Plants Used in Ethnoveterinary Practices in Chencha and Boreda Districts, Southern Ethiopia.

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Abstract

Ethno botanical study on traditional medicinal plants were conducted between March, 2015 and January, 2016 in Chencha and Boreda districts, Southern Ethiopia and documented different types of traditional medicinal plants used by the indigenous peoples. The study was focused on identifying medicinal plants, disease treated, plant parts used, methods of preparation, route of administration, and ingredients added. A purposive sampling technique was carried out using a semi-structured questionnaire, field observation and survey to document indigenous knowledge of 40 traditional healers. The age distribution of healers indicated that the majority were in the range of 51-70 years old (70%, elders) and 30% between 35 and 50 years old (young). All of the informants were males (100%). Twenty-five of them were learned up to grade 1-8 (62.5%), 10 of them were illiterates (25%) the other 5 completed grade 9-10 (12.5%).Descriptive statistics were used to analyze and summarize the ethno-botanical data. Twenty seven ethnoveterinary plant species belonging to 17 families were collected and identified for treating 29 livestock diseases. Most of the plant species reported were possessed by the four major families: Asteraceae (29.42%) used 5 times followed by Lamiaceae (23.53%) used 4 times, Asparagaceae, Fabaceae and Malvaceae each used two times (11.77%). The other 12 plant families used only once and totally constitute 11.74%. According to the findings, the most commonly used plant parts for herbal preparations in the areas were leaves (53.57%) followed by roots (25%), steam (10.7%), bark (7.14%) and seed (3.57%).The informants mostly practice oral drenching (70.7%), topical (17.6%), tying (8.8%) and smoking (2.9%) of plant preparation techniques. This study indicated that traditional medicine is, playing a significant contribution in obtaining the first aid healthcare needs of Chencha and Boreda district communities. Documentation of the practices and medicinal plants is a critical issue and essential to safeguard the knowledge and medicinal plants, and can be used to support the country's livestock health care system and improve lives and livelihoods of the rural community.

Keywords: Chencha, boreda, medicinal Plants, documentation

1. 0 INTRODUCTION

Ethno veterinary medicine is a traditional knowledge, folk beliefs, skills, methods and practices used for the treatment of livestock ailments (Vesna *et al.,* 2009). According to Moabiemang *et al.* (2013), EVM is the community-based local or indigenous knowledge and methods of caring for, healing and managing livestock. This also includes social practices and the ways in which livestock are incorporated into farming systems.

The EVM knowledge has been developed through trial and error and deliberate experimentation. Ethiopians have used traditional veterinary medicines to treat human and livestock ailments since ancient time. Plants comprise the largest component of the diverse therapeutic elements of traditional livestock health care practices. Livestock disease is one of the principal causes of poor livestock performance in Ethiopia, leading to an ever-increasing gap between the supply of, and the demand for, livestock products (Fitsum & Amere 2017).

Farmers in various developing regions still use medicinal plants for treatment of livestock diseases due to lack of access to modern veterinarians and price of modern medicines. Ethno-veterinary traditional practices are continuing since farmers believe that medicinal plants are more efficacious for treatment of livestock ailments than modern medicines (Zank & Hanazaki, 2017).

The knowledge of traditional veterinary medicine may be lost due to rapid socioeconomic, environmental, and technological changes (Nnadi et al., 2012; Taiwo et al., 2012 & Muhammad et al., 2015). The knowledge is transferred from generation to generation through the word of mouth with great secrecy. This suggests documenting and conserving through ethno-veterinary studies before it is lost forever. The documentation of traditional knowledge on the medicinal uses of plants has provided many important drugs of modern day (Guerrini & Sacchetti, 2012). Hence, the present study was conducted to document the indigenous knowledge of ethno-veterinary practices in Chencha and Boreda district, southern Ethiopia.

2. 0 MATERIALS AND METHODS

2.1 Study area

The study was conducted at Chencha and Boreda districts, which is located in Gamo Gofa administrative zone of the Southern Nations, Nationalities and Peoples' Regional State (SNNPR) of Ethiopia. The altitudes of these districts range from 1600-3200 masl. It has two agro-ecological zones: highland (2300-3200 masl, 82%) and midland (1600-2300 masl, 18%); with total area coverage of 37,650 ha. The populations of both districts were

125,628 and 76, 178, respectively, for Chencha and Boreda. The mean minimum and maximum annual rainfall is 1201-1600 and1150-2600 mm, for Chencha and Boreda and the temperature range between 22.5°C -27 °C (CSA, 2017).

