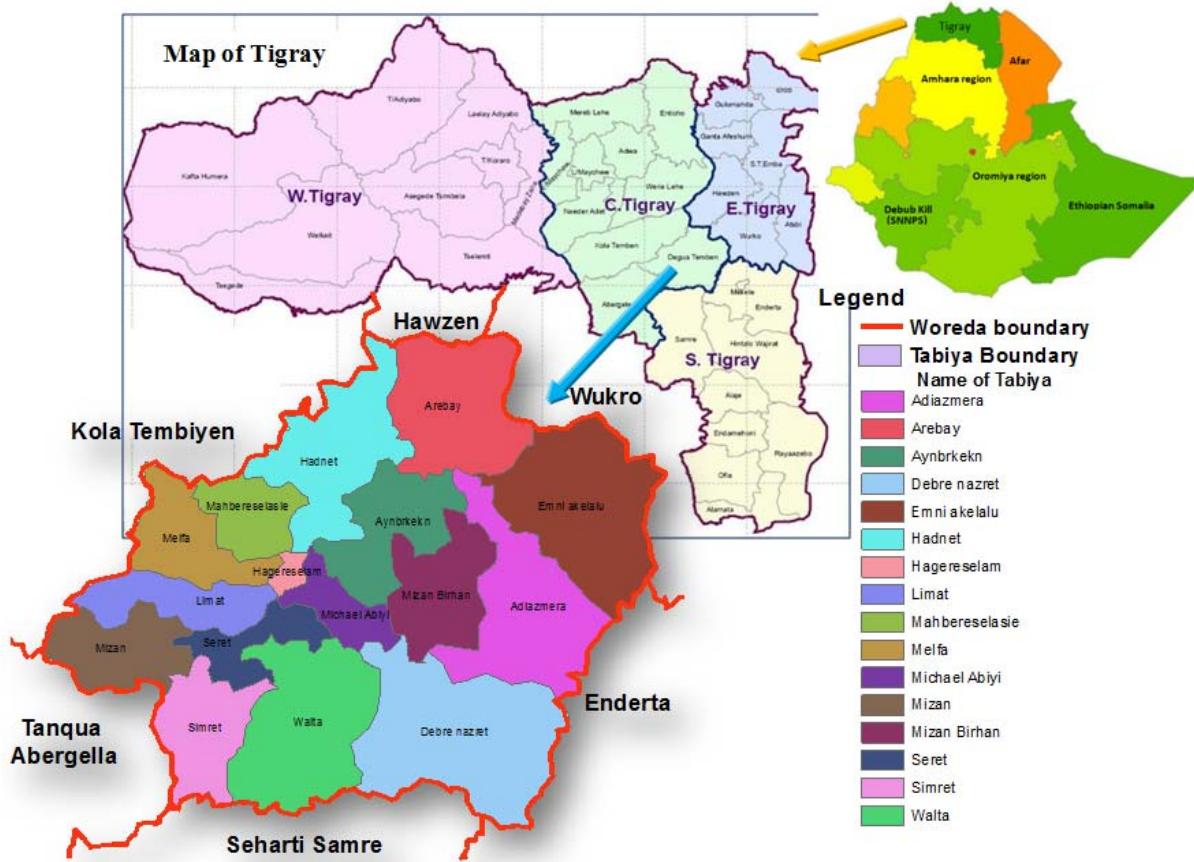


Fig.1 : Map of tigray (top) and degu'a tembien district with the 16 'tabiyas' (bottom)

claiming the use of a certain animal for the same major purpose was calculated. Fidelity Levels (FL) is determined to identify the most important species (animal and/or its part) used to treat a particular ailment. These values were calculated following (Alexiades, 1996) as:

$$FL = \frac{SF}{TF} * 100$$

where,

SF : Frequency of citation of a species for a specific ailment

TF : The total number of citations of that species

RESULTS AND DISCUSSION

Approximately 23 animals/or and their parts are reported to be used in traditional medicine in Degu'a Tembien. Among these, the mammals constitute the highest number of animal parts or/and their products (39.1%), followed by birds (30.4%) used for fauna-based trado-medicinal practice in the study area. Furthermore, 21.7% of Macro invertebrate (esp. the arthropods group) have been reported to be used in the fauna-based trado-medicinal practice of the study area (Fig. 1). Fish and reptiles each of them with 4.3% are the least used in the fauna-based trado-medicinal practice of Degu'a Tembien (Fig. 1).

