



Research article

Ethnobotanical study on the medicinal value of selected five species in Gullele Botanic Garden and its surroundings

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Abstract: This study was carried out to document the ethnobotanical information on the medicinal use of five plant species. This aimed on medicinal value, the mode of preparation, the indigenous knowledge of the local people, the route of preparation and the conservation method. Ethnobotanical data were collected using semi-structured interview and discussion with informants. A total of 60 informants as general informants were randomly selected from all kebeles representing 10 from each. Descriptive statistics, Ranking and Informant consensus were used to analyze the collected data. From five plants species belonging to 5 families 40% of them were shrubs, 40% species were trees and 20% were herb. Most of the plant species are wild, which is represented by three plant species (60%) and two plant species (40%) are both cultivated and wild. The prepared traditional drugs were administered through different routes such as oral, dermal, and ocular. Oral (45%) and dermal (36.7%) administrations were the dominant route which is in liquid, smashed, juiced and powdered forms. The highest Informant consensus factor (1) was connected to both sexual transmitted disease and emergency diseases. Some of the species obtained from the study area have multi purposes such as for fuel wood, construction, household's tool, and shade. The major threats of the selected plant species are Agriculture expansion and charcoal wood collection hence most of these plants are said to be under threats. As regard to the knowledge of medicinal plants among the traditional healers and the people living around all the selected five plant species are used as remedies against a variety of complaints for both human's disease and the species were exposed to risk a lot by the activity of human being.

Keywords: Indigenous knowledge - Medicinal plants - Threat - Traditional healer.

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INTRODUCTION

The term Ethnobotany is referring to the study of interrelations between humans being and plants (Martin 1995, Balick & Cox 1996). It is also defined as people's lives in the area for a long time nexus with living organism on their natural environment (Martin 1995). It focus on how plants have been or are used, managed and perceived in human societies and includes plants used for food, medicinal, rituals, social life and others.

According to different studies, this study and the experience within the families the majority of the populations in developing countries like Ethiopia, rely on herbal preparation to help enhance health. A study by Hamilton (2004) attributed the dependence on medicinal plants to the low proportion of medical doctors to patients in Africa such as Ethiopia 1:33,000; Kenya 1:7,142; Tanzania 1:33,000; Uganda 1:25,000; Malawi 1:50,000; Mozambique 1:50,000; South Africa 1:1,639 and Swaziland 1:10,000. Another hand the necessity to resist numerous health problems on one hand, and the insufficient health care coverage on the other, plays a critical role in the observed utilization of more accessible and affordable medicinal plants by the majority of Ethiopians (Getachew *et al.* 2001). In Ethiopia, around 80% of the people use medicinal plants and plant remedies selected over centuries especially diseases like sudden sickness, headache, wound, for blood clotting and others. According to Abebe (2001) medicinal plants is the most important and the only source of therapeutics sometimes in the country.

Traditional medicinal plants play typical role in the lives of many people in terms of health support, financial income and livelihood security (Hamilton 2004, Abdulhamid *et al.* 2004). Plants in general and medicinal plants in particular are invaluable, fundamental and most useful to almost all life on the earth, one of the most significant uses of plants is the phytomedicinal role, *i.e.*, the benefits of medicinal plants.

The knowledge of medicinal plant use is yet incomplete because there has not been a total inventory of medicinal plants that have been traditionally known to indigenous people (Mesfin *et al.* 2005). There are many factors that decrease the traditional medicine in addition to environmental degradation, deforestation, agricultural expansion, over exploitation and population growth is the principal threat to medicinal plants in Ethiopia (Ensermu *et al.* 1992, Zemedu 2001, Kebu *et al.* 2004). Loss of knowledge is also aggravated by the expansion of modern education, making the younger generation underestimate its traditional values. Migration from rural areas to towns and resettlement of people from drought-stricken regions to fertile areas has also resulted in the deterioration of traditional practices (Fassil & Getachew 1999). Therefore, ethnobotanical studies are useful in documenting, analyzing and disseminating of knowledge on the interaction between medicinal plants and human society. Only some medicinal plants species are best and popular to treat various diseases in the indigenous society. Hence this study focuses on some selected medicinal plant species particularly in Gullele Botanic Garden.