2.2 Field survey

Botanical survey were conducted to congregate information on the traditional usage of plants in animal health care system using a semi-structured interview, field observation and group discussion with the traditional healers who were willing to share to their indigenous knowledge. A prior communication were done with the zone and district livestock coordinators, veterinarian, kebele administrative, elders, agricultural developing agents (animal health assistances) and the selected traditional healers in the study areas. At this point, the healers raised questions about their payment, safety and how to prevent their intellectual from someone copied/stolen while interviewing and collecting plants. Finally, we were mostly arrived to the agreement by avoiding the fear to feed us the genuine information, but no further attempt were made to influence those healers who completely refused to provide information. A total of 40 healers were purposively selected and interviewed based on their knowledge on traditional medicine using semi-structured interviews and field observations.

2.3 Sample Size and Sampling Techniques

Ten Kebeles were selected from each district using purposive sampling technique. This is because of the Kebeles are typically have an intellectual healers and covered by different plant species and these plants are used for traditional medicinal value to treat different livestock diseases. Twenty (n= 20) healers were selected from each district and a total of fourthly (n= 40) healers were selected from both districts.

2.4 Data Collection

Specimens of plants that used by the traditional healers for treatment of livestock ailments were collected. Data collection was conducted based on the information supplied by the healers during the interview. The specimens of plants were collected in the field using standard botanic methods together with the traditional healers, that including the vegetative part, leaves, and floral, fruiting and/or seed parts Olorode (1984). The information collected were local name of the traditional medicinal plant, diseases treated, parts used, plant part used, method of preparation, route of administration and ingredients added. The collected samples of medicinal plants were coded, pressed, and dried then taken to botanical identification in Science Faculty of Addis Ababa University National Herbarium.

2.5 Data analysis

Data were analyzed using descriptive statistics and proportions. Figures and tables were used to summarize the collected ethno-veterinary medicinal data. MS Excel spread sheet was utilized to make simple calculations, determine proportions and draw bar graphs.

3. 0 RESULTS AND DISCUSSION

3. 1 Demographic characteristics of healers

In the present study most of the healers had primary education, grade 1-8 (25, 62.5%), grade 9-10 (5, 12.5%) and (10, 25%) were illiterate. The age category of the respondents were 51-70 year old (70%) and 35-50 years old (30%). All of the respondents are males (100%) (Table 1). Traditional medicine studies conducted in Ethiopia confirm that majority of the practitioners were elderly men (Feyera *et al.,* 2017 & Guluma *et al.,* 2017).

Table 1: Demographic characteristics of participants

Age			Sex			Educational status		
	Count	%		Count	%		Count	%
35-50	12	30	Male	40	100	Illiterate	10	25
51-70	28	70	Female	0	0	1-8	25	62.5
						9-10	5	12.5

3.2 Identified and documented ethnobothanical plants

The present study was documented 27 ethno-veterinary medicinal plant species belonging to 17 families. The collected and identified plants were used for treating 29 livestock diseases. Plants documented with details on their ingredient added, traditional preparation, plant part used, family name, scientific name and local name (Table 2). Similar results were reported in Ethiopia and somewhere else in the world (Atinafu et al 2017; Semayat, 2017; Moabiemang et al 2013; Muhammad eta al 2015; Gotruvalli & Shiddamallayya 2017).

Table 2: List of ethno-veterinary medicinal plants, disease treated, ingredients added and route of administration

