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DEPARTMENTOF ZOOLOGICALSCIENCE.

SURVEY AND IDENTIFICATION OF TRADITIONAL MEDICINAL PLANTS IN ARSI ZONE, SUDE WOREDA, ETHIOPIA

A THESIS SUBMITTED TO THE GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE IN BIOLOGY

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ABSTRACT

The study on the survey and identification of traditional medicinal plants in Arsi Sude district was performedfrom October 2015 to February 2016 in three kebeles Gojama negele, Yabeta kula and Akiya meti. In the area diverse medicinal plant species which are used to treat many human and livestock disease have been documented.The data were collected from the informants through semi-structured interview, discussion and collecting plant samples from the study areas that are used to treat different human and livestock ailments. A total of 21 informants were selected that consist of seven informants from each kebele of which 16 were males and five females. Among the informants six of them were key informants selected by purposive sampling method. A total of 36 medicinal plant species were collected from the study area and identified using the Flora of Ethiopia and Eritrea (volume 3, 1989). The medicinal plant collected are used to treat six disease categories. Namely, dermatological, respiratory, ureno-genital, gastro-intestinal, febrile and livestock disease. The frequently applied plant part was leaf (58%) followed by root (25%). Traditional healers commonly used the juice of fresh leaf and root of medicinal plants.To prepar it fresh part of the plant is crushed and the juice applied orally, nasally or dermally. However; these plant species are threatened by the activities of the community like expansion of agriculture, overgrazing, cultivation of eucalyptus tree as cash plant and application of the root of medicinal plant is a factor that needs risk of extniction.

To conserve the biodiversity of the area and preserve the medicinal plants it is recommended to make aware of the society and to develop in –situ and ex-situ conservation of medicinal plants.

Key word; Traditional medicinal plants, traditional healer, Human diseases, Livestock ailments.

1. INTRODUCTION

Ethiopia is the origin and center of diversity for many of medicinal plant species . The various literature available show the significance role of medicinal plants in primary health care delivery in Ethiopia where 70% of human and 90% of livestock population depends on traditional medicine similar to many developing countries particularly that of sub- Saharan Africa countries(Bekele, 2007). In Ethiopia medicinal plants and knowledge of their use provided a vital contribution to human and livestock health care needs throughout the country the reason why medicinal plants are demanded in Ethiopia is due to culturally linked traditions (Kibebew.200).

Ethiopia geographical diversity with different habitats and vegetation types favors medicinal plant growth and utilization (Gebeyehu et.al.,2013).Multiple geographical diversity of the country coupled with multiethnic group make it home for wide traditional medicine.The practice of traditional medicine in the country is not only concerned with curing of diseases but also with the protection and promotion of human physical , spiritual , social , mental and material well being .

Traditional medicinal plant practice in the country is still continue and widely accepted to use in the prevention and treatment of various ailment due to easily access able(Gebeyehu et.al.,2013) .The local communities have knowledge in the medicinal value of traditional medicine and relatively low cost in using them (Seid and Getaneh. 2013).

Similarly in Arsi Sude woreda the society widelyuses traditional medicine to treat different human and livestock disea There are manymedicinal plants species in the woreda . Which can be obtained from wild habitat , grass land , shrubs , in field margin and garden fence as weeds and in many micro habitat from where they are harvested when the need arise.

Objective

General objective : The overall objective of this study to identify the traditional medicinal plants in Arsi Sude woreda and to document and compile indigenous knowledge of the people .

Specific Objectives

- To gather , record and document indigenous knowledge of the people on medicinal plants in the study area .
- To collect and identify traditional medicinal plant specimens used in the study area for the treatment of human and livestock .

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- To assess the role of traditional practice and endogenous knowledge in maintaining medicinally important plant species in the study area .
- To provide information for the feature research in drug development using medicinal plants with ethno botanical information.

2. LITERATURE REVIEW

2.1 Indigenous Knowledge

Indigenous knowledge , belief and practice generally develops and changes with time and space, Hence such knowledge includes time tested practice that developed in the process of human interaction with their environment (Gebeyehu.et.al.,2013). there for it is the result of many generations long years experience , careful observation and trial and error experiments (Marti, 1995). Indigenous knowledge is a body of knowledge built up by a group of people through generation of living in close contact with nature and it is cumulative and dynamic . In builds up on the historical experience of people and adapts to social , economic , environmental , spiritual and political change , the quantity and quality of traditional knowledge differs among community members according to their gender , social standing , profession and intellectual capability . For instance , societies concerned with biological diversity will be most interested in knowledge about the environment , this information must be understood in a manner one of the widely used indigenous knowledge system in many countries is the knowledge and application of traditional medicine . The knowledge involves traditional diagnosis , collection of raw materials, preparation of remedies and its prescription to the patients (Wort, 1994). Indigenous knowledge on remedies in many countries including Ethiopia , pass from one generation to the other generation verbally with great secrecy (Janzen, 1981).

