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Survey on Ethno Botany and Medicinal Animals at Sayo and Hawa Gelan Districts of Kelem Wollega Zone, Western Ethiopia

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ABSTRACT

Millions of people around the globe use flora and fauna as source of ethno medicine since ancient times. Despite the fact that ethno medicine has been very crucial for the health of animal and human beings it has not yet been well documented, and much effort is needed in research and integration activities in Ethiopia. It is important to document the traditional knowledge of human communities, since the majority of such communities are losing their socioeconomic and cultural characteristics. This research was focused on assessing and identifying the knowledge of ethno medicine practices used for maintaining the health and curing diseases of humans and livestock in Sayo and Hawa Galan Districts. A purposive Study conducted from January 2018 to June 2019 on Ethno practitioners indicates sixty-six (66) different plant species under 38 families and 10 different animal species are used as medicine for different human and animal ailments. The most common herbal preparation method is concoction with oral route frequently used. Shrubs, herbs and trees are the common habitats whereas leaf, root, seed and coat are common parts of plants used as medicine. Different animal parts like hoof, blood, meat, liver is commonly used with different additives like milk, honey, salt.

This study showed the wide use of medicinal plants and animals in Hawa Galan and Sayo District in meeting the primary healthcare needs of the community. Even though there is a wealth of indigenous knowledge transfer is declining from generation to generation as a result of oral transmission. This finding therefore may imply that conducting in-depth scientific studies may help elucidate the science underlying the efficacy of both animals and plants in managing health and this may lead to the discovery of useful Lead compound. Further studies concerning the conservation and management of the animal and plant resources are needed.

Introduction

Millions of people around the world have an intimate relationship with their livestock. Ethiopia is the home of many nationalities and remarkably diverse flora and fauna, including numerous endemic species that are utilized in the different traditional medical practices. 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 [1]. Ethnomedicine is being defined as a mode of identifying, use and integration of the local knowledges, related skills and custom procedures created by people for purpose of preserving health and welfare of working and productive animals [2]. They also studies traditional knowledge, folk beliefs, skills, methods and practices used for the treatment of livestock ailments. There are local healers, who are knowledgeable and experienced in traditional veterinary health care. They use the locally available medicinal plants for treatment of animals and humans. The ethno veterinary systems are ecosystem and ethnic-community specific and therefore, the characteristics, sophistication, and intensity of these systems differ greatly among individuals, societies, and regions. The traditional medical knowledge of indigenous people

across the globe has played an important role in identifying living organisms which are important for treating Human and livestock health problems [3].

The practice of ethno veterinary medicine has lagged behind that of its counterpart (modern veterinary medicine) many times partly because the practice was secretly done, and its information hidden in the gray literature [4]. The identification and acquisition of this knowledge was no means an easy task in the lives of people. It was a gradual process of trial and error mechanisms, which must have caused many a fatality before coming to its current status [5]. The discovery of those practices must have occurred in a number of ways, not only by the principle of trial and error mechanism. According to the World Health Organization (1993) at least 80% of people in developing countries depend largely on indigenous practices for the control and treatment of various diseases affecting both human beings and their animals [1]. Of the 252 essential chemicals selected by the World Health Organization, 8.7% came from animals [6]. Since ancient times, animals and their Products have been used in the preparation of traditional remedies in various cultures [7]. General observations and studies show that the farmers in developing countries are using ethno veterinary practices for curing various diseases of their livestock. Recent revival of Western interest in traditional veterinary medicine followed a revived interest in traditional practices in human health [8]. The importance of traditional medicine as a source of primary health care was first officially recognized by the WHO in the Primary Health Care Declaration of Alma-Ata (1978) and has been globally addressed since 1978 by the Traditional Programme of the WHO. Despite ethno veterinary medicine being the equivalent body of knowledge for livestock that ethno medicine is for humans, it still lacks a high level of institutional backing from the World Organization for Animal Health (OIE) or from FAO [9].

Worldwide interest in documenting and validating ethno vet practices arose in the early 1980s, as people started to realize that ethno vet knowledge was disappearing. Elderly community members with this knowledge were dying and the introduction of modern practices made it difficult for the younger generations to appreciate and use the beliefs and practices of their ancestors. Interest in ethno vet practices has grown recently because these practices are much less prone to drug resistance and have fewer damaging side-effects on the environment than conventional medicine [1]. In many native and local stock raising communities if not all, a considerable proportion of useful ethno knowledge and some of the traditional animal health care practices remain unknown to date, albeit their increased demand to be integrated into primary animal health care delivery systems for wider use by rural and peri-urban communities. The folk health practices largely remain undocumented and are passed on from one generation to the other by word of mouth [9]. The healing of human ailments by using therapeutics-based medicines obtained from animals is called zootherapy [10]. Wild and domestic animals and their by-products such as hooves, skins, bones, feathers, and tusks are important ingredients in the preparation of curative, protective and preventive medicine [11,12].

Research Gap

Despite the fact that ethno medicine has been very crucial for the animal health care of most developing countries, it has not yet been well documented, and much effort is needed in research and integration activities in these countries. The current loss of medicinal organisms in the country due to natural and anthropogenic factors links with the missing of valuable indigenous knowledge associated with the plants and animals. Most times, it is impossible to document all the knowledge of traditional healers. Hence critical observations of traditional medicine practices of the community should make for the selection of plants that are worth documenting. In many developing countries, medicinal plants have not been well studied, tested or documented. Most of the information is still in the hands of traditional healers and knowledge of healers is either lost or passed to generation by the word of mouth. Thus, ethnobotanical research attempts to document the knowledge of the healers in the community in order to reserve it for future use [13]. Loss of traditional knowledge has impact on the development of modern medicine [14].

