

# Survey of Ethno-Veterinary Medicinal Plants at Dale Sadi Districts of Oromia Regional State, Western Ethiopia

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## Abstract

The survey of ethno-veterinary medicinal plants was conducted from October 2016 to August 2017 at selected districts of Oromia Regional State, western Ethiopia. The aim of the study was to identify and document medicinal plants and the associated ethno-medicinal knowledge of the local community and to assess factors affecting its utilization. Purposive sampling technique was used to select the study districts based on the availability of practice of traditional medicine and on the recommendations of elders; religious leaders and local authorities. Semi-structured interview; guided field observation, group discussion and market survey were used to collect the required data. Informant consensus method and group discussion were conducted for crosschecking and verification of the information. Both descriptive statistics and quantitative methods were used for data analysis. About 47 plant species belonging to 34 families were identified and documented based on the local claims of the plants, of which Euphorbiaceae, Solanaceae, families were the most dominant, accounting 4(11.76%) each, followed by Cucurbitaceae, 3(8.82%). Majority plant taxa were collected from the wild 24(51.06%) followed by both wild and gardens 10(21.27%), home gardens 8(17.02%), and herbal drugs sellers 5(10.6%). The most frequently used plant parts were reported to be the. Tree, 19 (40.42%) was the most commonly used habits of the plants by traditional healers followed equally by both herb and shrub, 14 (29.79%). The condition of preparation was in the fresh form (82.5%) and fresh/dry form (17.5%). Oral administration (57.45%) was the most common route of administration. In conclusion, the participants have a wealth of indigenous knowledge about plant medicines for treating their live stock but; agricultural expansion (25.5%) was the major threats to medicinal plants followed by deforestation (20.75%) in the study area. Therefore, documentation of the indigenous knowledge before it is lost forever and proving these valuable practices by further researches and scientific dissemination of the knowledge were recommended.

**Keywords:** Ethno-veterinary; Medicinal plants; Indigenous knowledge; Kelem Wollega Zone

## 1. Introduction

In Africa, traditional healers and remedies made from plants play an important role in the health of millions of people (Rukangira, 2001) and animals, which is studied by ethnoveterinary medicine. In Ethiopia plant remedies are still the most important and sometimes the only sources of therapeutics for nearly 80% of human and more than 90% in livestock population. Ethnoveterinary medicine studies traditional knowledge, folk beliefs, skills, methods and practices used for the treatment of livestock ailments (Tabuti et al., 2003). It offers medicines which are cheap and locally available than pharmacotherapy. Farmers can prepare and use homemade remedies without any expenditure (Yirga et al., 2012a).

The knowledge is transferred from generation to generation through the word of mouth (oral tales) with great secrecy (Yirga et al., 2012a) than in written form (Mesfin et al., 2009). However, it can be transferred to generation vertically through family members, horizontally by exchange through peers, or diagonally through traditional healers to student learners (Philander et al., 2008). Traditional medical knowledge of medicinal plants and their use by indigenous cultures are not only useful for conservation of cultural traditions and biodiversity, but also for community healthcare and drug development in the present and future (Pei, 2001). Pharmacotherapy is one of the most important means of controlling livestock diseases, but it is possible only if livestock owners can afford to cover the cost of treatments. In Ethiopia, conventional veterinary services have been playing a paramount role in the control and prophylaxis of livestock diseases in the last three decades. However, they cannot yet deliver complete coverage in preventive and curative health care practices because of inadequate labor, logistical problems, an erratic supply of drugs and the high cost of drugs and equipment (Sori *et al.*, 2004). Due to this, livestock keepers particularly in rural areas frequently visit traditional healers to get solutions for their ill-health animals (Kalayou et al., 2012). Therefore, ethnoveterinary medicine is important when livestock raisers have no other animal health care options (Endalew, 2007). In Ethiopia, people have been using both plant and animal species for medication of different animal and human diseases over centuries when there was no modern health service delivery. The practice was not stopped with introduction of the modern pharmacotherapy and plant remedies are still the most important and sometimes the only sources of therapeutics for nearly more than 90% livestock population (Tadeg et al., 2005; Giday et al., 2009). However, information on veterinary herbal medicine has not been systematically documented (Sori et al., 2004) and there is a danger that this knowledge will soon be lost as traditional social patterns are increasingly disturbed by globalization (Gradé et al., 2009), environmental degradation, agricultural expansion, cultivation of marginal lands and urbanization

