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Traditional Medicinal Plants and Their Uses In Shefari'o Kebele,Goba Woreda ,Bale Zone,Oromia Regional ,Ethiopia

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Abstract

Traditional medicine refers to the sum total of knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures that are used to maintain health, as well as to prevent, diagnose, improve, or treat physical and mental illnesses. The main purpose of this research is to document medicinal plants used for traditional treatments with their parts and use. The data was collected between June, 2012 and September, 2013 on field trips to investigate medicinal knowledge and application of medicinal plants in Shifari'o Kebele Goba Woreda of Southeastern Oromia. A total of 65 informants (62 males and 3 females) between the ages of 20 and 60 were selected to collect information on medicinal plant use from sampled Kebele.Informants were selected randomly. Semi-structured interviewees, observation and guided field walks with informants were employed to obtain ethno botanical data. A total of 65 informants (62 males and 3 females) were selected purposefully with the help of local administrators and local elderly people. Most (84%) of the traditional medicinal plants were wild and were mostly harvested for their leaves. Oral application was the highest and most commonly used route of application. The local people utilize 25 medicinal plant species to treat 15 human ailments. Most of these plants 21 species (84%) were collected from wild habitats indicating the existence of pressure on wild plants. In this case, plant part(s) used for medicinal preparation indicated that Leaf 17 (68%) is the plant part widely used followed by root 4 (16%), while the rest include 3(12%) fruit and 1 (4%) flower form. The most popular method of preparation was in the form of crushing, which accounts for 60%, followed by squeezing (16%), together, the remaining proportion is accounted for methods like pounding, chewing and cooking the combination of each method. 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 extinction. Generally, to conserve the biodiversity of the area community- and research-based conservation mechanisms could be an appropriate approach for mitigating the problems for the loss of medicinal plants and it is recommended to make aware of the society and to develop in –situ and ex-situ conservation of medicinal plants.

Key words : medicine, medicinal plant, traditional healer

1.Introduction

1.1.Background

The term of medicinal plants include various types of plants used in herbalist and some of these plants have medicinal activities. Medicinal plants are backbone of traditional medicine,which means more 3.3 billion people in the less developed counties utilize medicinal plants on a regular basis.

These medicinal plants consider as a rich resource of ingredients which can be used in drug development and synthesis. Besides that these plants a critical role in the development of human culture around the whole world.

These use of traditional medicine plants in most developing countries ,as a basis for the maintenance of good health ,has been widely observed by UNESCO,1996.Furthermore,an

increasing reliance on the use of medicinal plants in the industrialized societies has been traced to the extraction and development of several drugs and chemotherapeutics from these plants as well as traditionally herbal remedies.

During the past decade ,traditional system of medicine have became a topic of global importance current estimates suggest that , many developing countries ,a large proportion of the population relies heavily on traditional practitioner and medicinal plants to meet primary health care needs. Although modern medicine may be available in these countries, herbal medicine (phytomedicines) have often maintained popularity for historical and cultural reason.

Medicinal plant frequently used as raw materials for extraction of active ingredients which used in the synthesis of different drugs. Like in the case of laxatives,blood thinners, antibiotics and anti malarial medications ,contain ingredients from plants .More over the actives ingredients of Taxol, vincristine and morphane isolated from foxglove ,periwinkle ,yew and opium poppy, respective.

Medicine,in several developing countries,using local traditional and belief,its still the mainstay of health care as defined by WHO ,health is a state of complete physical ,mental and social well being and not merely the absence of disease or infirmity.Medicinal plants can make an important contribution to the WHO goal to ensure,by the year 2000,that all people worldwide well lead a sustainable socioeconomic productive life.

Africa is a rich source of medicinal plants. Perhaps; the best known species is phytolacca dodecandra. Extracts of the plants, commonly known as endod,are used as an effective molluscicide to control schistomiasis.