Justification

It is important to document the traditional knowledge of human communities, since the majority of such communities are losing their socioeconomic and cultural characteristics [14]. In Ethiopia, many ethnic communities mainly use local traditional medicine for their health care. Work has been done on ethnobotany with few reports ethnozoology in Ethiopia but there is lacking published documents in Sayo and Hawa Galan districts. Therefore, this research was focused on.

a) Assessing and identifying ethno medicine knowledge and practices used for maintaining the health and curing diseases of humans and livestock

Materials and Methods

A purposive Study was conducted from January 2018 to June 2019 on Ethnopractitioners offering primary healthcare services to both livestock and humans.

Description of the Study Area

The study was conducted in Sayo and Hawa Galan district which is located in Kellem Wollega zone, Oromia Regional state, Western Ethiopia. Dembi-Dollo is capital of Kellem Wollega zone and situated about 652 km West of Addis Ababa. The study site (Sayo district) has a latitude 8°32'N and longitude 34°48'E with an elevation between 1700 and 1827 meters above sea level. It has

tropical climate and remains mostly hot and humid throughout the year. The area receives an average annual rainfall of 700 to 1100 mm. The zone is bordered by West Wollega zone to the north, Gambella regional state to the south, Illubabor zone to the east and Benishangul Gumuz regional state to the west. Hawa Galan is one of the woredas in the Oromia Region of Ethiopia bordered on the south and southwest by Sayo, on the north by Yemalogi Welele, on the northeast by Dale Wabera, and on the south and southeast by the Illubabor Zone. The administrative center of this woreda is Rob Gebeya. Hawa Gelan was separated from former Hawa Welele woreda. The 2007 national census reported a total population for this woreda of 95,976, of whom 49,312 were men and 46,664 were women; 5,562 or 5.8% of its population were urban dwellers. The majority of the inhabitants observed Islam, with 45.43% reporting that as their religion, while 32.42% observed Ethiopian Orthodox Christianity, 20.48% were Protestants, and 1.31% were Catholic.

Study Methods

Semi-structured interviewees, observation and guided field walks with informants was employed to obtain ethnobotanical data. For this study purposive sampling was employed to identify potential informants, kebeles and districts. Recommended traditional medicine practitioners was identified as potential informants and subsequently participated in personal interviews. Interviews were based on a checklist of questions prepared before hand in English and translated to the local language (Afan Oromo). Information regarding local names of medicinal plants, preparation methods, part(s) used, diseases treated, dosage used and route of application was recorded at the spot. Observations were made on the morphological features and habitats of each medicinal plant species in the field. The ethnozoological data (local name of animals, mode of preparation and administration, organ of the animal used, and ingredients added if possible) were collected through semi-structured interview [15,16] with informants in parallel with medicinal animals.

Before the start of this project, prior informed consent was sought from individual key respondents through the local administration office. Knowledge of ethnoveterinary medicine was surveyed and documented. Local ethnopractitioners/general traditional healers were consulted because each was associated with a specific aspect of ethno knowledge relevant to the study. Fruitful initial contacts were made and more ethnopractitioners were identified using their existing networks. In order to evaluate the reliability of the information gathered, each key respondent was visited at twice on the same idea to prove the validity of the information given out during the first visit before its final documentation [17].

Collection of Specimens of Plants

Following a personal interview with the selected key respondents, a field trip was made to identify and collect the listed plant specimens. The specimens were harvested, prepared, packaged and stored according to the herbarium rules and regulations until transported to Herbarium at Addis Ababa University for botanical identification using voucher specimens (DA001-DA 066) and according to the Hutchinson system of plant taxonomy based on the plants' probable phylogeny. For each plant species collected from the field, a voucher specimen was prepared and deposited in the national Herbarium Addis Ababa University with voucher number (DA01-DA066).

Data Analysis

Microsoft Excel spreadsheet software was used to determine the proportions on growth habit, plant part(s) used, condition of medicinal plants, mode of administration and categories of diseases. For medicinal animal's local name of animals, mode of preparation and target patient treated was analyzed and presented in percentage.

Results

Sixty-six different plant species and ten different animal species were claimed by local healers having medicinal value. From forty-four (44) respondent's majority of them were males aged between 35–46 years old, with formal education (Table 1). A list of plants and plant products traditionally used to manage animal and human health amongst the Sayo and Hawa Galan district, including their scientific and vernacular names, growth habits, family names, disease and ill-health conditions treated, target type of patient and the preparation forms of different remedies was made (Table 2). The names of plants were arranged according to their alphabetical order. The classification of plant specimens into growth life forms and/or habits was also made based on the definition and description of Yumoto et al. 1994 [18]. A total of 66 plant species distributed in 38 families were documented to be used in livestock and human health management by traditional healthcare providers in the study area. Growth life forms of the documented plant species was categorized as trees, shrub, and herbs (Tables 3-8). Shrub Constitute the largest category followed by tree and herb respectively. This shows that the most widely used plant habit in the study area is shrub probably due to abundance and easy accessibility [19].

Table 1: Background characteristics of sample respondents (n=44).

Parameter		Number	Percentage
Sex	Male	31	70.45
	Female	13	29.54
Age	35-44	12	27.27
	45-60	26	59.09
	>60	6	13.63
Educational back ground	Illiterate	7	15.09
	Literate	37	84.08

Table 2: vernacular name, growth habitat, family name of medicinal plants.