(Teklehaymanot and Giday, 2007; Lulekal et al., 2008; Giday et al., 2009) warranting urgent need to document and preserve the indigenous knowledge (Kalayou et al., 2012). So transmission of the knowledge by documentation for next generation is the most valuable work and can also be used as a vital tool to conduct pharmacological tests on the plants since drug resistance is one of the current issues. Therefore, the present study was conducted to document ethnoknowledge of plants used in veterinary practices and to assess factors affecting utilization of ethnoveterinary medicine in Dale sadi district of Kellem Wollega Zone, West Ethiopia.

## **2. Materials and Methods**

### **2.1. Study area**

The study was conducted from October 2016 to August 2017 in Dale sadi district located in kelem Wollega zone of Oromia regional state, situated at 520 Kilometers West of Addis Ababa. The mean annual rain fall in Dale sadi district ranges from 1150-1300mm. The annual temperature ranges from 26.1-34°C. The district has altitudes ranging from 1200-2000 m. a. s.l. The district has large rivers like Birbir, Mardafo and Kile river. The areas have got a number of wild animals such as African buffaloes, Bush pigs, warthog, bush buck, kudu, hippopotamus, crocodiles, hyena, antelopes and snakes which are claimed to serve as sources of food for the fly as reservoir for trypanosomes. Study population the cattle in the district are local breeds that are kept under traditional extensive husbandry systems with communal herding. Agriculture is the main stay of the livelihood of the society with mixed farming system and livestock play an integral role for agriculture (DSADO.2016). The animal population of the district is estimated to be 85,189 cattle, 28,600 sheep, 19,699 goats, 181 horses, 470 mules, and 3839 donkeys (DSLFD0.2016, CSA, 2009).

### **2.2. Study population**

The study participants were voluntary knowledgeable elders and traditional healers who varied with age, sex, marital status, occupation, educational level and location.

### **2.3. Sampling methods**

Purposive sampling technique was used to select the study districts based on the availability of practice of traditional medicine and on the recommendations of elders, religious leaders and local authorities. Moreover, the agro-climatic zones were considered to select the districts. Semi-structured questionnaires (interviews), field observations and group discussion were used to collect indigenous knowledge of traditional healers and knowledgeable elders about ethno-veterinary medicinal plants used for treatment of livestock diseases and disease conditions in which study subjects were selected purposefully. Ten kebeles (Dale suchi wayu, Awetu Birbir, Awetu Gandaso, Chamo, Babu tulu Aba bor, Chole, Gonsi Derba, Ogoyu jaro, Bikila Birbir and Satano dima) were selected out of 29 kebeles of the region. Those kebeles which have almost similar climatic conditions with other neighboring kebeles were not included in the study and this is also additional factor for site selection.

### **2.4. Data collection methods**

The data were collected by using a-structured and pre-tested questioner for interview, observations and field guided walks (Martin, 1995). Before collecting the data, written permission was obtained from the office of the district and permission was obtained from the administrator of each selected kebele. Following this, the purpose of the study was explained to each informant and verbal prior consent was obtained.

During the study period, each informant was visited two to three times in order to confirm the reliability of the ethno-botanical information. The responses that were not in harmony with each other were rejected. Interviews and discussions were undertaken based on checklist of questions prepared in English and translated to local language 'Afan Oromo'. Information was carefully recorded during an interview with an informant as well the knowledge of vegetation categorization which was asked and recorded. Field observations were performed with the help of local guides on the morphological features and habitats of each medicinal plant species in the field. Group discussions were conducted on ethno-veterinary medicinal plants and their threats, conservation and transferability of knowledge in the community. Market survey survey was made to distinguish and record the type of herbal drugs sold in the market, and the multipurpose role of some medicinal plants was observed. Furthermore, herbal drug sellers and others who brought plant species were interviewed.