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 the livestock population. estimated flora a of 6500 to 7000 species of higher plants are of medicinally important and out of these medicinal plants 12% are endemic to Ethiopia (Mengistu,2004).The traditional knowledge in Ethiopia is passed verbally from generation to generation and valuable information can be lost whenever a traditional medicinal practitioner passes without conveying his traditional medicinal plants knowledge(Pankhurst etal .,2001).

Even though traditional knowledge of medicinal plants is very crucial to treat different disease, there is no study conducted in shifari'o kebele on this regard. Hence ,the present study was designed to identify and document medicinal plant species and traditional medicinal knowledge of health practitioners in shifari'o kebele.

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 (Getaneh. 2013).

Similarly in Shifari'o Kebele Goba woreda the society widely uses traditional medicine to treat different human and livestock disease. There are many medicinal plants species in the Kebele. 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.

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 extinction. Therefore, this study recommends the argent need to incorporate this knowledge into formal education before complete lost.

1.2. Statement of the problem

Goba woreda is very largest and many types of medicinal plant species and thus very little research will be done on these medicinal plant parts. Traditional knowledge of medicinal plants is very crucial to treat different disease.Medicine ,in several developing countries,using local traditional and belief,its still the mainstay of health care ,as defined by WHO ,health is a state of complete physical,mental and social well being and not merely the absence of disease or infirmity.In Ethiopia,plant remedies are still the most important and sometimes the only source of therapeutics for nearly 80% of human and more than 90% in the livestock population .Estimated flora a of 6500 to 7000 species of higher plants are of medicinally important and out of these medicinal plants 12% are endemic to Ethiopia (Mengistu,2004).The traditional knowledge in Ethiopia is passed verbally from generation to generation and valuable information can be lost whenever a traditional medicinal practitioner passes without conveying his traditional medicinal plants knowledge (Pankhurst etal.,2001).thus ,the use of these plants is deeply rooted in their culture, forming an integral part of their lives .Therefore the study will be aimed at assessing the part of the plant that have medicinal value and the type of disease their treat .To describe methods used for processing the medicinal plant before its administered and identify types of medicinal plants in the Shifari'o kebele.

1.3 Objectives

1.3.1 General objectives

The general objectives of this study is to investigate the traditional medicinal plants and their uses by developing their indigenous knowledge in the Shifari'o kebele.

1.3.2 Specific objectives

1. To assess the parts of the plant that have medicinal value and the types of disease their treat.

2. To describe methods used for processing the medicinal plant before its administered.

3. To identify types of medicinal plants in the Shifari'o kebele.

1.4 Research question

1. What are the parts that have medicinal plant values and the types of the disease their treat?

2. Is there understanding the methods used for processing the medicinal plant before it's administered?

3. How many types of medicinal plant in the study area?

1.5. Significance of the study

The significance of this study will be the factors affecting medicinal plants and their uses in the study area will be identified and the role of medicinal plants and their uses in the study area will be identified.

2.LITERATURE REVIEW

2.1.Plant and people interaction

The traditional people around the world possess unique knowledge of plant resources on which they depend for food ,medicine and general utility including tremendous botanical expertise(Martin,1995. This implies that humans are dependent on the other organisms for their life. Although various animals and mineral products contribute to human welfare ,the plant kingdom is most essential to human well being especially in supplying his basic needs. The indispensable dependency of humans up on plants for their livelihoods primarily started by domestication and dates back to 10,000 years (Martin,1995).Over centuries ,indigenous people have developed their own locality specific knowledge on plant use, management and conservation(Cotton,1996). Plants will be used as a source of medicine in Ethiopia from time

immemorial to combat different ailments and human sufferings (Zemede Asfaw et al,1999).Due to its long period of practice and existence,traditional medicine has become an integral part of the culture of Ethiopian people.(Mirgissa Kaba,1998).There is a large magnitude of and interest in medicinal plants in Ethiopia due to acceptability ,accessibility and biomedical benefits (Dawit Abebe,2001).

The continued dependency on herbal medicine along with the side of modern medicine is largely conditioned by economic and cultural factors(Aketch,1992).In addition to these factors, the fact that modern medical services are inaccessible to the vast majority of the populations due to their costs made herbal medicines more acceptable. Hence ,in present day Africa including Ethiopia ,the majority of people lack access to health care and the local communities reliance on plant resources account for anything up to 95% of their survival requirements(Archer,1990).

