

# The Use and Management of Medicinal Plant by Shenasha People in Dibati District North West Ethiopia

Abesh Birhanu Morka<sup>1,\*</sup>, Tena Regassa Duressa<sup>2</sup>

<sup>1</sup>Ethiopia Biodiversity Institution, Mettu Biodiversity Center, Forest and Range Land Plant Biodiversity Case Team, Mettu, Ethiopia

<sup>2</sup>Department of Biology, Faculty of Natural and Computational Sciences, Wollega University, Nekemete, Ethiopia

## Email adders

birhanuabesh12@gmail.com (A. B. Morka), tenaregasa@gmail.com (T. R. Duressa)

\*Corresponding author

## To cite this article:

Abesh Birhanu Morka, Tena Regassa Duressa. The Use and Management of Medicinal Plant by Shenasha People in Dibati District North West Ethiopia. *Journal of Diseases and Medicinal Plants*. Vol. 7, No. 3, 2021, pp. 61-81. doi: 10.11648/j.jdmp.20210703.12

**Received:** June 30, 2021; **Accepted:** July 28, 2021; **Published:** August 23, 2021

---

**Abstract:** Traditional medicinal plant species documentation is very crucial in Ethiopia for biodiversity conservation, bioactive chemical extractions and indigenous knowledge retention. An ethnobotanical study of the indigenes knowledge on medicinal plants by shinasha people in Dibati District, Northwest, Ethiopia, was conducted from October 2017 to Number 2017. This study therefore, aimed at documenting indigenous knowledge on ethobotanical use of medicinal plants by herbalists to treat human and livestock ailments as well as assessing of the existing threats to these medicinal plants in Dibati district. Ethnobotanical data were obtained using semi structured interviews, field observations, focus group discussions with people and traditional medicine practitioners and various ranking and comparison methods were employed. Data were analyzed quantitatively and by Microsoft office excels informant's preference ranking, descriptive statistic Direct matrix ranking, paired comparisons, fidelity value index and Informant consensus factor (ICF) are computed to assess the degree of effectiveness of certain medicinal plants against human and animal. Information was collected from a sample of 99 informants (77 males and 22 Females) included 20 (male 16 female 4) key informants are selected to the help of kebele administration. Ethnomedicinal use of 65 plant species from in 62 genera and 39 families were documented. In terms of number of species, Febaceae appeared as the most dominate family that Contains 7 species in 7 genera, followed by Asteraceae. From the total medicinal plant species, 24 (2461.9.7%) were herbs, followed by 18(27.69%) species of trees. The most frequently used plant parts were leaves (28.06%) followed by roots (14.06%). The most widely used method of preparation was crashed (23.07%), Pounding (20). The common route medicine administration were oral (54.4%), followed by dermal (7.69%) and other. The most commonly used application of medicinal plant was drinking (35.38%) followed by smoking (18.64%). A total of 65 plant species 48 (73.84.%) species were mentioned for the treatment of 57 human ailments while 17 (26.15) species were used to treat 15 livestock health problems. In the study area possesses diverse natural vegetation and the environment under serious threatened by mainly agricultural expansion, firewood collection, population pressure, overgrazing, urbanization, household tool construction, charcoal production and medicinal purpose. Awareness rising on the use and management systems, sustainable utilization of medicinal plants and their in-situ and ex-situ conservation and establishment of forest protected areas should be recommended.

**Keywords:** Medicinal Plant, Dibati Woreda, Informant, Shinasha People, Ethnobotanical, Fidelity Level Index (FLI), Informant Consensus Factor (ICF)

---

## 1. Introduction

Traditional medicinal plant species documentation is very crucial in Ethiopia for biodiversity conservation, bioactive chemical extractions and indigenous knowledge retention. In all part of the world traditional medicinal plant practices

formed the basis of health cares for both human being and animal before the advent of modern medicine. In the Ethiopia people have been using traditional medicine to treat both human and animal disease for generations. Traditional medicine is still wildly practices in rural area where modern medicine and services available [29]. Traditional medicinal plants are also used for various purpose in additional their

medicinal values such as a forage, firewood, spics, construction, food, cosmetics, clothes, shelter for human habitats for wild animals and insects. Maintaining ecosystem stability export accommodation and fumigant [15]. Traditional herbal remedies can also be used as scientific resources to develop a new drug which are safes. It is also effectively cheapest and environmental sounds. Many of today's wonderful drugs were initially discovered through the study of traditional medicine [29]. (There are large number of moderate to high value of medicinal plants herbs and species existing in the world. However, of the existing medicinal herbs species only small percent are treaded. Availability of medicinal plant has been affected [10, 15]. by a dramatic decrease of native vegetation due to agricultural explanation, deforestation, fire, and overgrazing drought, tread of charcoal, firewood, introduction of alien invasive species and urban associated development. Globally the estimates of medicinal plant species range from 35,000-50,000 and out of this about 4,000-6,000 species have entered the world market of medicinal plants. The knowledge about the use of plants is largely oral; however, Plantations of medicinal plants can be made in degraded and degrading areas. There are many medicinal plants of Ethiopia that have good properties for land rehabilitation and erosion control which could be planted in different agro ecological settings. In-situ and ex-situ conservation strategies work well when they complement one another since what is not achievable by one method is backed by the other method. In addition to this scheme that would enable sustainable use of medicinal plants and the associated indigenous knowledge should be developed with the best practice of benefit sharing [10]. Maintain health through traditional medicine in general and utilization of medicinal plant in particular is almost as old as the history of man kinds. This is true in Ethiopia 80% of the population still

relies on the plant to prevent and cure various health problem [15].

The current plant use trend in Dibati district shows that the environment is facing problems of resource depletion and loss of indigenous knowledge like other areas of the country. Thus, intensive ethnobotanical research plays a vital role to draw information on plants and related indigenous knowledge for conservation and sustainable utilization. Like many other parts of the country, there is no such ethno medicinal research and documentation carried out in Dibati District, Metekele Zone, Northwest and Benshangul Gumuz Region. In this woreda there is no any research which is done on the use and management of medicinal plants in the Shinasha peoples.

## 2. Materials and Methods

### 2.1. Study Area

The research was conducted at Dibati district particularly which is found in Metekele zone, Benshangule Gumuze Regional State that is found at 586km northern west of Addis Ababa, the capital City of Ethiopia. The Benishangul Gumuz Regional State (BGRS) was established in 1994 as one of the nine regional states of Ethiopia. The BGRS borders the Republic of Sudan in the west, Amhara region in the North, Oromiya in the South east and Gambella region in the South. Administratively, it is divided in to 3 zones (Metekele, Assosa, and Kemashi) that are divided in to 19 Woreda, and one special Woreda. Metekel Zone is divided into 7 Woreda out of which Dibatie Woreda, the study area is located North 100 55'-110 90' latitude North and 300 12'-300 36' longitude East. (Source BGRS, 2008).

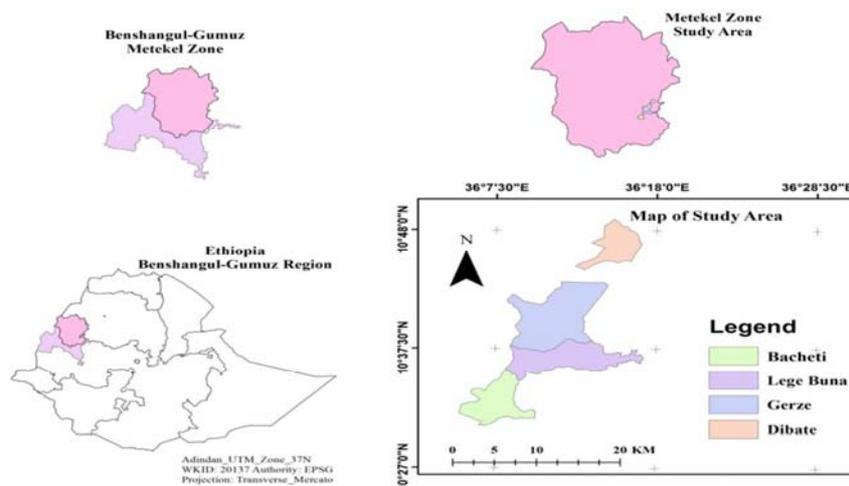


Figure 1. Maps of study area.

Based on the central statistics data (CSA, 2007), the total population for this Woreda of 66,654, of whom 33,452 were men and 33,202 were women; 7,399 or 11.1% of its population were urban dwellers of all 12,446 were children's. The vegetation of the study district is predominantly

composed of different woody and herbaceous species. The natural vegetation of Dibate is mainly composed of various lowland and midland species such as *Acacia sp.*, *Ficus spp.* (Such as *Ficusthonnigi*, *Ficussur*, *Ficus vasta*, *Ficuschosttery*, *e.t.c.*, *Cordia africana*, *Albizia spp.* *Coroton*

*macrostachyus*, *Adonsoniadigitata*, *Dombeya spp.*, *Ekeverglacapensis*, *Carissa*, *Sizigum spp.*, and other trees, shrub and herbaceous species

## 2.2. Study Design

### 2.2.1. Reconnaissance Survey and Selection of Study Sites

Dibati Woreda has a total of 29 kebeles. Out of these, 5 kebeles was selected those are Modorem, Gerze, Zegehe, Legbuna, and Bechati due to the have high amount of shinasha peoples found in kebele. Additional to that they have larger vegetation cover and presence of key informants, different altitudinal ranges are selects for ethnobotanical data collection. The traditional healer, used as key informants, was identified by with the assistance of local authorities, elders and knowledgeable persons.

### 2.2.2. Informant Selection

Information regarding to each peasant association leaders the total household of Shenasha people in the study area of five kebele from the age of twenty and above is (N) is male 651 female 141 total 792. To obtain total sample size from the total targeted household, the researcher was use the usual known formula. (Yemane, 1967) that were calculated as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where n is sample size of the study area

N is targeted population size (total population of five kebele in study area.)

e: is the level of precision or sampling error= (0.05)

For the above formula,

$$n = \frac{792}{1 + 792(0.05)^2} = 99$$

A total 99 informants five to seven individuals from each study kebele from the age of twenty and above were included. From the five studies kebele twenty key informants were purposively selected based on recommendations from local authorities (kebele administrators and local guides) peasant association leaders and other members of the local communities.

### 2.2.3. Plant Specimen Collection and Identification

At the end of the interview, the reported medicinal plants were collected from natural vegetation and home garden. Sample specimens of the plants cited for their medicinal use was collected, numbered, pressed and dried for identification. Plant identification was performed both in the field, and at the National Herbarium of AAU. Preliminary identification was done in the field and reconfirmed at the National Herbarium. The identification of other plant specimens using the Flora of Ethiopia and Eritrea also by comparison with authenticated specimens.

## 2.3. Ethnobotanical Data Collection

Ethnobotanical data was collected between Octobers to November, 2017 on three field trips. The data was collected based on prepared questionnaires, semi-structured

interviewees, observation, focus group discussion, and guided field walks with informants were employed to obtain indigenous knowledge of the local community of shinasha people. The study was carried out by interview in there habitants in different village. The informants include the various data sets such as local names, disease treated, parts of the plant used, and method of preparation dose and rote of application was obtained from local people through individual interviews. A list of question was prepared that covers the discussion with the informants in particular orders. All of the interviews will be held in Amharic and Shinasha language of the local people. The place and time for discussion were set based on the interest of the informants [5].

## 2.4. Ethnobotanical Data Analysis

The Ethnobotanical data collected was analyzed following survey and analytical tools for ethnobotanical methods which are Informant's preference ranking, descriptive statistic (Microsoft excel spreadsheets soft wore), Direct matrix ranking and paired comparisons conducted following [20, 5]. Were computed to assess the degree of effectiveness of certain medicinal plants against human and animal.

### 2.4.1. Medicinal Use Value

The use value (UV), a quantitative method that demonstrates the relative importance of species known locally [19]. Was calculated using the following formula.  $UV = \sum U/n$  where: UV = use value of a species; U = number of citations per species; n = number of informants

### 2.4.2. Fidelity Level Index

Fidelity level index quantify the importance of a given species for a particular purpose in a given cultural group[8]. The relative healing potential of individual medicinal plants used against human or livestock ailments using an index called Fidelity Level Index (FLI) based on the proportion of informants who agreed on the use of a given medicinal plant against a given ailment category.