The reported medicinal plants were collected from natural vegetation and home gardens during the field walks and habitats of the plants were listed. Preliminary identification was done at the site (field) and the collected voucher specimens were taken to the district's Agricultural office, Department of plant conservation. Specimen identification and confirmation was undertaken by using taxonomic keys and various volumes of the Flora of Ethiopia (Edwards et al., 2000; Hedberg et al., 2006). Finally, the identified specimens were reconfirmed by a taxonomic expert and labeled specimens were stored at the Herbarium.

## 2.5. Data analysis

The collected ethno-botanical data were entered into SPSS version 21 and summarized using descriptive statistical methods such as frequency and percentages.

## 3. Results

### General characteristic of the informants

A total of 41 key informants were participated in the study. The majority of study participant were traditional healers 17(41.5%), followed by herbal drug seller 13 (31.7%), knowledgeable elders 11(26.8%). Males were accounted for the highest number which was 31(75.6%) and females were 10(24.4%) (Table1).

Table 1: General characteristic of the informants (n=41)

Variables	variables category	No of respondent	Percent (%)
Sex	Male	31	75.6
	Female	10	24.4
Age	Young	5	12.2
	Elder	36	87.8
Educational status	Illiterate	26	63.4
	Literate	15	36.6
Marital status	Married	39	92.7
	Single	3	7.3
Group of interviewer	Traditional healers	17	41.5
	Herbal drug seller	11	26.8
	Knowledgeable Elder	13	31.7
Total		41	100

### Sources, availability and major part of medicinal plants used

The principal sources of most medicinal plants were from the wild 24(51.06%) followed by both wild and gardens 10(21.27%), home gardens 8(17.02%), and herbal drugs sellers 5(10.6%). Concerning the availability of the plants, majority of them were available every time (70.2%), some are found seasonally (21.28%) and the rest were difficult to get (8.51%) as described in the study area. Tree , 19 (40.42%) was the most commonly used habits of the plants by traditional healers followed equally by both herb and shrub , 14 (29.79%).The results of study depicted that the major part of the medicinal plants were leaf, root, , bark , seed , fruit and whole part with proportion of 17 (36.17%), 10 (21.3%), 8(17.02 %), 7(14.9%) 3(6.4%) and 2(4.25%), respectively in the study area (Table 2).

Table 2: The source, availability, habit and plant part of ethno-veterinary medicinal plant remedies used to treat livestock diseases in the study areas.

Variables		Frequency	Percent
Source	Wild	24	51.06
	Gardens	8	17.02
	Both wild and garden	10	21.27
	Market	5	10.6
Total		47	100
Availability	Every time	33	70.2
	Seasonality	10	21.28
	Difficult to get	4	8.51
Total		47	100
Habits of the plants	Tree	19	40.42
	Herb	14	29.79
	Shrub	14	29.79
Total		47	100
Parts of the plant	Leaf	17	36.17
	Seed	7	14.9
	Fruit	3	6.4
	Bark/stem	8	17.02
	Root/bulb/tuber	10	21.3
	Whole part	2	4.25
Total		47	100

### Livestock diseases and disease conditions treated

During the current study, 47 species of medicinal plants were identified. These were grouped into 34 families; of which Euphorbiaceae, Solanaceae, families were the most dominant, accounting 4(11.76%) each, followed by

Cucurbitaceae, 3(8.82%). Rosaceae, Rannunculaceae, Asteraceae and Fabaceae accounting 2(5.9%) and the rest families were identified with single species (2.94%). The informants were reported as there were 31 known livestock ailments/ diseases are treated by traditional healers in the study area. Of the diseases/ disease conditions, Black leg (29%), both Diarrhea and Gastro intestinal parasite equally accounted for 7(22.58%), Equine colic 6(19.35%), Retained fetal membrane 5(16.13%) and Trypanosomiasis and mastitis (12.9%) were the most common one (Table 3).