The complex knowledge , beliefs, and practice generally known as indigenous knowledge or traditional knowledge , develop and change with time. It includes time tested practices that developed in the process of interaction of human with their environment (Hunde et.al 2006).

Indigenous people refers to people who follow traditional , non industrial life style in area that they have occupied for generations (Balick and Cox, 1996).

Indigenous knowledge is a result many generation long years experience careful observation and trial and error experiments (Martin, 1995). Traditional people around

the world posses unique knowledge of plant resources on which they depends for food , medicine and general utility (Martine , 1995, Cotton, 1996 , Khanal 2006 cited in Alemayehu. 2013). The knowledge help them to identify and use many plants for traditional medicine to treat different human and livestock diseases.

2.2. Traditional Medicinal Plants

2.2.1. Traditionl Medicinal Plants in Africa

The world health organization (WHO, 2002) defined traditional medicine as the total combination of knowledge and practice that can be formally explained are used in prevention and elimination of physical , mental , or social imbalance and relaying exclusively on practical experience and observation handed down from generation to generation whether, verbally or in writing (Amenu,2007).

Traditional medicine as a major African socio cultural heritage , obviously in existence for several hundreds of years , and the first choice of health care treatment for at least 80% of Africans who suffer fever and other common ailment . (Elujoba**,** et.al. 2005).

In Africa, traditional healers and remedies made from plants play an important role in the health of millions of people. The main problem facing the use of traditional medicine is the proof requirement that the active components contained in medicinal plants are useful, safe and effective, this required to assure the medicinal field and the public regarding the use of medicinal plants as drug alternatives. The proof of pharmacology activity that are available at present are mostly based on empirical experience. The scientific proof then becomes the most important things in order to eliminate the concern of using medicinal plants as drug alternative treatment unfortunately , most African countries are notable to conduct researchers provides scientific proof pharmacology. International collaboration is important for African countries, as it would enhance the development of drugs obtained from medicinal plants to their benefits.

2.2.2. Traditional Medicinal Plant in Ethiopia

Ethiopia is a country characterized by a wide range of climate and ecological condition , possesses enormous diversity of flora and fauna (Pankhurst, 2006). The country possesses a wide range potentially useful medicine plants , more extensive indeed than available in many other parts of the world (Yirga and Zeraburk. 2005). Popular knowledge of plant used by human is based on thousands of years of experience by trial and error people learn how to recognize and use plants, including those with a magic- religious function. In Ethiopia, even though the traditional medicinal practitioners are thebest sources of information secret, only to be passed orally to their older son, at their oldest age (Janzen 1981)

Due to its long period of practice and existence, traditional medicine has become an integral part of the culture of Ethiopian people (Amenu. 2007). According to (Abebe, 2001), there is a large magnitude of use and interest in medicinal plant in Ethiopia due to acceptability and bio medicinal benefits . In Ethiopia the long history use of medicinal plants is reflected in various medico –religious manuscripts produced on parchments and believed to have originated several centuries ago (Kibebew , 2001). Medicinal text books written in Geez and Arabic in Ethiopia between the 17 & 18 centuries employsthat plants have been used as a source of traditional medicine in Ethiopia health care system . In Ethiopia little emphasis has been given to traditional medicinal studies over the past decades (Hunde,et.al.,2001). There for it can be said that ethinobotanical studies are merely at the start in Ethiopia there have been some attempts in investigating medicinal plants uses and there is as yet , no in depth study on the relation between medicinal plants and indigenous knowledge on sustainable management of such plant species.

3. Materials and Methods

3.1. Description of the study area

SudeWoreda is located in Arsi zone Oromia regional state. The administrative center is Kullatown which is located at the distance of 217 KM South East of Addis Ababa. The land area of the woreda is estimated about 1124KM^2.

The Woreda is characterized by plain and gorges land topography. Most of the area cultivated with some forest and shrubs in the gorge area. The woreda have mainly two ecological zone which are wainadega (70.32%) and kola (22.22%) while the rest (7.41%) dega.

