

Survey on ethno-veterinary medicinal plants in Dangla district, awi zone of amhara regional state North West Ethiopia

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Abstract: Survey on ethno-veterinary medicinal plants was carried out from November 2015 to May 2016 in Dangila District Awi Zone of Amhara Regional State, Ethiopia. This study was aimed to identify and document the ethno-veterinary medicinal plants and practices used to treat and control of livestock diseases. In this study, a purposive sampling technique was carried out using a semi-structured questionnaire and field observational to document indigenous knowledge of traditional healers. Informants were asked to locate medicinal plants with local names, preparation methods, part (s) used, ingredients added, diseases treated, dosage used and route of application was recorded. Descriptive statistics were used to analyze and summarize the ethno-botanical data. 36 plants, which have medicinal value against a total of 21 livestock ailments, were reported and botanical identification were by collected, compressed and submitted by local available materials to the Bahirdar University botany laboratory and college of Agriculture and Environmental Science faculty, identification was done by visual comparison with true or real specimens, illustrations taxonomic keys as well as in the field, belonging to various 26 plant families. The plant family *Euphorbiaceae* (11.1%) was most frequently represented amongst the documented useful species, followed by *Cucurbitaceae* (8.3%) and also local name (was written in Amharic and agew), Plant parts used, indication, methods of preparation and uses was documented. Herbs were the most widely used for the treatment of various ailments constituting the largest percentage (44.5%) followed by shrub and tree with (33.3%) and 22.2%, respectively. Among the plant parts, leaves is the most commonly used and most of the medicinal plants are collected from the wild and majority of informants accounting for (86.8%) were males, and the remaining (13.2%) were females. The most popular mode of preparation of remedies was in the form of crushed which accounts to (33.3%) followed by squeezed (28.2%). The remedies were prepared using water, milk, sugar or honey, Garlic, butter and common salt were some of the ingredients added to the medicinal plants in different mode of preparation. Medicinal plant preparations were administered through different routes, topical (44.7%) was commonly used route of administration followed by oral (36.9%). In the area informants were reported major livestock diseases and transfer remarkable knowledge about the uses of medicinal plants.

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1. Introduction

Ethiopia, is a country characterized by a wide range of climate and ecological conditions, possesses enormous diversity of fauna and flora (Pankhurst, 2001). In Ethiopia, traditional medicine has played a significant role in treating health problems in both livestock and humans (Addis *et al.*, 2001). Ethiopians have used traditional medicines for many centuries, the use of which has become an integral part of the different cultures in Ethiopia, due to cultural acceptability, efficacy against certain diseases and economic affordability (Teklehaymanot and Giday, 2007).

Traditional knowledge is described as accumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with

one another and with their environment (Getahun *et al.*, 2008). Traditional knowledge of medicinal plants and their use by indigenous healers and drug development in the present are not only useful for conservation of cultural tradition and biodiversity but also for community health care and drug development in the local people (Emiru *et al.*, 2011). Like any other developing and least developed nations, the available modern health care services of the country are not only insufficient but also inaccessible and unaffordable to the majority. This problem along with the rapidly increasing human population and cultural resistances towards the use of modern medicines means that the majority of the people in Ethiopia are dependent on traditional medicines of mainly plant origins so as to manage various human ailments (Dawit, 2001).

Scientific veterinary medicine, have been developed through trial-and-error and deliberate

experimentation. But ethno veterinary medicine is developed by farmers in fields and barns, rather than by scientists in laboratories and clinics. Livestock owners have an excellent knowledge of ethno veterinary, which has formed the basis for screening plant materials as potential sources of medical drugs (Matekaire and Bwakura, 2004). The dependence of the plant-based health care system could partly be attributed to under developed infrastructures and modern medical health care system in the general area. Unless the plants are conserved and the ethno-medicinal knowledge is documented, there is a danger that both the valuable medicinal plants and the associated indigenous knowledge of the ethnic groups could vanish forever due to lack of documentation (Sindiga *et al.*, 1995). However, the local indigenous knowledge on medicinal plants is being lost at a faster rate with the increase of modern education, which has made the younger generation to underestimate its traditional values. In addition the increase in population growth rate would result in the intensification of agriculture in marginal areas which would lead to deforestation with decrease in number or loss of medicinal plants in the wild (Pankhurst, 2001). The ethno botanical literature (Cunningham, 1996) underlines that both saving plant species and documenting and preserving indigenous knowledge are fundamental urgent concerns. Hence traditional peoples have been Knowledge about medicinal plants in their farming system to treat both human and livestock ailments. Therefore, the knowledge of traditional uses of medicinal plants in Ethiopia has mostly been passed on from generation to generation by verbal communication. This method of information conveyance has probably resulted in distortion or loss of indigenous knowledge. Hence, this study could contribute in the preservation and future utilization of cultural heritage and a base to researchers for further pharmacological, toxicological and photochemical studies. Therefore the Objectives of this study are:

- To identify and document ethno-veterinary medicinal plant species associated with disease treated and traditional medicinal knowledge of selected part of the community at Dangla District of awi zone, Amhara regional state.
- To record the plant parts used and means of preparation for medicinal purposes.

2. Materials and Methods: methodology

2.1 Study Areas

The study was conducted from November, 2008 to May, 2008 in and around Dangla district in Awl zone, Amhara Regional State, Northern Ethiopia. Dangla is located 485 km north- west of Addis Abeba, the capital city of Ethiopia, and 78 km south of Lake Tana, and Bahir Dar city, the capital city of Amhara

National Regional State. Based on the annual report in 2012, the total population of Dangila town was 74,280. The town has 5 administrative kebeles. According to (CSA, 2012/13), the climatic condition alternate between along summer rain fall season (may-September) and a winter dry season (December-April) with a mean annual rain fall and temperature is 1576 mm and 17°C, respectively. Geographically, the area lies between 11.3° latitude and 36.8° longitude with an elevation of 2200 m.a.s.l with Woina dega temperate climate. Dangila is bordered on the South by Faggeta-Lekoma, on the South West by Guangua, on the North West by the Jawi and on the North East by the West Gojjam Zone. Towns in Dangila district include Addis Alem, Chara and Dek. Part of the Dangila was separated to create Jawi woreda. The district has a total land area of 89,007 hectares. According to the Dangila Woreda Rural Development and Agricultural Planning Office (DWRDAPPO, 2014) the district has a livestock populations of cattle 253,842 (local) and 4,435 (cross), sheep (59601), goats (19, 659), mules (669), horses (1,058), donkeys (18, 205), poultry local (137,720) and cross (985) and bee colonies are kept in three categories of bee hives: traditional (20,338), transitional (135) and modern (868) bee hives.

2.2. Study design and sampling method

A cross sectional study was employed; semi-structured questionnaires and interview to identify and document the ethno veterinary medicinal plants and guided field walks with informants were employed to obtain ethno botanical data. At times, taking notes on plants and Photographic records were also taken in the field. For this study, Purposive sampling was employed to identify potential informants. Neighboring Kebeles were not included in the study and this is also additional factor for site selection. Six peasant associations (Chagni, washa, Kebesa, Anzerek, Jbana and Delekes) were selected purposefully out of 38 kebele (28 rural and 10 urban) which represents the agro climatic zones of Dangila district.

2.3 Study Methodology

In this study the site were selected based on the recommendations of elders, local authorities, district administrator in study area. A prior communication was done up on the objective of the study and Moreover; the agro-climatic zones was considered to select the study sites (kebeles) was covered by different plant species.

2.4 Data Collection Method

An ethno-veterinary botanical data were collected between November up to March 2015/16 by using a semi-structured interview (were based on a checklist of questions prepared beforehand in English and translated to the local language Amharic and Agew). Informants were asked to locate medicinal

plants. Local names of medicinal plants, preparation methods, part (s) used, ingredients added, diseases treated, dosage used and route of application was recorded. Observation (were made on the morphological features and habitats of each medicinal plant species) and Field observation with the traditional healers (informants) who were willing to share to their indigenous knowledge. The collection of data was based on the information supplied by the healers during the interview. Then after, the medicinal plant species were collected by recording all the important information about the particular medicinal plant species. Informant consensus; In order to confirm the reliability of the information each informant was contacted at least twice and if the responses that were given at different time contradict to each other, they were considered to be unreliable and are rejected or reliability of the information can be confirmed by similarly of information given by the same and different informants on the same issue.

2.4 Plant Specimens' Collection and Identification

Veterinary medicinal plant specimens were collected from the wild and home gardens based on

the report of traditional informants. Plant specimen collection was done by including the vegetative part, leaves, and floral, fruiting and/or seed parts that were appropriate for taxonomic identification. During collection information regarding habitat data, general description of the plant were recorded and the specimens were dried and placed on cardboard/newspaper. The collected plant specimens and the necessary recorded information were taken to the Bahirdar University Peda Campus Botany laboratory/Herbarium and College of Agriculture and Environmental Science Faculty. Identification was done in the field as well as by visual comparison with true or real specimens, illustrations and taxonomic keys.