Table 3: Summary of ethno veterinary medicinal plants, diseases and diseases conditions treated and local, scientific and family name of the medicinal plants from November to April in Dale Sadi district, Kellem Wollege zone, Ethiopia.

Species name	Family name	Local name	Habits of the plants	Rout of administration	Indication and preparation
Hageri abyssinica	Rosaceae	Heto	Tree	Orally	The fresh seed are grinding and mixed with the feed items like crop by products 2-3 spoons for 3 days (GIT parasite)
Croton macrostachyus	Euphorbiaceae	Mekanisa	Tree	Topical and orally	The fresh leaf are chopped then mixed with honey Creamed and applied in infected area for 3-5 days (wound, Fungal infection)
Olea europae sub sppeuspidata (Olea Africana)	Dacaceae	Ejersa	Tree	Topical and orally	The dry bark and stem are kept in the pot and burying in the ground with high power fire then evaporating oil are creamed an drenching (Arthritis)
Celtisafricana	Ulmaceae	Cheka	Tree	Orally	The fresh leaf are chopped and mixed with water drenching (Diarrhea, Gastro intestinal parasite parasites and Equine colic).
Rhamnaceae	Rhammusprina ides	Geshe	Tree	Oral and Topical	The fresh leaf are crushed and mixed with the chopped leaf of Nicotatabacum then mixed with water drenching (Leech infestation).
Nicotatabacum	Solanaceae	Tambo	Shrubs	Nostrils	The fresh leaves are crushed and together with the chopped leaf of Ricinuscommunis mixed with oil drenching (Leech infestation, snake bite).
Ocimumlamifolium	Lamifolium	Damakase	Herbs	Orally	The fresh leaf are crushed and mixed with Atela drenching (Black leg)
Urerahypselodendronwedd	Urticaceae	Sakiye	Shrubs	Orally	The fresh/dried root are crushed and mixed with water drenching (Retained fetal membrane, Abortion).
Ricinuscommunis	Euphorbiaceae	Kobo	Tree	Orally	The fresh/dried fruit are crushed and mixed with atella drenching (Blackleg, Actinomycosis).
Maesallanceolataforssk	Myrsinaceae	Abayi	Tree	Nostrils	The dry seed are grinded and mixed with milk drenching (Diarrhea, blackleg).
Vernoniamygdalina	Asteraceae	Ebicha	Tree	Orally	The fresh leaves are concoction and mixed with salt solution drenching (GIT parasite, Diarrhea, Black leg).
Withaniasomnitera	Solanaceae	Mitmita	Herbs	Orally	The fresh/dried seed are grinded and mixed with food (Black leg, increasing milking).
Ficussycomorus	Moraceae	Lugo	Shrub	Topically	The fresh roots are chopped and mixed with goat milk then filtered dropping 1-2 for five days (Otitis, conjunctivitis).
Ziziphusspinachristis	Rhamnaceae	Kurkuresa	Herbs	Orally	The fresh root are crushed and then mixed with water 2-3 glass of water for 3-5 days (Mastitis, Abdominal pain).
JusticiaSchimperina(Adhatodaschimperia)	Acanthaceae	Dumuga	Herbs	Topical	The dried small pieces of stem are tied and holding on the neck (Otitis).
Juniperusprocera	Cupressaceae	Gantira habesha	Tree	Intra vaginally	The fresh fruits are chopped and mixed with vegetative oil then infusion by water 2-3 glass 3-5days (Abortion, Irregular estrus).
Echinopskeberichamesfini	Echinopaceae	Kebaricho	Shrubs	Orally	The fresh root are crushed and together with the chopped leaf of Celtisafricana then mixed with water and drenching (Diarrhea, Black leg).
Acacia brevispica harms	Fabaceae	Agamsa	Tree	Orally	The fresh root is decoction and mixed with butter drenching (Abdominal pain and Equine colic).
Allium sativum L.	Alliaceae	Kulubi	Herbs	Orally	The fresh root are crushed and mixed with water (Mastitis, colic diarrhea, bloat, internal parasites).
Caparissepialcom	melina Capporideae	Riga gange	Herbs	Orally	The fresh leaf are chopping and mixed with honey drenching (Equine colic, swelling of body)
Zingiber officinalis Rosc.	Zingibraceae	Jijembila	Herbs	Orally	The dried/fresh bulbs are grinded with salt and dissolved in water. The solution is drenched repeated till recovery. (Colic, diarrhea, bloat, internal parasites).
Grewia ferruginea Hochst.ex A. Rich.	Tiliaceae	Doqonu	Shrubs	Orally	The fresh internal part of bark of are grinded and squeezed with water and given to the cow when straining starts. (Retained fetal membrane).