MATERIALS AND METHODS

Description of the study area

This study has been done in Gullele Botanic Garden which is located on the northern parts of Addis Ababa City Administration, in Gullele and Kolfe Keraniyo sub cities and it covers 705 hectares. The area lies between 2450–2995 meters above sea level. Gullele Botanic Garden (GBG) is the world’s largest in size and youngest in age. It is surrounded by diverse social groups and cultural backgrounds of people. Addis Ababa City Administration (East-Entoto, South-Gullele and South-west-Kolfe Keraniyo) and Oromia Regional State (North-Wasarbi, Mizan and West-Burayu) are the main administrative units bordering the Gullele Botanic Garden.

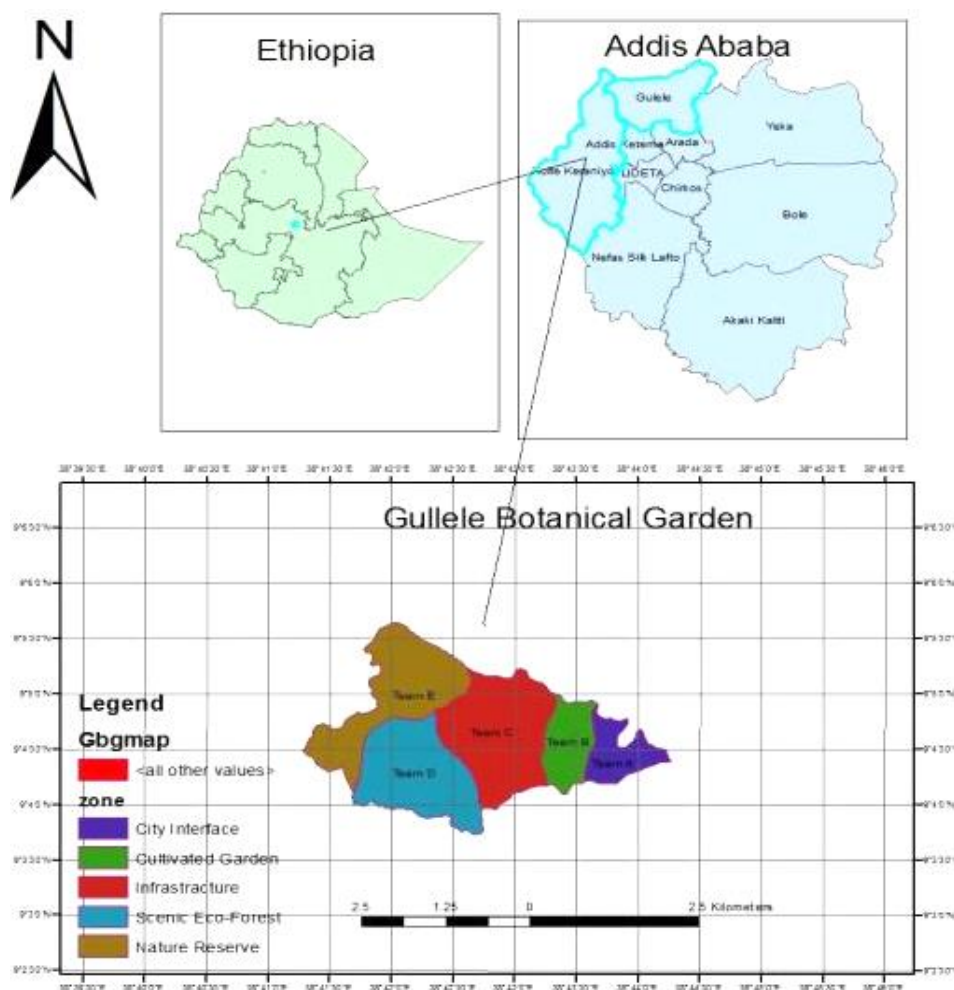


Figure 1. Map of the Study area.