2.5 Data Analysis

The ethno botanical data were analyzed using descriptive statistics, i.e., Proportions (percentiles), graphs, frequency distribution and tables were used to summarize the collected ethno-veterinary medicinal data.

3. Results

Table 1. List of ethno veterinary medicinal plants for treatment of livestock ailments in Dangila district.

Local Name (A & w)	Scientific name	Family name	Habitat	Plant parts used	preparation	Indication	Administration Route
Gorteb (A)	<i>Plantago lanceolata</i>	<i>Plantaginaceae</i>	Herb	Leaf	The fresh leaves are, squeezed the filtered/extracted juices applied on them	Wound Wart	Topical
Endod (A)	<i>Phytolacca dodecandra</i>	<i>Phytolaccaceae</i>	Shrub	Leaf	Juice extracted by squeezed fresh leaf and mixed with some water then given	Anthrax Abortion	Oral
				Root	Juice extracted by pounded fresh root mixed with milk of similar cow and calf	Rabies	Oral
Nech shnkurt (A)	<i>Allium sativum</i>	<i>Alliaceae</i>	Herb	Bulb	Fresh bulbs crushed and mixed with salt, then given Fresh bulbs crushed and applied on affected area	coughing Wound	Oral Topical
Grawa (A)	<i>Vernonia amygdalina</i>	<i>Asteraceae</i>	Tree	Leaf	The leaves squeezed, fluid is taken mixed with honey or sugar	Retained fetal membrane Indigestion and Stimulate appetite (for human)	Oral
Chicugn (A)	<i>Artemisia abyssinica</i>	<i>Asteraceae</i>	Herb	Root and leaf	The fresh Leaves and roots together fumigated, by adding on an open fire	Febrile illness (Michi)	Nasal
Yemdr embuiy (A)	<i>Cucumis ficifolius</i>	<i>Cucurbitaceae</i>	Herb	Root	Crushed root and mix with milk of similar cow and calf	Rabies,	Oral
KI (A)	<i>Lagenaria siceraria</i> ,	<i>Cucurbitaceae</i>	Herb	Leaf	The leaves are squeezed and mixed with small water and applied	Cancer	Topical
Derocus (W)	<i>Calpurnia aurea</i>	<i>Fabaceae</i>	Shrub	Leaf	Fresh Leaves Crushed with small water then massages and washes animal body by the extract.	Kill external parasites (lice, Fleas and their eggs),	Topical

Table 1. List of ethno veterinary medicinal plants for treatment of livestock ailments in Dangila district (*Continued*)

Kulkual (A)	<i>Euphorbia abyssinica</i>	<i>Euphorbiaceae</i>	Tree	Latex	Latex and Injera, are mixed together then allow to swallow in an empty stomach A piece of fresh roots are crushed, mixed with Allium sativum sutured and incarceration on the neck	Ascariis	Oral
Gemero (A)	<i>Capparis tomentosa</i>	<i>Capparidaceae</i>	Shrub	Root	Seeds are Grinded and mixed with common salt	Evil eye (buda) for human	Topical
Dnblal (W)	<i>Foeniculum vulgare</i>	<i>Apiaceae</i>	Herb	Seed	The root are pounded and mixed with water, then the filtrate content provide	Abdominal pain,	Oral
Andawla (A)	<i>Kalanchoe laciniata</i>	<i>Crassulaceae</i>	Herb	Root	Fresh leaves are collected and squeezed together then applied on as bandage	Hyena Bite	Oral and nasal Topical
Agam (A)	<i>Carissa spinarum</i>	<i>Apocynaceae</i>	Shrub	Leaf	Squeezed leaf mixed with small water and the filtrate is sprayed on animal body	Biting insect repellent	Topical
Fyelefeqi (A)	<i>Clusia abyssinica</i>	<i>Euphorbiaceae</i>	Shrub	Leaf	The tip were cut it has produced watery fluid. This can be creamed over the skin.	Dermatophytosis (Ring worm), wound,	Topical
Bisana (A)	<i>Croton macrostachyus</i>	<i>Euphorbiaceae</i>	Tree	Leaf	The root are pounded together with Allium sativum and mixed with small water and drenching	Bloat	Oral
Zngibl (A)	<i>Zingiber officinale</i>	<i>Zingiberaceae</i>	Herb	Root	The fresh crowns are squeezed to make a juice	Eye infection	Ocular
Senel (A)	<i>Phoenix reclinata</i>	<i>Arecaceae</i>	Tree	Crowns	The fresh leaves and bark crushed and mixed with water	Retained fetal membrane	Oral
Chakma (W)	<i>Ricinus communis</i>	<i>Euphorbiaceae</i>	Shrub	Leaf and bark	The fresh leaves are crushed	Expel foreign things from eye	Ocular
Astenagr (A)	<i>Datura stramonium</i>	<i>Solanaceae</i>	Herb	Leaf	Extracted juice insert in	Febrile illness Megagna (mich)	Oral and Nasal
Nech bharzaf (A)	<i>Eucalyptus globulus</i>	<i>Myrtaceae</i>	Tree	Leaf	The fresh leaves are cooking and drunk the decoction and fumigation the vapour		

