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Ethnobotanical Study of Medicinal Plants in Gidda Ayana, East Wollega Zone of Oromia Region, Western Ethiopia

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Abstract

Herbal medicines are the primary remedy used to treat diseases in Ethiopia, but the oral infection of herbal herbs continues to diminish extensive knowledge of folk medicinal plants. The purpose of this study was to identify and document folk veterinary medicinal plants. The survey was conducted from September 2021 to December 2021. The survey site was specially selected based on recommendations from elders and local governments. Ethnobotany data was collected using semi-structured interviews, field observations, and group discussions. Approximately 60 participants participated in this study during the study period. A total of 81 important medicinal plant species from 43 families were documented with information on place names, families, customs, traditional preparations and applications. Asteraceae was the highest (11.6%) followed by Solanaceae (9.60%). Informants were told that rabies and wounds are the most commonly treated ailments by traditional healers. This is followed by herbs (46.4%), shrubs (28.6%) and trees (25%). The oral route of administration (57.1%) was the most commonly used, followed by topical administration (33.9%). About 75.8% of plant taxonomy was always available. Agricultural expansion (20.0%) emerged as the first major threat, followed by deforestation (4.20%). The most common threat to medicinal plants was agricultural expansion (47.7%), followed by deforestation (32.7%). The study found that traditional healthcare professionals have sufficient knowledge of medicinal plants used to treat a variety of diseases. Therefore, further studies should be conducted to assess the potency and possible toxicity of plants in the study area.

Keywords: Disease, Human, Medicinal plants

1. Background of the study

Ethnobotany is defined as a study of how indigenous peoples interact with the natural environment, that is, how they classify, manage, and use the plants available in their surroundings (Martin, 1995). .. For centuries, indigenous peoples have developed their own site-specific knowledge of plant use, management and conservation (Cotton, 1996). Complex

knowledge, beliefs, and customs, commonly known as indigenous or traditional knowledge, evolve and change with time and space as resources and culture change. To see this, ethnobotany studies document the interactions between knowledge and biodiversity and human society, how natural diversity is used and influenced by human activity. Helps analyze and disseminate (Martin, 1995). Plants have long been an indispensable source of prophylactic and therapeutic formulations of traditional human and livestock medicine. According to historical accounts of traditionally used medicinal plants, various medicinal plants were used between 5000 and 4000 BC by China and 1600 BC Syrians, Babylonians, Hebrews, and Egyptians (Dery et al., 1999). A considerable indigenous knowledge system has been associated with the use of traditional medicine in various countries since early times (Farnsworth et al., 1994).

Evidence from animal observations indicates that even chimpanzees use many plant species for their medicinal properties (Huffman and Wrangham, 1994). Similarly, the majority of the population in developing countries relies on herbal supplements to improve their health. A study by Hamilton (2003) attributed dependence on medicinal plants to a low proportion of physicians serving patients in Africa, including Ethiopia, Kenya, Tanzania, Uganda, Malawi, Mozambique, South Africa, and Swaziland increase. On the other hand, the need to resist many health problems and inadequate health care play an important role in observing the use of more accessible and affordable medicinal plants for the majority of Ethiopians. In Ethiopia, herbal medicine remains the predominant and sometimes the only source of treatment for nearly 80% of humans and more than 90% of the livestock population. The estimated flora of 6500 to 7000 species of higher plants is medicinal important, and 12% of these medicinal plants are endemic to Ethiopia (Monist, 2004). Traditional knowledge of Ethiopia is verbally passed from generation to generation, and valuable information can be lost if traditional doctors pass by without passing on knowledge of traditional medicinal plants (Pankhurst et al. 2001). In addition, population pressure, agricultural expansion, and the loss of valuable medicinal plants due to logging have been widely reported by various researchers (Abebe, 2001; Berhan and Dessie, 2002). Therefore, the need for ethnobotany research and documentation of indigenous knowledge associated with medicinal plants must be an urgent issue (Pankhurst, 2001; Hamilton, 2003).The majority of the rural population and the poor in urban areas rely primarily on traditional medicines to cover their primary health care needs. However, no traditional knowledge of Ethiopian medicinal plants has been collected (Giday et al., 2003; Sori et al., 2004). The traditional medicinal knowledge of medicinal plants and their use by indigenous cultures is useful not only for the preservation of cultural traditions and biodiversity, but also for current and future health care and drug development (Tamiru et al.,. 2013). Studies on traditional Ethiopian medicinal plants are very limited compared to Ethiopia's multi-ethnic cultural diversity and diverse flora (Giday et al., 2009). Even though traditional knowledge of medicinal plants is very crucial to treat different diseases, but there is no study conducted in East Wollega Zone, Gidda Ayana Woredaon this regard. Hence, the present study will be designed to identify and document medicinal plant species and traditional medicinal knowledge of the traditional health practitioners in study area.