Approximately 45 medicinal uses of animals are reported to be used in treatment of different diseases in the study area (Appendix A). Many of the animals were used for the treatment of multiple ailments singly or in combination with other animal products or/and plant parts like seeds, flowers, latex (resin in some cases) and roots (Appendix A). Of these, the highest numbers of animal species (26%) with 17% uses have been reported for the treatment of respiratory system related problems. Rheumatic and other pains are treated with 4 species (29.4%) in 34 (12.9%) uses. Gastric problems are reported to be treated with 22 species (20.2%) in 26 (9.9%) uses. Skin related Problems are treated with 16 species (14.7%) in 19 (7%) uses. Furthermore, 20 species (18.4%) are reported in 20 (7.6%) uses in Eye and Ear disease category. What is more, diseases related to reproductive system like: impotency, aphrodisiac, leprosy and gonorrhoea are reported to be treated with 5 species (21.7) in 9(20%) uses. Additionally, 26 (23.9%) animal species are reported in 31 (11.5%) uses in miscellaneous disease category (Appendix A, Fig. 2 and 3).

The animals, reported in the study area, are used as whole or body part or by product like milk, blood, organ, flesh, antler, feather etc., for the treatment of different kind of human ailments including cough, asthma, tuberculosis, paralysis, earache, herpes, weakness, muscular pain etc., (Fig. 2).

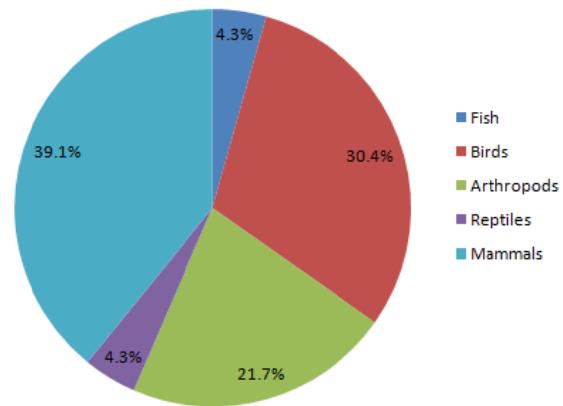


Fig. 2: Animal species used in trado-medicinal practice of degu'a tembien

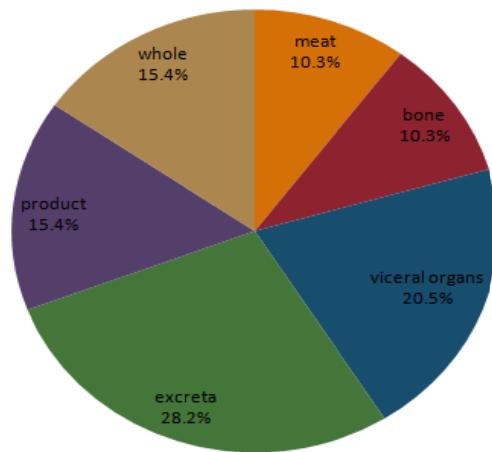


Fig. 3: Animal's parts or/and their products used in fauna-based trado-zootherapeutics

Viceral organs (such as liver, bile) are most widely used (20.5%) followed by whole animal and their product like milk, butter, honey with 15.4% each. This study shows that fauna-based trado-medicinal preparations in various forms has wide acceptance among the residents. These fauna species are often used in conjunction with one or more other animal and/or plant species, though there are some situations in which a single-species preparation is employed to treat a particular ailment (Appendix B).

DISCUSSION

The choice of species utilized in fauna-based traditional medicinal preparations were found to be guided by many factors which in addition to the bioactive constituents, also include some morphophysiological characteristics and behavioral ecology of the animal as well as some mythological conceptions associated with the animal. Ethiopian was not without native doctors, called Hakims whose skillful use of herbs plus faith cured many patients for centuries. Such Knowledge and skill does exist till these days. Where a

lot of people make a generous use of amulets, incantation and distasteful porridges made of animals insides. The fruition of modern medicine corresponds the discovery of drugs from plants which were in use for centuries in the indigenous health care system. Thus, loss of the accumulated wisdom of many centuries is practically the same as to the loss of vital clues to potential sources of drugs that enable mankind to overcome diseases. These questionnaire-guided ethno-zoological surveys have indicated that there is great potential of traditional zootherapeutic knowledge in the study area worth preserving. Thus there is an urgent need to inventories and record all ethnobiological information among the different ethnic communities, residing in the different agro ecology of the country, before the traditional cultures are completely lost.