Table 1. List of ethno veterinary medicinal plants for treatment of livestock ailments in Dangila district (Continued)

Local Name	Scientific Name	Family	Plant Part	Preparation	Indication	Application
Timatim (A)	<i>Cycopersicon Esculentum</i>	Solanaceae	Herb	Fruit	Crush and squeeze juice onto the affected area	Photosensitization
Smiza (A)	<i>Justicia schimperiana</i>	Acanthaceae	Shrub	Leaf	Leaf are chopped and squeeze mixed with Water, Extracted juice applied on	Hyena bite
Gibiti (W)	<i>Lupinus albus</i>	Fabaceae	Herb	Seed	Fresh roots are pounded and cup of this juice mixed with milk.	Rabies
Duba (A)	<i>Cucurbita sp.</i>	Cucurbitaceae	Herd	Fruit	Seeds inserts into water for three days then washed the body with water containing bitter	Kill external parasites (lice and their eggs)
Nim (A)	<i>Azadiracht a indica</i>	Meliaceae	Tree	Leaf	Crushed Fruit mixed with hot water and salt then drenching.	Retained fetal membrane
Feto (A)	<i>Lepidium sativum</i>	Apiaceae	Herb	Seed	Leaves bump on high populated insect	Insect repellent
Gesho (A)	<i>Rhamnus prinoides</i>	Rhamnaceae	Shrub	Leaf	The seeds are grinded and mixed with water then drenching and sprayed	Febrile illness Megagna (mich)
Abalo (A)	<i>Brucea Spp</i>	Simaroubaceae	Shrub	Fruits and roots	fresh leaf is squeezed with small water and the juice is given	Leech removal
Lmch (A)	<i>Clausena Anisata</i>	Rutaceae	Shrub	Leaf	Fruits and roots Crushed, mixed with butter then cream	Photosensitization
Buna (A)	<i>Coffea arabica</i>	Rubiaceae	Tree	Seed	The fresh leaves are squeezed and mixed with small water, wash and massage the animal body by the extract fluid	Kill external parasites (lice and their Eggs).
					Seeds are roasted and crushed then mixed with small water	Wound

Table 1. List of ethno veterinary medicinal plants for treatment of livestock ailments in Dangila district (Continued)

Local Name	Scientific Name	Family	Plant Part	Preparation	Indication	Application
Damakese (A)	<i>Ocimum lamifolium</i>	Lamiaceae	Shrub	Leaf	Crushed leaves mixed with water, the juice extract drenching	Febrile illness (megagn)
Ambacho (A)	<i>Rumex nervosus</i>	Poligonaceae	Shrub	Leaf	Fresh leaf crushed and make as bandage over the affected area	Wart
Ababra (W)	<i>Urtica simensis</i>	Urticaceae	Herb	Leaf	The fresh leaves are crushed and applied the extracted juice	Wound
Shemeggit (A)	<i>Cynoglossum coeruleum</i>	Boraginaceae	Herb	Leaf	Leaves are cooking with water and the juice is give.	Febrile illness Michi (megagn)
Lenkuata (A)	<i>Grewia ferruginea</i>	Tiliaceae	Tree	Bark	The fresh stem bark squeezed, extracted juice, provide together with water and common salt	Retained fetal membrane
Tenadam (A)	<i>Ruta chalepensis</i>	Rutaceae	Herb	Leaf	The fresh leaves are squeezed and mixed with water, the juice extract	abdominal pain

Key: local name in Amharic (A) and agew (w).