The formula for FL is given as  $FL\% = Ip / Iu \times 100$ , where Ip the number of informants who independently indicated the use of a species for the same major ailments and Iu the total number of informants who mentioned the plant for any major ailment (Friedman *et al.*, 1986).

### 2.4.3. Informant Consensus Factor

Informant consensus factor (ICF) was calculated for categories of ailments to identify the agreements of the informants on the reported cures using the formula used by [19, 22]. ICF was calculated as follows: number of use citations for each ailment (nur) minus the number of species used (nt) for that ailment, divided by the number of use citations for each ailment minus one (Table 7).

$$ICF = \frac{nur\_nt}{nur\_1}$$

Where:

ICF: Informant consensus Factor,

Nur: number of use citation

Nt: number of species used

### 3. Results and Discussion

#### 3.1. Ethnomedicinal Plant Species Used by Shinasha People in Study Area

In the study area a total of 65 medicinal plant species 62 genera and 39 families were gathered and documented that are used for the treatment of human and livestock ailments. From these, 48(73.8%) species were used as human medicine, 1 species only (1.54%) as livestock medicine and the remaining 16 species (24.62%) were used for treating both

human and livestock ailments (seen in figure 3). Of these 65 medicinal plants studied, 48 species were gathered from the wild and 17 species from home garden. This result indicates that the local communities mostly depend more on medicinal plants collected from the wild than those from home garden.

In my result family distribution, Fabaceae stood first dominant 7 (10.76%) followed by Asteraceae, Euphorbiaceae and Cucurbitaceae four (6.13%) species and next family, Combretaceae three species and other families consist of one representative species in each (appendix XI) This agrees with the finding of [16-18, 11, 12, 23, 24, 7, 4].

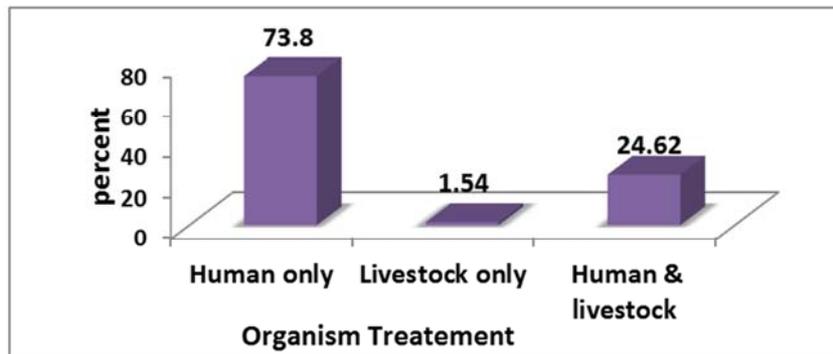


Figure 2. Proportion of medicinal plants used to treat human, livestock and both human and livestock ailment.

#### 3.2. Medicinal Plant Habit, Habitat, Part(s) Used and Preparation Rout of Administration Both in Human and Livestock Ailments

##### 3.2.1. Habit of Medicinal Plant in the Study Area

In the study area there are many habits of medicinal plant those are herb, shrub, tree and climber. The result shows that analysis of growth forms of medicinal plants revealed that herbs constitute the largest category 24 (36.9%) followed by tree 18 (27.69%), 16 (24.61%) shrub and 7 (10.76%)

Climbers were recorded. The record of the highest number of herbs medicinal plant species in the study could be dominated. This may be due to their relative better abundance, accessibility in nearby areas as compared to other life forms, there is presence bimodal rainfall and extended availability of moisture and herbs can grow everywhere compar toother plant habits. This Habit distribution of medicinal plants has also been reported by some researchers previously [5-7, 24, 22, 13, 27].

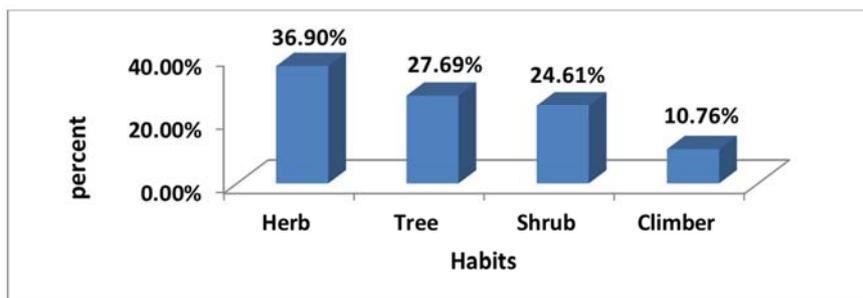


Figure 3. Habit of medicinal plants both human and livestock ailment in the Dibati woreda.

##### 3.2.2. Habitats and Abundance of Medicinal Plants in the Study Area

In this study area medicinal plants were collected from various habitats including wild and home garden. As the result shows that most of the medicinal plants used by the communities were collected from wild 48(73.86%) and Home garden 17(26.15%). This finding is similar to the general pattern seen in most medicinal inventories for

example, [16, 11, 1, 28, 26, 36, 24, 21]. where wild medicinal plants dominate. The local people cultivate some popular medicinal plants in their home garden for the purpose of medicine such as *Allium sativum*, *Schinus molle*, *Ocimum lamiifolium*, *Rhamnus prinoides* and *Nicotiana tabacum*.

This and field observation during data collection clearly confirmed that some traditional healers do not have interest to grow in their home garden some plant species that are used

to treat specific ailments in order to keep the secret of their medicinal value. This means that most of the medicinal plants found in the home gardens are those also known to have other uses particularly as food.

**3.3. Medicinal Plants Parts Used Treatment Both Human and Livestock in the Study Area**

The most widely used plant part for the preparations of remedy were leaves, which accounted for 28.06% followed by roots (14.06%), seed (10.39%) break (9.39%) bulb (6.25) and others. In this study, leaves are the most frequently utilized part of plant organs. it was ease of accessibility to

leaves explains their frequent inclusion in most of the preparations. It was also observed that residents have been using leaves to identify. Additionally, leaves are the main photosynthetic organs in plants, and photosynthetic are translocate to other parts, such as the root, stem, fruit, and seed. These can act as toxins for protection of predators and some are of medicinal value to humans.

Within my finding, similar studies agreement to in other parts of Ethiopia reported and documented that leaf are the most commonly used medicinal plant parts followed by root [23, 5, 1, 13, 24, 14, 7, 26, 28].

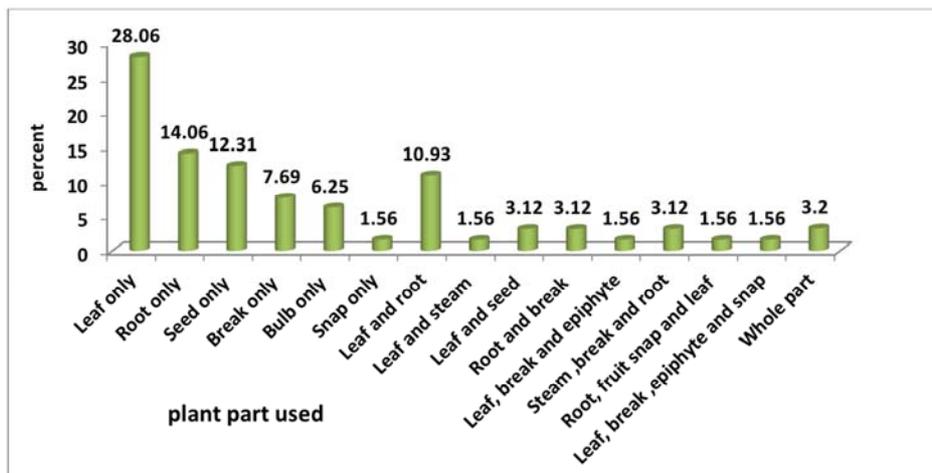


Figure 4. Plant Parts used in preparation of both human and livestock ailments in the study area.

**3.4. Method of Preparation**

The result that shows the preparation of medicinal plant for human and livestock of local community employs various methods of preparation of traditional medicines for different types of ailments. The preparations vary based on the type of disease treated and the actual site of the ailment. The principal methods of plant parts remedy preparation forms were reported to be through crushed, which accounts for

15(23.07%), followed by pounded 13(20%), squeezing 10(15.4%), chewing 7(10.71%), crashing and pounded 5(7.7%), cocking 4(6.15%), eating 3(4.61%), smoke/burning 3(4.61%) crushed squeezed 2(3.07%), pounded squeezed 2(3.07%) and pounding powder 1(1.5%) respectively. The most dominate method of preparation is crushed. In agreement with this study, similar researcher of medicinal plant species method of preparation are reported from different parts of the country by [14, 27, 7, 36].

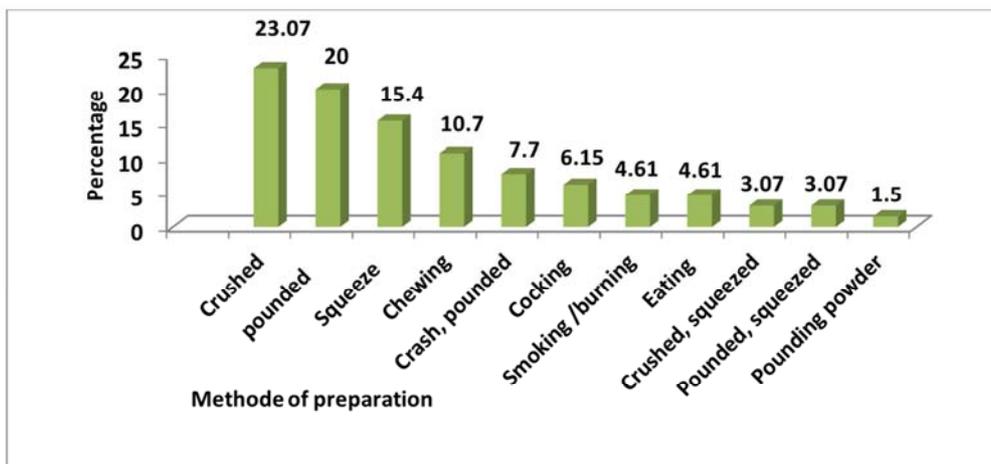


Figure 5. Preparation methods both in human and livestock ailments in the study area.

**3.5. Route of Administration**

The major routes of administration in the study area are oral, dermal, nasal, anal, tide; ear and fumigated. People of the study area mostly administer traditional medicine orally. Oral accounts 38(58.46%) followed by dermal 5(7.69%), oral and dermal 6(9.23%) and others (Figure 8). Due to they may indicated the higher prevalence of internal ailments in the study area.

However, the dose should be given in great care in the oral system than in the dermal since it might cause other severe internal problems. Similarly, various research findings mentioned oral application as the primary route of administration in traditional plant medicines. This fact that has been documented by different authors in the other part of Ethiopia. [2, 5, 12-14, 4, 7, 36, 25].

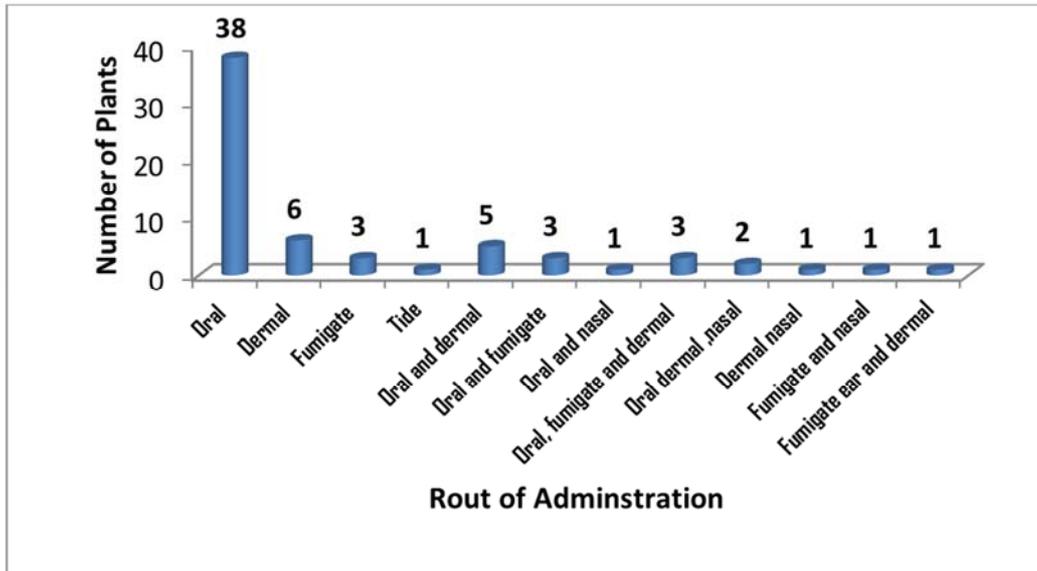


Figure 6. Route of administration both in human and livestock ailments in the study area.