Local name	Botanical name	Family name	Disease treated	Ingredients added	Route of administration
Halelo	Urerahypselodendron (A. Rich.) Wedd.	Urticaceae	Inflammation,	None	Topical
			internal parasite	Water	Drenching
Maylo	Crotalaria sp.	Fabaceae	Ecto-parasite	None	Topical
			anuria	Water	Drenching
Echerewaysha	Asparagus africanus Lam.	Asparagaceae	Respiratory disease	Water, butter, cumin seed	Drenching
Aysmamata	Ranunculus multifidusForssk.	Ranunculaceae	Oedema, trypanosomiasis	Water	Drenching
Ariti	Artemisia abyssinica Sch. Bip. Ex A. Rich.	Asteraceae	Internal parasite	Water	Drenching
Yeshencha	Acokantheraschimperi (A. DC.) Schwein	Apocynaceae	Dermatophilosis	None	Topical
Yeferenjariti	Lavanduladentata L.	Lamiaceae	Black leg	Water	Drenching /topical
Tenadam	Rutachalepensis L.	Rutaceae	Respiratory disease, splenonomegaly	Water	Drenching
kakamo	Echinops sp.	Asteraceae	Black leg	Water	Drenching
Sibika	Lepidiumsativum L.	Brassicaceae	Colic	Water	Drenching
Serete	Asparagus setaceus (Kunth) Jessop	Asparagaceae	Anthrax	Water	Drenching
Gizawa	Withaniasomnifera (L.) Dunal	Solanaceae	Gasping, trypanosomiasis	Water	Drenching
Damakese	Ocimumlamiifolium Hochst. exBenth.	Lamiaceae	Mastitis, wound	Salty soil	Topical
Korch	ErythrinabruceiSchwein.	Fabaceae	Paralysis	Water	Drenching
Tejsar	Cymbopogoncitratus (DC.) Stapf	Poaceae	Black leg	Water, salt	Drenching
Trashaemata	Haplocarpharueppellii (Sch. Bip.) Beauv.	Asteraceae	Foot rot	None	Topical
Delashae	Salvia niloticaJacq.	Lamiaceae	Maceration	Water	Drenching
Tid	JuniperusproceraHochst. Ex Endl.	Cuperssaceae	Pasteurellosis	Water	Drenching
Nechbahirzaf	Eucalyptus globules Labill.	Myrtaceae	Black leg	Water, salt	Drenching
Tasimata/ Qayemata	PlantagopalmataHook.f.	Plantaginaceae	Tumour	Butter	Topical/tying
			oedema, diarrhoea	Water	Drenching
			Conjunctivitis	None	Topical/tying
			Internal parasite	Water, ginger	Drenching
Gudicho	Acmellacaulirhiza Del.	Asteraceae	Trypanosomiasis	Water	Drenching
Kusamamata	Pavoniaurens Cav.	Malvaceae	Internal parasite	Water, butter, grease	Drenching
Qantalagie	Beciumobovatum (E. Mey. ex Benth. in E. Mey.) N.E. Br.	Lamiaceae	Snake bite, poisoning	Water, milk	Drenching /tying
Katikalla	Ferula communis L.	Apiaceae	Leech	Water	Drenching
Kindicho	SidaschimperianaHochst. ex A. Rich.	Malvaceae	Black leg	Water	Drenching
Beatamata	Gnaphaliumrubriflorum Hilliard	Asteraceae	Pulmonary oedema	Water	Drenching
Sangana	Securidacalongepedunculata Fresen.	Polygonaceae	LSD	Coffee, cotton seed	Aerosol
			FMD	Water	Drenching

The most frequently used plant family was Asteraceae (29.42%) used five times followed by Lamiaceae (23.53%) used four times, Asparagaceae, Fabaceae and Malvaceae each used two times (11.77%). The other 12 plant families (Urticaceae, Ranunculaceae, Apocynaceae, Rutaceae, Brassicaceae, Solanaceae, Poaceae, Cuperssaceae, Myrtaceae, Plantaginaceae, Apiaceae and Polygonaceae) used only once and totally constitute 11.74% (Figure 1) our finding were coincided with the result reported by Yigezu *et al*. (2014).
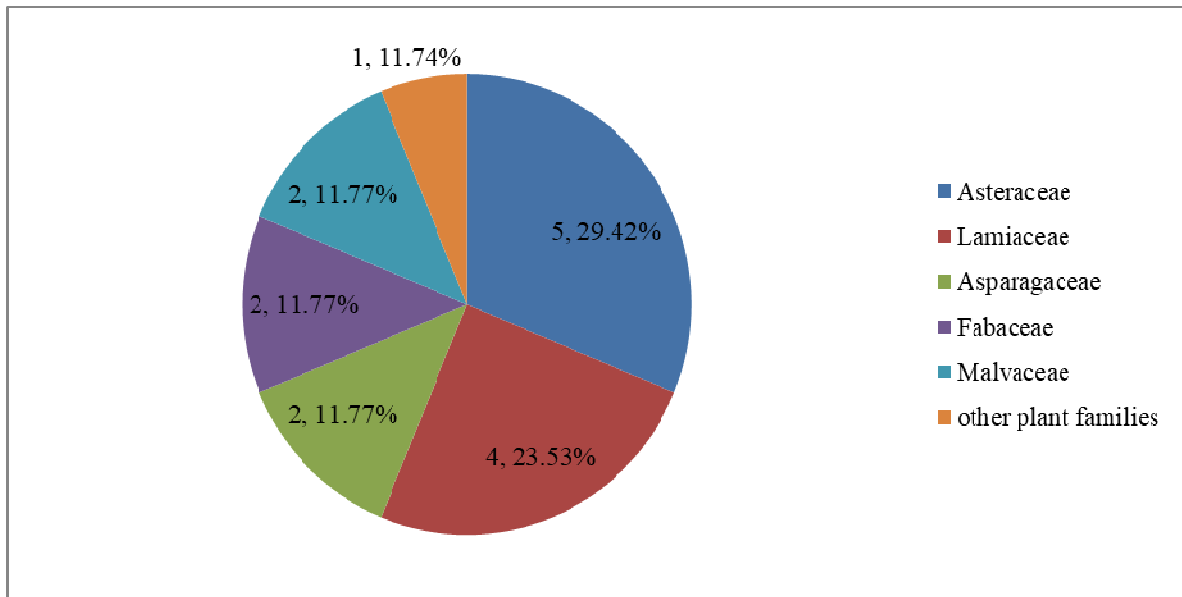
Figure 2: Frequently used plant families in Chencha and Boreda districts