Vernacular name	Habitat	Family name	Scientific name and voucher number
Abbayyi	Tree	*Myrsinaceae*	*Maisa lanceolata*,(DA015)
Adaamii	Tree	*Euphorbaceae*	*Euphorbia abbyssinica* J.F.Gmel.(DA017)
Afarfattuu	Shrub	*Dracaenaceae*	*Dracaena steudneri Engl.*,DA(018)
Ambabessa	Tree	*Fabaceae*	*Albizia schimperianaOliv*(DA01)
Ashaangira	Shrub	*Solanaceae*	*Datura stramonium L.*(DA03)
pappayyaa	Tree	*Caricaceae*	*Carica papaya L.*(DA08)
Baargamooadii	Tree	*Myrtaceae*	*Eucalyptus globules labing*(DA032)
Bakkanniisa	Tree	*Euphorbiaceae*	*Croton macrostachyus De*(DA051)
Barbarre	Shrub	*Solanaceae*	*Capsicum annuum L.*, (DA033)
Bosoqqee	Shrub	*Crassulaceae*	*Kalanchoe lanceolanta V.*(DA09)
Bunaa	Tree	*Rubiaceae*	*Coffee arabica L.*(DA031)
Ceeka	Tree	*Fabaceae*	*Calpurnia sub decandra* (L'Herit.) Schweick.(DA053)
Damakasee	Shrub	*Lamiaceae*	*Ocimum gratissimum L.*(DA010)
Dhummuga	Tree	*Acanthaceae*	*Justicia schimperiana* (Hochst. ex Nees) T. Anders., (DA034)
Eebicha	Tree	*Asteraeae*	*Vernonia amygdalina* Del.(DA030)
Ejersa	Tree	*Oleaceae*	*Olea europaea L.* subsp. *cuspidata* (Wall. ex G. Don) Cif.(DA035)
Gambeela	Tree	*Rubiaceae*	*Gardenia ternifolia Schumach*. And Thonn.(DA029)
Gatama	Tree	*Araliaceae*	*Schefflera volkensii* (Engl.) Harms,(DA036)
Geeshoo	Tree	*Rhamnaceae*	*Rhamnu sprinoides* L' Herit., (DA054)
Goommada	Herb	*Brassicaceae*	*Brassica oleracea* varcapitata L(DA011)
Haanquu	Shrub	*Myrsinaceae*	*Embelia schimperi*Vatke, (DA055)
Hagamsa	Shrub	*Apocynaceae*	*Carissas pinarum L.* (DA037)
Hancabbii	Shrub	*Lamiaceae*	*Ocimium lamifolium* Hochst. Ex. Benth(DA028)
Handoodee	Shrub	*Phytolaccaceae*	*Phytolocca dodecandra*, L'Hert.(DA038)
Hiddafiitii	Shrub	*Ranunculaceae*	*Clematis simensis Fresen.*(DA012)
Hiddii	Shrub	*Solanaceae*	*Solanum cordatum Forssk*, (DA066)
Hoomii	Tree	*Rocaceae*	*Prunus Africana* (DA013)
Ijabuqqee	Shrub	*Cucurbitaceae*	*Cucurbita pepo L.* (DA056)
Loomii	Tree	*Euphorbiaceae*	*Justicia schimperiana* (Nees) T. Anderson(DA057)
Maraasisa	Shrub	*Lamiaceae*	*Clerodendrum myricoides* (Hochst) Vatke(DA027)
Maxxannee	Herb	*Amaranthaceae*	*Achyranthes aspera L.*(DA058)
Qabarichoo	Shrub	*Asteraceae*	*Echinops kebericho*, (DA039)
Qararoo	Shrub	*Sterculiaceae*	*Sterculia africana* (Lour.)Fiori, (DA59)
Anfaarree	Tree	*Loganiaceae*	*Buddleja polystachya Fresen.* (DA026)

Qobboo	Shrub	*Euphorbiaceae*	*Ricinus communis* (DA040)
Qorichamichii	Tree	*Lamiaceae*	*Ocimum lamiifolium Hochst.* exBenth.(DA060)
Qullubbiiadii	Herb	*Alliaceae*	*Allium sativum L.*, (DA041)
Shimfaa	Herb	*Solanaceae*	*Lepidium sativum L.* (DA061)
Sootello	Tree	*Fabaceae*	*Millettiia ferrugineae* (Hoscht.) Bak., (DA025)
Tamboo	Shrub	*Solanaceae*	*Nicotiana tabacum L.* (DA042)
Ulmaayii	Shrub	*Rutaceae*	*Clausena anisate* (Wild.) Benth (DA062)
Waaddeessa	Tree	*Boraginaceae*	*Cordia africana Lam.* (DA043)
Baal tokkee	Herb	*Euphorbiaceae*	*Acalypha fruticose Forssk.*, (DA024)
Keelloo	Herb	*Asteraceae*	*Bidens macroptera* (Sch. Bip. ex Chiov.) Mesfin, (DA044)
Kusaaye	Shrub	*Verbanaceae*	*Lippia adoensis* var.Adoensis Hochst. Ex Walp.,(DA063)
Dheertuu	Shrub	*Viscaceae*	*Viscum tuberculatum* A.Rich. (DA023)
Fossoo/faca'aa	Shrub	*Cucurbitaceae*	*Curcumis ficifolius* A. Rich. (DA064)
Heennaa	Tree	*Fabaceae*	*Ndigo feraarrecta* Hochst. ex A.Rich, (DA065)
Timijjii	Herb	*Polygonaceae*	*Rumex nepalensis Spreng.* (DA016)
Ulaagaa	Shrub	*Boraginaceae*	*Ehretia cymose Thonn.*, (DA045)
Umbawoo	Shrub	*Cucurbitaceae*	*Momordica foetida Schumach.*, (DA022)
Yeeroo	Shrub	*Lamiaceae*	*Pycnostachys abyssinica Fresen.* (DA046)
Gurgubbe	Shrub	*Urticaceae*	*Girardinia bullosa* (Steud.) Wedd. (DA050)
Harangamaa	Shrub	*Capparidaceae*	*Capparis tomentosa Lam.* (DA049)
Hiddii waraabessa	Shrub	*Solanaceae*	*Solanum marginatum* L. f.(DA021)
Maangoo	Tree	*Anacardiaceae*	*Mangifera indica* L.(DA047)
Margaurgaa	Herb	*Poaceae*	*Panicum monticola* Hook .f.(DA052)
Reejiijaldeessaa	Shrub	*Asteraceae*	*Vernonia auriculifera* Hiern.(DA048)
Sooyyamqallee	Shrub	*Asteraceae*	*Vernonia adoensis*Sch. bip. exWalp.(020)
Takkadha'aa	Herb	*Rubiaceae*	*Hymenodictyon floribundum* (Hochst. & Steud.) Robinson. (DA019)