The statistical data of the Woreda Administration reveals that 77% of the total population is Afan Oromo language speakers. Sude Woreda has an estimated population of 187684. OF which 93,992 (50.07%) are males and 93,692 (49.93%) are females. Thepopulation more or less distributed evenly. Thedemography figure obtain from 2007 central statistical Agency.

Agriculture is the main economy of the wereda followed breeding livestock. the main food crops cultivated in the wereda includes Barley (*Hordeamvulgare*) Wheat (*Tritrcum spp*.),Teff *(Eragrostistef*)Bean (*Viciafaba*). Niger seed *(Guizotiaabyssinica*)as cash crop and Eucalyptus tree for additional cash source.

3.2. Data Sources

The traditional medicinal plant data were obtained from primary and secondary sources. The primary data were obtained by collecting of fresh specimens data in the study area ,the secondary sources were obtained by referring to previous studies in the country and literature review.

3.3. Methods of Data Collection

3.3.1. Semi-structured Interviewer Administered Questionnaire

A list of questions were prepared that covered in the discussion with the informants in a particular order. The interview were done and around these questions and some issues wereraids depending on responses of informant. The language that were used frequently with the informants were Oromiffa(common language of the woreda) and Amharic.

During the interview the information regarding local name of the medicinal plants, parts used, methods of preparation and mode of application were gathered..

3.3.2. Plant Specimen Collection and Identification

The available plant specimen were collected for each plant species and identification of some common and well known species was made in the field including the local name, specific name and habitat.

The identification were done by using taxonomic key and volume 3 of the Flora of Ethiopia and Eriterea (1989).

3.4 Data Analysis

3.4.1. Vegetation Data Analysis

In order to assess the distribution of the medicinal plants in the area , vegetation survey were carried out. It also provided one way of summarizing the knowledge of vegetation pattern. As the study encompasses large - scale area quadrant were used and a visual identification of the community type were established based on the dominance of some species . The community name were derived based on the tree or shrubwith high synoptic value.

3.4.2. Descriptive Statistics

A descriptive statistical method percentage were employed to analyze and summarize the data on medicinal plants and associated knowledge . The most useful information gathered on medicinal plants reported by local people . medicinal value , application , method of preparation , route of application, disease treated , dosage, parts and habits used were analyzed through descriptive statistical analysis.

4. Results

For identification purpose the leaf sample of 36 medicinal plants were collected and among these 30 (83.3 %) species are used for the treatment of human diseases while six (16.7 %) species are used for livestock treatment. The rest three (8.3%) species are used to treat both human and livestock diseases. The traditional practitioners collected (41.6%) of the medicinal plants from home gardens and (58.4%) from the natural habitat. Among the medicinal plants 18 species were herbs followed by 14 species shrubs and other four species were trees.

Table 1 : List of Traditional medicinal plant species used to treat human and livestock disease

S.No	Botanical Name	Local Name	Type	Human/Livestock	Ailment treated
1	*Achyranthe saspera*	Telenji	Herb	Livestock	Abagorba
2	*Acmellacau lirhiza*	Yemdirberbere	Herb	Human	Tonsillits
3	*Acokanthera schimperi*	Merenz	Tree	Human	Hepatitis
4	*Ajugainteg pifolia*	Aqourarach	Herb	Human	Tonsillitis
5	*Aloe vera*	Eret	Herb	Human	Wound
6	*Artemisia afra*	Ariti	Herb	Human	Abdominal problem
7	*Asparagus scaberulus*	Keskeso	Herb	Human	Burring wound
8	*Asparagus* spp.	Serittee	Shrub	Human	Allergic
9	*Cacumisfici folius*	Yemdir embauy	Herb	Human	Sudden stomach aech
10	*Calpurnia aurea*	Digita	Shrub	Livestock	Cattle lice
11	*Clematis hirsute*	Azoareg	Shrub	Human	Abdominal problem
12	*Clerodendrummy ricoides*	Misrich	Shrub	Human	Allergic
13	*Croton macrostachyus*	Bisana	Tree	Human	Wring worm
14	*Datura stramonium*	Astenagir	Herb	Human	Dandruf
15	Echinoops kabaricho	Kabaricho	Shrub	Both	Febrile illness
16	*Ecualptus globules*	Nechbeharzaf	Tree	Livestock	Abagorba
17	*Foeniculum volgare*	Insilal	Herb	Both	Urination problem
18	*Jasmrnum gusscaqberulus*	Tembelel	Shrub	Human	Allergic
19	*Juniprus procera*	Yeabeshatid	Tree	Human	Wound