Black leg, internal parasite, respiratory disease, oedema, trypanosomosis, ecto-parasite, anuria, inflammation, dermatophilosis, splenomegaly, colic, gasping, anthrax, mastitis, wound, paralysis, foot rot, maceration, pasteruiolosis and tumour were the major diseases treated by the identified traditional medicinal plants (Table 3). The same results were reported by, (Semayat 2017; Atinafu *et al.,* 2017; Guluma *et al.,* 2017).

Combination of different medicinal plants was used to heal varied diseases. Lavandula dentata L, Echinops sp, Cymbopogon citratus (DC.) Stapf, Eucalyptus globules Labill and Sida schimperiana Hochst. ex A. Rich. were used to cure black leg; Urerah ypselodendron (A. Rich.) Wedd, Plantago palmate Hook.f, Crotalaria sp., Pavoniaurens Cav. and Artemisia abyssinica Sch. Bip. Ex A. Rich. were used for the treatment of internal parasites; Asparagus africanus Lam, and Ruta chalepensis L. were used to heal respiratory diseases; Ranunculus multifidus Forssk., Plantago palmata Hook.f., and Gnaphalium rubriflorum Hilliard used to treat oedema; Acmella caulirhiza Del., Withania somnifera (L.) Dunal and Ranunculus multifidus Forssk were exploiting to treat Trypanosomiasis. This finding was similar to the findings reported by (Tekle, 2015; Yirga *et al.,* 2012 & Semayat, 2017).
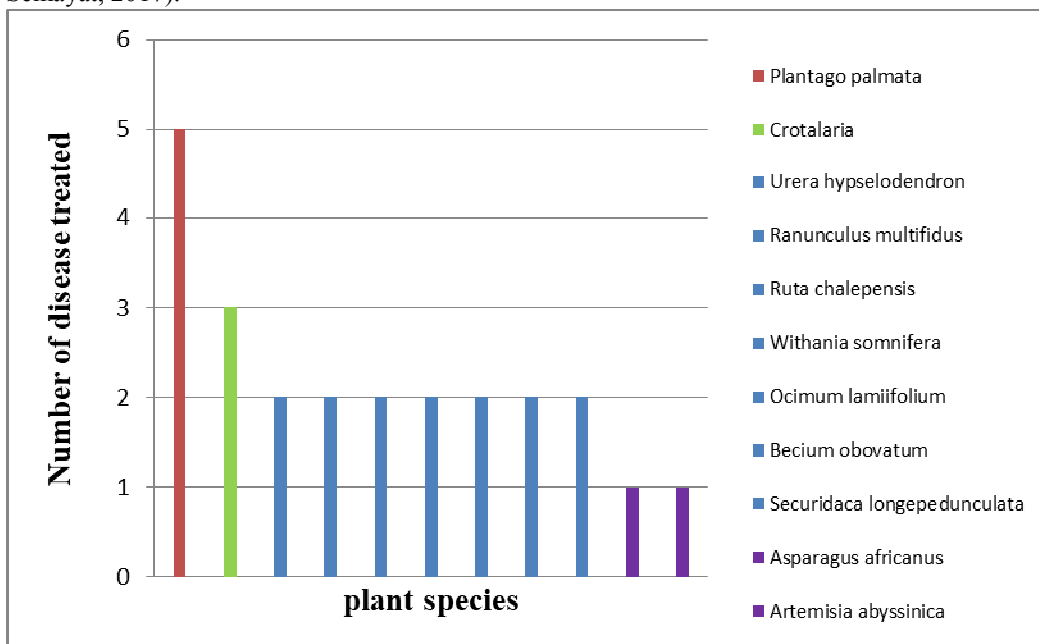