The greater part of the botanic garden is covered by *Eucalyptus globulus* Labill. tree species, but the land closer to the river banks and inaccessible areas are covered by more than 250 trees, shrubs, herbs, climbers, ferns and other plant species before the collection are done (Birhanu 2009). Now the number of these plant species increased into 1200 according to the report of the research directorate data base. From the total species in the botanic garden 61 plant species is endemic, 189 exotic and 900 indigenous.

The areas with Dry Evergreen Afromontane Forest have canopies usually dominated by *Juniperus procera* Hochst. ex Endl. as a dominant species, followed by *Olea europaea* subsp. *cuspidata* (Wall. & G. Don) Cif. and *Afrocarpus falcatus* (Thunb.) C.N. Page is also found in sheltered valleys. The same is true for Gullele Botanic Garden *Juniperus procera* as a dominant species, followed by *Eucalyptus globulus*, *Hypericum revolutum* Vahl, *Olinia rochetiana* A. Juss., *Rapanea melanophloeos* (L.) Mez, *Myrsine africana* L. and *Erica arborea* L.

Sampling of Informants

From all kebeles surrounding the garden, there are above 600 employees in the garden as daily laborer, garden security, gardener and garden cleaner. These numbers represents the local people surrounding the city and they know more about the garden and plants in the gardens than others. A total of 60 informants (40 males and 20 females) as general informants were randomly selected from all kebeles representing 10 informants from each locality that surrounds the garden in all direction. Due to the standard of country on employee and the age that increase the knowledge about plants the minimum age were 18 and the maximum age were 81 who lives in. Based on the recommendations of local authorities, indigenously knowledgeable elders and traditional healer's combination, 6 key informants were selected purposively. The remaining 54 informants were selected randomly from the local people of the garden as general informants.

Ethnobotanical information

The techniques employed for data collection were group discussion and semi structured checklists consisting of questions or issues were prepared in advance. The interviews have been conducted based on and around these checklists and some issues arise promptly depending on responses of the informants. All of the interviews have been held in both Afan Oromo (local name for people come for Oromiya regional state) and Amharic (federal language which is the vernacular language of the local people come from Addis Ababa city). The place and time for discussion were settled on the interest of the informants to minimize the collapse with their work time.

Data collection

Ethnobotanical data were collected on April to May, 2019 and March to April 2020 by taking the plant samples from the garden site to the informants as their break time. The ethnobotanical techniques were employed to collect data on knowledge and management of the selected plants used by the local people of the study area. Information were gathered technically with communication to the villagers and accessible informants on an informal base to maximize the source of information of the informants on ethnobotanical uses such as which health problem treated, diagnosis and treatment methods, local name, source of collection either wild or cultivated in their garden when back to their home, degree of scarcity, plant part used, methods of preparation and application, threats of medicinal plants and conservation practices of respondents.

Data analysis

Descriptive statistics: The most useful information gathered on the selected medicinal plants reported by local people include medicinal value, application, methods of preparation, route of application, disease treated, dosage, part, habit, management methods, use and conservation were analyzed through descriptive statistical methods. The summarized and analyzed data have been expressed in the form of tables and word description.

Direct matrix ranking (use value matrix): Direct matrix ranking exercise was done following Martin (1995) in order to compare multipurpose use of given species and to relate this to the extent of its utilization versus its dominance. All key informants were asked to give response by saying excellent, very good, good, less used, least used and not used based on their representative value from 5 to 0 respectively. Accordingly, each key informant gave use values for the five multipurpose plants and average values of use diversity for species was taken and the values of each species were summed up and ranked.

Preference ranking: According to Martin (1995) six key informants have been selected to assess the degree of effectiveness of the five medicinal plants for human's alignment. Accordingly the most effective medicinal plants got highest value (5) least effective got the lowest value (1). The value of each species was summed up and the rank for each species was determined based on the total score.