3.1 Socio-demographic characteristics and Informant Selection

In this study, a total of 53 informants were selected purposefully, among these 46(86.8%) males and 7(13.2%) females were interviewed. Almost all informants belonged to the Ethiopian Orthodox Church and Most of the knowledgeable healers are men. More of the traditional healers (64.1%) were in the age range of 46-and above years. Most of the

traditional healers indicated that their sources of knowledge were from their fathers (50%) followed by from friends (41.67%) and relatives (8.33%). Concerning the educational status of traditional healers, most of them (49.1%) were not educated, (32.1%) attended church education but 18.8% of the traditional healers attended Modern education from grades 7 up to secondary school.

Table 2: General Socio-demographic characteristic of the informants

No	Parameters	Informant groups	Response frequency	Percent (%)
1	Gender	Male	49	86.8%
		Female	7	13.2%
2	Age	18-45	19	35.9%
		46-and above	34	64.1%
3	Language	Amharic	48	90.5%
		Agew	5	9.5%
		Illiterate	26	49.1%
4	Educational status	Religious education (priests and MeriGetas)	17	32.1%
		Modern education	10	18.8%
5	Marital status	Single	17	32.1%
		Married	36	67.9%
		Father	18	50%
6	Sources of knowledge	Friends and shinashia	15	41.67%
		Relatives	3	8.33%

3.2 Parts of Medicinal Plant used

The study showed that plant part used for the preparation of the remedies in 36 plant species, leaves were the highest (48.71%), followed by roots (15.38%) and others are listed on (Table 1).

3.3 Sources Occurrence and Habit of Medicinal Plants

The data collected from the study site showed that most of the ethno veterinary medicinal plants were collected from the wild (52.8%), home gardens

(30.5%) and for both (16.7%). Identified growth forms of medicinal plants indicated that herbs (44.5%) were

dominant than shrubs (33.3%) and/or trees (22.2%).

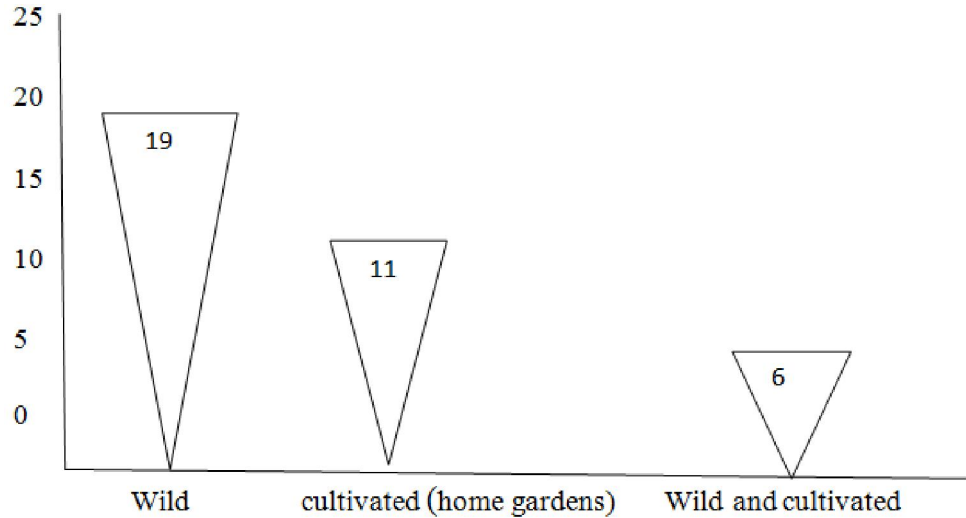


Figure 1: Source of medicinal plants in the study area

3.4 Method of Preparation and Route of administration

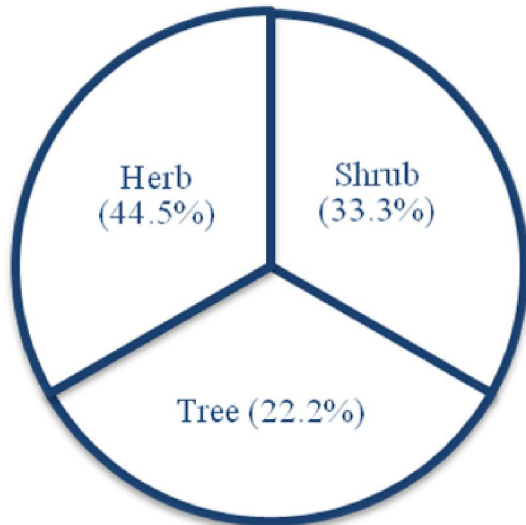


Figure 2: Habit of plant species used by traditional peoples in Dangila district

The (figure 3) indicated that crushed (33.3%), squeezed (28.2%), pounded and others ways of preparation like extracting juice, oil or latex from the plant (10.25%, grinded, cooking (5.1%), fumigation, crushed and squeezed, chopped and squeezed (2.6%) were the different ways of preparation of medicinal plants in the study area. The medicinal plant preparations were administer through topical, oral, ocular, and nasal alone and mixed oral and nasal, oral and topical routes. However, topical, application 17