Table 3: Growth Habitats of claimed traditional plants (n= 66).

No	Habitat	Number	Percentage
1	Herb	10	15.1
2	Shrub	30	45.5
3	Tree	26	39.4

Table 4: Diversity of medicinal plant species belonging to each plant family (n=38).

S.NO	Family name	Frequency	Percentage
1	*Acanthaceae*	1	2.63
2	*Alliaceae*	1	2.63
3	*Amaranthaceae*	1	2.63
4	*Anacardiaceae*	1	2.63
5	*Apocynaceae*	1	2.63
6	*Araliaceae*	1	2.63
7	*Asteraceae*	5	13.16
8	*Boraginaceae*	1	2.63
9	*Boraginaceae*	2	5.26
10	*Brassicaceae*	1	2.63
11	*Capparidaceae*	2	5.26
12	*Caricaceae*	1	2.63

13	*Crassulaceae*	1	2.63
14	*Cucurbitaceae*	3	7.89
15	*Dracaenaceae*	1	2.63
16	*Euphorbiaceae*	5	13.16
17	*Fabaceae*	5	13.16
18	*Lamiaceae*	5	13.16
19	*Loganiaceae*	1	2.63
20	*Myrsinaceae*	2	5.26
21	*Myrtaceae*	1	2.63
22	*Oleaceae*	1	2.63
23	*Phytolaccaceae*	1	2.63
24	*Poaceae*	1	2.63
25	*Polygonaceae*	1	2.63
26	*Ranunculaceae*	1	2.63
27	*Rhamnaceae*	1	2.63
28	*Rocaceae*	1	2.63
29	*Rubiaceae*	3	7.89
30	*Rutaceae*	2	5.26
31	*Solanaceae*	6	15.78
32	*Sterculiaceae*	1	2.63
33	*Urticaceae*	1	2.63
34	*Verbanaceae*	1	2.63
35	*Viscaceae*	1	2.63
36	*Melianthaceae*	1	2.63
37	*Simarobouceae*	1	2.63
38	*Zingibiraceae*	1	2.63
39	**Total**		**100.0**

Table 5: Medicinal plant parts used in traditional medicines (N=87).

S.no	Parts used	Frequency	Percentage
1	Leaf	50	57.47
2	Seed/fruits	10	11.49
3	Root	15	17.24
4	Whole plat	1	1.15
5	Coat	11	12.64

Table 6: List of medicinal plants with disease they are used to treat.

No	Local name	Species name	Part of plant used	Disease/ill-health condition treated	Methods of preparation	Target patient
1	Abbayyi	*Maisa lanceolata*,	Leaf	Warts	Squeezing	Human being
2	Adaamii	*Euphorbia abbyssinica* J.F.Gmel.	Bleed	External parasite	Topical	Both
3	Afarfattuu	*Dracaena steudneri* Engl.,	Leaf	Retained placenta	Concoction	Cattles
4	Ambabessa	*Albizia schimperiana* Oliv	Coat	Diarhoea	Concoction	Animals
5	Ashaangira	*Datura stramonium* L.	Leaf seed	Evil eye Evil eye	Concoction Concoction	Both
6	Pappayyaa	*Carica papaya* L.	Leaf	Malaria	Concoction	Human being
7	Baargamooadii	*Eucalyptus globules* labing	Leaf	Cough	Smelling	Human being