Species name	Family name	Local name	Habits of the plants	Route of administration	Indication and preparation
Trachyspermum ammi (L) Sprague ex Turill	Umbelliferae	Enshilala	Herbs	Orally	Fresh roots are crushed and squeezed using water. Then one and half glass of the squeeze is drenched orally for two consecutive days in cattle (Black leg).
Solanum dasphyllum Schumach.	Solanaceae	Hidii warabesa	Shrubs	Orally	The dry fruits are grinded of and squeezed using water (Colic, mastitis)
Sida rhombifolia L.	Malvaceae	Keraba	Tree	Topical and Orally	The dry all parts of this tree are crushed and used to wash the animal using water. In addition, it can be given orally till recovery repeatedly. (Skin disease)
Brucea antidysenterica J.F. Mill.	Simaroubaceae	Komonyo	Shrubs	Nostrils	The fresh leaves are mixed with M.foetida are crushed together and squeezed with water and infused through nostrils (Trypanosomosis)
Stereospermum kunthianum Cham.	Bignoniaceae	Botoro	Tree	Nostrils	The fresh bark are crushed and squeezed using small amount of water. (Ulcerative lymphangitis, black leg, rabies, colic )
Vernonia auriculifera Hiern	Asteraceae	Reji	Tree	Orally	The fresh leaves are crushed and squeezed with water. Then it is given for poultry with enjera when they get diarrheic (Diarrhea )
Linum usitatissimum L.	Linaceae	Talba	Herbs	Orally	The dry seed are grinded and squeezed with water. The juice is given depending on the size of the animal. (Retained fetal membrane).
Prunus africana (Hook.f.) Kalkm.	Rosaceae	Homi	Tree	Topical	The fresh bark crushed together with the leaf of M. foetida and put in the wound after washing with warm water. (Wound, myiasis)
Euphorbia ampliphylla Pax	Euphorbiaceae	Adami	Tree	Topical	Milk like secretion from fresh bark is applied topically till recovery when cattle get wart.
Momordica foetida Schumach.	Cucurbitaceae	Saro bofa	Herbs	Topical	The fresh leaves are boiled in water and used to massage the fractured bones of by local experienced herbalist and for myiasis.
Crinum abyssinicum Hochst. Ex A. Rich.	Amaryllidaceae	Kulubi warabesa	Herbs	Orally	The dry and fresh tuber are crushed and given for the animal suffering from different endoparasites.
Clausena anisata (Willd.) Benth.	Rutaceae	Ulmayi	Tree	Poultry house disinfection	The dry and fresh leaf is used to sweep poultry house infested by poultry ectoparasites or put in hot water to dissolve its contents and the water sprayed with the plants' end branches to disinfect the house. (lice)
Clematis simensis Fresen.	Ranunculaceae	Hida fiti	Shrubs	Orally	The fresh root and root of R. communis are crushed together and squeezed using water (Rabies )
Colocasia esculenta (L.)	Schott Araceae	Godare	Herbs	Topically	Fresh crushed internal part of tuber is topically bandaged on fire wound and are grinded and squeezed with water for Retained fetal membrane
Solanumanguivicam	Solanaceae	Roban jireti	Shrubs	Topically	The dried leaf are crushed and mixed with the butter creamed on udder and teat (Mastitis).
Clutia abyssinica Jaub. & Spach.	Euphorbiaceae	Ule foni	Tree	Orally	The dry leaves are crushed and squeezed. Then it is given for poultry with enjera when they get diarrheic.
Kalanchoe petitiiana A.Rich.	Crassulaceae	Bosoke	Tree	Topically	The fresh leaves are squeezed to the eye of an animal suffering from different problems. It is applied topically till. Eye disease
Nigella sativa L.	Ranunculaceae	Muka Guracha	Shrubs	Orally	The dry seeds and leaf of Echinops kerebicho, are crushed and grinded together. (Black leg, internal parasites, cough )
Mirabilis jalapa L.	Nyctagnaceae	Ababo dima	Shrubs	Orally	The fresh whole part and seed of L. usitatissimum are crushed together and swallowed to the cow when straining starts (Retained fetal placenta )
Lepidium sativum L.	Brassicaceae	Shinfa/ Feecoo	Shrubs	Orally	The dry seed is prepared in powder form and dissolved in water; and given when the cattle get sick (Black leg, bloat)
Berseama abyssinica Fresen.	Meliantaceae	Lolchisa	Shrubs	Nostrils	The fresh seeds are crushed together and infused through nostrils. (Trypanosomosis)
Lagenaria siceraria (Molina) Standl.	Cucurbitaceae	Hadhoftu	Herbs	Orally	The fresh leaves are crushed given after squeezed. (Rabies, Trypanosomosis )
Cucurbita pepo L.	Cucurbitaceae	Buqe	Herbs	Orally	The fresh leaves are crushed together and given to eat or squeezed with water to drench. (Trypanosomosis )
Verbascum sinaiticum Benth.	Scrophulariaceae	Gura hare	Shrubs	Topically	The dry and fresh leave are crushed used to wash the animal using water till recovery (Skin disease )
Albizia gummifera (J.F. Gmel). C.A.	Fabaceae	Ambabesa	Tree	Orally	The dry and fresh subcutaneous part of bark is crushed with tuber of Cucumis ficifolius. (Ematiation)