Figure 3: Major plant species with number of diseases treated

Table 3: The number of medicinal plants used to treat livestock diseases in the study area

Disease treated	Number of plants used
Black leg	5
Internal parasite	5
Oedema	3
Trypanosomosis	3
Respiratory disease	2
Ecto-parasite	1
Anuria	1
Inflammation	1
Dermatophilosis	1
Splenonomegaly	1
Colic	1
Anthrax	1
Gasping	1
Mastitis	1
Wound	1
Paralysis	1
Foot rot	1
Maceration	1
Pasteurellosis	1
Tumour	1

The ethnoveterinary medicinal plant preparations were administer mainly through drenching (70%), topical (20%) tying (7.5%) and aerosol (2.5%) routes. The healers were used those routes of administration to cure different livestock diseases (figure 3). Our results were similar to the findings of Marandure (2016).
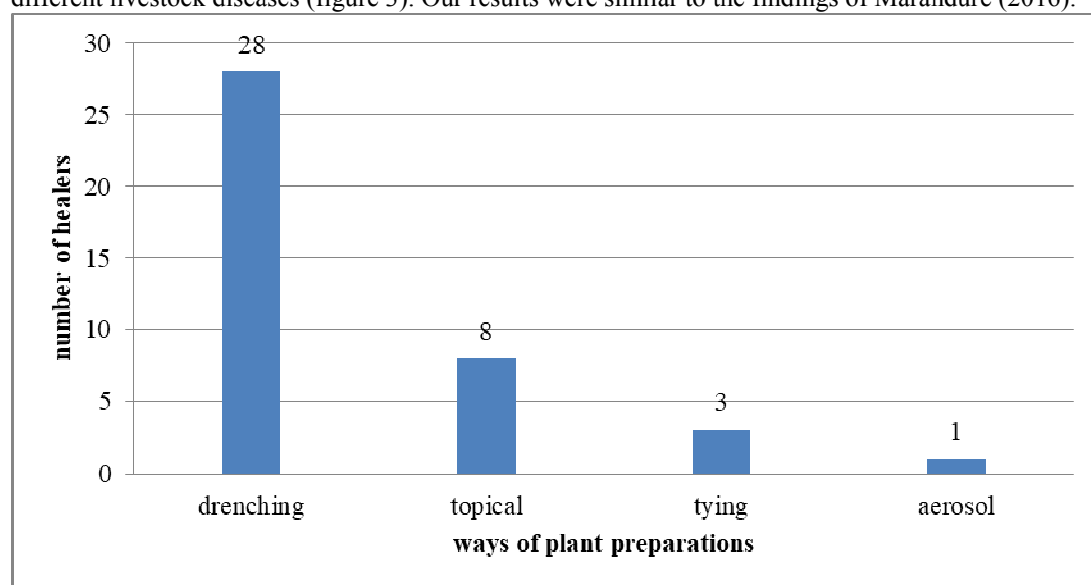