2. Materials and Methods

2.1. Study Area

The survey was conducted from September 2021 to December 2021 in selected zones of East Wallaga Zone at Gidda Ayana Woreda, Oromia Province, and western Ethiopia. The research site was selected based on the availability of traditional medical practices and recommendations from knowledgeable elders and local governments. In addition; the agricultural climatic zone was considered to consciously select the studies of Ethiopian and Keberes.

Gida Ayanaworeda is one of the 17th woreda in the Eastern wollega. It is found in the Oromia region towards west direction. The woreda is bounded by: Gute Wayu Woreda in the south direction, Amhara region in the north, Limuworeda in the west and kiramu& Abe

dongoroworedas in the east direction. The total catchment area of the woreda is about 183,063m2 and its climate condition is 48% wayinadega, 2% Dega and 50% Kola. It is located at (90 52'N,) and (420 37'E) at a distance of 440 km far from Addis Ababa, the capital city of Ethiopia. The total population of the woreda is estimated to be 135,980, from which, 69,350 are females and 66,630 are males with Gida Ayana town population of 10686 and 2226 total Household.

2.2. Survey population

The target group was traditional health care worker volunteers. The survey is conducted through a survey of interrogators designed specifically for the knowledgeable elderly and traditional farmer healers.

2.3. sample size determination

A total of 60 informants were selected. These informants consisted of randomly selected individuals from two Keberes, with a few 20 major informants selected from each research site. Key informants were systematically selected on the basis of nominations from knowledgeable elders, local governments and development workers. In addition, it was selected based on a statement issued by a particular informant during the interview. Local healers are also expected to have in-depth knowledge of medicinal plants and are therefore considered important informants.

2.4. Data collection

A total of 60 people were specially selected and interviewed based on their knowledge of traditional medicine. The interviews and discussions were based on a checklist of questions written in English and translated into "Afan Oromo". During interviews with informants, information was carefully collected; knowledge of vegetation classification was queried and recorded. Field observations were conducted on the morphological characteristics and habitats of each medicinal plant species in the field with the help of a local guide. Discussions were held on the threat to medicinal plants, the conservation of medicinal plants, and the potential transfer of knowledge in the community. Prior to collecting the data, we obtained a written permit from the district office and a permit from the administrator of each selected Kebere. After that, the purpose of the investigation was explained to each informant, and prior verbal consent was obtained. During the survey period, each informant will be visited 2-3 times to confirm the reliability of the ethno botany information. Answers that disagree with each other will be rejected.

2.5. Plant Specimen Collection and Identification

The reported medicinal plants were collected from natural vegetation and home gardens during the field walks and habits of the plants will be listed. Preliminary identification was done at the site (field). Specimen identification and confirmation was undertaken by using taxonomic keys and various volumes of the Flora of Ethiopia and Eritrea (Edwards et al., 2000; Hedberg et al., 2006). Finally, the identified specimens were reconfirmed by a taxonomic expert and the specimens with their label stored at the Herbarium.

2.6. Data Analysis

The collected ethno botanical data was entered into Excel spreadsheet 2010 and summarized using descriptive statistical methods such as frequency and percentages.