Informant consensus factor (ICF): ICF was calculated for most frequently reported diseases and to check the validity of the information recorded during the interview, the contact with informants were more than two times for the same ideas. Hence ICF was calculated as the number of use citation in each category (Nur) minus the number of species used (Nt), divided by the number of use citations in each category minus one (Heinrich *et al.* 1998).

$$ICF = \frac{Nur - Nt}{Nur - 1}$$

Where, ICF: Informant consensus Factor; Nur: number of use citation; Nt: number of species used.

RESULTS AND DISCUSSION

Ages of informants

The distribution of informants with respect to age class shows that, the majority of knowledgeable elders are in the age class of 41 to 50 followed by 30 to 40 (Table 1).

Table 1. Age of informants in the study area.

Informants age	Number of informants	Percentage (%)
18-30	10	16.6
31-40	15	25.0
41-50	20	33.3
51-60	5	8.3
61-70	6	10.0
71-80	3	5.0
81-90	1	1.6
Total	60	100.0

Description and use of the selected five Medicinal Plants

1. *Clematis simensis* Fresen.; Hidda fitii (Oro); Family: Ranunculaceae

[Fig. 2]

It is a woody climber which is grows up to 10 m or more, sometimes with long branches lying on the ground. It is growing with *Myrtus addat* and *Rumex abyssinicus* in the garden at altitudinal range between 2650–3000 m.a.s.l.

The very acid juice has been recorded as being used for making tattoos, and possibly also for engraving iron. The leaves are used to dress wounds and the sap as a febrifuge and against bloat in animals. The findings of Abiyu *et al.* (2014) also indicate that Fresh leaf crushed with water, filtered juice is given orally for treatment of tonsillitis. The seeds are used against rheumatic pain. The over dosage application on the wound have side effects by increasing of its size.



Figure 2. *Clematis simensis* Fresen.

2. *Hagenia abyssinica* (Bruce) J.F. Gmelin; Kosso (Amh); Family: Rosaceae

[Fig. 3]

It is a tree plant that growing to 25 m tall with a rounded or even umbrella shaped crown. It is flowering after the big rains from October to February. It is found in the garden at altitudinal range between 2650–3000 m.a.s.l.

In Ethiopia as well as in our in Gullele Botanic Garden 'kosso' is considered as a panacea and the tree is one of the most useful medicinal plants. The female flower of this plant is used as a remedy for tapeworm

infestation. Assefa *et al.* (2010) improve this as according to study in different parts of Ethiopia the flower parts used to treat Intestinal worms (tapeworm). According to the respondents it is widely used for treatments of tape worm and furniture making.



Figure 3. *Hagenia abyssinica* (Bruce) J.F. Gmelin.

3. *Laggera tomentosa* (Sch. Bip. ex A. Rich.) Oliv. & Hiern.; Koskoso (Amh); Family: Asteraceae [Fig. 4]

It is a bushy, perennial herb or sub shrub averagely 0.5–1.2 m high and an aromatic plant. The stem is densely tomentose. One of the dominant species in the Gulele botanical garden and found between 2650–3000 m.a.s.l.

Laggera tomentosa is a well-known and frequently cultivated medicinal plant. It is used as a fumigant and in cleaning milk containers. It is also used for the home cleaning. Used as the treatments of tonsil especially for children in the rural areas culturally. The result of Abiyu *et al.* (2014) opposes the present finding in which fresh leaf paste is used for alimnet of headache.



Figure 4. *Laggera tomentosa* (Sch. Bip. ex A. Rich.) Oliv. & Hiern.

4. *Milletia ferruginea* (Hochst.) Bak.; Birbira (Amh); Family: Fabaceae

[Fig. 5]

It is an endemic tree to Ethiopia with a mainly straight trunk. The bark is smooth and grayish. It is flowering is from November to April. It is a very common tree in the streets and gardens of Addis Ababa. Commonly found in both moist and dry montane forest, especially along streams and forest edges. It grows in the garden at the bottom belt up to 2800 m.a.s.l. and extremely fast growing and is easily propagated from seeds.