(44.7%) was the highest and most commonly used route of application followed by oral 14 (36.9%) and others are listed on (Table 1). In most cases the measurements are rough, lack precision and dosage given to the patient has no strict specification.

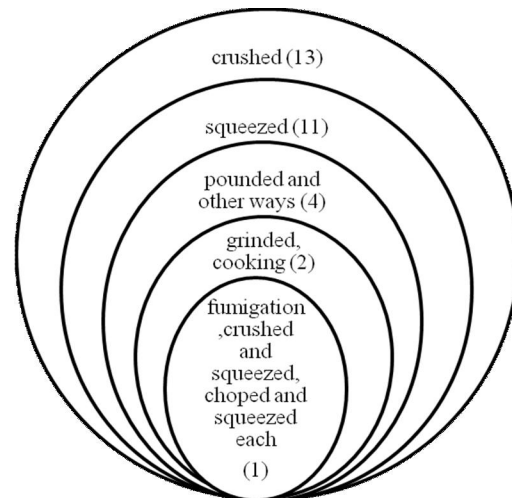


Figure 3: Methods of preparation of traditional medicinal plant remedies in the study area

3.5 Animal Disease and Corresponding Numbers of Medicinal Plant Species

The study revealed that there are a total of 21 known livestock ailments/diseases in the study area which are treated by traditional healers. According to informants, the majority of medicinal plants can be used to treat more than one ailment. Febrile illness (mich) and wound were the most commonly cited

livestock diseases which were reported to be treated by (23.80%) of medicinal plants.

Table 3: Major Livestock Diseases and number of medicinal plants species used by people of Dangila district, northern Ethiopia

No	health problem	No of Species	% of the total medicinal plants used
1	Febrile illness (mich)	5	23.80
2	Retained fetal membrane	4	19.04
3	Abdominal Pain	3	14.28
4	Wound	5	23.80
5	Rabies	3	14.28
6	Kill external parasites	3	14.28
7	Photosensitization	2	9.52
8	Insect repellent	2	9.52
9	wart	2	9.52
10	Hyena bite	2	9.52
11	Eye infection	2	9.52
12	Bloat	1	4.76

Table 3: Major Livestock Diseases and number of medicinal plants species used by people of Dangila district, northern Ethiopia (*Continued*)

13	Dermatophytosis	1	9.52
14	Anthrax	1	9.52
15	Abortion	1	9.52
16	Leech	1	9.52
17	others	5	23.80

3.6 Major Plant families frequently used to treat Livestock Diseases

The study showed that from about 36 of ethno-veterinary medicinal plant species, there were 26

families, among these families Euphorbiaceae families constituted the highest proportion (11.11%) and followed by Cucurbitaceae (8.33%).

Table 4. Plant families and number of medicinal plants species used for Livestock ailments in the study area

Family name	No of ethno-veterinary medicinal plant species	Family name	No of ethno-veterinary medicinal plant species
<i>Plantaginaceae</i>	1	<i>Solanaceae</i>	2
<i>Phytolacaceae</i>	1	<i>Myrtaceae</i>	1
<i>Zingiberaceae</i>	1	<i>Tiliaceae</i>	1
<i>Alliaceae</i>	1	<i>Acanthaceae</i>	1
<i>Euphorbiaceae</i>	4	<i>Lamiaceae</i>	1
<i>Asteraceae</i>	2	<i>Poligonaceae</i>	1

Table 4: Plant families and number of medicinal plants species used for Livestock ailments in the study area (Continued)

<i>Capparidaceae</i>	1	<i>Meliaceae</i>	1
<i>Rubiaceae</i>	1	<i>Apiaceae</i>	2
<i>Crassulaceae</i>	1	<i>Rhamnaceae</i>	1
<i>Apocynaceae</i>	1	<i>Simaroubaceae</i>	1
<i>Arecaceae</i>	1	<i>Rutaceae</i>	2
<i>Cucurbitaceae</i>	3	<i>Urticaceae</i>	1
<i>Fabaceae</i>	2	<i>boraginaceae</i>	1