3. Results and Discussion

3.1 General Characteristic of the Informants

In this study, a total of 81 major considerable medicinal plant species and but, only 49 plant families were identified and documented during the period in the study areas (Table 1 and 2). From the total 60 respondents, about66.66% and 33.33% of the them were male and female informants were take part in this study. Out of the collected medicinal plants males could mentioned

Table 1. List of medicinal plants used for treatment of human diseases: scientific name; family name; local name; habits; plant parts used; other uses, route of administration and indications

Scientific name	Family name	Local name	Habit	Part	Other uses	Routes	Indications
1. Achyranthesaspera	*Amaranthaceae*	Maxxannee	Herb	Root	Fence	Oral	Wound
2. Rumexnepalensis S.	*Polygonaceae*	Timijjii	Herb	Root	-	Oral	Gastritis, Spider poison
3. Stereospermum	*Bignoniaceae*	Botoroo	tree	Leaf		Oral,	Kaashmeer', Evil eye
4. Allium sativum	*Alliaceae*	Qullubbiiadii	Herb	Bark	Food	Oral	Abdominal pain,
5. Brassica carinata	*Brassicaceae*	Gomenzeera	Herb	Seed	Food	Oral	Wound
6. Brucea anti dysentrica	*Simaroubaceae*	Qomonyoo	Herb	Fruit		Oral	Rabies, ring worms
7. Calpurnia aurea	*Fabaceae*	Ceekkataa	Shrub	Leaf	Fence	Topical	Lice infestation, leech
8. Malvaverticillata L.	*Malvaceae*	Karfichoo	Herb	Leaf	Inhalation		Fibril illness ('Mich')
9. Kalanchoelacinata L	*Crassulaceae*	Bosoqqee	Herb	Root	-	Topical	Wound
10. Hordeumvulgare L.	*Poaceae*	Garbuu	Herb	Seed	Food	Oral	Gastritis
11. Linumusitatissimum L.	*Linaceae*	Talbaa	Herb	Seed	Food	Topical, oral	Dandruff, Gastritis
12. Guizotiaabyssinica L.	*Asteraceae*	Nuugii	Herb	Seed	Food	Topical	Swelling, Madagatetti
13. Cucurbitapepo L.	*Cucurbitaceae*	Buqqee	Herb	Seed	Food	Oral	Tape worm
14. Verbascumsinaiticum	*Scrophulariaceae*	Gurraharree	Herb	Leaf	-	Topical	External parasites
15. Rhusruspolii	*Anacardaceae*	Xaaxessaa	Tree	Leaf	-	Topical	Ectoparasites
16. Guizotiascabra	*Asteraceae*	Tuufoo	Herb	Leaf	-	Topical	Ectoparasites, insecticide
17. Colocasiaesculenta	*Araceae*	Goodarree	Herb	Leaf	-	Oral	Delayed placenta

18. Acanthus polystachius	*Achantaceae*	Kosorruu	Shrub	Leaf	-		Topical	Wound
19. Ximeniaamericana L.	*Olacaceae*	Hudhaa	Shrub	Leaf	-		Oral	Menstruation
20. Vignavexillata L. A.	*Fabaceae*	Gurrahantuutaa	Herb	Leaf			Topical	Spider poison
21. Vernoniaauriculifera	*Asteraceae*	Reejii	Shrub	Leaf			Topical	Dermatitis
22. Stephaniaabyssinica	*Mensipermaceae*	Hiddakalaalaa	Herb	Whole			Oral	Common cold
23. Schinusmolle L.	*Anacardaceae*	Qundoobarbaree	Tree	Seed	Food		Oral	Tonsilitis, Abdominal pain
24. Rumexabyssinicus	*Polygonaceae*	Dhangaggoo	Herb	Leaf			Topical	Skin infection
25. Plectranthusedulis	*Solanaceae*	Dinnichaoromoo	Shrub	Root	Food		Oral	Loss of appetite
26. Lippiajavanica	*Verbenaceae*	Kusaye	Shrub	Leaf	Fence		Inhalation	Insect repellent
27. Lepidiumsativum L.	*Brassicaceae*	Fexo	Herb	Seed	Food		Inhalation	‘Mich’
28. Maesalanceolata	*Myrsinaceae*	Abayi	Tree	Fruit			Smoking	Insecticide
29. Brassica nigra L. Koch	*Brassicaceae*	Sanafica	Herb	Seed	Food		Oral	Common Cold, colic
30. Maytenusseneg alensis	*Celastraceae*	Kombolcha	Tree	Leaf	Fence		Topical	Eye infection
31. Enseteventricos sum	*Musaceae*	Baalawarqee	Herb	Leaf	bread baker		Oral	Abdominal pain
32. Echinopshispidus	*Asteraceae*	Keberchoo	Herb	Bark	-		Inhalation	Evil eye
33. Cordiaafricana Lam.	*Boraginaceae*	Waddeessa	Tree	Leaf	Fence			Spider poison
34. Cocciniaabyssinica	*Cucurbitaceae*	Ancootee	Herb	Root	Food		Oral	Tuberculosis, Fracture
35. Clausenaanisata	*Rutaceae*	Ulmaayii	Tree	Leaf	Tooth		Topical	Snake bite, Ectoparasite