Therefore ,herbal remedies are the world's therapeutic means to act against diseases for a large proportion of people of the both rural and Urban areas in developing countries like Ethiopia (Abbiw,1996).

Ethiopia have used traditional medicines for many centuries ,the use of which has become an integral part of the different cultures in modern Ethiopia. The indigenous peoples of different localities in the country have developed their own specific knowledge of plant resource uses, management and conservation (Pankhurst,1965).

Traditional remedies are sometimes the only source of therapeutics for nearly 80% of human population and 90% of livestock in Ethiopia of which 95% are plant origin. The majority of the population that lives in the rural and the poor people in urban areas rely mainly on traditional medicines to meet their primary health care needs (Dawit Abebe,1986).

In most scenarios, the traditional knowledge in Ethiopia is passed verbally from generation to generation and valuable information can be lost whenever a traditional practitioner passes without conveying his traditional medicinal plant knowledge.

In addition, the loss of valuable medicinal plants due to population pressure , agricultural expansion and deforestation is widely reported by different workers(Dawit Abebe,2001).As a result ,the need to perform ethno botanical researches and to document the medicinal plants and the associated indigenous knowledge must be an urgent task. Traditional medicine is the major source of treatment for large portions of human populations in developing countries. It is estimated that 80% of developing countries population rely on traditional medicine, mostly plant drugs, for their primary health care needs (Mahmoud and Gairola, 2013). Particularly in resource

poor communities, local therapy using traditional medicine is the only means of treatment (Haile and Dilnesaw, 2007).

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, 2001).

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 (Getaneh. 2013).

The studies conducted on the traditional medicinal plants in Ethiopia are limited when compared with the multiethnic cultural diversity and the diverse flora of Ethiopia. Thus, this study is initiated to document the medicinal plants in the natural vegetation in Shifari'o kebele (Goba community),which assume that the data can be used as a basis for further studies on medicinal plants in Goba community studies.

3.MATERIALS AND METHODS

3.1. Description of the study area

3.1.1. Location

The study area woud been in Goba woreda located in Bale Zone Oromia regional state. The administrative center is Goba town which is located at the distance of 444 KM South of Addis Ababa.Shifari'o kebele 15 kms away from Goba town. Goba woreda bounders by north Sinana woreda ,south Delo Mena woreda,East Berbare woreda and West Disho woreda.The intended study cover an area 685 hectare extending between longitudes 39'97''30.93.7 and latitudes 7.01'25''93.1 found at shifari'o kebele.

3.1.2. Agro-ecology

Based on thermal zones (temperature,altitude zone,rainfall,vegetation and crops grown on agro-ecological zone) was identified in the study area.The elevation in this study area varies from 2400-4377 m.a.s.l high as manifesting characteristics of 'Weyna dega.Dega,Wirch'.

3.1.3. Land use

In the study area land was allocated for different purposes.The major land use categories include cultivated land,Grazind land,Forest land and settlement .

3.1.4. Population

The total population of the study area was estimated to be 4372 of which 2182(49.9) and 2190(50.09) were male and female respectively.

There were 576 farms .male 505,female 71 households in the study area with on the average family size of 7 persons per household.

3.2 Methods of Data Collection

3.2.1 Simple size and sampling techniques

Sampling techniques and sample size was determing by using the formula developed by (Kotcher R 1995).$N=Z^2PQN/E^2(N-I)+Z^2pq$.

n=sample size

Z=stand sample of 95%confidence interval(1.96)

P=error 5%=0.05 or population proportion

q=1-p=1-0.5=0.95

E=marginal error =0.05

N=total no of household in kebele (576)

Sample size 65 house hold

The house hold will be selected purposefully based on the presence of medicinal plants in the area.

3.2.2. 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.