3.7 Availability and distribution Medicinal plant in the study area

The accessibility of ethno-veterinary medicinal plants found in the study area were vary from season to season, many of the plants were available every time (86.1%) some are available seasonally (11.1%), and the remaining one are unknown (2.8%) as described in the (Figure 4). A total of 36 veterinary medicinal plant were collected i.e. (9) from Chagni, (6) from Washa, (14) from Kebesa, (3) from Delekes and the rest were Anzerek and Jibana (2)

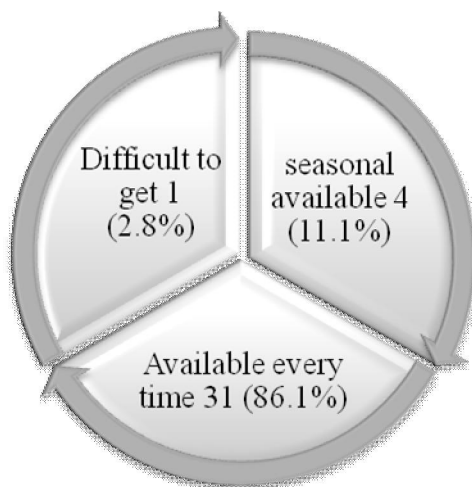


Figure4: Availability of Ethno veterinary medicinal plants based on the season.

4. Discussion

In Ethiopia, more than 800 plant species have been used as medicinal plants (Tesema *et al.*, 2002). The use of traditional medicinal plants to treat human and livestock ailments is not exhaustively documented in Ethiopia despite studies had been conducted in some areas of Northern, Northwestern, Central, Southeastern and Southwestern Ethiopia (Haile and Delenasaw, 2007) For this particular field survey, only 36 species of medicinal plants distributed across 26 families and identified for treating 21 livestock ailments in Dangila district (table 1). Including their local name, family name, habit and Sources of Occurance, ways preparation, rout of administration and Parts of medicinal plant used were documented. The plant family *Euphorbiaceae* (11.1%) was most frequently represented amongst the documented useful species. Followed by *Cucurbitaceae* (8.3%) with a total of (3) species and others constitute one up to two plant species per family.

Indigenous people of different localities have their own specific knowledge on plant use,

management and conservation. The present study indicated that their sources of knowledge were their fathers (50%) followed by from shinashia and friends (41.7%) and relatives (8.3%), this is also true in Dabat district (Messay *et al* 2015). Most of the traditional healers were men; this is because parents prefer to transfer the knowledge of traditional medicine to their sons, not to their daughters and patients prefer to go to men healers than women. But according to different studies, many female healers take care of the family level treatments (Addis *et al.*, 2001; Giday, 2001; Ketema *et al.*, 2013). Therefore the present finding was agreed with the previous finding. Majority of the traditional healers (64.1%) were older than 46 years.

Most of the traditional medicinal plant preparations were used in fresh form (88.9%), but the rest are dried (11.1%) form. The most frequent part of plant used for the preparation of the remedies in the current study area was leaves 19 (48.71%). This finding is similar with the results of other ethno medicinal studies (Macía *et al.*, 2005; Togola *et al.*, 2005). This may be due to Collecting leaves does not cause great danger to the continuity of an individual plant and safety to use compared to the collection of roots, bark, stem or whole plant, However, in the study area root (34.35%). was the second most part used to treat different livestock ailments. Comparatively utilization of root part highly affects the survival and ecological aspect of the plant. Depending upon the type of illness, the use of two or more parts of medicinal plants was also reported by some healers as common practice. The remedies are prepared using water, milk, sugar or honey, Garlic, butter and common salt were some of the ingredients added to the medicinal plants in different mode of preparation. Healers used to mixing of two plants to treat selected ailments. For instance, *Zingiber officinale* mixed with *Allium sativum* is used for the treatment of bloat in animals, which agree with studies in Tigray, Northern Ethiopia. (Emiru *et al.*, 2011).