20	*Kasanechea maerantha*	Endwhula	Herb	Human	Boil
21	*Kasanechea maerantha*	Endwhula	Herb	Human	Tonsillits
22	*Leggerato mentosa*	Chikugn	Herb	Human	Common cold& Influenza
23	*Lepldium sativum*	Feto	Herb	Human	Abdominal problem
24	*Leucusma rtinicensis*	Raskemir	Shrub	Human	Febrile illness(much)
25	*Nicotina tobacum*	Timbaho	Herb	Livestock	Leech infection
26	*Ocimum gratissimum*	Damakese	Shrub	Human	Febrile illness
27	*Osyris quadripartita*	Keret	Shrub	Livestock	Cattle skin lesion
28	*Phytolacca dodecandre*	Indod	Shrub	Human	Gonorrhea
29	Rhmnus prinoids	Gesho	Shrub	Human	S
30	*Rhusre tinorrhoea*	Tilem	Shrub	Human	Hepatitis
31	*Rumex absyssinica*	Mekimeko	Herb	Human	Wring worm
32	*Rummex crispus*	Tult	Herb	Human	Stomach aech
33	*Rutacha tepensis*	Tenadam	Herb	Human	Common cold
34	*Rutacha tepensis*	Tenadam	Herb	Human	Abdominal problem
35	*Strychno sinnocua*	Engochit	Shrub	Human	Abdominal problem
36	*Verbana officinalis*	Ajo	Herb	Livestock	Abagorba
37	*Withania sominfera*	Gizawa	Shrub	Human	Febrile illness

4.1. Medicinal plant parts used, method of Preparation and rout of application

Most remedies (58.3%) were prepared from leaves followed by root (25%). The majority (88.8%) of remedies were prepared from fresh plant parts (leaf or root) followed by dried plant parts ; the leaf or root powder (11.2%) and most common of remedial preparation was squeezing of the fresh leaf or root (33%) followed by powdering (13%) most of these medicine prepared remedies were applied orally (38.8%) followed by dermal (33.3%) and nasal(11.1%). (Table 2).

Table 2 : Traditional medicinal plants parts used, method of preparation and rout of application

SN	Botanical Name	Parts used	Method of preparation	Rout of application
1	*Achyranthe saspera*	Leaf	Fresh leaf crushed	Orally
2	*Acmellacau lirhiza*	Flower	Chewing fresh flower	Orally
3	*Acokanthera schimperi*	Fresh leaf	Fresh leaf juice with honey	Orally
4	*Ajugaintegpi folia*	Leaf	Fresh leaf juice	Nasally or orally
5	*Aloe vera*	Leaf	Covering with internal part	Topically
6	*Artemisia afra*	Shoot	Fresh shoot socked in water	Orally
7	*Asparagus scaberulus*	Leaf	Polishing dry leaf powder	Topically
8	*Asparagus* spp.	Leaf	Fresh leaf juice	Topically
9	*Cacumisfici folius*	Root	Root powder with water / coffee	Orally
10	*Calpurnia aurea*	Leaf	Fresh leaf juice	Topically
11	*Clematis hirsute*	Root	Crushing fresh root &socked in water	Orally
12	*Clerodendrummy ricoides*	Leaf	Fresh leaf juice	Topically
13	*Croton macrostachyus*	Young leaf	Fluid inyoung leaf	Topically
14	*Datura stramonium*	Leaf	Fresh leaf juice	Topically
15	Echinoops kabaricho	Root	Root smoke	Nasally/orally
16	*Ecualptus globules*	Leaf	Fresh leaf crushed	Orally
17	*Foeniculum volgare*	Leaf	Fresh leaf juce	Orally
18	*Jasmrnumgussca qberulus*	Leaf	Fresh leaf juice	Topically