3.2.3. Data collection

Field work was conducted in June and September 2020 and ethno botanical data collection was made for 20 days during the same month, 2020. Semi structured interviews and guided field work with the informants were carried out to obtain ethno botanical data. Interviews were based

on a check list of questions prepared beforehand in English and translated to the local language, Oromifa.

In the Kebele, interviews were made with identified key and all other informants in his/her home garden. The information collected included local name of the traditional medicinal plant, diseases treated, parts used, condition of plant used, method of preparation, route of administration, and the ingredients added. Guided field walks were made with two key informants to the surrounding forest and agricultural areas.

3.3.3. .Data collection instrument and techniques

After identifying the study participants, verbal consents were obtained by explaining the participants about the aim of the study. Then, face to face interviews were made using pre-tested structured questionnaires which had both open and closed questions to assess traditional medicinal utilization and associated factors in selected areas of the Kebele.

3.4. Data Analysis

The collect ethno botanical data are enter into Excel Microsoft 2007 and summarize using descriptive statistical methods such as frequency and percentage.

4. RESULTS

4.1.Habit and use category of medicinal plants

For identification purpose the leaf sample of 25 medicinal plants were collected and among these 15(60%) species are used for the treatment of human diseases while 8(32 %) species are used for livestock treatment. The rest two (8%) species are used to treat both human and livestock diseases. The traditional practitioners collected (16%) of the medicinal plants from home gardens and (84%) from the natural habitat.From 25 plant species 13 species were herbs followed by 4 species shrubs, 1 root and other seven species were trees. The finding of these habits agrees with investigations of Etana Tolasa (2007) and Endalew Amenu (2007) in such a way that the diversity of herbs as the dominant growth form was reported.

4.2.Socio demographic and knowledge characteristics of respondents

In the present study, a total of 65 respondents were studied. Among the participants, 4.6%were females and the remaining were males. The age of participants ranged from 20 to >60.

Table: 1 Socio demographic characteristics of participants

Characteristic	Number of respondents	Percent
Education of respondent		
Illiterate	12	18.5
Read it	18	27.7
Primary school	25	38.5
Secondary school	8	12.3
Higher education	2	3.1

4.3.Medicinal plant parts used, diseases treated and rout of administration

There are numerous routes of administration of traditional medicinal plants prepared products by the local community. The routes of administration were oral. As described in Table 2, the local people utilize 25 medicinal plant species to treat 15 human ailments. Most of these plants (21 species, 84%) were collected from wild habitats indicating the existence of pressure on wild plants. Local people depend on both dry and fresh remedies. In this case, plant part(s) used for medicinal preparation indicated that Leaf 17 (68%) is the plant part widely used followed by root 4 (16%), while the rest include 3(12%) fruit and 1 (4%) flower form.

The majority (84%) of remedy preparations did not have additive substances while the remaining had different additive substances like honey, sugar and hair of female old sheep for the treatment of single ailment. These additive substances have double function that is, to improve flavor and reduce adverse effects such as vomiting and diarrhea, and enhance the efficacy and healing conditions.

Traditional practitioners often use any dry clean containers to preserve traditional medicines. Some (16%) of them are dried medicines on roofs and walls, while majority (84%) use plastic bags, and other containers.

The knowledge and practices of traditional medication are kept with them for the sake of secrecy. Services are obtained only from family. Majority (79%) traditional healers transfer their indigenous knowledge to their selected family verbally, some (21%) through showing the medicinal plant in the field and the remaining (8%) through demonstration including remedy preparation methods.

Most (84%) of the traditional healers were found to have poor knowledge on the dosage and antidote while prescribing remedies to their patients. Majority (84%) of traditional healers indicated the absence of any adverse effects of traditional medicines after administrations. But some (1%) of the preparations were reported to have some adverse effects like vomiting and hyperthermia on patients. Majority (61.5%) administer the medicine regardless of age and sex for the patients. Some (38.5%) indicated dose differences among different age groups.