36. Rhamnusprinoides L	*Rhamnaceae*	Geeshoo	Shrub	Leaf	Food	Oral	Tonsilitis
37. Girardiniabullosa	*Urticaceae*	Gurgubbee	Shrub	Root	-	Oral	Blackleg
38. Capsicum annum	*Solanaceceae*	Mimmixa	Herb	Seed	Food	Oral	Abdominal pain leech,
39. Clucialanceolata	*Euphorbiaceae*	Uleefoonii	Shrub	Root	Fence	Oral	Rabies
40. Coffea Arabica	*Rubiaceae*	Buna	Shrub	Seed	Food	Topical	Wound, abdominal pain
41. Croton-macrostachyus	*Euphorbiaceae*	Bakkanniisa	Tree	Leaf	Shed,	Oral/topical	Ringworm, wound
42. Grewiabicolar	*Tliaceae*	Harooressa	Tree	Bark	Fence	Oral	Retained fetal membrane
43. Justiciaschimperiana	*Acanthaceae*	Dhummugaa	Shrub	Roo	Fence	Oral	Rabies, headache
44. Nicotianatabacum	*Solanaceae*	Tamboo	Shrub	Leaf	stimulant	Oral	Tape worm, snake bite
45. Prunusafricana	*Rosaceae*	Hoomii	Tree	Bark	furniture	Topical	Wound
46. Phytolacea-dodecandra	*Phytolacaceae*	Handoodee	Herb	Leaf	Detergent	Topical	Wound
47. Ricinus-communis	*Euphorbiaceae*	Qobboo	Shrub	Leaf,	Shed, Food	Oral	Rabies, Liver disease
48. Vernoniaanygdalina	*Asteraceae*	Eebicha	Tree	Leaf	Fence, Fire	Oral	Increase milk Production,
49. Zingiberofficinale	*Zingebiraceae*	Jinjibila	Herb	Root	Food	Oral	Rabies, Abdominal pain,

all of medicinal plants whereas, females explained the use of 40 medicinal plants. Regarding to the age, twenty-six (43.34%) of the informants were found between the ages20-, 50while about 17(28.34%) informants were between the ages 51-60, and ten individual of informants were between ages 61-70 (16.67%) and the remaining 7 (11.67%) of informants were between the ages of 80-100. Almost all of the respondents were elder age groups (92.0%) and younger age groups (8%) respectively (Table3).Much of knowledge of traditional medicine obtained from elder informants they reported the use of 26(43.34%) plant species and informants reported that young people have no interest to use traditional medicine and unable to mention large number of medicinal plants compared with the elders. This was evidence that informants between the ages 19-39 mentioned 15 (24%) medicinal plants out of the total medicinal plant species (Table 3).

On the other hand, the majority of respondents (26) are Protestant, followed by the Orthodox Church (25), the rest are Catholic (6) and Muslim 3, and most medicinal plants are mentioned by Orthodox informants. I did. According to the survey report, most of the respondents were illiterate, 9 informants completed the beginner level course, and 8 attended the advanced level course. A total of 81 important medicinal plant species and 43 botanical families were identified and documented in the study area during the study. During the survey period, 71.7% of well-informed local farmers and 28.3% of traditional healers participated.

Table 2. Socio demographic characteristics of the respondents

S/N	Items	Categories	Frequency	Percentage (%)
1.	Sex	Male	40	66.67
		Female	20	33.37
2.	Age	20-50	26	43.34
		51-60	17	28.34
		61-70	10	16.67
		71-80	4	6.67
		81-100	3	5
3.	Educational background	Illiterate		
		Elementary		
		College		
4.	Religious	Catholic	6	
		Muslim	3	
		Orthodox	25	
		Protestant	26	

3.1.1 Sources and Habit of Medicinal Plants

Data on medicinal plants collected at the research site show that most medicinal plants are from the wild (65.8%), followed by the vegetable garden (27.5%) and both (6.70%). (Fig. 1). In addition, the most commonly reported habit of medicinal plants was herbs (46.4%), followed by shrubs (28.6%) and trees (25%) (Figure 1).