19	*Juniprus procera*	Dry leaf	Polishing dry leaf powder	Topically
20	*Kaanchea macrantha*	Leaf	Covering with hot fresh leaf	Topically
21	*Kasanechea maerantha*	Root	Fresh root crushed and socked in water	Nasally
22	*Leggerato mentosa*	Leaf	Fresh leaf boiled with milk	Orally
23	*Lepldium sativum*	Seed	Seed powder with water	Orally
24	*Leucusma rtinicensis*	Leaf	Fresh leaf juice with water drop	Nasally
25	*Nicotina tobacum*	Leaf	Fresh leaf juice	Orally or nasally
26	*Ocimum gratissimum*	Leaf	Fresh leaf juice with water drop	Nasally or orally
27	*Osyrisqua dripartita*	Leaf	Fresh leaf juice	Topically
28	*Phytolaccado decandre*		Phytolaccadodecandre	Orally
29	Rhmnus prinoids	Leaf	Chewing	Orally
30	*Rhusretino rrhoea*	Leaf	Fresh leaf socked in water	Orally
31	*Rume xabsyssinicus*	Root	Root powder with butter	Topically
32	*Rummex crispus*	Root	Chewing fresh/dry root	Orally
33	*Rutacha tepensis*	Leaf	Fresh leaf boiled with milk/tea	Orally
34	*Rutacha tepensis*	Shoot &fruit	Fresh shoot socked in water	Orally
35	*Strychno sinnocua*	Root	Fresh root crushed &socked in water	Orally
36	*Verbana officinalis*	Leaf	Fresh leaf crushad&mixed with the above two	Orally
37	*Withania sominfera*	Root	Dry root smoke	Orally &nasally

4.2. Traditional medicinal plants used to treat different disease categories

4. 2.1.Dermatological diseases

The skin can be exposed to much pathogenic infection mainly to different fungal diseases such as ringworm, dandruff and skin allergic. The society in the study area used a number of medicinal plants to treat these and other dermatological ailments. About 10 (27%) traditional medicinal plant identified used to treat different dermatological diseases. The fresh leaf is the most common parts of the plant for this purpose (Table 3).

Table : medicinal plants used to treat human dermatological diseases

SN	Botanical Name	Local Name	Ailments treated	Parts used	Method ofpreparation	Rout of application
1	*Aloe vera*	Eret	Wound	Leaf	Covering with the internal part	Topically
2	*Asparagus scaberulus*	Keskeso	Fire wound	Leaf	Polishing dry leaf powder	Topically
3	*Asparagus spp.*	Tembelel	Allergic	Leaf	Fresh leaf juice	Topically
4	*Clerodendrum myricoides*	Misrich	Allergic	Leaf	Fresh leaf juice	Topically
5	*Croton macrostachyus*	Bisana	Ring worm	Leaf	Fluid inyoung leaf	Topically
6	*Datura stramonium*	Astenagir	Dandruf	Leaf	Fresh leaf juice	Topically
7	*Jasmrnumgussca qberulus*	Tenbelel	Allergic	Leaf	Fresh leaf juice	Topically
8	*Jinuprus procera*	Yabeshatid	Wound	Leaf	Leaf powder	Topically
9	*LKaanchea macrantha*	Endwhula	Boil	Leaf	Covering with hot fresh leaf	Topically
10	*Rumex absyssinicus*	Mekmeko	Ring worm	Root	Root powder with buttér	Topically

Figure 1. Representative of medicinal plants used to treat



dermatological diseas 

Figure 1.A. Datura stramonium (Place : Harbe, Gojama negele December 2015)

Figure 1.B. Aloe vera , Place ; Harbe, Gojaama Negele negele December 2015)



Fifure 1C. Asparagus spp. (Place ;Adere, Akiya meti December 2015)



Figure 1.D. *Janiprus procera.* (Place ; Harbe, Gojama negele December 2015)

4.2.2 Respiratory diseases

Respiratory diseases are the common health problem to the intended area of the study .People around that area treat the using traditional medicinal plant species. Of the plants identified from the study area six (10%) are used to treat respiratory ailment like tonsillitis, common cold and influenza. (Table 4).

Table 4: Medicinal plants used to treat human respiratory disease

SN	Botanical Name	Local Name	Ailments treated	Parts used	Method of preparation	Rout of application
1	*Acmella caulirhiza*	Yemdirberbere	Tonsillitis	Flower/ root	Chewing fresh flower or root	Orally
2	*Ajugainteg pifolia*	Aqourarach	Tonsillitis	Leaf	Fresh leaf juice	Nasally
3	*Ecualptus globules*	Nechbeharzaf	Common cold	Leaf	Fresh leaf boild	Nasally/orally
4	*Kasanechea maerantha*	Endwhula	Tonsillitis	Root	Fresh root crushed and socked in water	Nasally
5	*Leggerato mentosa*	Chkugn	Common cold &Influenza	Leaf	Fresh leaf boiled with water	Orally
6	*Rutacha tepensis*	Tenadam	Common cold	Leaf	Fresh leaf boiled with milk/tea	Orally

Figure 2. Representative of medicinal plant used to treat respiratory diseases



2. A. Leggerato mentosa
Place- Harbe, Gojama negele
(December 2015)



2.B.Ruta chatepensis
(Place; Harbe, Gojama negele
(December 2015)

4. 2.3. Ureno-genital and organ diseases

From the collected plant species six (11%) of them are applied to treat uren- genital and organ diseases. Traditional healers used leaf and root for the treatment of ureno-genital and organ diseases. Crushing fresh leaf or root and preparing juice to be taken orally. (Table 5).