**3.6. Application**

The prepared traditional medicines are applied in a number of methods, drinking accounted for the largest 23(35.38%), followed smoking 11(16.76%) creamed and snaffid 7(10.76%) and others (Figure 6). Internal ailments were commonly treated by making the patient drink herbal preparations; tooth infection were treated by crushing and put on the remedial plant part on the tooth surface; skin infections such as

ringworm were treated by painting herbal preparations on an infected skin. Some plants do have different applications for different disease types. This preparation is used for different diseases by diverse application techniques. For instance, putting the leaves on tooth surface is used to cure toothache, and to tie on swollen body part is used to cure swelling. Similar results were reported elsewhere in Ethiopia by [6, 18, 9, 11, 23].

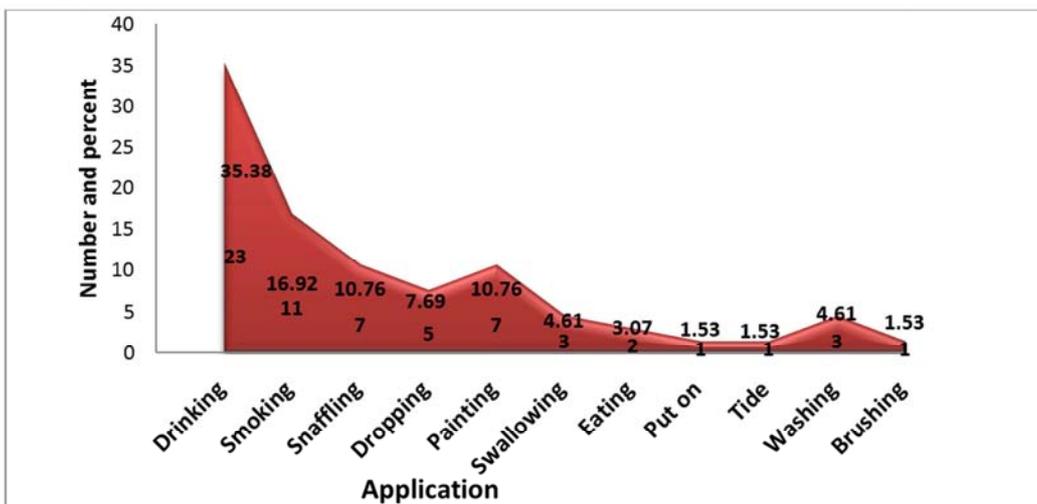


Figure 7. Graph showing ways of application of plant remedies in both human and livestock ailment treatment.

### 3.7. Conditions of Preparation of Herbal Remedies

The results showed that herbal remedies are prepared using fresh material 45(69%), while 8(12%) were used in the case of dried plant material and 21(18.46%) in both condition. (Figure 7). The informants in the study area prefer fresh plant materials (69%) to prepare effective and efficient remedies due to the fact that, most of the bioactive phytochemicals are retained in fresh plant materials as compared to dry ones. Although frequent collection of fresh plant materials in dry seasons has a devastating influence on the conservation statuses of medicinal plants, it is common to use fresh plant materials for the preparation of remedy. In addition to that they believe that using fresh materials increases efficacy compared with the dry one. This is because of the fact that

the content or ingredients may be lost or reduced when the plants became dry. Similarly, various studies in Ethiopia has reported by [33, 22, 17, 12, 30, 32, 15, 13, 1, 24, 36, 7, 26].

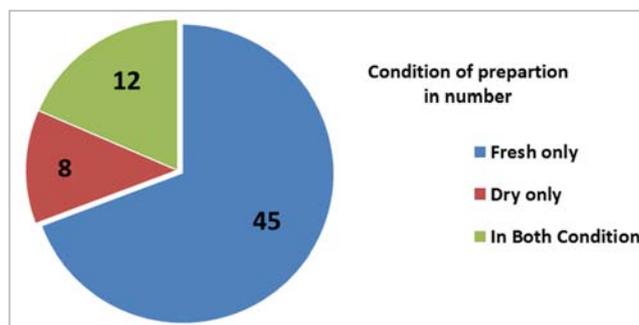


Figure 8. Conditions of Preparation both in human and livestock ailments.

Table 1. Solvents and additives used in medicinal preparation.

Solvents and additives	No- of informants who cited the species	Percent (%)
Water	85	85.8
Honey	73	75.76
Better	61	61.6
Milk	59	59.5
Sugar(tea)	42	42.4
Tefee powder	31	31.3
Hen wote	29	29.2
hyena liver	18	18.1
Coffee powder	15	15.1
Bordee	14	14.1
Meat	13	13.1

### 3.8. Solvents and Additives

Some of the remedies are taken with different additive and solvents, the solvent used is water. The additives include butter, honey, milk, sugar, 'teff' flour, boiled coffee or tea, hen wote, hyena liver, bordee and meat (Table 1). These additives have importance in reduction of pain, to get better taste and reduce adverse effects such as vomiting and diarrhea and enhance the efficacy and healing conditions as explained by informants.

For example, the seed of *Coffea arabica* is roasted crushed powdered boil and the filter one cup of tea, mixed with a few drop of oil then drink for treatment of diarrhea. The roots *Justicia schimperiana* is crushed powdered and mixed with the honey and drink one glass for 3-5 days for treatment of stabbing pain. The whole part *Clematis hirsuta* is powdered

powder and mixed with butter and creamed affected part until recover for 5 days to treat wound.

### 3.9. Sources and Transferring of Indigenous Knowledge

#### 3.9.1. Sources of Traditional Knowledge Practices

The highest number of traditional medicinal plant knowledge gain from to be 45 (45.4%) Father followed by 20(20.2%) from Mother and 15(15.1%) from Uncle 10(10.1%) from Brother, 8(8.08%) from Sister 6(6.06%) from Neighborhood and 5(5.05%) from Friend. The great majority of respondents (90%) reported that most of their knowledge was received from their family members and friends secretly by oral. The secret practices of traditional medicines came from their ancestors. Within my finding similar studies are agreed by [31, 28, 36, 14, 27].

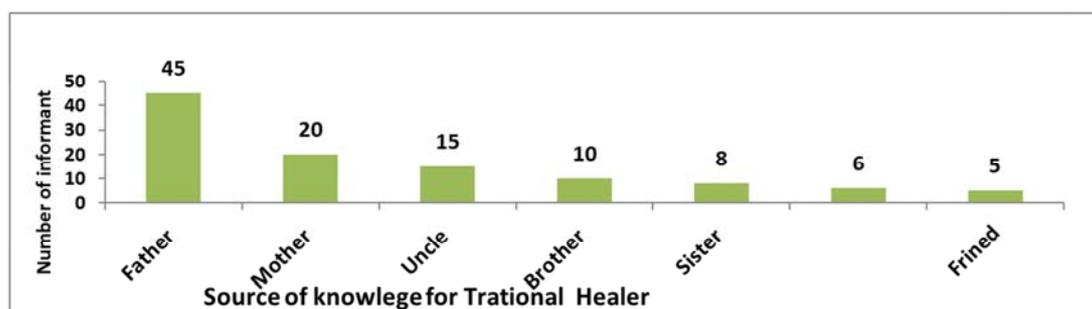


Figure 9. Sources of knowledge on the practice of traditional medicine.

**3.9.2. Transferring Knowledge of Traditional Medicinal Plants**

According to the survey, knowledge transfer of medicinal plants follows vertical transfer to the most selected family member orally with great secrecy. The findings of the study showed that as people become older and older their knowledge of traditional medicine becomes better and better. Most of the informants were elders that indicated the trend of transferring knowledge is usually at old age. The highest number for the

ways of transferring knowledge on traditional medicinal plants by elder son who received 56(56.5%) votes followed by the elder daughter 12(12.1%), for the brother 10(10.1%) for the sister 7(7.07%) for the not to all 5(5.05%) for all went to known 4 (4.04%) to all the member of my family 3(3.03%) and other to fried 2(2.02%) (Figure 10). Therefore most way of indigenous knowledge transfer in the study District was by word of mouth to a family member (especially to an elder son). Similar findings were reported for other communities in Ethiopia [28, 27, 36].

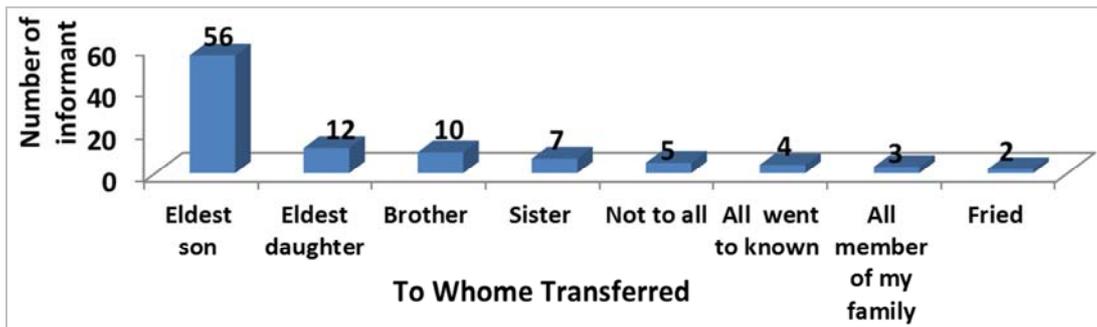


Figure 10. Transferring of knowledge of traditional medicinal plants.

**3.10. Ranking of Most Important Medicinal Plants**

**3.10.1. Preference Ranking**

Preference ranking for eleven medicinal plants to treat snake biting (Table 2) made by ten informants showed that *Bersema abyssinaca* ranked first and hence is the most effective medicinal plant to cure snake biting. *Myrsine melanophloeos*, *Nicotiana tabacum*, *Justicia schimperiana* and *Allium sativum*. Are the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> respectively.

Table 2. Preference ranking of eleven Selected Medicinal Plants based on the Degree of their Curative Power of snake bit as Perceived by Informants.

Name of plants species	Respondents(R1-R10)										Total	Rank
	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	R <sub>5</sub>	R <sub>6</sub>	R <sub>7</sub>	R <sub>8</sub>	R <sub>9</sub>	R <sub>10</sub>		
Allium sativum L.	4	3	5	3	4	5	1	5	5	3	38	5 <sup>th</sup>
Carduus englerianum Sch. Bip. Ex A. Rich.	2	3	1	1	2	3	4	3	3	5	27	9 <sup>th</sup>
Carissa spinarum L.	2	5	5	4	5	5	2	5	3	1	37	6 <sup>th</sup>
Justicia schimperiana (Hochst. ex Nees) T. Anders.	4	5	5	2	5	4	5	4	2	3	39	4 <sup>th</sup>
Lagenaria siceraria (Mol.) Standl.	4	4	0	1	4	3	2	2	1	3	24	11 <sup>th</sup>
Nicotiana tabacum L.	3	5	2	4	4	5	5	3	5	5	41	3 <sup>rd</sup>
Paveonia urens cav	5	2	5	3	2	4	5	4	1	5	36	6 <sup>th</sup>
Stereospermum kunthianum	4	2	2	4	5	2	2	5	5	4	30	9 <sup>th</sup>
Bersema abyssinaca	5	5	5	4	5	5	4	4	5	5	47	1 <sup>st</sup>
Dicrocephale latifolia	5	4	2	2	3	2	3	3	3	4	31	8 <sup>th</sup>
Myrsine melanophloeos	5	4	4	5	5	5	4	5	5	4	46	2 <sup>nd</sup>

**3.10.2. Direct Matrix Ranking**

Direct matrix ranking was performed to assess the relative importance each of the plant. The result of the direct matrix ranking showed that *Cordia africana* stood first in being the most

multipurpose medicinal plant followed by *Gardenia ternifolia*, *Eucalyptus globulus*, *Myrsine melanophloeos* *Croton macrostachyus* Del. *Acacia abyssinica*, *Ximenia caffra. sond*, *Bersema abyssinaca* and *Jatropha curcas* was the least (Table 3).