### Preparation mode and route of administration

The most common routes of administration were oral, 27 (57.45%) followed by topical, 9 (19.15%) and aerosol 5(10.63%). This study also indicated that the traditional healers uses the medicinal plants in different forms but

majorly they states the three forms fresh, dry and both forms were commonly used with in fresh forms representing the largest proportion but the dry forms was also less commonly used. Fresh, 29 (61.02%), fresh and dry, 9 (19.15%) and dry also 9 (19.15%) were the condition of the medicinal plant usage form for preparation in the study area (Table 3).

Table 4: Administration route of the medicinal plants in Dale sadi district from November to April

Rout of administration	Percent (%)	Percent (%)
Oral	27	57.45
Topical	9	19.15
Oral and topical	4	8.5
Aerosol/inhalation	5	10.63
House disinfection	1	2.12
Intra vaginally	1	2.12
Total	47	

Table 5: Summary of the condition of the medicinal plant usage form in Dale Sadi district from November to April

Medicinal plant condition	Frequency	Percent (%)
Fresh	29	61.02
Dry	9	19.15
Fresh and dry	9	19.15
Total	47	100

#### Harvesting technique of medicinal plants

Different unscientific harvesting techniques of medicinal plants practiced by traditional healers were debarking 17 (36.17%) followed by uprooting 16(34.04) and whole removal 14(29.79%). Abnormal harvesting techniques are the major threatens for conservation of medicinal plants in the study area (Table 6)

Table 6: Harvesting technique of medicinal plants in Dale sadi district from November 201 to April, 201

Harvesting methods	Frequency	Percent (%)
Uprooting	14	29.79
Whole Removal	16	34.04
Debarking	17	36.17
Total	47	100

The finding of the study revealed that agricultural expansion (25.5%) has been found to be the first main threat for the plants followed by Deforestation (20.75%) and the Overgrazing (18.87%) in the study area (Table 7).