Table 5: Medicinal plants used to treat Ureno genital diseases

SN	Botanical Name	Local Name	Ailments treated	Parts used	Method of preparation	Rout of application
1	*Acokanthera schimperi*	Merienz	Hepatitis	Leaf	Fresh leaf	Orally
2	*Foeniculum volgare*	Insilal	Urinary problem	Leaf	Fresh leaf juice	Orally
3	*Phytolacca dodecandre*	Indod	Gonorrhea	Root	Crushing fresh root and socked in water	Orally
4	*Rhusretino rrhoea*	Tilem	Hepatitis	Leaf	Fresh leaf socked in water	Orally

Figure 3. Representative of medicinal plant used to treat urenogenital disease



Figure 3. ***Feoniculum volgare***

(Place ; Harbe, Gojama negele, December 2015)

4.2.4 Gastro intestinal disease

In the study area indigenous people use many traditional medicinal plants to treat gastro-intestinal ailments. Oral application is the most commonly rout of remedies Some of these plants are familiar the society in the study area. From identified medicinal plants seven (19.4%) are used to treat these diseases. The root is the common part of the plant to prepare the remedies (Table 6).

Table 6: Medicinal plants used to treat Gastro-intestinal disease

No.	Botanical Name	Local Name	Ailments treated	Parts used	Method of preparation	Rout of application
1	*Artemisia afra*	Ariti	Stomach aech	Shoot	Fresh shoot socked in water	Orally
2	*Cacumis ficifolius*	Ymidrimbauy	Typhoid	Root	Root powder with water / coffee	Orally
3	*Lepldium sativum*	Feto	Abdomenal problem	Seed	Seed powder with water	Orally
4	*Rummex crispus*	Tult	Sudden abdomenal problem	Root	Chewing fresh root	Orally
5	*Rutacha tepensis*	Tenadam	Stomach aech	Shoot &fruit	Fresh shoot socked in water	Orally
6	*Clematis hirsute*	Azoareg	Abdomenal problem	Root	Crushing fresh root &socked in water	Orally
7	*Strychno sinnocua*	Engochit	Abdomenal problem	Root	Fresh root crushed &socked in water	Orally

Figure 3. Representative of medicinal plants used to treat dermatological diseases



Figure 4A. *Ruta chatepensis*

(Place ; Harbe,Gojama negele

December 2015)

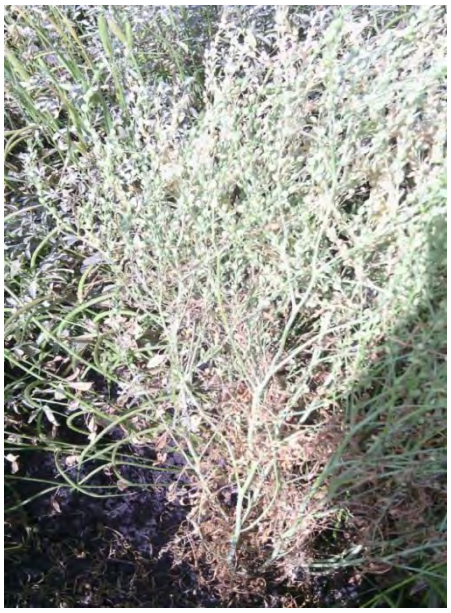

Figure 4B. *Lepidium sativum*

(Place ; Gojama negele

December 2015)



Figure 4C. *Rummx rispus*

(Place- Harbe-Gojama negele December 2015)

4.2.5 Febrile disease

Febrile disease are common in the community they occur frequently, but treated with some medicinal plants. They are effective when applied together. The fresh leaves of these plants squeezed and with water / coffee. (Table 7).