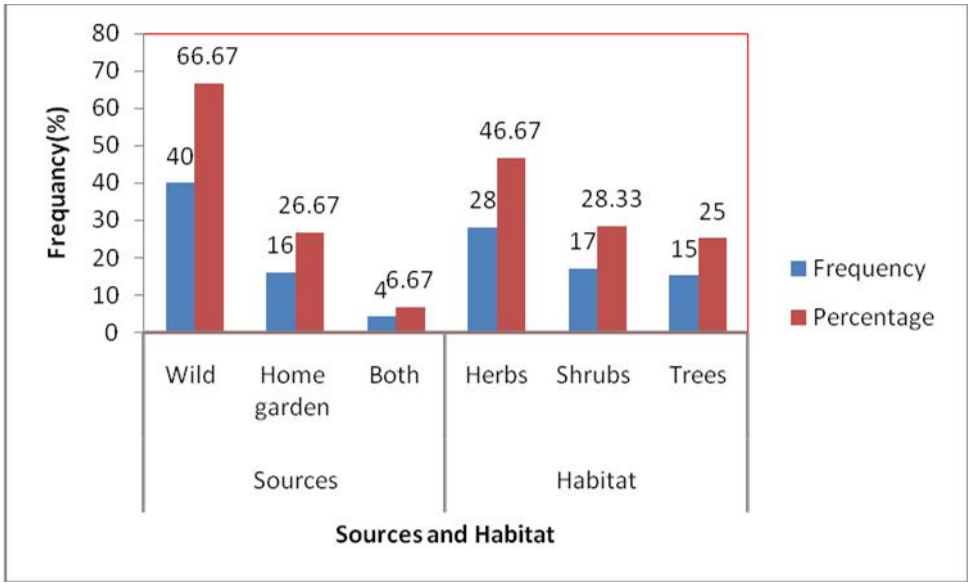

Figure 1. Sources and habitat of the traditional medicinal plants

3.1.2 Medicinal plant parts used for the preparation of the remedies

People in the study area harvest different plant parts (leaves, roots, seeds, bark, fruits, etc.) to produce traditional medicine. In the study area, most species 25 (41.66%) were harvested for leaves, followed by roots 15 (25.00%), seeds and bark 6.44% and 10%, respectively, and the remaining proportions 16.67%, bulbs, It was a tuber. , Stems, fruits and flowers (Fig. 2)