CONCLUSION

In Ethiopia, many ethnic communities are dispersed all over the country and these people are still totally dependent on local traditional medicinal system for their health care. Ethiopia is gifted with faunal and floral biodiversity, thus the aim of this study was to take an ethno zoological field survey among Degu'a Tembien Peasant Associations. The result of the survey among Tigray people (residents of Degu'a Tembien) revealed the use of 23 animal species for 45 medicinal purposes. It would be worth investigating further studies on these traditional remedies to confirm the presence of any bioactive compounds and also include this traditional knowledge into the strategies of conservation and management of faunistic resources for sustainable use.

Appendix A:

Animal		Parts used	Zoological name	Ailment treated	Mode of application
Mammals	Teli	Meat	<i>Capra aegagrus hircus?</i>	Fever and cough	Eaten raw
		Milk	<i>Capra hircus</i> (L. 1758)	Muscular pain	Used as massage cream in muscular pain
		Butter		Headache	Melted in the sun applied as nasal drops
		Horn		Irregular menstrual cycle	Powder of charred horn
		Hoof			goat taken mixed with water
		Liver			
Lahmi	Meat		<i>Bos primigenius</i>	Anemia/weakness	Raw meat eaten with spinach
					Thick paste after meal
		Liver	<i>Bos primigenius taurus?</i>	Anemia, night blindness	
		Butter	Bojanus, 1827	Headache	
		Blood		Anemia	
		Hair		Male impotency	Tip part tied to male genital organ
Adgii	Urine			Relapsing fever (migrain)	Bathe the patient (as nasal droppings)
			<i>Equus africanus asinus?</i>	Thorn expellant	Drink early morning
		Milk	L., 1758	Lung Tb	Nasal drops
		Hoof		Epidemic	Fumigate the residence
			<i>Equus africanus</i>		
			<i>Crucuta crucuta</i> (Exxleben, 1777)	Evil spirit	Fumigate
Zib'e	Scat			Evil eye	Fumigate with smoke of saeresaero
		Hair			Wrapped in leather and worn on right arm
					Wrapped in leather and worn on right arm
		Liver		Prophylaxis	
		Bile		Prophylaxis	
Cat	Excrement		<i>Felis domesticus</i> <i>Felis catus</i> (L.1758) ??	Relapsing fever	Worn around head
Dog	Excrement		<i>Canis familiaris</i>	Relapsing fever	
			<i>Lepus starcki**</i>	Relapsing fever	Externally/bathe
		Whole	Petter, 1963	Migraine(Merzen)	Externally (rotate)
		Blood	<i>Lepus capensis</i>	Evil spirit	Sprayed around house
Se'b	Urine		<i>Homo sapiens</i>	Wound/cut	Applied on the wound/fresh cut skin
					Applied as eye drop to relieve eye ache
		Milk			Applied on the area where symptom is seen
					Ointment (dermal application)
Hibey	Feces				
Hibey	Excrement		<i>Papio hamadryas</i> <i>Cercopithecus mitis??</i> <i>Papio papio???</i>	Leprosy	

Appendix A: (Continue)

Arthropods	Nhbi	Honey	Apis mellifica L,1761	Several diseases	
	Sariet Tsadena	Whole body Honey		Poison Migrain	Raisin of vitis venifera L. boiled in butter and honey
	Hamema Tnqrbiet	Whole Whole body		Measles Poison	
Birds	Derho Derho	Egg Meat (liver)	<i>Gallus gallus domesticus</i> L. 1758	Night blindness Night blindness	
	Qhoqhah Zagra Rgbit	Egg/meat Meat (liver) Excrement		Night blindness Night blindness Soar	Powder of dove excrement mixed with garlic juice
	Crow Parrot Warri Eagle	Feather Beak Whole body Leg bone		Love poison Love poison Breast swelling	Powder of leg bone applied on the swelling
Animal	Eagle	Parts used	Zoological name	Ailment treated	Mode of application
Fish	Assa	Wing Meat Oil Bone		Attack deterrent Heart disease Heart disease Aphrodisiacs	Piece of the wing carried
Reptiles	Snake	Bile Scale		Respiratory disease Snake bite	Fumigated with smoke of powder

Appendix B:

		Parts used	Zoological name	Ailment treated	Ingredients during mode of application	No. of respondent s claimed (n)	Fidelity Level (FL)
Mammals	Teli (goat)	Meat	<i>Capra aegagrus hircus</i> L.	Fever and cough	Eaten raw	24	
		Milk		Diarea	Root powder of solonum adoens hochst	24	92.3
		Hoof and horn		Ascaris		5	19.2
		Urine		Epilepsy	Bathing with infusion of solonaceae	20	80.0
	Lahmi (cow)	Liver				25	96.2
		Meat	<i>Bos primigenius</i>			8	30.8
		Liver				17	65.4
		Blood	<i>bojanus</i>			20	76.9
		Hair				9	34.6
		Horn		Aphrodisiacs	Charred horn mixed with milk taken orally	12	46.2
					Bathe the patient	22	84.6
	Adgii (donkey)	Urine	<i>Equus africanus asinus</i> L.	Relapsing fever		23	88.5
		Excrement		Abdominal dropsy	Powdered excrement mixed with lime juice	12	46.2
		Milk		Lung Tb	Nasal drops	4	15.4
		Hoof and bone		Evil sprit	Fumigate the patient	17	65.4
		Hoof		Epidemic	Fumigate the residence	22	84.6
	Zib'e (hyena)	Scat	<i>Crocuta crocuta</i>	Evil sprit	Fumigate	17	65.4
		Hair		Evil eye	Fumugate with smoke	12	46.2
		Liver and bile		Prophylaxis	Wrapped in leather	12	46.2
					Worn on right arm	24	92.3
D'mu (cat)		Excrement	<i>Felis catus</i>	Relapsing fever	Worn around head	19	73.1

Appendix B: (Continue)

Kelbi (dog)	Excrement	<i>Canis lupus familiaris</i>	Relapsing fever		12	48.0	
Rabbit	Excrement			Externally/bathe	23	88.5	
Blood			Evil spirit	Sprayed around house	10	40.0	
Se'b (human)	Urine	<i>Homo sapiens</i>			23	96.0	
	Feces				5	20.0	
Hibey (monkey)	Excrement		Leprosy		16	64.0	
					15	60.0	
Sheep	Bile fluid		Scabies	Dermally applied	22	88.0	
					7	28.0	
					14	56.0	
					7	28.0	
Arthropods	Nhbi (honey bee)	Honey	<i>Apis mellifera</i>	Constipation	Honey mixed with leaf and fruit of <i>Ruta chalepensis</i> warmed on fire	6	24.0
		Honey		Cough	Decoction of powder of fruit <i>Ruta chalepensis</i> mixed with butter and honey	19	76.0
Tsadena (bee)	Honey	<i>Trigona</i> spp	Migrain		Taken orally mixed with butter	9	36.0
Tsadena (bee)	Honey			Stomach distention	Wild honey mixed with powder of leaves of <i>Ruta chalepensis L.</i>	13	52.0
Animal		Parts used	Zoological name	Ailment treated	Ingredients during mode of application	No. of respondents claimed (n)	Fidelity Level (FL)
Shariet (spider)			<i>Gasteracantha cancriformis</i>			5	20.0
Hamema (house fly)	Whole		<i>Musca domestica</i>	Measles		16	64.0
Tinqrbi'et (scorpion)						20	80.0
						13	52.0
Birds	Chicken derho	Egg/meat (liver)	<i>Gallus gallus domesticus</i>	Diarrhoea	Bark of <i>Croton macrostachyus Del.</i> With chicken liver antidote	18	72.0
qoqah						7	28.0
Zagra						7	28.0
Rgbit (dove)	Blood			Trachoma	Applied as eye drops mixed with sap of aloe	19	76.0
Crow (qhakh)	Bone				Fumigate the patient with bone of crocuta crucuta	8	32.0
Parrot						19	76.0
Raven (kura)	Blood and bible					22	88.0
Abagumbah	Bone	<i>Bucorvus abyssinicus</i>	Mental illness		Wheat flour pasted with blood and bible fluids	17	68.0
					Fumigate the patient with bone of owl and crow	17	68.0
Warri Eagle	Leg bone			Breast swelling	Powder of leg bone	18	72.0
						17	68.0
						19	76.0
				Attack deterrent	Piece of the wing carried	22	88.0
Fish	Fish (a'ssa)	Meat				10	40.0
		Oil				6	24.0
		Bone		Aphrodisiacs	Fumigate daily for 5 days	6	20.0
		Bile				11	44.0

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