Table 7: Medicinal plant used to treat humanFebrile disease

SN	Botanical Name	Local Name	Ailments treated	Parts used	Method of preparation	Rout of application
1	*Echinoops kabarichomesfin*	Kebericho	Febrile	Root	Dry root smoke	Nasally/Orally
2	*Leucusma rtinicensis*	Raskemir	Febrile	Leaf	Fresh leaf juice with coffee/water	Orally/nasally.
3	*Ocimum gratissimum*	Damakese	Febrile illness(much)	Leaf	Fresh leaf juice with water drop	Nasally or orally
4	*Withania sominfera*	Gizawa	Febrile illness (much)	Root	Dry root smoke	Orally &nasally

4.2.6. Livestock disease

Breeding livestock is one source of economy besides cultivating crops to the society of the study area. They treat different livestock diseases with a number of traditional medicinal plant species. Traditional healer treat the disease of livestock using medicinal plants six (16.7%) of identified from the study area are used to treat different livestock ailment.

(Table 8).

Table 8:Medicinal plant used to treat Livestock disease

SN	Botanical Name	Local Name	Ailments treated	Parts used	Method of preparation	Rout of application
1	*Achyranthes aspera*	Telenji	Abagorba	Leaf	Fresh leaf crushed	Orally
2	*Calpurnia aurea*	Digita	Cattle lice	Leaf	Fresh leaf juice	Topically
3	*Ecualptus globules*	Nech beharzaf	Abagorba	Leaf	Fresh leaf juice	Orally
4	*Nicotina tobacum*	Timbaho	Leech infection	Leaf	Fresh leaf juice	Orally or nasally
5	Osyrisquadripartita	Keret	Cattle skin lesion	Leaf	Fresh leaf juice	Topically
6	Verbana officinalis	Atuch	Abagorba	Leaf	Fresh leaf crushad&mixed with the above two	Orally

5. Discussion

The society in the study area used many medicinal plants to treat different human and livestock diseases . In the study area traditional medicine is used by \traditional healers to solve the health problem of human and livestock.Traditional healers are using local medicinal plants to maintain human and livestock health . In the study area most medicinal plants (80 %) were collected fro farm land , grazing land , up land forest , compared to (20 %) from home garden. The community may not so interested to grow all the medicinal plants in the home garden and ex-situ . This may be due to most medicinal plant are available in the wild area so that the traditional healers harvest them very easily.

Medicinal plant species *Clerodend rummyyicoi, Asparayus spp*. and *Jasmrnum gusscaqberulus are* used to treat skin allergic mainly they are applied for infants. By cutting seven or nine young leaf from each plant species mixed and squeezed then applied dermaly. *Juniprus procera* and *Asparasgus caperulus* are used to treat wounds which are caused by burning. The dry leaf powder mixed with butter is applied on the wound to prevent infection. The squeeze of *Croton macrostachyus* used to treat ring worm. Cover the wound with five to ten hot fresh leaves of *Kalaneama crantha is* used to discharge the pus. *Acmellaca lihizais is* used to treat tonsillitis by chewing fresh flower or root. *Leggerata mentosa* is used to treat common cold and influenza by boiling with milk and taken orally mainly for infants. Traditional healers treat ureno-genital and organ ailment using different traditional medicinal plant species.*Phytolacca dodecandre is* used to treat one of the sexually transmitted diseases gonorrhea. For the treatment of gonorrhae fresh root of the plant crushed the squeeze taken orally. *Foeniculum volgare*used to treat urination problem of both human and livestock. It applied by taking the fresh leaf squeeze orally. Crushing the fresh leaf of *Rhusterti norrhoea* and *Ackantheras chimperi* squeezed together mixed with honey and taken orally before breakfast to treat hepatitis. Some medicinal plants are familiar to the society in the study area to treat many gastrointestinal ailments. Chewing the fresh root of *Rmmex crispus* used to treat sudden abdominal problem (dingetgna). The root powder of *Cacumis ficifolius* with water / coffee used to treat typhoid. Most these plants are found easily around home gardens.

There are some plant species found around house fences used to treat febrile diseases such as *Leucusmarti nicensis* and *Ocimumgar tissimum* fresh leaf squeeze with water/ coffee taken orally. The traditional healers estimate the dosage by taking seven leaf from each plant and mix together and the squeeze given to the paint. The society in the study area also treats livestock diseases by medicinal plants. *Nicotina tobacum is* used to treat leech infection. Fresh leaf juicetaken orally/nasally towith drown the leech from the trachea as it close the trachea and cause cough to the cattle. Crushing *Ecualptus globules*, *Achyranthe sapsera,* and *Verbana officinalis* together socked in water and taken orally to treat Abagorba. The fresh leaf squeeze of Calpurnia aurea applied dremily to kill cattle lice.