Table 7: Priority factors perceived as threat to ethno-veterinary medicinal plants based on the level of destructive effects based on interviews (n=71)

Threats	Frequency	Percent
Agricultural expansion	27	25.50
Overgrazing	20	18.87
Soil erosion	18	17.00
Deforestation	22	20.75
Drought	10	9.43
Low cultivation	9	8.50
Total	106	

#### Transfer of knowledge about the plants

According to this plant survey, the traditional systems and religious beliefs that generally restrict the way of transferring indigenous knowledge might have constrained, to some extent, the free flow of information on medicinal plants in this study. The highest number of transfer of knowledge of traditional medicine is to trusted eldest son that accounted for (39%) followed by trusted sons (24.8%), and others are all members of the family (19%), relatives (12%), and friends (5.2%). The findings of the study showed that as people become older and older their knowledge of traditional medicine becomes better and better.

#### Conservation to medicinal plants

The study indicated that many of the informants who have knowledge on traditional medicine usage give priority to the immediate use of the medicinal plants than to its sustainable future uses, as a result their harvesting style is destructive. However, some plants have been protected for their spiritual and cultural purposes. Thus, these

places are good sites for the protection of these medicinal plants since cutting and harvesting are not allowed in such particular areas.

#### 4. Discussion

The finding of the survey was revealed that the majority of the traditional healers rely on indigenous traditional knowledge and locally available materials which were in line with the result of Mirutse Giday et al. (2003). The study was also indicated that the majority of the traditional healers were elder age groups (87.8%). In comparison of educational status, non-educated informants handled much knowledge of traditional medicine whereas educated informants had low knowledge of traditional medicine, which is an indicative of impact of modern education. This was similar with report of Giday Yirga et al. (2012) and Haile Yigezu et al. (2014) in Jimma Zone, Tadesse Birhanu et al. (2014) from Horro Guduru Wollega distinct, west Ethiopia. The findings was also agrees with reports of Firaol Tamiru et al. (2013) at Dabo Hana district, West Ethiopia and GebreMedhin Gebrezgabiher et al. (2013) in Tigray Region. Less medicinal knowledge in relation to young age might be attributed to the fact that traditional knowledge is built with years of experience and transfer of medicinal plants knowledge follows vertical transfers to the most selected family member orally with great secrete from generation to generation usually at old age (Tadesse Birhanu and Dereje Abera, 2015).

During this study, 47 species of medicinal plants classified into 34 families used to treat different animal diseases were identified and documented with details on their local name, family, habit and traditional preparation, mode of application in the study area during the study period. Euphorbiaceae, Solanaceae, families were the most dominant, accounting 4(11.76%) each, followed by Cucurbitaceae, 3(8.82%). Rosaceae, Rannunculaceae, Asteraceae and Fabaceae accounting 2(5.9%) the rest families were identified with single species (2.94%). One or more of the plant species identified in this study were also reported from other parts of Ethiopia (Sori et al., 2004; Endalew, 2007; Lulekal et al., 2008).

In this study, different livestock alignments: febrile diseases, Blackleg, gastrointestinal parasites infestations, equine colic, diarrhea, mastitis and others diseases as well as disease conditions were treated by the medicinal plants in study area. The result was consistent with Tadesse Birhanu and Dereje Abera (2015) who reported the dominant plant species at selected districts of Horro Guduru Wollega Zone, western Ethiopia. This might be due to similarity in climatic condition and the purpose for which the medicinal plants used in both study areas.