Table 3. Direct matrix ranking for seven specie and main use in study area.

NamePlant species	Use categories							Total	Rank
	Charcoal	Construction	Medicine	Food	Firewood	Fencing	Furniture		
Jatropha curcas	0	0	4	0	3	5	1	13	9 <sup>th</sup>
Ximenia caffra. sond	0	2	5	5	5	3	2	22	7 <sup>th</sup>
Cordia africana Lam.	5	5	5	4	5	3	5	32	1 <sup>st</sup>
Croton macrostachyus Del.	5	5	5	0	4	4	2	24	5 <sup>th</sup>
Acacia abyssinica	5	5	3	0	4	3	3	23	6 <sup>th</sup>
Eucalyptus globulus	5	5	3	0	5	5	5	28	3 <sup>rd</sup>

NamePlant species	Use categories							Total	Rank
	Charcoal	Construction	Medicine	Food	Firewood	Fencing	Furniture		
Myrsine melanophloeos	5	5	5	0	5	2	3	25	4 <sup>th</sup>
Bersema abyssinaca	1	2	5	0	3	3	1	15	8 <sup>th</sup>
Gardenia ternifolia	2	3	5	3	4	3	5	30	2 <sup>nd</sup>
Total	33	30	40	12	47	31	23		
Rank	3 <sup>rd</sup>	5 <sup>th</sup>	2 <sup>nd</sup>	7 <sup>th</sup>	1 <sup>st</sup>	4 <sup>th</sup>	6 <sup>th</sup>		

### 3.10.3. Paired Comparison

A paired comparison made to determine the most preferred medicinal plants among the 9 species that were used to treat eye vile in the study area, the responses of ten key informants, showed that Ranked *Withania somnifera* first followed by

*Gardenia ternifoli* is the second (Table 4). Therefore, this result indicated that *Withania somnifera* is the most preferred while. *Clausena anisata* is the least favored over the other plant species cited in treating eye vile.

Table 4. Paired comparisons of five medicinal plant species used to treat fibril illness.

Name of plants species	Respondents(R1-R10)										Total	Rank
	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	R <sub>5</sub>	R <sub>6</sub>	R <sub>7</sub>	R <sub>8</sub>	R <sub>9</sub>	R <sub>10</sub>		
Gardenia ternifolia	1	4	3	0	1	1	2	4	5	4	35	2 <sup>nd</sup>
Acacia abyssinica	4	1	2	2	4	5	5	4	2	1	30	4 <sup>th</sup>
Allium sativum L.	2	2	1	4	3	2	4	3	2	5	28	5 <sup>th</sup>
Croton macrostachyus Del	5	5	1	4	2	2	1	0	1	4	25	8 <sup>th</sup>
Vernonia amygdalina Del.	1	0	2	4	3	1	4	1	5	1	27	6 <sup>th</sup>
Secuidaca longepedunculata	4	1	0	4	1	2	1	4	5	4	26	7 <sup>th</sup>
Clausena anisata	4	4	1	0	4	1	4	3	1	0	22	9 <sup>th</sup>
Capparis tomentosa	1	2	4	2	4	2	4	4	3	5	31	3 <sup>rd</sup>
Withania somnifera	4	2	4	4	5	1	5	4	4	5	38	1 <sup>st</sup>

## 4. Threatened and Factor Threatening Medicinal Plants in Dibati Woreda

### 4.1. Threatened Medicinal Plant in the Study Area

The ranking of 9 medicinal plants based on the degree of threats was conducted using 10 key informants. (Table 5) The results indicated that is *Asparagus africanus* and *Myrsine melanophloeos* the most threatened followed by *Withania somnifera* (L.) and *Bersema abyssinaca* and the least threatened one is *Glinus lotoides* L.

Table 5. Ranking of threatened plants.

Name of plants species	Respondents(R1-R10)										Total	Rank
	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	R <sub>5</sub>	R <sub>6</sub>	R <sub>7</sub>	R <sub>8</sub>	R <sub>9</sub>	R <sub>10</sub>		
Myrsine melanophloeos	1	4	3	0	1	1	2	4	5	4	35	2 <sup>nd</sup>
Bersema abyssinaca	4	1	2	2	4	5	5	4	2	1	30	4 <sup>th</sup>
Paveonia urens cav	2	2	1	4	3	2	4	3	2	5	28	5 <sup>th</sup>
Oncoba spinosa Forssk.	5	5	1	4	2	2	1	0	1	4	25	8 <sup>th</sup>
Momoridica foetida. schum	1	0	2	4	3	1	4	1	5	1	27	6 <sup>th</sup>
Kalancheo petitiiana A.Rich,	4	1	0	4	1	2	1	4	5	4	26	7 <sup>th</sup>
Glinus lotoides L.	4	4	1	0	4	1	4	3	1	0	22	9 <sup>th</sup>
Withania somnifera (L.)	1	2	4	2	4	2	4	4	3	5	31	3 <sup>rd</sup>
Asparagus africanus	4	2	4	4	5	1	5	4	4	5	38	1 <sup>st</sup>

### 4.2. Factors Threatening Medicinal Plants in the Study Area

The cause of threats to medicinal plants can be generally grouped into natural and human induced factors. However, as reported in this study most of the causes for the threats to medicinal plants and the associated indigenous knowledge are the anthropogenic factors such as deforestation due to over exploitation of plants for different uses including

charcoal making, population pressure, fire wood collection, house hold construction, overgrazing, cutting and burning of plants to create new agricultural expansion lands and urbanization. Informants ranked agricultural expansion, fire wood and population pressure as the most serious threat to the medicinal plants followed by medicinal purpose and charcoal collection is lower levels of threats by the other factors (Table 6). Similar study b [18, 12, 3, 28, 36]. This showed that, there are different threats in medicinal plants such as agricultural expansion fire wood collection and

others. Furthermore, the negative impact of deforestation on medicinal plants was also reported [15].

In this study, the information gathered from the key informants was indicated that the treats of medicinal plants increase from time to time in study area. The agricultural expansion and deforestation was the major medicinal plant treats. The finding was in line with other findings [15]. 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 [11].

Table 6. Ranking of threats to medicinal plants.

Name of plants species	Respondents(R1-R10)										Total	Rank
	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	R <sub>5</sub>	R <sub>6</sub>	R <sub>7</sub>	R <sub>8</sub>	R <sub>9</sub>	R <sub>10</sub>		
Fire wood	4	5	5	4	3	4	3	5	2	5	40	2 <sup>nd</sup>
Medicinal purpose	2	1	2	1	2	2	1	2	2	1	16	8 <sup>th</sup>
Charcoal Making	4	2	3	2	3	1	3	4	1	3	23	7 <sup>th</sup>
Household tool construction	4	5	5	3	1	2	4	4	2	3	33	6 <sup>th</sup>
Over grazing	3	4	4	2	5	5	4	3	2	3	35	4 <sup>th</sup>
Agriculture expansion	5	4	5	5	5	4	4	5	5	5	47	1 <sup>st</sup>
Urbanization	3	2	4	5	4	3	2	2	5	4	34	5 <sup>th</sup>
population pressure	5	2	3	4	5	5	3	3	4	5	39	3 <sup>rd</sup>

#### 4.3. Management and Conservation of Medicinal Plants

At this moment natural habitats of medicinal plants in the study area are highly affected by factors mentioned above. The local people in the study area have brought only about 48 and 17 species of the total collected medicinal plants under wild and home garden. As a result many medicinal plants are under serious threats. So the local people should be conserve medicinal plant in-suit and ex- suit management style.

Those manes that forty-eight medicinal plants that are collected in the wild by conserve in-suit conservation method and the reaming seventeen medicinal plants that conserve by ex-suit conservation method. According to the informant information generally, there are some conservation measures that have been under taken around the world aimed at protecting threatened medicinal plant species from further destruction by create awareness for the user local people for the use and management of medicinal plant in study area.

Some authors clarify that home gardens can be refuge for wild species that are threatened in the wild by deforestation and environmental changes Concerning this [37] Reported that home gardens are being used as informal experimentation plots for new varieties and exotic species.

Medicinal plants are also left as remnants of trees, shrubs and herbs in and around agricultural fields due to their uses as forage, fuel wood, timber, and construction, spiritual and ritual needs. Protecting such multi-purpose plant species by agro-pastoralists in their localities is evidence for the existence of traditional conservation practices in the area. But this has to be strengthened to safeguard these natural resources. Of the species purposely maintained in home gardens in the country, about 6% are primarily cultivated for their medicinal values [37].

Informants also reported that the healers know time and processes of gathering, and storing medicinal plants. It is once a year that some medicinal plants are collected and preserved. *Lepidium sativum*, *Cucuribita pepo*, *Jatropha*

*curcas* and *Ocimum basilicum* seed, leaf, fruit or root are harvested, dried and preserved in roof corners or outside house, and dried parts are powdered and stored in different containers like pots, bottles or tied with clothes and used when needed.

The study indicated that many of the informants who have knowledge on traditional medicine usage give priority to the immediate use of the medicinal plants than to its sustainable future uses, as a result their harvesting style is destructive. However, some plants has protected for their spiritual and cultural purposes. Thus, these places are good sites for the protection of the medicinal plants since cutting and harvesting are not allowed in such particular areas. This was indicated that a good practice for the conservation of medicinal plants through cultivation. [28].

#### 4.4. Informant Consensus Factor (ICF)

All cited human and livestock diseases were categorized into 7 categories: namely, Sense organs related diseases, Animal and insect biting related disease, digestive system related disease, Reproductive system related diseases, Cultural related disease, Respiratory disease related diseases, intestinal and parasitic infection related diseases, and derma related disease. These diseases are categorized based on nature of disease, conditions that cause, place of attack, symptoms and sign of disease (Table 7). Disease categories with relatively higher ICF values were: intestinal and parasitic infection related diseases (0.89), derma related diseases (0.87) Sense organs related diseases (0.83), and Cultural related diseases (0.73). This may indicate the common occurrence of these diseases so that more number of people exchanging information and agree on plant species that can be used to treat these diseases than the rest. The medicinal plants that are presumed to be effective in treating a certain disease have higher ICF values. On the other hand, the rest of disease categories had ICF value of lower suggesting that these diseases are either rare in the study area

or are treated only by the healers with little information passed to other general public [22].

**Table 7.** Informant consensus factor (ICF).

Categories	Ailments/diseases	Number of Species used (nt)	Use citation (nur)	ICF Value
Sense organs	Eye problem, ear problem, trachoma,	5	25	0.83
Animal and insect biting	snake bite, rabies, malaria, spider poison, scorpion poisons	23	69	0.64
digestive system	Stomach ache,, bloat, diarrhea, toothache, gastritis abdominal pain	25	81	0.70
Reproductive system	gonorrhea, sexual weakens diseases, retained placenta, infertility RH factor	11	33	0.68
Respiratory diseases	Nasal bleeding,, tonsillitis, cough and asthma, common cold, leech	16	28	0.44
intestinal and parasitic infection	Tap worm, ascariasis	6	49	0.89
dermal	Dandruff, wound, skin rash, body swell, bone broken	8	58	0.87
Cultural related	Leprosy goiter, ring worm mouth rash Athletes foot	18	64	0.73
	Eye vile, feberal ilnes, headache, preventing snake			

#### 4.5. Fidelity Level Index (FLI)

Fidelity level (FL) quantifies the importance of a species for a given purpose. Hence, fidelity level values were calculated for commonly used individual medicinal plants against the following ailments: *Justicia schimperiana*(against snake biting and Rabbis) *Nicotiana tabacum* L.( against leech) *Asparagus africanus* (against retained of placenta) *Croton macrostachyus* (against eye vile), *Stereospermum*

*kunthianum* (Tonsil, scorpion biting), *Momordica foetida*. *schum* (against Bleeding during delivery) *Myrsine melanophloeos* (against blackleg) *Euphorbia abyssinica* (against Hemorrhoid, gonorrhea) *Paveonia urens* (against Rheumatic, tooth ache) and *Protulaca sp.*( against Gastritis). The fact that these medicinal plants had the highest FL values which could be an indication of their good healing potential (Table 8).