Figure 4: Route of administration of traditional medicinal remedies

According to this study the most commonly used plant parts for medicinal preparations were leaves (45%) followed by roots (25%), barks (10%), seed (12.5%) and stem (7.5%). This work agrees with the findings of Behailu (2010), leaves were the major plant part used for livestock remedy preparation.
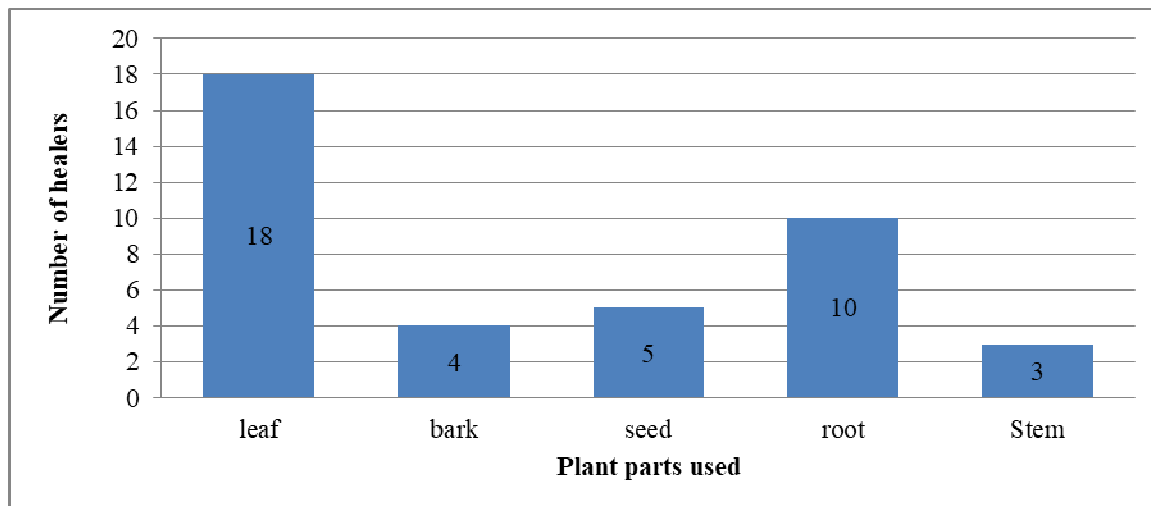
Figure 5: parts of medicinal plants used

The present study was revealed that ethno-veterinary medicinal plants have two methods of preparation for different types of diseases, which are crushing (64.25%) and chopping (35.71%). The crushed and chopped plants were mixed with water and different ingredients (butter, cumin seed, salt, ginger, grease, milk, cotton seed and coffee) then filtrated to get the plant juice needed for oral drenching. The units of measurements used to determine dosage were beer bottle (333ml), bottled water plastic (1000ml), number of drops and teaspoons. The results were similar with the work done by Yigezu *et al*. (2014).
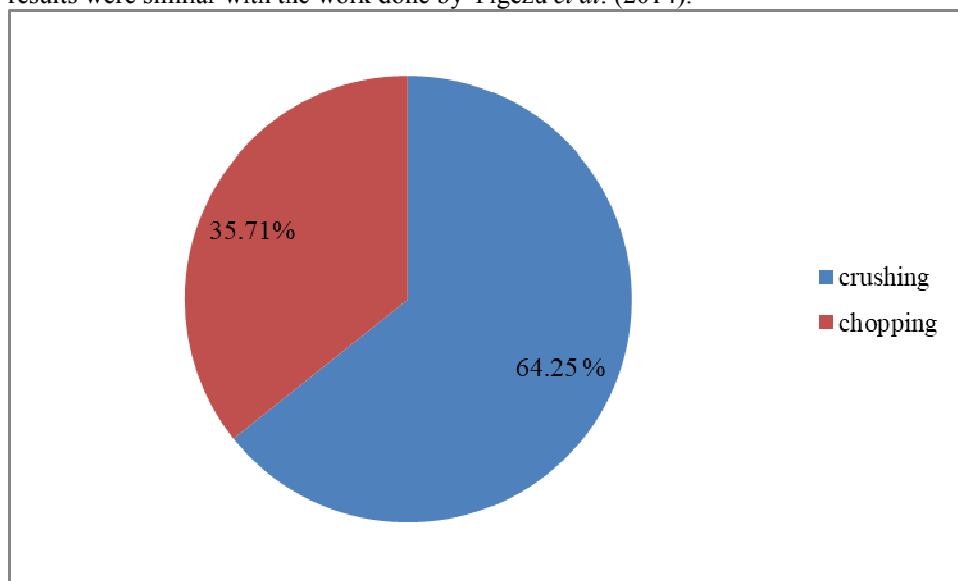

Figure 6: Method of preparation of medicinal plants

4.0 CONCLUSION

Traditional healers in the study area have wealth knowledge about ethnoveterinary practices. Recognizing the value of this indigenous knowledge empowers livestock owners attempt to solve animal health problems in a cost-effective way. Based on this situation, documentation and understanding of the practitioners' knowledge, attitude and practices about their way of treatment, prevention and control of various diseases is imperative in designing and implementing successful livestock production. However, researchers are advised to take further and relevant scientific studies of medicinal plants used by traditional healers in treatment of livestock diseases and to determine their chemical properties, concentrations and routes of application.

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