The seeds contain a narcotic and the flour from them is used to stun fish. According to this study the moist fruit is used for fish harvesting which is not good for reproduction of fish due to the damage under age fishes.



Figure 5. *Milletia ferruginea* (Hochst.) Bak.

5. *Urtica simensis* Hochst. ex A. Rich.; Sama (Amh); Family: Urticaceae

[Fig. 6]



Figure 6. *Urtica simensis* Hochst. ex A. Rich.

Erect, pale green, dioecious, almost un branched perennial herb to which grow up to 1 m tall from a creeping rhizome, finely pubescent to glabrescent, with numerous, up to 2.5 mm long stinging hairs on lamina, petioles and inflorescences. Most common in road side, in ditch, in large quantities near houses and it is distributed between 2650–3000 m.a.s.l. It is apparently endemic in Ethiopia, with a closely related, somewhat taller and more robust species with more finely serrate leaves and larger stipule.

Its young leaves are edible as “Wot” by mixing with barley powder for treating of the gastric, refraction and eaten during drought season because this plants are drought resistant. Similarly Atnafu *et al.* (2018) described that the boiled leaves is given to eat with injera (Ethiopian bread) orally to treat gastritis.

Modes of Preparation of Medicinal plants

The composition of herbal preparation as single drug and in mixed ingredient forms is not changed depending on the patient age, sex etc. but the dose may be changed with age, level of the disease, physical appearance (body weight) of the patient. According to this study, preparation from single species is greater than the other mixed ingredient form. Thus, the widely using of single plant species for the preparation of local medicines in the study area is in agreement with the finding of (Kebu *et al.* 2004, Debela *et al.* 2004).

The major forms of preparation form of plant medicines in the study area include; liquid forms (liquid obtained after crushed), exudates form (tablet, sap and drop form), powdered forms, smashed, juiced, boiled or filtered form and as unprocessed plus other forms in the study area. The dependency of local people on fresh materials of the plants put the species under series threat than the use of a drier form. The harvested fresh species of plants didn't have extra deterioration for preservation. However, traditional healers argue that fresh materials are effective in treatment as the contents are not lost. The findings of Bayafers (2000) and Debela (2001) also reflect similar ideas. But the healers have probability to use all equally due to have the area store the medicine.

The popularity of the liquid preparations may be due to easy method of the liquid preparation form and due to property and availability of water as solvent. They also use milky and lemon juice as a solvent of traditional medicine. The widely using of the liquid preparations forms in this study is in agreement with findings in other parts of the country by Dawit & Ahadu (1993) and Abiyot (2002).

Dosage of Medicinal Plants used

Numerous units of measurement and the rout of administration were used to determine the dosage such as measuring using materials like spoon, coffee cup, tea cup and glass cups and numbers (*e.g.*, for leaves, seeds, fruits, bulbs, rhizomes, flowers and latex) were used to estimate and fix the amount of medicine. But, these measurements are not accurate enough to determine the precise amount. For medicinal plants that are taken typically they do not have clear cut dosage. Sofowora (1982) and Dawit (1986) have also discussed lack of precision and standardization as one drawback for the recognition of the traditional healthcare system. Until recovery from the disease, disappearance of the symptoms of the diseases, removing out of the disease symptom and judgment of the healer to stop the treatment were some of the criteria used in determining duration and dosage of administration. However, from the interview made during the study, it was found that there was disagreement among the healers concerning the dosage system used. Although the measurements used to determine the dosages are not standardized and doses given depend on the age, physical appearances and health conditions; that is, children are given less dose than adults, physically strong individuals take more dose than weak individuals depending on the type of disease. Though such prescription difference was practiced, still the amount prescribed by healers for both children and adults might not conform to the standard prescriptions as in modern medical literature. According to Dawit & Ahadu (1993), the real drawback in traditional medicine system mostly arises from lack of precision in dosage. The absence of any adverse effects of traditional medicines after administration were also more frequently mentioned by the traditional healers but some of the preparations were reported to have some adverse effects like diarrhea and vomiting.