**Table 8.** The relative healing potential of individual medicinal plants used against human or livestock ailments.

No	Medicinal plants species	Aliments treated	IP	IU	FLI (%)	Rank
1	<i>Croton macrostachyus</i>	Evile eye	52	58	89.6	4 <sup>th</sup>
2	<i>Justicia schimperiana</i> (Hochst. ex Nees) T. Anders.	Snake biting, rabbis	47	47	100	1 <sup>st</sup>
3	<i>Nicotiana tabacum</i> L.	Leech,	45	48	93.75	2 <sup>nd</sup>
4	<i>Asparagus africanus</i> (kunth) Baker	Retained placenta	38	41	92.6	3 <sup>rd</sup>
5	<i>Myrsine melanophloeos</i>	Black leg	37	45	82.22	7 <sup>th</sup>
6	<i>Stereospermum kunthianum</i> Cham.	Tonsil, scorpion biting	31	35	88.57	5 <sup>th</sup>
7	<i>Euphorbia abyssinica</i> J.F Gmel	Hemorrhoid, gonorrhea	29	37	78.38	8 <sup>th</sup>
8	<i>Momordica foetida</i> .schum	Bleeding during delivery	26	31	83.8	6 <sup>th</sup>
9	<i>Protulaca sp.</i>	Gastritis	21	29	72.4	10 <sup>th</sup>
10	<i>Paveonia urens</i> cav	Rheumatic, tooth ache	19	25	76.0	9 <sup>th</sup>

#### 4.6. Medicinal Use Value

While some plant species are known to treat a single ailment, some others may be used for multiple of health problems. Medicinal use value is a quantitative method that demonstrates the relative importance of species known locally [19].

Some species that were cited for more than one ailment were selected and their use value was calculated. Results of use value computation for these species showed that *Croton macrostachyus* and had the *Carissa spinarum* highest use value (Table 9). The informant consensus values also indicated that the people share the knowledge of the most important medicinal plant species to treat the most frequently encountered diseases in the community. Moreover, most medicinal plant species have least use values in the study

area, which could not mean that they are less effective to treat ailments. This is because the few effective medicinal plant species are reported by one or two healers. In this case, the knowledge is very secret. This suggests that these species are used to treat many ailments. For example, *Croton macrostachyus* was reported to treat ailments such amoeba, evil eye, febrile illness, wound, prevent snake, skin infection and malaria. On the other hand was *Carissa spinarum* L. reported to treat snake biting, ascariasis, malaria, gonorrhea, Amoeba, febrile illness and diarrhea. *Justicia schimperiana* was reported to treat ailments such as snake biting, anti-toxic stabbing malaria, rabbis and typhoid's. *Stereospermum kunthianum* was reported to treat ailments such as scorpion biting, retained plasta, gasterite, tosile, snake biting and stomachache.

**Table 9.** Use Value of Certain Medicinal Plants in Study Area.

Plant species	Use citation(U)	Number of informants(n)	Use value (Uv)
<i>Croton macrostachyus</i>	7	23	0.35
<i>Carissa spinarum</i> L.	7	19	0.37
<i>Stereospermum kunthianum</i> Cham.	6	12	0.50
<i>Justicia schimperiana</i> (Hochst. ex Nees) T. Anders	6	14	0.43

Plant species	Use citation(U)	Number of informants(n)	Use value (Uv)
Vernonia amygdalina Del.	5	12	0.42
Combretum collinum	5	13	0.38
Paveonia urenscaev	5	15	0.33
Cordia africana Lam.	5	23	0.22
Solanu nigrum	4	11	0.36
Kalancheo petitiana A.Rich	4	9	0.44
Gardenia lutea Fresen.	4	12	0.33
Allium sativum L.	3	7	0.43
Clutia abyssinica Jaub. and Spach	3	5	0.60
Coffea arabica L.	3	25	0.12
Ximenia caffra.sond	3	8	0.38
Nicotiana tabacum L.	3	7	0.43
Ruta chalepensis L.	3	19	0.16
Eucalyptus globulus.Labil.	3	20	0.15
Zingiber officinale Roscoe,	3	15	0.20
Clematis hirsuta perr and Guill	3	12	0.25
Euphorbia abyssinica J.F Gmel	3	4	0.75
Linum usitatissimum L.	3	11	0.27
Oncoba spinosa Forssk.	3	9	0.33

## 5. Conclusion

Dibati woreda is one the most rich medicinal plant species and the associated indigenous knowledge. In this study area 39 family, 62 genera and 65 medicinal plant species were recorded. Of these, 48(47.6%) and 17(21.9%) of the species were reported as seeing used to treat human ailments and livestock respectively, while 30.5% of them were reported to treat both livestock and human ailments. The majorities of these medicinal plant species were obtained and collected 48 from wild, 17 from home garden. Analysis of growth forms of these medicinal plants that herbs constitute the largest category 24(36.9%) followed by tree 18(27.69%) shrub 16(24.61) and climber 7(10.76%) plant species. Herbal remedies are prepared from fresh materials 45(62.23%) and dried plant materials 8(12.30%) and in both condation 18(18.46%). In the study area, 72 ailments were reported (57 for human and 15 for livestock) which are being treated by traditional medicinal plants of the area.

Leaves were the most frequently used plant parts followed by roots for preparation of human and livestock remedies.

Most of the medicinal plants are administered orally (54.4%) and followed dermal (7.69). The most widely used method of preparation was crashed (23.07%), Pounding (20%), squeezed (15.4%), chewing (10.7%) crushed pounded, cocking, smoking eating of the different medicinal plant parts.

The shinasha people of Dibati Woreda are rich with indigenous knowledge in using, conserving and managing plant resources in general and medicinal plants in particular. They have a wide knowledge in using plants for various purposes such as for medicine, food, household utensils, fodder, fuel, construction, etc. This knowledge is transferred from elders to youngsters entirely through oral traditions and personal experiences. But this way of knowledge transmission will lead to distortion of the original knowledge or total disappearance of the practice. The major threats to medicinal plants and the associated knowledge in the study area are mainly agricultural expansion, firewood collection, population pressure, over gaze ring, urbanization, household tool construction, charcoal production and medicinal purpose. Therefore, use and management system awareness rising should be made among the healers so as to avoid erosion of the indigenous knowledge and to ensure its sustainable use.

## Appendix

**Table 10.** Lists of medicinal plants used to treat human in the Dibati woreda by shinasha people.

Scientific Name	Family	Local Name	Parts used	Disease Treated	Mode of Preparation and dose
Acacia abyssinica hochst.ex. Benth.	Fabaceae	Sipa/ Grara	Leaf	Nose bleeding	Squeeze flashy leaf and drop to nostrils for 3-5 days
			Root	Eye vile	Root is crushed and fumigated during the night time for 3 day.
				Abdominal pain	Crash the bulb and mixed with honey take a tea of spoon in each morning for 2 days
Allium sativum L.	Alliaceae	Nas' shink'urt'a	Bulb	Common cold	Crashing the bulb and swallow it. Additional insert the bulb in nostrils
				Snake bit	Crashing the bulb and put it on the site of bites and tide it
Carduus schimperi Sch. Bip. ex A. Rich	Asteraceae	Gali koshoshela	Leaf	Wound	The leaf is crashed then drink one glass for 3-5 days
			Root	Snake bit	Root is crushed, pounded then mix with water and drink one cup during the biting time
Carissa spinarum L.	Apocynaceae	Awawa/Agam	Root	Snake biting	The root is pounded, squeezed and drink one cup during biting time
			Root	Ascariasis	The root is crushed then drink one cup for 3 day.

Scientific Name	Family	Local Name	Parts used	Disease Treated	Mode of Preparation and dose
Clutia abyssinica Jaub. and Spach	Euphorbiaceae	Batska/feyele feg	Root	Malaria	The root is pounded squeezed and drink one cup of coffee for 3 days before eating any food.
			Root	Gonorrhoea	Root is crushed and mixed with water then drink one cup for 5 day.
			Root	Fibril illness	Crashed the root then burned for continuous every night time for 3 day.
			Root	Amoeba	Crashed the root and smashed then drink one cup for 3-5 days
			Leaf	Diarrhea	Crashed the leaf and smashed then drink one cup for 3-5 days
			Leaf	Prevent snake	The leaf is pounded then burn in the house.
			Leaf	Ear disease	The leaf is pounded, squeezed and then its drop through ear.
Coffea arabica L.	Rubiaceae	Buna	Leaf	Asthma	The leaf is crashed then drink one cup for 3 days before eating food.
			Seed	Fire burn	The seed is roasted, crushed, powdered and applied on wounded
Cordia africana Lam.	Boraginaceae	Baaja/Wanze	Seed	Diarrhea	The seed of Coffea arabica is roasted, crushed, powdered, boiled and the filtrate one cup of tea, mixed with few drop of oil then drunk.
			Root break	Diarrhea with blood	The root and the break crashed then drink two galas for 2 day.
			Break	Stomach Pain	Crashing the break then pounding and extract the liquid drink one glas for 3-5 day.
			Break	Liver diseases	The break is crushed, pounded then mix with water and squeezed then drink one cup for 3 day.
			Root	Tonsils	The root chewing before eating food for 3 day.
			Break	Bleeding during delivering	The break crashed pounding then extract the liquid drink it one cup for once
			Leaf	Skin diseases	The leave of shoot is squeezed and the content is dropped on infected sited
Croton macrostachyus Del.	Euphorbiaceae	Baroha/Bisana	Epiphyte	Prevent snake	The epiphyte is burn in the area of snake
			Epiphyte	Eye vile	The epiphyte is fumigate in the people is attack with it during starting time.
			Leaf	Fibril illness	The collect epiphyte then fumigate every night for 3 day.
			Leaf	Malaria	The leaf cooking then one cup drinks the liquid for 3 day.
			Break	Amoeba	Crushed the break and mix with water and squeezed then drink one cup for 2 day.
			Break	Eye disease (trachoma)	The beak is crashed; pounding then washed the face morning for 3 day.
			Snap	Wound	The fresh latex is applied on the Infected part
Solanu nigrum L.	Solanaceae	Ump'ap'a/ embay	Fruit of snap	Hemorrhoids.	The fruit snap added on Hemorrhoids area.
			Root	Stomach ache	The root of is chewing and swallowing during the feeling of ache for 3 day
			Root	Scorpion biting	The root is chewing and swallowing during biting time.
Datura stramonium L.	Solanaceae	Eelefila/Astenager	Leaf	Cough	The leaf is pounded, powdered and mixed with honey and then drunk for 3 days.
			Leaf	Dandruff	The fresh leaf is squeezed and creamed affected part until recovery for 3 day.
Eucalyptus globulus Labill,	Myrtaceae	Nas' Baahirzaafiya	Root	Wound	The leave crashed and applied to affected area for 5 day.
			Root	Common cold	Crashed the root and mixed with sugar then extract drink one gales for 3 day.
Justicia schimperiana (Hochst. ex Nees) T. Anders.	Acanthaceae	Simiza	Leaf	Fibril illness	The leaf is crashed then burn on fire in fumigate every night for the 3 day.
			Root	Dry Cough	The root crushed and pounded then mixed with water and squeezed then drink one glass for 3 day.
			Leaf	Snake bit	The crushed the leaf then pounding drinks one glass during biting time.
			Leaf	Antitoxic	The crushed the leaf then pounding drinks one glass during taking any chemical time.
			Root	Wugat/ Stabbing pain	The root is crashed and mixed with honey and drink one gales for 3-5 day
T. Anders.	Acanthaceae	Simiza	Leaf	Malaria	The leaf is crashed and mixed with water then extract the drink one gales for 3 day.
			Root	Rabbis	The root crashed pounding then drink one cup for 3 dyes
			Root	Snake bit	Crashed the root and pounding the drink one cup during biting time.
			Root	Typhoid	Root is crushed then mixes with water and squeezed one cup