In various parts of the world, medicinal plants are mostly harvested from the wild sources either for local use or trade purposes (Mesfin, 2007; Kalayu *et al.*, 2013; Gidey *et al.*, 2011). The present finding showed that 19 species (52.8%) were wild, 11 species (30.5%) were collected from cultivated and only 6 species (16%) was both wild and cultivated (figure.1). Therefore the present finding was agreed with the previous finding. Most medicinal plants used in the area were herbs (44.5%) followed by shrubs (33.3%) and tree (22.2%). This may be associated with areas receiving year round rainfall and easily accessible in the nearby areas than trees and shrubs. The finding agrees with in Ankober District, Amhara Region and

Southern Tigray (Ermias *et al.*, 2013; Giday, 2003). People living far away from forests and better access to modern medical system (Anzerek and Jibana) knew relatively fewer species than those residing near the forests (Chagni and Kebesa) showing that contact with the plant resources helps to preserve and continue using the knowledge. The study confirmed that variation exists in species preferences among sites, partly due to the wide array of ecological niches within short distances. The finding agrees with eastern central Ethiopia (Bahru *et al.*, 2011).

There are various methods of traditional medicinal plant preparation in the area. The most popular mode of preparation was in the form of crushed which accounts to (33.3%) followed by (28.2%) of squeezed and the rest were listed (Fig 3). This study agrees with (Gidey, 2010). The routes of administration in the study area, both internal and external applications were reported by the informants in the treatment of livestock ailments. The commonly reported routes of administration are topical (44.7%) followed by oral (36.9%), different findings were reported in South Omo, Southern Ethiopia (Ketema *et al.*, 2013) and other Studies elsewhere in Ethiopia. The highest numbers of medicinal plant species were reported to be used for treatment of febrile illness (Mich) and wound (23.80%) followed by Retained fetal membrane (19.04%), which are common in this district and others are listed on (Table 3). Disappearance of knowledge of medicinal plants is also connected with the fact that most specialized healers in the area do not properly pass it down to the next and most of the remedies are found in the wild poses a big threat to their existence due to destruction of their habitats. The targeted conservation measures can be achieved by encouraging people to grow medicinal plants in their home gardens, live fences and farmlands.

The people which are found in the current study area have a wealth of knowledge about traditional veterinary medicines for treating their livestock ailments. For centuries, the local farmers have learnt a great deal about animal diseases and their way of management through indigenous knowledge to protect their health and surveys in these areas and other unexplored areas of the region as well as the other regions of the country need to be conducted before most of the time tested indigenous knowledge of the traditional herbalists passes away.

5. Conclusion and Recommendations

This field survey has documented 36 plant species distributed across 26 families of ethno-veterinary medicinal plants were identified in the study area during the study period and treat against 21 livestock ailments. The highest number of plant

species was reported to be used for treatment of febrile illness (Mich) and wound. Medicinal plants were mainly collected from the wild compared to home garden and herbal medicine have great role in the primary health care system. Leaves were the leading plant parts used in the study area and there were variations in quantity remedies and units of measurement depend on the intensity of the disease and age of patient mainly administered by topical. From various threats of medicinal plants agricultural expansion was the most visible one. Based on the above conclusion, the following recommendations are forwarded:

- ❖ Improve the integration of traditional healers and modern health systems to discover new drugs.
- ❖ Appropriate national policy action plan and program related to conservation and sustainable uses of plant should be formulated.
- ❖ Further scientific research should be conducted to evaluate pharmacological, toxicological and photochemical studies of ethno-veterinary medicinal plants in the study area.

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7. Annex

1 Graphical presentation of some ethno veterinary medicinal plant in and around Dangila district



Kalanchoe laciniata



Urtica simensis



Cynoglossum coeruleum



Croton macrostachyus



Clusia abyssinica



Ocimum lamiifolium



Phoenix reclinata



Brucea Spp



Cucumis ficifolius



Calpurnia aurea



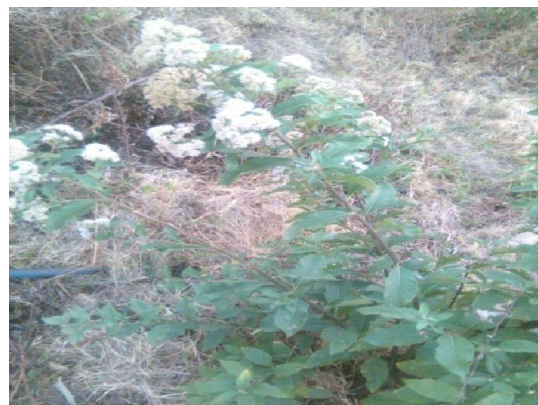
Clausena anisata



Rumex nervosus



Grewia ferruginea



Vernonia amygdalina



Azadirachta indica



Ricinus communis



Justicia schimperiana



Plantago lanceolata

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