Route of Administration of the Traditional Medicine

The prepared traditional drugs are administered through different routes of administration. The major routes of administration in the study area include; oral, dermal, ocular and others /local, topical, etc. In this study, the most popular way of administration of herbal medicines were oral (45%) followed by dermal which accounted (36.7%) (Table 2).

Both the dominant routes of administration (oral and dermal) routes permit rapid physiological reaction of the prepared medicines with the pathogens and increase its curative power. A previous report such as Dawit (1986), Bayafers (2000) and Kebu *et al.* (2004) agrees with this current finding and the informants reported that

there are restrictions to enhance rapid physiological reaction and to increase its curative power of remedies while they compared to the modern medicine.

Table 2. Routes of administration and number of application of herbal medicine.

Root of administration	Total application	Percent (%)
Oral	27	45.00
Dermal	22	36.70
Ocular	7	11.66
Others	4	6.66
Total	15	100.00

Ranking of Medicinal Plant

When there are more than one plant species which are used to treat the same ailments, people prefer the better one. In this study, key informants were selected to conduct pair wise ranking exercise of the selected medicinal plants used to treat different disease types and to conduct preference ranking of six key informants (A-F) were selected to compare five medicinal plants used to treat different types of disease (Table 3).

Table 3. Preference ranking of selected five medicinal plants used to treat different diseases types based on the informants perceptions. [Values given 0 to 5: 0- Not used, 1- Least used, 2- Less used, 3- Good, 4- Very good & 5- Excellent]

Plant species	Respondents level A-G						Total	Rank
	A	B	C	D	E	F		
<i>Clematis simensis</i> Fresen.	2	3	4	2	3	2	16	5 th
<i>Hagenia abyssinica</i> (Bruce) J.F. Gmelin	4	4	3	4	3	2	20	3 rd
<i>Laggera tomentosa</i> (Sch. Bip. ex A. Rich.) Oliv. & Hiern.	4	4	3	4	4	4	23	1 st
<i>Milletia ferruginea</i> (Hochst.) Bak.	3	3	4	4	3	4	21	2 nd
<i>Urtica simensis</i> Hochst. ex A. Rich.	3	3	2	4	4	3	19	4 th

According to the result of pair wise ranking *Laggera tomentosa* stood 1st whereas *Milletia ferruginea* ranked 2nd and *Hagenia abyssinica* ranked 3rd and *Urtica simensis* ranked 4th and *Clematis simensis* are less preferred and believed to be less efficacious when to compared to the first and second ranked plants for treating different types of diseases.

Use Diversity of the Medicinal Plants

A number of medicinal plants were reported that they have multiple uses other than their medicinal use. According to the result of the study, of the total five medicinal plant species selected in the study area, all have multiple uses in addition to medicinal purposes include; fuel wood (charcoal plus fire wood) and construction. Accordingly, each key informant gave use values for the five multipurpose medicinal plants and average values of each use-diversity for species was taken and the values of each species were summed up and ranked (Table 4).

Table 4. Average score for direct matrix ranking of five medicinal plant species based on their use diversity /use. [Values given 0 to 5: 0- Not used, 1- Least used, 2- Less used, 3- Good, 4- Very good & 5- Excellent]

Main uses	Plant species					Total	Rank
	CS	HA	LT	MF	US		
Medicinal	4	4	4	3	4	17	1 st
Firewood	0	3	0	3	0	6	5 th
Construction	4	2	2	2	0	10	2 nd
Household tools	3	4	0	2	0	9	3 rd
Live shade	0	3	0	4	0	7	4 th
Total	11	16	6	14	4		
Rank	3 rd	1 st	4 th	2 nd	5 th		

Note: CS- *Clematis simensis* Fresen.; HA- *Hagenia abyssinica* (Bruce) J.F. Gmelin; LT- *Laggera tomentosa* (Sch. Bip. ex A. Rich.) Oliv. & Hiern.; MF- *Milletia ferruginea* (Hochst.) Bak.; US- *Urtica simensis* Hochst. ex A. Rich.