8	Bakkanniisa	*Croton macrostachyus* De	Leaf Coat Coat Coat	Bloat Internal parasite Typhoid Liver and lung diseases	Swallowing the leaf Eating the grinded coat Firing and smelling the smoke Concoction	Animal Human being Animal Both
9	Barbarre	*Capsicum annuum* L.,	Seed	Internal parasite	Concoction	Human being
10	Bosoqqee	*Kalanchoe lanceolanta* V.	Coat Whole plant	Snake bite Aborting agent	Concoction Concoction	Both Human being
11	Bunaa	*Coffee arabica* L	Leaf	Malaria or acute diseases	Drinking after boiling with sugar	Human being
12	Ceeka	*Calpurnia subdecandra* (L'Herit.)Schweick.	Leaf Leaf	External parasite Internal parasite	Concoction Concoction	Animal Both
13	Damakasee	*Ocimum gratissimum* L.	Leaf Leaf	Common cold Wound	Boiling and drinking with tea/coffee Tying with squeezed leaf	Human being
14	Dhummuga	*Justicia schimperiana* (Hochst. ex Nees) T.Anders.,	Coat Root Leaf	Rabies Rabies Sneezing and acute death of poultry	Concoction Concoction Concoction	Both Both Both
15	Eebicha	*Vernonia amygdalina* Del.	Leaf	Diarrhea	Concoction	Both
16	Ejersa	*Olea europaea* L. subsp. *cuspidata* (Wall. ex G. Don) Cif.	Leaf	Bleeding	Topical administration	Both
17	Gambeela	*Gardenia ternifolia Schumach*. And Thonn.	Coat	Tonsil	Swallowing	Human being
18	Gatama	*Schefflera volkensii* (Engl.) Harms,	Coat	Trypanosoma	Drinking Crushed coat	Animal
19	Geeshoo	*Rhamnus prinoides* L' Herit.	Seed	Ring worm	Adding the grinded powder	Both
20	Goommada	*Brassica oleracea varcapitata* L	Seed	Trypanosoma	Chewing the seed	Animal
21	Haanquu	*Embelia schimperi Vatke*,	Leaf Seed	Tick Taenea	Anointing Chewing	Animal Human being
22	Hagamsa	*Carissa spinarum* L.	Seed	Internal parasite	Concoction	Human being
23	Hancabbii	*Ocimium lamifolium* Hochst. Ex. Benth	Leaf	Acute disease	Concoction	Both
24	Handoodee	*Phytolocca dodecandra*, L'Hert.	Fruit Root Leaf	Rabies Rabies Eye lid prolapse	Concoction Concoction Squeezing juice	Both Both Animals
25	Hiddafiitii	*Clematis simensis* Fresen.	Leaf	Fasciola	Concoction	Animals
26	Hiddii	*Solanum cordatum* Forssk,	Leaf	Nasal discharge Bleeding	Concoction Concoction	Animal Animal
27	Hoomii	*Prunus africana*	Coat	Wound	Adding crushed powder	Both

28	Buqqee/ Dabaaqula	*Cucurbita pepo* L.	Seed	Rabies	Eating the roasted seed for pregnant mothers	Human being
29	Loomii	*Justicia schimperiana* (Nees) T. Anderson	Fruit	Snake poisoning	Drinking the squeezed Juice	Both
30	Maraasisa	*Clerodendrum myricoides* (Hochst) Vatke	Root	Stomach pain	Chewing	Animal
31	Maxxannee	*Achyranthes aspera* L.	Leaf	Wound	Concoction	Animal
32	Qabarichoo	*Echinops kebericho*, Mesfin	Root	Typhoid White worm Stomach pain Evil eye Diarrhea	Concoction Concoction Chewing Smoke Concoction	Human being Animal Human being Human being Animal
33	Qararoo	*Sterculia africana* (Lour.) Fiori,	Root	Male sexual impotence Diarhoea	Concoction Concoction	Human being Human being
34	Anfaarree	*Buddle japolystachya* Fresen.	Leaf	Eye disease	Squeezing	Animal
35	Qobboo	*Ricinus communis*	Leaf	Retained fetal placenta	Concoction	Animal
36	Qorichamichii/ Qasee	*Ocimum lamiifolium* Hochst. exBenth.	Leaf	Michii	Warming the leaf and burning the face	Animal
37	Qullubbiiadii	*Allium sativum* L.,	Root Root	Stomach pain Tooth pain	Swallowing Chewing	Both Human being
38	Shimfaa	*Lepidium sativum* L.	Seed Seed Leaf	Trypanosomiasis Bloat Trypanosomiasis	Concoction Concoction Concoction	Animal
39	Sootello	*Millettii aferrugineae* (Hoscht.) Bak.,	Coat	Bleeding	Tying to bleeding area	Animal
40	Tamboo	*Nicotiana tabacum* L.	Leaf Leaf	Tick and Leeches Snake repellent	Topical and intra-nasal application of squeezed plant Smoke	Animal Both
41	Ulmaayii	*Clausena anisate* (Wild.) Benth	Leaf	Fleas and lice	Spreading in the room	Both
42	Waaddeessa	Cordia africana Lam.	Leaf Coat	Spider toxin/urine Bleeding	Squeezing the juice Tighing with coat	Human being Animal
43	Baal tokkee	*Acalypha fruticose* Forssk.,	Leaf	Fattening	Eating	Animal
44	Keelloo	*Bidens macroptera* (Sch. Bip. ex Chiov.) Mesfin,	Leaf	Bleeding	Anointing with juice	Human being
45	Kusaaye	*Lippia adoensis var. Adoensis* Hochst. Ex Walp.,	Leaf	Common cold	Smelling fresh leaf	Human being
46	Dheertuu	*Viscum tuberculatum* A.Rich.	Leaf	Malaria Acute disease	Drinking after Boiling with sugar Concoction	Human being Animal