Scientific Name	Family	Local Name	Parts used	Disease Treated	Mode of Preparation and dose
<i>Ficus sur</i> Forssk.,	Moraceae	Eetsa/Shola	Break	Rh factor	drink for 5 day. The break is pounded and smashes then drink one glass for 7 day during 6 month pregnant mother.
<i>Lagenaria siceraria</i> (Mol.) Standl	Cucurbitaceae	S'oola/Qel	Leaf	Snake bit	Crashed the leaf part then drink during biting time.
<i>Ximenia caffra</i> . Sond.,	Olacaceae	Kula /Enkoye	Steam Break	Herpes zoster Amoeba	Dried steam baker powder mixed with butter is applied it. Cashed the break then drink one glass for 3-5 days.
<i>Melia azedarach</i> L.	Meliaceae	Mimiya	Root Leaf Leaf & steam	Gonorrhoea hypertension Snake bit	Crashed the root and filter then drink one cup for 3-5 days The leaf are eaten during starting hypertension The whole part is powdering then drink one galas during biting time
<i>Nicotiana tabacum</i> L.	Solanaceae	Tumbaka / Timbaho	Leaf	Toothache Malaria	The leaf of is chewed and hold by the infected teeth during the feeling of ache The leaves are crushed and mix with water then squeezed one cup and drink one cup for 3 day.
<i>Catha edulis</i> (Vahl.Forssk.ex.Endl.	Celastraceae	C'atiya	Leaf	Diarrhea Common cold	Chewing the leaf mixed with honey coffee or sugar 50g for 3 day. Chewing the leaf mixed with honey coffee or sugar 50g for 3 day.
<i>Ruta chalepensis</i> L.	Rutaceae	C'ilatama/ Teneadam	Seed Leaf & Seed	Eye vile Stomach ache	The seed of Ruta chalepensis with <i>Allium sativum</i> and mixed with hyena liver are finely crushed together and sniffed at the sickness time. The seed and leaf Squeezed and drunk the juice during stomach ache.
<i>Sida schimperi</i> Hochst. ex. A. Rich	Malvaceae	Jinigita /Chifreg	Leaf and Root Root Leaf	Wound and Tumors (nekersa) Scorpion biting Allergic Herpes/ Eye vile	The leaf and root is pounded, powdered and then applied on it. Chewing the root and swallowing during Scorpion biting. The leaf is pounded, powdered and applied on affected area. The leaf is crashed then mixed with water boil that person is fumigate
<i>Vernonia amygdalina</i> Del	Asteraceae	Ga'a /Grawa	Leaf Leaf Leaf Leaf	Toothache Abdominal Paine Athletes foot Wound	Chewing the leaves and hold it close to the infected during the pain. Crashed leaves in the powder and mix with water then drink it for 3 day. The leaf is crushed, squeezed and creamed on affected part for continuous days. The leaf is crashed and pounding then dropped on wound area for 5 days
<i>Combretum collinum</i>	Combretaceae	Shondoh a/ abalo	Epiphyte Epiphyte Bark Root Leaf Root	Fibril illness Tumor Stabbing pain Ear disease Body swelling Toothache Tonsillitis	The epiphyte is collected then fumigated by fire for 3 day every night The epiphyte is burn on the tumor area and necklace on the neck on Friday and Wednesday. The bark is crushed and pounded then mix with water, squeezed one cup drink for 3 day before food eating. The root is squeezed and added few drops through ear The leaf is first heated put on affected part for 3 day. The fresh root is giving for chewing
<i>Rehamnus prinoides</i> L. Herit	Rhamnaceae	Geshiya	Leaf	Liver disease	Crushed the root and mixed with water then drink oral for 3 day. The leaf is pounded, powdered, mixed with honey and then eaten for 3 days before food
<i>Zingiber officinale</i> Roscoe,	Zingiberaceae	Zaanijibila /Ginger	Bulb Whole part	Common cold Abdominal pain Weakness of sex Wound	The bulb is mixed with honey they can drink one cup for 3 days. Direct eating or crushed and mixed with tea and drink for 3 day. The bulb is crushed and mixes with (borde) then drink one cup before starting sex. The root and leaf is pounded, powdered and mixed with butter and creamed affected part until recovery for 5 day.
<i>Clematis hirsuta</i> perr and Guill	Ranunculaceae	Fitiya/Yeazo Areg	Steam Leaf	Toothache Headache	The stem is brush the teeth or hold by the affected teeth during feeling. The leaf is crushed and sniffed at the sickness time
<i>Gardenia ternifolia</i> Schumach.&Thonn.,	Rubibaceaea	Gaaba /Gambilo	Break Root Steam	Evil eye Malaria Toothache	The dried root steam break <i>allium sativum</i> power mixed with water is given oral. Crashed the root, pounding then drink one cup for once day in morning. Chewing the leaves and hold it close to the infected during the

Scientific Name	Family	Local Name	Parts used	Disease Treated	Mode of Preparation and dose
Ocimum utisinamum L.	Lamiaceae	Damakessi	Leaf and root	Amoeba	pain. Crashed the root and leaf then pounding drink one cup of coffee drink for 3 day.
			Steam	Tooth ache	The steam boil with fire then put on the teeth and catch for 5 mint
			Leaf	Fibril illness	The fresh leaf is squeezed and added in tea or coffee and drunk.
			Snap	Hemorrhoid	The snap that drop on the hemorrhoid. area for 2-3 day
Euphorbia abisanic J.F.Gmel.	Euphorbiaceae	Eebreera /Qulquale	Snap	Gonorrhea	The snap that mixed with powder of teffe dried then mixed in small amount of bored drink it.
				Rabbis	The snap that mixed with powder of <teffe> dried then mixed in small amount of bored drink it.
Jatropha curcas.L.	Euphorbia ceae	Arawi k'e'ha	Seed	Rabbis	Eaten the seed one for 3 day.
Dichrostachys cinerea.l	Fabaceae	Uunga (ader)	Root	Biting of spider	Crashing the root then drink one glass for 3-5 days.
			Root	Helment (parasiticworam)	Crashing the root then mix with water drink one cup 1-2 daye
			Root	Amoeba	Crashed the root then pounded and drink one cup for two days.
Paveonia uren. scav	Malraceae	Shukura (abelalit)	Root	Rheumatism	Crushed the root and mixed with, 'hen wete'/doro wet'' then drink one glass for 3 day.
				Toothache	Chewing the leaves and hold it close to the infected during the pain.
				Snake bit	The root is crushed and mixes with water then drinks one glass during biting time.
Secuidaca longe pedunculta	Polygalceae	Sik'ida /temenay	Root	Eye vile	Digging and cutting the root then smoking in the home
Ficus vasta Forssk	Moraceae	Dogna (warka)	Small bud	Tonsil	Cutting and chewing the small buds before eating any food for 1-2 days.
Cucurbita pepo L.	Cucurbitaceae	Maat'i aawa/ Duba ferre	Seed	Tap worm	One of the coffee cup Eating the seed before eating any food for 3 day
				Scorpion bit	Chewing the break during the scorpion biting
Stereospermum kunthianum Cham.	Bignoniaceae	Shoola/ washeti	Break	Retained placenta	Crashed the break and mixed with bored drink one galas it
				Gastritis	Crashing the break before food eating for 3 dayes
				Ton ensile	Chewing the break during the starting the disease for 3 day.
				Snake biting	Crushed the break and mix with water and squeeze the drink one cup during biting time
				Stomachache	Crushed the break and mix with water and squeeze the drink one cup for 3 day.
Protulaca sp.	Portulacaeae	Kaa'wa /kema/	Steam and leaf	Gastritiss	Crashed the whole part and mixed with water squeezed then drink before food for 3 day.
Lablab purpureus	Febaceaea	Eep'a	Seed	Malaria	Cooking the seed and drink water for two day
Trignoellfoenum graecum	Fabaceaea	Gira/ abish	Seed	Bone break	Cooking the seed crashed and add ox or cow leg then drink one glass for 3 day.
				Abdominal Paine	Crashed the seed juice by mixed it with water then add hone to drink one glass for 3 day.
Combretum molle.	Combretaceae	Bogoha/ bagore /	Break	Kurtmat /Rheumatism	Pounding the break drink one cup of coffee for 3 days
				Fiber illness	Crashed the bulb and burn with fire fumigate it
Momoridica foetida.Scum.	Cucurbitaceae	Beda	Bulb	Bleeding during birth	Crashing the bulb then pounding extract and drink one cup during bleeding.
			Bulb	Amoeba	Crashing the bulb then pounding extract and drink one cup for 3 day.
Linum usitatissimum L.	Linaceae	Keet'a Telba	Seed	Gastric	The seed is crushed, powdered, mixed water and sugar and then drunk during feeling pain for 3 day.
				Retained Placenta	The seed is mixed water and boiled and then drunk the solution is cooled that time
				Intestinal wound	Crushed the seed in to powder and mix with water the drink a glass of juces before food each morning until recovery
Clausena anisata (Willd.) J. Hk. ex	Rutaceae	Lemeche	Root	Evil eye	The fresh root is crushed and mixed With water and drunk.
Cyathula polycephala Bak.	Amaranthaceae	Mat'niyaChegogot	Leaf	Skin rash ("chiffiee)	The leaf is crushed, squeezed and the pure solution is applied on affected body part until recovery
				Infertility	The leaf is pounded, squeezed and drunk the pure liquid for 5 days
Jasminum abyssinicum Hochst. ex DC.	Oleaceae	Tenbelel	Leaf	Tap worm	The leave is crushed, mixed with water and then patient will drink a glass for 3 day every morning.
Ocimum basilicum L.var.	Lamiaceae	Joma/Zqaqeb	Leaf	Sudden sickness	The fresh leaf of is chewing and swallowing during feeling pain

Scientific Name	Family	Local Name	Parts used	Disease Treated	Mode of Preparation and dose
Tamarindus indica L.	Fabaceae	Aabay guutsa /Mserech	Leaf	Wound	The leaf with Croton macrostachyus is pounded, powdered and applied on the wounded parts for 3 day.
Rumex abyssinicus	Polygonaceae	Ambat'a /mokemoko	Root	Ring worm hypertension	The root of Rumex abyssinicus is pounded, powdered, mixed with solution of Citrus limon and creamed on affected part Crushed the root in to powder mix with the bulb of allium stauvum add the mixture into the boiled water and dink the hot decoction into a cup for 3 day.
Asparagus africanus Lam	Asparagaceae	Eliyia Yeset keset	Root	Retain of placenta	Crashed the root and pounding then extract and drink one galas during this time
Anogeissus leiocarpa Guill. And Perr.	Combretaceae	Anususa/ Kerker	Root Break	Stomachache Retain of placenta	The root is chewing and swallowing Crashed the break and pounding then extract and drink one galas during this time
Allium cepa L.	Alliaceae	Birshnk'urat'a/Key shenkrt	Bulb	Hypertension	The blub is crushed and immersed in little water for 1 day and then filtrated by clean cloth and drunk before food
Capparis tomentosa.Lam.	Fabaceae	Bac'up'aGumero	Root	Eye vile	Crushed the root and put on the fire and smoke the bed room of the patient during night time for 3 day.
lepidium sativum L.	Brassicaceae	Siimbila/feto	Seed	Abdominal pain Ascariasi	Crushed the seed and mix with injera and eating for 3 dayes Crushed the seed then drink one cup for one day.
Pterolobium stellatum	Fabaceae	Kentefa	Leaf	Goiter	Crushed the leave mixed with butter then the paste and tide it and cover it for 5 day.
Withania somnifera	Somniferaceae	Gizawa	Leaf	Eye vile Diarrhea	Smoke the enter body of the patient with dried leaf. Crashed the leaf and squeezed drink one cup for 3 day.
Syzygium guineense (Wild.)Benth	Bignoniaceae	Daak'uwa/Doqema	Leaf	leprosy	Dried leaf powder mixed with honey I applied 3 day.
Oncoba spinosa Forssk.	Flacourtiaceae	Aas'i	Blub	Wound Abortion Retain of placenta	Crush the bulb the added to the wound for 3 day. Crashed the bulb mixed with water and drink one glass for once. Crashed the bulb mixed with water and drink one glass for once during the birth.
Vernonia theophrastifolia Schweinf ex.Oliv&Hiern	Asteraceae	Eegidima	Leaf	Fiber illness	Crushed the leaf then fumigate for 3 day every night.
Dicrocephale latifolia	Asteraceae	Koshamiya	Leaf	Snake biting	Crashed the leaf then drink one cup oral during biting snake.
Breonia salicina (Vahl.Heppehr&wood	Rubiaceae	Dijiha	Break	Trachoma	Crashed the break and pounding and washed the face ever morning for 3 day.
Premna schimperi Engl.	Verbenaceae	Chocho	Leaf Root	Common cold Eye disease Caught	The leaf is pounded and sniffed Squeeze the leaf and drop of the extract on affected eye for 3 day The root is pounded, mixed with sour milk or ergo" and boiled and then drink for 3 day.
Myrsine melanophloeos	Myrsinaceae	Aluwangisha	Root	Cancer Snake bit	Crashed the root and mixed with 'bordi' the drink one galas for 3 day. Crashed the root pounded and drink one galas during biting time
Bersemia abyssinica. Fresen.	Meliantaceae	Cho wusa	Break	Snake bit	Crashed the break pounded and drink one glas during biting time.
Celosia trigyna L.	Amaranthaceae	Aamberesha	Seed	Tap worm	Crashed the seed and make ball size then mixed Lablab purpureus swallowing 3 for one day.