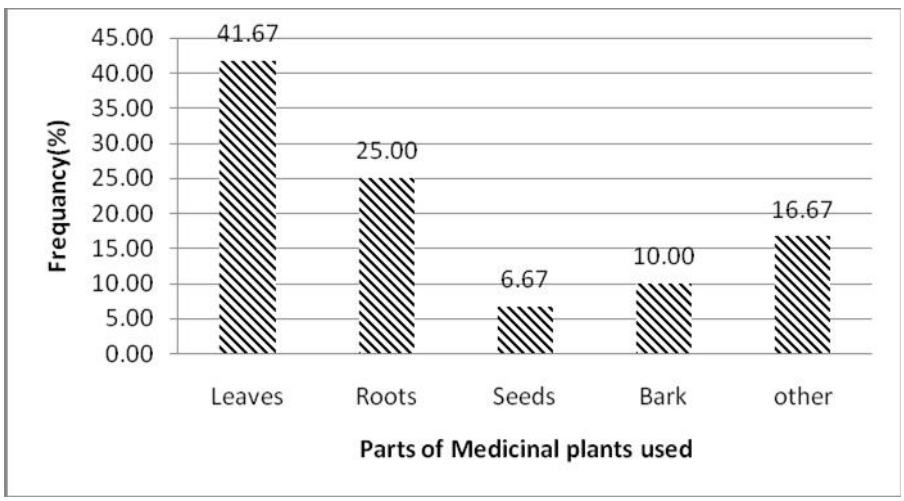

Figure 2.Parts of traditional medicinal plants prepared for remedies

3.1.3 Mode of preparation and Route

In the research area, the popular preparation method of traditional medicine is overwhelming. 29%, powder 28%, chewing 14%, preparations, decoctions, etc. are 12.6%, 8% and 10%, respectively. All other methods for human and livestock problems can be used here, except for chewing, which is used only for humans (Table 3). The majority of herbal remedies were made from fresh plant material, which accounted for 87%, followed by raw / dry (13%) (Table 3). The most common route of administration was oral (57.1%), followed by topical (33.9%) and inhalation (8.93%) (Table 3).

Table 3Summery medicinal plants parts, habit, Mode of administration application in Abe DongoroWoreda (Total number of plants identified=56).

Parts of Plants	**Characteristic**	**Frequency**	**Percentage**
Habit	Leaf	29	51.8%
	Seed and fruit	12	21.4%
	Whole	1	1.79%
	Bark	4	7.14%
	Root	11	19.6%
	Herb	26	46.4%
	Shrub	16	28.6%
	Tree	14	25%
Mode of administration	Orally	32	57.1%
Application	Topically	19	33.9%
	Inhalation	5	8.93%
	External	18	32.1%
	Internal	38	67.9%

3.1.4 Availability and Medicinal plant families frequently used

Research has shown that medicinal plants are seasonally affected. Many plants are readily available (75.8%), some are seasonal (20.0%), and the rest are difficult to obtain (4.20%), as explained in the study area. Asteraceae was the highest (11.6%), followed by Solanaceae (9.60%) (Table 5).

Table 4.Summary of medicinal plants' frequencies in the study area

Family	**Frequency**	**Percentage (%)**
Amaranthaceae	1	2.33%
Acanthaceae	1	2.33%
Achantaceae	1	2.33%
Alliaceae	1	2.33%
Anacardaceae	2	4.65%
Araceae	1	4.65%
Asteraceae	5	11.6%
Bignoniaceae	1	2.33%
Boraginaceae	1	2.33%
Brassicaceae	3	6.98%
Caricaceae	1	2.33%

Celastraceae	2	4.65%
Crassulaceae	1	2.33%
Cuccurbitaceae	1	2.33%
Zingebiraceae	1	2.33%
Oleaceae	1	2.33%
Sapindaceae	1	2.33%
Rutaceae	1	2.33%
Cucurbitaceae	3	6.98%
Euphorbiaceae	3	6.98%
Fabaceae	2	4.65%
Linaceae	1	2.33%
Malvaceae	1	2.33%
Mensipermaceae	1	2.33%
Musaceae	1	2.33%
Myrsinaceae	1	2.33%
Olacaceae	2	4.65%
Phytolacaceae	1	2.33%
Poaceae	1	2.33%
Polygonaceae	2	4.65%
Rhamnaceae	1	2.33%
Rosaceae	1	2.33%
Rubiaceae	1	2.33%
Rutaceae	2	4.65%
Sapindaceae	1	2.33%
Scrophulariaceae	1	2.33%
Simaroubaceae	1	2.33%
Solanaceae	4	9.30%
Tliaceae	1	2.33%
Urticaceae	1	2.33%
Verbenaceae	1	2.33%
Zingebiraceae	1	2.33%
Scrophulariaceae	1	2.33%

3.1.5 Knowledge Transfer of Medicinal plants

According to the survey, information transfer of healthful plants follows vertical transfer to the foremost selected loved one orally with nice secrecy the best range of transfer of data concerning the plant is to sure eldest son that accounted for (60.1%) followed by sure sons (20.4%), et al. square measure all members of the family (8.5%), relatives (7%) and friends (4%). The findings of the study showed that as folks develop and older their information of ancient drugs becomes higher and higher. Most of the informants were elders that indicated the trend of transferring information is sometimes at adulthood. The study conjointly indicated that there's no wide ascertained trade of healthful plants within the study space tho' some practitioners and girls sell some healthful plants within the market and in their homes. a number of the plant medicines that grow in home gardens and sold-out were *Oleaeuropaea, Nicotianatabacum, Capsicum annum, Coffeaarabica, Justicia- schimperiana* and*Ricinus- communis.*