Table 2: Medicinal plant species, condition of plant use, diseases treated and rout of administration.

no	scientific name	Diseases treated	Condition of plant use	Route of administration
1	Hagenia abyssinica	Oral	Flower	Intestinal worm
2	Solanecio nandensis	Oral	Leaf	Skin disease
3	Aloe spp.	Oral	Leaf	dry skin, rashes(painful)
4	Vernonia amygdelina	Oral	Leaf	stop bleeding ,for animals skin diseases
5	Artemisia absinthium	Oral	Leaf	head ache

6	Lippia stachydiformis	Oral	Leaf	Cough
7	Dovyalis abyssinica	Oral	Fruit	Intestinal worm
8	Garlic	Oral	Root	Influenza
9	Opuntia ficusindica	Oral	Fruit	stomach ache
10	Foeniculum vulgare	Oral	Leafs	diuretic,digestive
11	Artemisia afra	Oral	Leafs	head ache
12	Hypericum revolutum	Oral	Leaf	Influenza
13	Olea europaea	Oral	Leafs	head ache
14	Solanum incanuam	Oral	Root	abdominal pain
15	Ruta chalepensis	Oral	Leaf	tooth ache
16	Withinia somnifera	Oral	Roots	abdominal pain,insomnia
17	Zingiber officinale	Oral	Roots	Tonsils
18	Calpurina aurea	Oral	Leaf	tooth ache
19	Eucalyptus globules	Oral	Leaf	fever,colds,bronchitis
20	Ocimum gratissimum	Oral	Leaf	head ache
21	Croton macrostachyus	Oral	Leaf	Wound
22	Euphorbia dumalis	Oral	Fruits	Intestinal worm
23	Leonotis nepetifolia	Oral	Leafs	head ache,fever and influenza
24	Weyna gift	Oral	Leafs	Eye /For Animals
25	Thymus schimperi	Oral	Leafs	head ache,cough and flavor tea

Table 3. Methods of traditional medicinal plant preparation

Methods of preparation	Total preparation	Percentage
Crushing	**15**	**60**
Squeezing	**4**	**16**
Chewing	**3**	**12**
Cooking	**1**	**4**

Pounding	**2**	**8**
Total	**25**	

There are various methods of traditional medicinal plant preparation in the area. The preparations vary based on the type of disease treated and the actual site of the ailment.

The most popular method of preparation was in the form of crushing, which accounts for 60%, followed by squeezing (16%), together, the remaining proportion is accounted for methods like pounding, chewing and cooking the combination of each method (Table 3).

The informants have various skills associated with remedy preparation. They tend to apply mixing of different plants. The result showed that the majority of remedies were prepared from single plant species and few are prepared from different plant species, which is a combination of medicinal plants, was used to treat a disease. The result is consistent with the findings of Debela Hunde (2001) and Etana Tolasa (2007) in which a single plant preparation were reported to be high.

4.4.Common type of home remedies used by traditional medicine users

Among commonly used homemade remedies of TM, Nech shinkurt (*Allium sativum*) (80.3%) was highly favored by the households followed by Dama kese (*Ocimum lamiifolium*) (50%). The least favored home remedy was Tenadam (Ruta chalepensis) which was only 39.5% (Table 4).

Table 4: Home grown remedies used by households in Shifari'o Kebele

S. N	Scientific name	Family name	Method of utilization	Frequency	Percentage
1	Ruta chalepensis	Rutaceae	Fresh cut dip into drinks	1-2	39.5
2	Allium sativum	Alliaceae	Crush and cook with foods	1-3	80.3
3	Ocimum lamiifolium	Lamiaceae	Crush, pulverize and inhale	1	50

4	Zingiber officinale	Zingiberaceae	Crush, powder and add to foods or drinks	1-2	21.1

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 from farm land, grazing land, up land forest, compared to (20 %) from home garden. The community may not so interest to grow all the medicinal plants in the home garden and ex-situ. This may be due to most medicinal plant is available in the wild area.