47	Fossoo/faca'aa	*Curcumis ficifolius* A. Rich.	Leaf	Bloat Internal worm Blood clot under tongue	Concoction Concoction Concoction	Animal Animal Animal
48	Heennaa	*Ndigofera arrecta* Hochst. ex A.Rich,	Leaf Leaf	Malaria Equine colic	Drinking boiled leaf with sugar Concoction	Man Equine
49	Timijjii	*Rumex nepalensis* Spreng.	Leaf	Stomach pain	Drinking juice	Both
50	Ulaagaa	*Ehretia cymosa* Thonn.,	Leaf Leaf	Warts Wound	Tying with leaf Concoction	Both Both
51	Umbawoo	*Momordica foetida* Schumach.	Fruits Fruits	External Parasite Warts	Concoction Lotion/cream	Animal Both
52	Yeeroo	*Pycnostachys abyssinica* Fresen.	Leaf	Rabies	Concoction	Both
53	Gurgubbe	*Girardinia bullosa* (Steud.) Wedd.	Leaf Root	Lice and fleas Internal parasite	Concoction Concoction	Animals Animals
54	Harangamagur-racha	*Capparis tomentosa* Lam.	Root	Tooth pain	Swallowing the crushed root	Human being
55	Hiddii waraabessa	*Solanum marginatum* L.f.	Seed Seed	Nasal bot in sheep Tooth pain	Concoction Chewing	Sheep Both
56	Maangoo	*Mangifera indica* L.	Leaf	Fever	Drinking after boiling with sugar	Human being
57	Marga urgaa	*Panicum monticola* Hook.f.	Leaf Leaf	Vomiting Evil eye	Smelling leaf Spreading in/ around the home	Human being Both
58	Reejjii jaldees-saa	*Vernonia auriculifera* Hiern.	Leaf	Black leg	Concoction	Animals
59	Sooyyam qallee	*Vernonia adoensis* Sch. bip. exWalp.	Leaf	Acute disease	Smoke	Animals
60	Takkadha'aa	*Hymenodictyon floribun-dum* (Hochst. &Steud.) Robinson.	Leaf	Black leg	Concoction	Animals
61	Harbuu	*Ritchieal bersii* Gilg	Fruit	Wound	Drops from stem tied on the wound	Animals
62	Laaftoo	*Acacia abyssinica* Hochst ex.Benth.	Leaf	Goiter	Leaf of A. abyssini-ca is smashed and the sap is made	Human being
63	Lolchiisaa	*Bersama abyssinica* Fresen	Leaf	Wound	Leafy-Stem is squeezed and creamed on wound	Human being
64	Cilaattama	*Ruta chalepensis* L.	Leaf	Stomach pain	Leaf is smashed one cup of do-mestic alcohol is taken by human	Human being

65	Jinjibla	*Zingiber officinale* Roscoe	Root	Influenza	Pounded with other and drink after boiling	Human being
66	Qomonyoo	*Brucea antidysentrica* Fresen	Leaf Root	External parasite Rabies	pounded Leaf mixed with water is anointed crushed and watered	Human being Both

NB: acute disease indicates a syndrome called 'michii' in 'Afaan Oromo'

Table 7: Methods used in preparation of herbal remedies (N=84).

No.	Methods of preparation	Frequency	Percentage
1	Squeezing	9	10.71
2	Concoction	44	52.38
3	Smoking/Smelling	5	5.95
4	Boiling	6	7.14
5	Tying	3	3.57
6	Anointing	3	3.57
7	Eating/chewing	11	13.1
8	Adding grinded powder	2	2.38
9	Total	84	100.0

Table 8: Roots of administration of traditional herbal medicine (n=100).

Parts used	Number	Percentage
Oral	55	55.0
Topical	32	32.0
Intranasal	10	10.0
Intraocular	3	3.0

Table 9: List of medicinal animals, diseases treated, and parts of animals used in the study area.

S.NO	Vernacular name	Species name	Family	Diseases treated	Parts used	Condition of animal used
1	Harree	*Aquus asinus*	*Equidae*	Typhoid	Nail	Smoking of the nail
2	Karkarroo	*Phacochoerus africanus*	*Suidae*	Many disease	Liver Urine	Eating of fresh liver Drinking the urine
3	Daamuu	*Apis dorsata*	*Apidae*	Cough	Honey	Eating of two spoons in the morning
4	Xaddee	*Hystrix*		Hepatitis Fattening Heart failure	Liver, lung, meat Liver, Lung, Meat	Eating fresh organs Eating the soup of organs Eating organs Eating organs
5	Booyyee	*Susscrofa domesticus*		Trypanosoma	Blood	Drinking fresh blood
6	Oslee	*Procavia capensis*		Fattening	Meat	Eating the meat
7	Buutii	*Python molorus*		Python molorus bite	Whole organism	Killing and smoking for Python molorus bite
8	Hen	*Gallus gallus domesticus*		Diarhoea	Liver	Eating uncooked liver
9	Bat	*Chiroptera*		Bat disease	Whole organism	Tying the died dried bat to the wound
10	Cow	*Bos taurus*	*Bovidae*	Snake poisoning	Feces	Drinking fresh feces with ash

The local names and associated attributes of medicinal animals were recorded for each of the species. In the study area, different parts or products of animals were used to treat different types of ailments. This study revealed the traditional medicinal knowledge of treating various kinds of ailments using different animals and their parts/products by local inhabitants of Sayo and Hawa Galan districts. In the present study, ten (10) species of medicinal animals were collected for treating different ailments of human and animals (Table 9).

Discussion

The results of the present study showed that Hawa Galan and Sayo districts have a high diversity of medicinal plants and animals useful to treat the people and animals living in the area. Despite the gradual socio-cultural transformation, the inhabitants have retained remarkable knowledge of the medicinal plants and animals with their uses. Ethnoknowledge was transmitted orally and secretly within family lineages. These findings are in agreement with numerous other studies previously carried out in northern Ethiopia and Brasil [20,21]. This study revealed that the family as a unit is still a major source of ethnoknowledge for healing, training and gaining experience for many medical ethnopractitioners, whether for humans or animals. In regard to the part(s) of plants harvested and used in ethnomedicine leaf accounting for 57.47% followed by coat and root which accounts 17.24% and 12.64 respectively. These results are in an agreement with the previous findings of Guluma et al, 2017, who conducted a similar survey Mida Kegn, West Showa. Leaves from plants therefore appear to be the most preferred harvested parts of plants by ethnopractitioners for us in ethnomedicines [22]. Reports from Horro Guduru Wollega of Ethiopia indicate that Roots and leaves are involved in most of plant induced intoxication [23]. Putting into consideration the biological function of the leaves on plants, the method of harvesting medicinal plants by picking leaves can be very devastating and a threat to the survival of the target plant, more particularly, if the young tender leaves are harvested instead of the old ones, which are almost dropping off the plant to become humus. Similarly, frequent harvesting of roots and barks, the second most preferred parts of plants, may be destructive and unsustainable, thus risking the extinction of the target plant species, and is therefore not advisable.