3.1.6 Conservation and Threats of Medicinal Plants

This study showed that many informants who are aware of the use of traditional medicine prioritize the immediate use of medicinal plants over sustainable future use. Therefore, the harvest style is destructive. However, some plants are protected for spiritual and cultural use. Therefore, these areas are good places to protect medicinal plants, as cutting and harvesting are not permitted in these special areas. This has been suggested to be a good practice for protecting medicinal plants through cultivation. The study found that there were several threats affecting medicinal plants in the study area. Threats include agricultural expansion (47.7%), followed by deforestation (32.7%) and overgrazing (12.1%) (Table 6).

Table 5.Priority ranking of factors perceived as threat to Medicinal plants on the level of destructive effects in HorroGuduru based on interviews.

Treats of Medicinal Plants	No of Respondents n=120).	Percentage (%)	Rank
Agricultural expansion	83	47.7	1
Deforestation	57	32.7	2
Overgrazing	21	12.1	3
Drought	13	7.50	4

3.1.7 Preference Paired Comparison

A paired comparison was made for four medicinal plants which were used to treat rabies in the study area. Forthis, 25 key informants were requested to give rank to plant taxa according to their effectiveness. Accordingly, Ricinus communis stood first and followed by Clucialanceolata (Table 8).

Table 6. Paired comparison of medicinal plants for treating of Rabies in study area

Scientific name	Family name	Local name	No of informants
Ricinus- communis	*Euphorbiaceae*	Qobboo	10
Clucialanceolata	*Euphorbiaceae*	Uleefoonii	7
Cucumisficifolius	*Solanaceae*	Hiddiisaree	6
SolanumgigantumJacq	*Cucurbitaceae*	Hiddihoolota	2
Total			**25**

3.2 Discussion

A total of 81 important medicinal plant species were identified from 43 families in the study area and recorded during the study. The study found that the majority of traditional healers were elderly (92%). Compared to the educational situation, uneducated informants have a higher knowledge of traditional medicine, and educated informants have a lower knowledge of traditional medicine, demonstrating the impact of modern education. This was consistent with the report by Yirga et al. (2012 (a, b); Yigezu et al., 2014) by Jimma. The results were also consistent with the report by Tamil et al. Match. (2013) Dabohana district, West Ethiopia and Gebrezgabiher et al. (2013) from the Tigray area. The lack of medical knowledge associated with young age may be due to the fact that traditional knowledge has been accumulated through many years of experience (Awas, 2007).

This may also be due to the fact that knowledge of medicinal plants follows vertical transmission to the most selected families, with large secretions from generation to generation.

In addition, knowledge of medicinal plants is usually passed on only in old age. In this study, Asteraceae was the highest (11.6%), followed by Solanaceae (9.60%). The findings were consistent with other findings conducted in different parts of Ethiopia (Gebre, 2005; Tolesa, 2007; Teklehaymanot et al., 2009; Gebrezgabiher et al., 2013; Lulekal et al. ., 2014). The medicinal plant species identified in the zone are also used medicinally in Ethiopia and other parts of Africa (Mesfin et al., 2009). The majority of traditional healers in the study area have traditional knowledge, practice, and locally available materials (Giday and) to treat a variety of illnesses such as wounds, rabies, abdominal pain, bleeding, and reach. Ameni, 2003), shown to be predominantly dependent on medicinal plants, epidemics, skin diseases, sycamore epidemics, rabies and gastrointestinal parasites. This shows that medicinal plants are widely used in the treatment of various diseases. This finding is consistent with studies in other parts of Ethiopia (Tessema et al., 2001; Giday and Ameni, 2003; Sori et al., 2004; Teklehymanot and Giday, 2007).

In this study, most medicinal plants were from the wild (65.8%) and other medicinal plants were from the vegetable garden (27.5%) and both (6.70%). This is consistent with studies in other parts of Ethiopia (Giday et al., 2009), Pakistan (Farooq et al., 2008) and Brazil (Barboza et al., 2007; Monteiro et al., 2011). I did. This suggests that the practice of growing medicinal plants in most home gardens in the country is low, even though many plants are grown for other purposes, primarily food. Similarly, people in the study area have less trouble growing medicinal plants in their gardens, but go closer or farther to harvest the plants. In addition, medicinal plant growth was shown to be mostly herbs (46.4%), followed by shrubs (28.6%) and trees (25%). Knowledge about medicinal plant types, parts used, doses and administration circulates only among traditional practitioners of traditional medicine, based on disease severity (Hailemariam et al., 2009; Yigezu et al. 2014).