The identified medicinal plants were comprised of mainly tree (40.42%) in the study area which was in contrast with other findings that were conducted by Tilahun Teklehaymanot and Mirutse Gidey (2007) indicated that the dominant habit of collected medicinal plant were herb in Northwest Ethiopia. This finding could be an indication abundance of herbs around rain fall areas. The dominance of trees in the identified medicinal plants could have a positive implication since they could not easily be hampered by recurrent drought which is common in this study sites. According to this finding, the plant parts highly used for the preparation of the remedies were leaves (36.17%) followed by roots (21.3%). This finding agrees with those reported by Mirutse Giday et al. (2003) and Fisseha Mesfin (2007). According to this study the preferred condition for the preparation of remedies was fresh (61.02%) followed by dry and fresh/dry (19.15%). In contrast to this idea, some professional traditional healers sell their plant medicines in dried form in the market and also store the dried plant medicines in different containers in their homes (Kebu Balemie et al., 2004).

The end product preparations of the traditional medicinal remedies were commonly in the form of crushing followed by chopping and decoctions. The medicinal plant preparations were applied through different routes of administration like oral, topical or dermal and nasal routes. Of these, oral application (57.45%) was the highest and most commonly used route of application followed by topical or dermal application (19.15%). These results are consistent with the findings of various ethnobotanical researches in different areas of Ethiopia (Hunde et al., 2004, Tadesse Birhanu and Dereje Abera, 2015). With regard to the dosage given to patients, there is no strictly standardized doses of herbal preparations as known for modern veterinary medicine were reported by traditional healers for any of the preparations used to treat livestock ailments in the study areas. But, higher dosage was given depend on the severity of the cases. The finding was similar with the study conducted by Merga Bekana et al., 2004.

The findings revealed that the majority of the ethno-veterinary medicinal plants were mostly collected from the wild without cultivation followed by sold in market and home garden which is in line with another studies conducted in Ethiopia (Tesfaye Awas and Sebseb Demissew, 2009; Yared Yidezu et al., 2014). The fact that the remedies are found only in the wild possesses a big threat to their existence as long as the mass destruction of their habitats continues (KelbesaUrga et al., 2003; Haile Yineger et al., 2008).

The study also showed that there were different unscientific harvesting techniques of medicinal plants which was practiced by traditional healers of debarking 17 (36.17%) followed by whole cutting 16(34.04%) and uprooting, 14 (29.79%). This study finding was in concurrence with Winfred et al. (2012) in Kenya which stated that some of the most destructive methods employed by the practitioners while harvesting medicinal plants were: total debarking, uprooting of whole plants and whole cut. Specially uprooting is one of the poor harvesting

methods causes danger of genetic erosion. The debarking of the plants may result into slow death of the whole plant due to the interruption of photosensitization. Similarly, the study was conducted by Edwards (2001) which indicated in appropriate harvesting was interfere with life cycle of medicinal plants

The study revealed that agricultural expansion was found to be the first main threat that destruct the plants followed by overgrazing, soil erosion, deforestation, drought and low cultivation in the study area, which were also reported from different areas as the factors causing significant danger for ethno-veterinary medicinal plants (Sebsebe Demissew and Ermias Dagne, 2001; Fisseha Mesfin, 2007).

## 5. Conclusion

Forty seven plant species used to treat 31 different animal health constraints were documented with their all utilization aspects. The result revealed presence of large number of valuable resources, practices and knowledge of ethnoveterinary medicine, which can solve problems facing the world especially with respect to drug resistance in different diseases and it can be considered as a bright hope for the next generation. Plants comprise the largest component of the diverse therapeutic elements of traditional livestock healthcare practices. They are also known to provide low cost animal health care alternatives for simple health issues in rural communities and are relatively simpler to prepare and administer. Therefore, giving priority for conservation of these medicinal plants by concerned governmental and non-governmental bodies is very important issue. In addition, proper documentation of the knowledge and practices will invite scientists from all over the world to conduct their work on the area.

## 6. Referaces

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