Ethnoveterinarians in the study area employed a number of methods for preparing herbal remedies. These methods largely depended on the type of the plant used, parts of plants employed, type of disease/ill-health condition and the animal species being treated. Some of the most frequently used methods of ethnoformulation preparations in the study area include concoction, anointing, fumigation and spreading in the home. The survey study further found out that most of the remedies were prepared from a single plant species but treating rabies for both animal and human being involves three or more plants which includes *Brucea antidysentrica Fresen*, *Pycnostachys abyssinica Fresen*. *Phytolocca dodecandra*, L'Hert., *Justicia schimperiana* (Hochst. ex Nees) T.Anders with different additives like milk and water. Other prominent preparations however, involved the mixtures of different plant species and at times addition of one or more nonplant ingredients or additives such as milk, soup, honey, porridge, animal fat, salt etc. The use of more than one plant to make ethnoformulations are commonly used in the study area and respondents believed that such an ethnoformulation conferred some synergistic effects to the herbal remedies in certain cases where ingredients of two or more plants were considered to be more effective against a particular disease/ill-health condition than the use of individual plants separately.

On other hand, the use of more than one plant to make ethnoformulations was believed to neutralize toxicity effects and/or bitterness of one part of the ethnoformulation preparation to make it palatable and easily administered. While making the remedial preparations from plants and plant products, the most frequently used solvent was water, particularly during the preparations of concoctions and juices with the addition other additives (milk, honey, animal fat and salt). This point of view depends largely on one's ethnicity and cultural belief and taboos [24]. An accurate knowledge about the symptoms, signs through audio and visual preceded the choice of an appropriate treatment and management strategies.

Cattle, sheep, equine, poultry and human beings are frequently treated by traditional medicine. The number of known ethnoveterinary remedies for a particular type of livestock may probably correspond with socio-economic value and importance of the animal in their cultural and traditional life and perhaps this may also explain the order of acquisition of these animals for domestication by that people [25]. The route of administration of ethnobotanical preparations depended on the nature of the disease and the target patient [26]. The main routes of administration documented in the study area were oral 55%, topical 32% and intranasal 10%. Application of ethnomedicines through the eyes and other routes of administration were also practiced. Correct dosage (as described by an ethnopractitioner such as three glasses in a day) was an important aspect of ethnoveterinary medicine according to the respondents because, under dose was known to make the remedy ineffective while overdose caused livestock poisoning and subsequent death. Many respondents were of the opinion that the correct dosages for various ethnomedicines had been established through a lengthy period of trial and error mechanisms.

In this study, 10 animal species or their products were identified and believed to cure different ailments. Other studies reported in Ethiopia showed that approximately 23 animals and/or their parts were identified to be used in traditional medicines in Degu tribes in Tigray region [27]. Sixteen species of medicinal animals were collected and identified for treating 18 different human ailments in the Kafta-Humera District, Northern Ethiopia [28]. The study

conducted by Borah and Prasad recorded a total of 44 different species of animals which are used for the treatments of 40 different ailments [29]. Information regarding the way to acquire traditional medicinal knowledge, duration of time to use traditional medicine, the reason that forces the people to use traditional medicines, categories of people that use traditional medicine, the outlooks of people about the use of traditional medicine, conservation, and documentation mechanisms of traditional medicinal animals were gathered from all respondents [30]. Nature has been the source of medicinal agents for thousands of years and a number of modern drugs have been isolated from natural sources based on their use in traditional medicine [31].

The traditional knowledge of the use and conservation of the plants is still being transferred from generation to generation, but appeared to be aging. The problem of transfer of knowledge from the elders to the young generation probably arose following the introduction of modern education, religious, spiritual and culture-related factors. Therefore, it is not only essential to conserve such a wealth of information hidden among the local people but also to apply modern science and technology to meet the ever increasing requirements of humankind. Furthermore, conservation of these biological resources is very important because their sustainable use can generate higher levels of employment and income. It was hypothesized that the findings may provide useful information for further scientific research to determine efficacies for documented ethnoproducts and practices to help improve animal health and human livelihood in Africa.

Conclusion and Recommendations

This study showed the wide use of medicinal plants and animals in Hawa Galan and Sayo District in meeting the primary healthcare needs of the community. A limited access to modern healthcare facilities could be considered as the main factors for the continuation of the traditional practice. There is an abundance of medicinal plants in the study area with almost all growth habitats which is probably attributed due to comfortable climate of the area. Even though there is a wealth of indigenous knowledge transfer is declining from generation to generation as a result of oral transmission. This finding therefore may imply that conducting in-depth scientific studies may help elucidate the science underlying the efficacy of both animals and plants in managing health and this may lead to the discovery of useful Lead compound. There is a need therefore for the community to address the challenges of sustainable utilization and conservation of these medicinal organisms and resource ethnopractitioners.