Table 10. Continued.

Scientific Name	Route of application	Habit	Condition of preparation	Season of availability	Source	Distribution	Collation No.
Acacia abyssinica hochst.ex. Benth.	Nostril Fumig ated	Tree	Fresh	Both	Wild	Com	Ab/022
Allium sativum L.	Oral nostril Derma	Herb	Fresh	Both	Home	Co	AB/060
Carduus schimperi Sch. Bip. ex A. Rich	Dermal Oral Oral Oral Oral	Herb	Both	Wet	Wild	Co	AB/021
Carissa spinarum L.	Oral Fumigate Oral Oral	Shrub	Both	Both	Wild	Medim	AB/002

Scientific Name	Route of application	Habit	Condition of preparation	Season of availability	Source	Distribution	Collation No.
Clusia abyssinica Jaub. and Spach	Fumigate Ear Dermal Oral	Shrub	Both	Both	Wild	Med im	AB/034
Coffea arabica L.	Dermal Oral Oral Oral	Shrub	Both	Both	Home garden	Rare	AB/023
Cordia africana Lam.	Oral Oral Oral Dermal Fumigate fumigate	Tree	Both	Both	Wild	Com	AB/010
Croton macrostachyus Del.	Fumigate Oral Dermal Dermal Derma	Tree	Both	Both	Wild	Com	AB/028
Solanum nigrum L.	Oral Oral Oral	Herb	Fresh	Both	Wild	Rare	AB/030
Datura stramonium L.	Dermal Derma Oral	Herb	Wild	Fresh	Rare	Rare	AB/003
Eucalyptus globulus Labill.	fumigate Oral Oral	Tree	Home	Fresh	Both	Com	AB/056
Justicia schimperiana (Hochst. ex Nees) T. Anders.	Oral and derma Oral Oral Oral	Shrub	Wild	Fresh	Both	Med	AB/031
Ficus sur Forssk., Lagenaria siceraria (Mol.) Standl	Oral Oral	Tree Climber	Wild Home garden	Fresh Fresh	Both Wet	Rare Medium	AB/054 AB/057
Ximenia caffra. Sond.,	Dermal Oral Oral	Shrub	Forest	Wild	Both	Rear	AB/055
Melia azedarach L.	Oral Oral	Tree	Home	Fresh	Both	Com	AB/007
Nicotiana tabacum L.	Oral Oral	Herb	Home	Both	Both	Rear	AB/058
Catha edulis (Vahl. Forssk. ex. Endl.)	Oral Oral Nasal	Shrub	Home garden	Fresh And dry	Both	Medium	AB/053
Ruta chalepensis L.	Oral Nasal	Herb	Home	Fresh	Wet	Med	AB/004
Sida schimperi Hochst. ex. A. Rich	Dermal Oral Dermal Fumigant	Herb	Wild	Fresh	Both	Rare	AB/006
Vernonia amygdalina Del	Oral Oral Dermal Derma Oral	Shrub	Wild	Fresh	Both	Medium	AB/018
Combretum collinum	Fumigate Burn Oral Ear	Tree	Wild	Fresh	Both	Rare	AB/008
Kalanchoe pinnatifida A. Rich.	Dermal Oral Oral	Herb	Wild	Fresh	Wet	Rear	AB/

Scientific Name	Route of application	Habit	Condition of preparation	Season of availability	Source	Distribution	Collation No.
Rehamnus prinoidea L. Herit	Oral	Shrub	Home	Both	Both	Rare	AB/025
Zingiber officinale Roscoe,	Oral	Herb	Home	Both	Both	Rare	AB/048
Clematis hirsuta perr and Guill	Oral Dermal Tooth surfac Nasal	Climber	Wild	Fresh	Wet	Rare	AB/013
Gardenia ternifolia Schumach.&Thonn.,	Oral Nasally	Shrub	Wild	Fresh	Both	Rare	AB/012
Ocimum utisinamum L.	Oral Oral & fumigate	Shru	Home	Fresh	Both	Me	AB/061
Euphorbia abisanic J.F.Gmel.	Oral Oral	Shrub	Home	Fresh	Both	Rear	Photo
Jatropha curcas.L.	Oral	Shrub	Home	Dry fresh	Both	Mediu	AB/051
Dichrostachys cinerea.l	Oral	Shrub	Wild	Fresh	Both	Rear	AB/014
Paveonia uren. scav	Oral Oral Oral	Climber	Wild	Fresh	Wet	Rare	AB/040
Secuidaca longe pedunculta	Fumigate	Tree	Wild	Fresh dry	Both	Rare	AB/032
Ficus vasta Forssk	Oral	Tree	Wild	Fresh	Both	Rear	AB/020
Cucurbita pepo L.	Oral	Climber	Home	Both	Both	medium	AB/049
Stereospermum kunthianum Cham.	Oral Oral Oral	Tree	Wild	Fresh	Both	Medium	AB/047
Protulaca sp.	Oral	Herb	Home garden	Fresh	Both	Med ium	AB/027
Lablab purpureus	Oral	Climber	Home garden	Fresh	Wet	Mediu	AB/026
Trignoellfoenum graecum	Oral Oral	Herb	Home garden	Dry	Both	Medium	
Combretum molle.	Oral	Tree	Wild	Fresh	Both	Medium	AB/038
Momoridica foetida.Scum.	Fumig ate Oral Oral	Herb	Wild	Fresh	Wet	Rear	AB/059
Linum usitatissimum L.	Oral Oral	Herb	Home garden	Both	Both	Rare	AB/042
Clausena anisata (Willd.) J. Hk. ex	Oral	Tree	Wild	Fresh	Both	Rare	
Cyathula polyecephala Bak.	Dermal	Herb b	Wild	Fresh	Wet	Common	AB/035
Jasminum abyssinicum Hochst. ex DC.	Oral	Climber	Wild	Fresh	Both	Rare	AB/001
Ocimum basilicum L.var.	Oral	Herb	Home garden	Fresh	Wet	Rare	AB/050
Tamarindus indica L.	Dermal	Shrub	Wild	Fresh	Both	Medium a	AB/041
Rumex abyssinicus	Dermal Oral	Herb	Home garden	Dry	Wet	Rear	
Asparagus africanus Lam	Oral	Herb	Wild	Fresh	Wet	Rear	AB/033
Anogeissus leiocarpa Guill. And Perr.	Oral	Tree	Wild	Fresh	Both	Rare	AB/009
Allium cepa L.	Oral	Herb	Home garden	Fresh	Both	Medium	AB/005
Capparis tomentosa.Lam.	Fumigated	Shrub	Wild	Fresh	Both	Rear	AB/019
lepidium sativum L.	Oral Oral	Herb	Home garden	Dry	Both	Rare	
Pterolobium stellatum	Tide	shrub	Wild	Fresh	Both	Medium	AB/029
Withania somnifera	Fumigated Oral	shrub	Wild	Both	Both	Rare	AB/046
Syzygium guineense	Dermal	Tree	Wild	Both	Dry	Common	AB/036

Scientific Name	Route of application	Habit	Condition of preparation	Season of availability	Source	Distribution	Collation No.
(Wild.)Benth							
Oncoba spinosa Forssk.	Dermal Oral	Herb	Wild t	Fresh	Wet	Rear	AB/048
Vernonia theophrastifolia Schweinf ex.Oliv&Hiern	fumigate	Shrub	Wild	Fresh	both	common	AB/048
Dicrocephale latifolia	Oral	Herb	Fresh	Wild	Wet	Co	AB/052
Breonadia salicina (Vahl.Heppehr&wood	Dermal	Tree	Fresh	Wild	Both	Rare	AB/024
Premna schimper Engl.	Nasal Dermal Oral	Shrub	Fresh	Wild	Both	Rare	AB/044
Myrsine melanophloeos	Oral Oral	Tree	Fresh	Wild	Both	Rare	AB/017
Bersema abyssinaca. Fresen.	Oral	Shrub	Fresh	Wild	Both	Rare	AB/044
Celosia trigyna L.	Oral	Herb	Fresh	Wild	Both	Rare	

Key: (Hb=Habit, Pu=Parts used, Ut=Used to treat, Cp=Condition of preparation, Ra= Route of application, T=Tree, H=Herb, Sh=Shrub, Cl=Climber, F=Fresh, D=Dried, F/D=Fresh/Dried, O=Oral, Dm=Dermal, Na=Nasal, Er=Ear, L=Leaf, Rt=Root, St=Stem, Ba=Bark, Fr=Fruit, S=Seed, Bu=Bulb, La=Latex, Ds=Distribution, C=Common, M=Medium R=Rare, Sa Season of ability, W=Wet=D=Dry=B=Both season.

**Table 11.** Lists of medicinal plants used to treat livestock ailments in the Dibati woreda by shinasha people.

Scientific Name	Family	Local Name	Part of used	Disease treated	Mode of preparation and dose
Rhamnus Prinoidea	Rhamnaceae	Gesho	Leaf	Leech	The fresh leaf of Rhamnus Prinoidea is pounded, squeezed and added few in the mouth for one day in morning.
Ficus vasta Forssk	Moraceae	Doogina/warka	leaf	Wound	The fresh leaf of Ficus vasta is pounded, squeezed and creamed the affected part.
Anarrhinum forskaorii	Scrophlariaceae	Shukura	Whole parts	Coccidiosis	The whole parts Anarrhinum forskaorii expect roots with Allium sativum is pounded and immersed for 1 days and drunk
Grewia ferruginea Juss.	Tilaceae	K'oriya	Leaf	Retained placenta Bloating	The fresh leaf of Grewia ferruginea is pounded, squeezed and drunk Crashed leaf mixed with water and salt drink it
Nicotiana tabacum.L	Solanaceae	Tumbaka Timbaho	Leaf	Leech	Crush dry leaves mix with water and give it to cattle as drink one galas morning
Justicia schimperiana T.Anders.	Acanthaceae	Simiza	Root	Rabbis Coccidiosis	Crushed the root then drink one cup for 2-3 day. The root crushed then mixed with water and drinking morning for 3 day.
Melia azedarach	Meliaceae	Mimiya	Leaf	White cholera New castle	The leaf crushed then mixed with water drink during morning time for 3 day. The leaf is crushed then mixed with water and drink oral
Cucurbita pepo.L	Cucurbitaceae	Maat'i aawa Duba fere	Leaf and climber	Bloating	The leaf and climber is burn then mixed with water and extract drinking before eating any grass for 2-3 day.
Myrsine melanophloeos	Myrsinaceae	Aalwangisha	Leaf	Black leg	The fresh leaf is fumigated in dry place for 3-5 day.
Asparagus africanus Lam.	Asparagaceae	Eliyia Yeset keset	Root	Retain of placenta Diarrhea	Crashed the bulb mixed with water and drink one glass for once during the birth time. Crushed the break then mixed with salt then drink one glas for 3 day.
Cordia africana Lam.	Boraginaceae	Baanja/ Waza	Break Root	Eye disease cough	Crushed the break and mixed with duba fere pounded and washed the eye for 3 day. Crushed the root and mixed with water egg then drink one galas for 3 day.
Carduus schimper Sch.	Asteraceae	Kooshoshila	Leaf	Mouth rash	The leaf burn then ash can mix with butter washed that mouth rash for 3 day.
Euphorbia ampliphylla J.F.Gmel	Euphorbiaceae	Eebreer a/Qulquale	Snap	Rabbis	The snap is mixed with teffe bread and salt then pounded and eaten for 3 day morning before eating any grass.
Clutia abyssinica Jaub. and Spach	Euphorbiaceae	Batska/feyele feg	Leaf	Diarrhea with blood	The leaf is crushed and mixed with salt and drink one glass for 3 day
lepidium sativum L.	Brassicaceae	Siimbila/feto	Seed	Bloating	The seed crushed and mixed with water then drink one glass for 3 day.
Clausena anisata (Willd) Beth.	Rutaceae	Lemich	Leaf	Coccidiosis	The leaf is crushed then mixed with water and given oral for the hen
Gardenia ternifolia Fresen.	Rubibaceaea	Gaaba /Gambilo	Root	Eye of cow	Crushed the root and mixed with duba fere pounded and washed the eye for 3 day.