There are various methods of traditional medicinal plant preparation in the area. The preparations vary based on the type of disease treated and the actual site of the ailment. The most popular method of preparation was in the form of crushing, which accounts for 60%, followed by squeezing (16%), together, the remaining proportion is accounted for methods like pounding, chewing and cooking the combination of each method. The informants have various skills associated with remedy preparation. They tend to apply mixing of different plants. The result showed that the majority of remedies were prepared from single plant species and few are prepared from different plant species, which is a combination of medicinal plants, was used to treat a disease. The result is consistent with the findings of Debela Hunde (2001) and Etana Tolasa (2007) in which a single plant preparation were reported to be high.

The routes of administration in the study area were oral and dermal. This is concurrent with the finding of Dawit and Ahadu (1993), main route of application used is oral. Moreover, this is in agreement with the result of various ethno botanical researchers elsewhere in Ethiopia (Ermias Lulekal, 2005; Fisseha, 2007) and indicates oral as the predominant route of application.

The local people utilize 25 medicinal plant species to treat 15 human ailments. Most of these plants21 species (84%) were collected from wild habitats indicating the existence of pressure on

wild plants. Local people depend on both dry and fresh remedies. In this case, plant part(s) used for medicinal preparation indicated that Leaf 17 (68%) is the plant part widely used followed by root 4 (16%), while the rest include 3(12%) fruit and 1 (4%) flower form. These findings are in agreement with the findings of Fisseha (2007), Kebu et al. (2004) and Gidey (2010) indicated that the use of fresh medicinal plants is more threatened than dry forms. However, healers argue that fresh materials are effective in treatment as the contents are not lost before use compared to the dried forms.

The knowledge and practices of traditional medication are kept with them for the sake of secrecy. Services are obtained only from family. The indigenous knowledge transfer is poor which may causes erosion of the practice and knowledge.

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 AND RECOMMENDATION

6.1 CONCLUSION

This study showed the wide use of medicinal plants in Shifari'o Kebele in meeting the primary healthcare needs. The study area Goba woreda Shifari'o Kebele has diverse medicinal plants that are used to treat various human and livestock diseases by the local communities. The wild plant habitats are the main sources of medicinal plants compared to home gardens. Currently medicinal plants availability 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

Most of the reported medicinal plants were wild and some of them were reported to be rare. This implies the need for conservation efforts to be taken in order to safeguard these valuable

resources. Remedy preparations mostly from leaves, roots and barks were found to be used to treat a variety of human and animal aliments.

Medicinal plants such as *Croton macrostachyus* , *Hagenia abyssinica* (against tape worm) and *Ocimum lamiifolium* (against pneumonia cure disease) were the most preferred and highest fidelity level, an indication of their high healing potential. To conserve the biodiversity of the area and preserve the medicinal plants there is a need to create awareness and develop in – situ and ex-situ conservation of medicinal plants. In particular rare species should be given conservation priority. There is loss of plants as a result of agricultural encroachment, firewood, charcoal, timber, construction material are contributing factors for the loss of plant species in general and medicinal plants in particular.

The present study generally recognizes a rich heritage of indigenous medicinal plants in the study area and the transfer of indigenous knowledge is declining from generation to generation as a result of oral transmission. Therefore, this study recommends the argent need to incorporate need to incorporate this knowledge into formal education before complete lost.

6.2. RECOMMENDATIONS

Based on the research results, the following recommendations are forwarded:

- Local community of the study area should be involved in conservation and management of plant resources and their indigenous knowledge in their locality
- Local people harvest plants for business or for household use with little awareness of its threat, awareness should be raised either, by development agents or agricultural workers through which sustainable harvesting is practiced
- Since some of the traditional healers might have given much attention to the indigenous knowledge transfer while others have little concern regarding the value of indigenous knowledge, some governmental and nongovernmental organization should participate in awareness rising for healers to minimize the loss of indigenous knowledge

- The knowledge of traditional medicine practitioners must be encouraged and protected. This could be the way through which such people could exercise their skill broadly
- There is a need of coordination of traditional healers of the area together by certification or by organizing them at Woreda level that popularize their indigenous knowledge on medicinal plants
- Establishing Traditional Healers Association, by providing land for cultivating medicinal plants, funds and assisting their activities with professional guidance helps to conserve the fast eroding medicinal plants of the area

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