Traditional practitioners in the study area mostly use leaves (63.8 %), for preparing remedies followed by root (22.2%) . Most traditional remedies were prepared using fresh materials (leaves and root)compared with dried one . It may be expected that when the plant is dried it may loss some of its content by the effect of temperature change. Traditional healers prepare the traditional remedies using different traditional measurement to estimate the dosage of the remedies like counting the number of leaf or root, using containers for example to treat gonorrhea with *Phytolacca dodecandre* juice they use a coffee cup up to the volume cover the thumb or nail of the healer.

In this study area traditional healers used medicinal plants to treat a number of diseases using leaf which might not threatened the plant .Using root however, will lead t extinction. Indigenous people were highly dependent upon plants for multiple applications that threatened diversity of medicinal plants.

In the study area deforestation, over grazing and expansion of agriculture including cultivating eucalyptus tree as cash plant affect the survival of medicinal plants. In the study area the conservation status of medicinal plant is limited ,There is to need to aware the society for the proper attention to conserve the biodiversity including medicinal plants .for the welfare of future generation in a sustainable manner.

6. Conclusion

The study area Arsi Sude wereda has diverse medicinal plants that are used to treat various human and live stock diseases by the local communities. The wild plant habitats are the main sources of medicinal plants compared to home gardens. Curently medicinal plants avialability is at risk due to different human activities such as agricultural expansion and cultivating eucalyptus tree for the source of income are the most visible threats in the study area. The indigenous knowledge of people has to be passed over to the next generation. To conserve the biodiversity of the area and preserve the medicinal plants there is a need to create awarenes and develop in – situ and ex-situ conservation of medicinal plants. In particular rare species should be given conservation priority.

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8 Appendex

Materials

Materials used for the research includes;

- ✓ Plant press and other specimen collection materials
- ✓ Collecting bags and field portfolio

- ✓ Cuttingtools
- ✓ Somesecondary data that available in the office of the Woreda bureau index

Figures for representatives of medicinal plants



1. Foeniculum volgare

(Place ;Harbe, Gojama negele

December 2015)



2. Leggerato mentosa

(Place ; Harbe , Gojama negele

December 2015)



3. *Janiprus procera*

(Place ; Harbe, Gojama negele

December 2015)



4. Lepidium cativum

(Place ; Harbe, Gojama negele

December 2015)



5. Asparsgus spp

(Place- Adere, Akiya meti

December 2015)



6. Datura stvamoium

(Place ; Harbe Gojama negele

December 2015)



7.Ruta chatepensis

(Place-Harbe , Gojama negele

Decenber 2015)



8. Rummix rispus

(Place; gojama negele

December 2015)

7.ANNEXES

Annex I: Questionnaire
Addis Ababa University
College of natural science
Department of biology
Questionnaire designed to a research entitled "Survey and identification of traditional medicinal plants in Arsi zone, SudeWoreda, 2008EC"

I. General information
1. Information on vendor:
Date of interview_____ Kebele _____
Name of interviewer_____
Name of respondent_____
Sex of respondent: _____
Age _____
Ethnicity _____
Religion: _____
Educational level_____,
Marital status _____

II. Information related to the medicinal plants
Which medicinal plants used to treat both human and animal diseases in study area?
_____
_____
2. Where do plants grow? In wild_____, inhomegardens_____
3. Plant part used_____

4. Condition of medicinal plants: In Fresh _____, dried _____, powdered_____

5. Availability of medicinal plants species: .
6. Is the plant cultivated in the area? If yes for what purpose?
7. Which members of the community use the medicinal plants frequently? Why?
_____
_____

8. list the name of medicinal plant in your area and show me the plant

SN	Local Plant name (more than one possible)		Taxonomical name (scientific name)	Plant part used for treatment	Disease treated by the plant
	Amharic	Oromic			
1					
2					
3					
4					

Additional information

1. How do the local people manage and conserve medicinal plant species through their traditional practices?
2. What is the floristic composition of the study area?
3. What are the factors affecting the practice of indigenous knowledge on medicinal plants in the study area?
4. How is the knowledge of medicinal plants use transferred from elders to youngers in the study area?
5. What are the major plant-communities types existing within the study area?

Annex II: Approval Format

Name of student:Zewdinesh Demisie (BEdu)
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Signature: ----------/---------/----------
Date: ----------