References

1. Ngeh J Toyang, Jacob Wanyama, Mopoi Nuwanyakpa, Sali Djang (2007) Ethnoveterinary medicine, a practical approach to the treatment of cattle diseases in sub-Saharan Africa. Research Journal of Agricultural and Environmental Management 1(1).
2. Jarakabande Kaval (2002) ethnoveterinary medical traditions and methodology for theirocumentation, assessment and promotion. Foundation for Revitalisation of Local Health Traditions.
3. Blakeney M (1999) What is Traditional Knowledge? Why should it be protected? Who should protect it? For Whom? Understanding the Value Chain. UNESCO.
4. Mathias E, CM McCorkle (2004) Traditional livestock healers. Rev Sci Tech 23(1): 277-284.
5. Wanzala W, Zessin KH, Kyule NM, Baumann MPO, Mathias E, et al. (2005) Ethno veterinary medicine: A critical review of its evolution, perception, understanding and the way forward. Livestock Research for Rural Development 17(11): 1-31.
6. Dedeke GA, Soewu DA, Lawal OA, Ola M (2006) Pilot Survey of Ethnozoological Utilisation of Vertebrates in Southwestern Nigeria. Indilinga Afr J Indigenous Knowl Syst 5(1): 87-96.
7. Lev E (2003) Traditional healing with animals (zootherapy): medieval to present-day Levantine practice. J Ethno Pharmacol 85(1): 107-118.
8. Maria Costanza Torri (2013) Local Livelihoods and Human Health Care Traditional Veterinary in Rural Tamil Nadu. Journal of Developing Societies University of New Brunswick Canada.
9. Mathias E (2001) Introducing ethno veterinary medicine.
10. Costa Neto EM (2005) Animal based medicines: biological prospection and the sustainable use of zootherapeutic resources. Ann Acad Bras Cienc 77(1): 33-43.
11. Adeola MO (1992) Importance of wild animals and their parts in the Culture, Religious Festivals, and Traditional Medicine, of Nigeria. Environmental Conservation.
12. A Diamandopoulos, DA Koutras, SG Marketos (1992) Healing rituals and sacred serpents. Lancet 340(8822): 223-225.
13. Tesfaye S, Kaleab Asres, Tsige Gebre Mariam (2004) Ethnobotanical and ethnopharmaceutical studies on medicinal plants of Chifra District, Afar Region, North Eastern Ethiopia. Ethiopian Pharmaceutical Journal 24(1): 41-58.
14. Alves RRN, Rosa IL (2005) Why study the use of animal products in traditional medicines? J Ethnobiol Ethnomed.
15. Yirga G (2010) Assessment of indigenous knowledge of medicinal plants in Central Zone of Tigray, Northern Ethiopia. Afr J Plant Sci 4(1): 6-11.
16. Zerabruk S, Yirga G (2011) Traditional knowledge of medicinal plants in Gindeberet District, Western Ethiopia. South Afr J Bot.
17. Amenu F (2007) Use and management of medicinal plants by indigenous people of Ejaji area (chelya woreda) west shoa, Ethiopia: An ethnobotanical approach. Addis Ababa University.
18. Yumoto T, Yamagiwa J, Mwanza N, Maruhashi T (1994) List of plant species identified in Kahuzi-Biega National Park, Zaire. Tropics 3(3+4): 295-308.
19. Lengkeek G (2003) Diversity makes a difference. Farmers managing inter- and intraspecific tree species diversity in Meru, Kenya. Wageningen University and Research Centre.
20. Abebe D, Ayehu A (1993) Medicinal Plants and Enigmatic Health Practices of Northern Ethiopia. Addis Ababa Ethiopia.
21. Souto WMS, Mourão JS, Barboza RRD, Alves RRN (2011) Parallels between zootherapeutic practices in ethnoveterinary and human complementary medicine in northeastern Brazil. J Ethnopharmacol 134(3): 753-767.
22. Kokwaro OJ (2009) Medicinal plants of East Africa. 3rd Edition.
23. Diriba Gurmesa, Debela Abdeta (2019) Identification of Poisonous Plants and Their Toxics Effects on Livestock in Horo Buluk District, Horo

Guduru Wollega Zone, Oromia Regional State, Western Ethiopia. Biomed J Sci & Tech Res 23(3): 17391-17395.

24. Wanzala W, Takken W, Mukabana WR, Pala AO, Hassanali A (2012) Ethnoknowledge of Bukusu community on livestock tick prevention and control in Bungoma district, western Kenya. J Ethnopharmacol 140(2): 298-324.

25. Kelbessa E, Demissew S, Woldu Z, Edwards S (2000) Some threatened Endemic plants of Ethiopia. In The status of some plants in parts of tropical Africa. East and Central Africa NAPRECA 1992: 35-55.

26. Cunningham A (2001) Applied Ethnobotany: People, Wild Plant Use and Conservation.

27. Haileselasie T (2012) Traditional zootherapeutic studies in Degu'a Tembien, Northern Ethiopia. Curr Res J Biol Sci 4(5): 563-569.

28. Yirga G, Teferi M, Gebreslassea Y (2011) Ethnozoological study of traditionalmedicinal animals used by the people of Kafta Humera District, Northern Ethiopia. Int J Med Med Sci 3(10): 316-320.

29. Borah MP, Brasad SB (2017) Ethnozoological study of animals-based medicines used by traditional healers and indigenous inhabitants in the anointing area Gibbon Wildlife Sanctuary, Assam, India. J Ethnobiol Ethnomed. 13: 39.

30. Kendie FC, Mekuriaw SA, Dagnew MA (2018) Ethnozoological study of traditional medicinal appreciation of animals and their products among the indigenous people of Metema Woreda North-Western Ethiopia. Journal of Ethnobiology and Ethnomedicine 14(1).

31. Guluma K, Debela A, Morka A (2017) Ethnoknowledge of plants used in veterinary practices in Midakegn district, west showa of Oromia region Ethiopia. Journal of Medicinal Plants Studies 5(5): 282-288.

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