Table 11. Continued.

Scientific Name	Route of application	Habit	Condition of preparation	Season of availability	Habitat	Distribution	Collation No.
Rhamnus Prinoides	Oral	Shrub	Fresh	Both	Wild	Medi	AB/025
Ficus vasta Forssk	Derma l	Tree	fresh	Both	Wild	Rare	AB/020
Anarrhinum forskoorlii	Oral	Herb	Fresh	Wet	Wild	Rare	AB/040
Grewia ferruginea Juss.	Oral	Tree	Fresh	Both	Wild	Rear	
Nicotiana tabacum.L	Oral	Herb	Both	Both	Home	Medium	AB/058
Justicia schimperiana T.Anders.	Oral	Shrub	Fresh	Both	Wild	Medium	AB/031
Melia azedarach	Oral	Tree	Fresh	Both	Wild	Medium	AB/007
Cucurbita pepo.L	Oral	Climber	Fresh	Both	Home	Medium	AB/049
Myrsine melanophloeos	Fumigated	Tree	Fresh	Both	Wild	Rare	AB/017
Asparagus africanus Lam.	Oral	Herb	Fresh	Wet	Wild	Rare	AB/033
Cordia africana Lam.	Dermal	Tree	Fresh	Both	Willd	Medium	AB/010
Carduus schimperi Sch.	Dermal	Herb	Fresh	Wet	wild	Rear	AB/021
Euphorbia ampliphylla J.F.Gmel	Oral	Shrub	Fresh	Both	Home	Rear	PHOTO
Clutia abyssinica Jaub. and Spach	Oral	shrub	Fresh	Both	Home	Medium	AB/034
lepidium sativum L.	Oral	Herb	Dry	Wet	Hom	Rare	AB/61
Clausena anisata (Willd) Beth.	Oral	Tree	Fresh	Both	Wild	Rare	AB/65
Gardenia ternifolia Fresen.	Dermal	Shrub	Fresh	Both	Wild	Medium	AB/012

Key: (Hb=Habit, Pu=Parts used, Ut=Used to treat, Cp=Condition of preparation, Ra= Route of application, T=Tree, H=Herb, Sh=Shrub, Cl=Climber, F=Fresh, D=Dried, F/D=Fresh/Dried, O=Oral, Dm=Dermal, Na=Nasal Er=Ear, L=Leaf, Rt=Root, St=Stem, Ba=Bark, S=Seed, Bu=Bulb, Snap, SN Ds=Distribution, C=Common, M=Medium R=Rare, = Season of ability, Wet=Dry=Both season.

## References

- [1] Abiyu Enyew, Zemed A, Ensermu K, Raja N (2014). Ethnobotanical Study of Traditional Medicinal Plants in and Around Fiche District, Central Ethiopia. *Current Research Journal of Biological Sciences* 6 (4): 154-167. Addis Ababa, Ethiopia, Uppsala Sweden 2009; 8: 1-7.
- [2] Addisie. Y, Yared. D, Kumar. PA, Tomas. Z, Awol. A, (2012) Traditional medicinal plant used by people in Libo kemkem district, south Gondar, Ethiopia, *Asian j. Agric Sci.* 4: 171-171.
- [3] *Assegid Assefa and Tesfaye Abebe. (2014). Ethnobotanical Study of Wild Medicinal Trees and Shrubs in Benna Tsemay District, Southern Ethiopia. Journal of Science & Development* 2 (1) 17.
- [4] Ayeni. E and Basiri B. (2018). Ethnoveterinary Survey of Plants used in Treating Livestock among the Fulani people of Girei, Adamawa State, Nigeria. *WNOFNS: 53-66 EISSN 2543-5426*.
- [5] Balcha Abera (2014). Medicinal plants used in traditional medicine by Oromo people, Ghimbi District, Southwest Ethiopia. *Journal of Ethnobiology and Ethnomedicine; 10 (40): 1-15*.
- [6] Bayafers Tamene (2000). A Floristic Analysis and Ethnobotanical Study of the Semi- Wet land of Cheffa Area, South Wello, Ethiopia. *Agriculture and Healthcare: ISSN 2224-3208 (Paper) ISSN 2225-093 Vol. 5, No. 1*.
- [7] Bizuneh Woldeab, Reta Regassa, Tibebe Alemu, and Moa Megersa (2018). Medicinal Plants Used for Treatment of Diarrhoeal Related Diseases in Ethiopia. Evidence-Based Complementary and Alternative Medicine Volume Article ID4630371, 20 pages <https://doi.org/10.1155/2018/4630371>
- [8] Cotton, C. M., 1996. *Ethnobotany: Principles and Applications*. John Wiley and Sons LTD. Chichester, UK, pp. 424.
- [9] Endalew Amenu (2007). *Use and Management of Medicinal Plants by indigenous People of Ejaji Area (Chelya Wereda) West Shewa, Ethiopia: An Ethnobotanical Approach*, M.Sc Thesis. Addis Ababa Ethiopia.
- [10] Endeshaw Bekele (2007): study on actual situation of mechanical plants in Ethiopia prepared for Japan association for international collaboration of agriculture and forestry.
- [11] Ermias Lulekal, Ensermu Kelbessa, Tamrat Bekele and Haile Yineger (2008). Plant Species Composition and Structure of the Mana Angetu Moist Montane Forest, South-Eastern Ethiopia. *Journal of East African Natural History*, 97: 165–185.
- [12] Fisseha Mesfin (2007). *An Ethnobotanical Study of Medicinal Plants in Wonago Wereda, SNNPR, Ethiopia*, M.Sc. Thesis. Addis Ababa University, Addis Ababa. Ethiopia.
- [13] Getnet Chokole, Zemed A, Ensermu K (2015). Ethnobotanical study of medicinal plants in the environs of Tara-gedam and Amba remnant forests of Libo Kemkem District, northwest Ethiopia. *Journal of Ethnobiology and Ethnomedicine. 2015; 11 (4): 1-38*.
- [14] Getnet Chekol (2017). Ethnobotanical study of medicinal plants used against human ailments in Gubalafto District, Northern Ethiopia. *Journal of Ethnobiology and Ethnomedicine. 13:55*.
- [15] *Gidey Yirga (2010). Use of traditional medicinal plants by indigenous people in Mekele town, capital city of Tigray regional state of Ethiopia, Journal of Medicinal Plants Research* 4: 25-50.

- [16] Haile Yineger and Dilnessaw Yewhalaw (2007). Traditional medicinal plant knowledge and use by local healers in Sekoru District, Jimma Zone, Southwestern Ethiopia. *Journal of Ethnobiology and Ethnomedicine*. 3: 24-26.
- [17] Haile Yineger, Ensermu Kelbessa, Tamrat Bekele and Ermias Lulekal, (2008). Plants Used in Traditional Management of Human Ailments at Bale Mountain National Park, Southeastern Ethiopia. *J. Med. Plant. Res.* 2 (6): 132-153.
- [18] Kebu Balemie, Ensermu Kelbessa and Zemedede Asfaw., (2004). Indigenous medicinal plant utilization, management and threats in Fentalle area, Eastern Shewa, Ethiopia. *Ethiopian Journal Biological Science*, 3: 37-58.
- [19] Luiz. R. Saldanha. G., Reinaldo, F., Paiva de A. (2005). Knowledge and use of medicinal plants by local specialist in a region of Atlantic Forest in the state of Pernambuco (North eastern Brazil).
- [20] Martine G (1995). *Ethnobotany: A method of manual Chopman and Hall London UK. Great Britain University Press e Cambridg press p 267.* May 1998, IBCR, Addis Ababa, Ethiopia.
- [21] Meaza G, Tadesse B, Maria AS, Piero B, Gidey Y. (2015). Traditional medicinal plants used by Kunama ethnic group in Northern Ethiopia. *Journal of Medicinal Plants Research.*; 9 (15): 494-509.
- [22] Mirutse Giday, Tilahun Teklehaymanot, Abebe Animut, and Yalemtehay Mekonn (2007). Medicinal plants of the Shinasha, Agew-awi and Amhara peoples in northwest Ethiopia. *Journal of Ethnopharmacology* 110: 516–525.
- [23] Moa Megersa (2010) Ethnobotanical Study of Medicinal Plants in Wayu Tuka Wereda, East Wollega Zone of Oromia Region,. MSC Thesis Addis Ababa, Ethioipa.
- [24] Mulugeta Kebebew (2016). Knowledge of medicinal plants used in and around Fincha'a Town, Western Ethiopia. *Journal of Pharmacognosy and Phytochemistry*; 5 (6): 110-114.
- [25] N. Amsalu, Z. Asfaw, and E. Kelbessa, (2015) "An ethnobotanical study of medicinal plants in Farta District, South Gondar Zone of Amhara Region, Ethiopia," pp. 28–55, *Haddis Alemayehu Institute of Cultural Studies*.
- [26] Nigatu Tuasha, Beyene Petros and Zemedede Asfaw (2018). Medicinal plants used by traditional healers to treat malignancies and other human ailments in Dalle District, Sidama Zone, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*: 14: 15-22.
- [27] Nigussie Amsalu, Yilkal Bezie, Mulugeta Fentahun, Addisu Alemayehu, and Gashaw Amsalu (2018). Use and Conservation of Medicinal Plants by Indigenous People of Gozamin Wereda, East Gojjam Zone of Amhara Region, Ethiopia: *Article ID 2973513, 23 pages* <https://doi.org/10.1155/2018/2973513>
- [28] Tadesse Birhanu, Dereje Abera and Eyasu Ejeta (2015). Ethnobotanical Study of Medicinal Plants in Selected Horro Gudurru Woredas, Western Ethiopia., *Journal of Biology, Agriculture and Healthcare: ISSN 2224-3208 (Paper) ISSN 2225-093X (Online) Vol. 5, No. 1.*
- [29] Tafesse Mesfine and Mekonnen Lemma (2001), the role of traditional veterinary Herbal medicinal and its constraints in the animal health care system in Ethiopia, Addis Ababa Ethiopia.
- [30] Teferi Flatie, Teferi Gedif, Kaleab Asres and Tsige Gebre-Mariam (2009). Ethnomedical survey of Berta ethnic group Assosa Zone, Benishangul-Gumuz regional state, mid-west Ethiopia. *Journal of Ethnobiology and Ethnomedicine* 5: 14.
- [31] Tena Regasa, (2015). Vascular plant diversity and ethnobotanical study of medicinal and wild edible plants in Jibat, Gedo and Chilimo forests, West Shewa Zone of Oromia Region, Ethiopia, PhD Dissertation, Addis Ababa, Ethiopia.
- [32] Tesfaye Hailemariam, Sebsebe Demissew and Zemedede Asfaw (2009). An ethnobotanical study of medicinal plants used by local people in the lowlands of Konta Special Woreda, southern nations, nationalities and peoples regional state, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 5: 26.
- [33] Teshale Sori, Merga Bekana, Girma Adugna and Ensermu Kelbessa, (2004). Medicinal Plants in the Ethnoveterinary Practices of Borana Pastoralists, Southern Ethiopia; *International Journal Applied Research Veternerian Medicine*, 2: 220-225.
- [34] Tizazu Gebre (2005). An Ethnobotanical Study of Medicinal Plants in Konso Special Woreda, Southern Nations, and Nationalities and Peoples Regional State, Ethiopia. M.sc. Thesis. Addis Ababa University.
- [35] Yamane T (1967) *Statics, An Introduction Analysis*, 2nd Ed., New York: Harper and Row.
- [36] Yihene Simegniew Birhan, Sintayehu Leshe Kitaw, Yihalem Abebe Alemayehu, Nakachew Minuye Mengesha (2018), Ethnobotanical study of medicinal plants used to treat human diseases in Enarj Enawga District, East Gojjam Zone, Amhara Region, Ethiopia. *SM J Med Plant Stud.*; 2(1): 1006.
- [37] Zemedede Asfaw (2001). The role of home gardens in production and conservation of medicinal plants. In: *Conservation and Sustainable Use of Medicinal Plants in Ethiopia, Proceeding of The National Work Shop on Biodiversity and Sustainable use of Medicinal Plants In Ethiopia*, 2.
- [38] Zerhiun W, Mesfin T (1990). The Status of the Vegetation in the Lake region of the Rift Valley of Ethiopia and Possibilities of its Recovery. *SINET: Eth. J. Sci.*, 392: 97-120.