Various preparation methods are now being researched; some of them involve homogenizing in water, butter, and local alcohol. Grinding, crushing, pounding, decoction, and concoction are all methods, but homogenizing in water is the most effective (Balemie et al., 2004). According to a comparable study (Scherrer et al., 2005), there are various ways to prepare and use medicinal plants for both internal and exterior usage. While water is typically used to dilute plant preparations, other medicines are made from dry and fresh plant components (Giday et al., 2003).

In the present study, all plant growth forms were not equally used as remedies, because of the difference in distribution among the growth forms. This leads to the wide use of herbs and shrub for their medicine. The part of the medicinal plant which is highly used for the preparation of the remedies were leaves (51.8%) followed by seed and fruit (21.4%). This agrees with the reports of Giday et al. (2003) and Mesfin (2007). Based on the information gathered from the key informants especially from those who are highly accepted by the society for their ability in healing different health problems, the condition of preparation of remedies was not the same. The highest condition of preparation was fresh (87%) followed by fresh/dry (13%). In contrast to this, some professional traditional healers sell their plant medicines in dried form in the market andalso store the dried plant medicines in different containers in their homes. This agrees with another findings conducted at Tigray region (Gebrezgabiher et al., 2013).

The study also showed that the information gathered from the key informants especially from those who are highly accepted by the society, most of the plant remedies were administered orally (57.1%) followed by topical (33.9%) and inhalation (8.93%). The result agrees with similar studies elsewhere in Ethiopia (Teklehaymanot and Giday, 2007). But, the dosage determination was the big problem in the study area because there is

no standardized known unit of measurements of the plant remedies. However, the dose was determined by using homemade remedies using cup, glass, plant parts like number of bulbs and number of seeds and their own hand as handful were the identified means to treat animals in the study area. The dosage regime is generally dependent on the age, sex, weight and degree of the diseases. This agrees with reportof ethno-medicinal plant knowledge and practice by Yineger et al. (2008) from Jimma; Abera (2014) from Gimbi district, Southwestern Ethiopia and Hailemariam et al. (2009) from lowlands of Konta Special Woreda SNNP regional state, Ethiopia.

The information acquired for this study from the key informants suggested that the number of medicinal plant treats is fluctuating in the study area. Deforestation came in second place after agricultural development as the primary source of medicinal plant treatments (47.7%). (32.7 percent). The finding was in line with other findings (Giday et al., 2001; Mesfin et al., 2009). This might be due to continuous agricultural expansions, deforestation and draught in addition to lack attention towards the medicinal plants. The plants are disappeared because of rapid socioeconomic, environmental and technological changes and as a result of the loss of cultural heritage under the guise of civilization (Khan et al., 2012).

Some of the surveyed medicinal plants have been used traditionally as medicines in different regions of the nation. Luitel et al. (2013) from the Makawanpur district of central Nepal and Hussan et al. (2013) from Pakistan. Humans with taneasis are treated with *Hagenia abyssinica* in Ethiopia's rural Bale, Debark, and Kofle regions (Assefa et al., 2010). Similar to that, it has also been used to treat ailments in livestock (Abebe et al., 2000; Wondimu et al., 2007; Yineger et al., 2007). The therapeutic value of Achyranthesaspera is known for skin diseases (Goyal et al., 2007) and various gastrointestinal and respiratory problems (Bhandari, 1990). Sori et al. (2004) also provided evidence of the use of Azadirachtaindica as a remedy for endoparasites and ectoparasites among the Borena pastoralists in southern Ethiopia. The effectiveness of Aloe species in treating Trychostogylus in sheep (Ibrahim, 1986) and *Azadirachta indica* leaves in reducing parasite load have also been confirmed (Khan, 2009). According to the study, local farmers and traditional healers have extensive knowledge of medicinal plants that they can use to cure and manage their own health issues.

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