Accordingly, *Hagenia abyssinica* was ranked 1st whereas *Milletia ferruginea* ranked 2nd, and *Clematis simensis* ranked 3rd hence, these three species are the most preferred medicinal plants used for treating different diseases and thus are the most threatened species as commented by the informants due to their multifunction. On the other hand, the result (Table 4) shows that the local people use the multipurpose species mainly for medicinal (1st) and construction (2nd), household tools (3rd), live shade (4th), firewood (5th) purposes. This over uses of medicinal plants for other purposes such as construction and others could be a good indication that these invaluable resources are of conservation risk. Thus the long term survival of the top ranked species is under question if the exploitation of these plants continues with the existing rate.

Informant consensus

Eighty percent of the medicinal plants are more popular by members of the community than the other. Due to the effectiveness of the species treating Intestinal Parasitic diseases, STDs, Emergency diseases, Dermatological diseases and Livestock diseases by traditional medicine than modern medicine. *Hagenia abyssinica*, *Clematis simensis*, *Milletia ferruginea* and *Laggera tomentosa* are cited by 45, 44, 42 and 35 respondents respectively. *Hagenia abyssinica* was cited by 45 informants to treat Tapeworm, Amoeba, Giardiasis and internal worms *Laggera tomentosa* was cited by 44 informants to treat malaria, tonsil, common cold, itch and evel eye and so on, as mentioned in table 5.

Table 5. Medicinal plants cited by greater than 50% of the informants.

Plant species	Number of informants	Percent
<i>Hagenia abyssinica</i> (Bruce) J.F. Gmelin	45	75.0
<i>Laggera tomentosa</i> (Sch. Bip. ex A. Rich.) Oliv. & Hiern.	44	73.3
<i>Milletia ferruginea</i> (Hochst.) Bak.	42	70.0
<i>Clematis simensis</i> Fresen.	35	58.3
<i>Urtica simensis</i> Hochst. ex A. Rich.	27	45.0

Informant consensus factors

Frequently reported diseases and diseases categories were expressed by Informant consensus factor (ICF). ICF result was presented in table 6. It revealed that the highest value of ICF (1) was connected to problems associated with both Sexual Transmitted Diseases and Emergency diseases followed by Intestinal Parasites (0.990). This revealed that relatively few species of medicinal plants species were used consistently. Medicinal plants used to treat those ailments were more known and effective to cure the diseases. Livestock diseases scored least (0.969) ICF. This category might be indicative for lack of consistency relatively and less common in the use of plant species in the study area.

Table 6. Informant consensus factor by categories of diseases in the study area.

Diseases category	Diseases included	Species (Nt)	Use citation (Nur)	ICF
Intestinal Parasites	Tapeworm, Amoeba and Giardiasis	2	112	0.990
STDs	Gonorrhea and Syphilis	1	98	1.000
Emergency diseases	Sudden sickness, Common cold and Tonsil	1	116	1.000
Dermatological diseases	Itch (Ekak), Sweating and Wound	3	76	0.973

Threats to medicinal plants

The natural and human factors are the two main reason that cause huge threats to medicinal plants. However, depend on the results most of the causes for the threats to medicinal plants and associated knowledge are the anthropogenic factors such as deforestation due to over exploitation of plants for different uses/charcoal, fire woods, construction woods, overgrazing, cutting and burning of plants to create new agricultural lands, medicinal plants trade for different uses and others.

Conservation of medicinal plants and associated knowledge

The above causes and other similar reasons are the problems for the conservation of medicinal plants and associated knowledge. Even though, there are many problems plus high population growth and thus there are over exploitation of medicinal plants for different purposes and for getting the daily income, the significant numbers of the local people of the area know the importance of conserving the plants in both ex-situ and in-situ conservation methods. Gullele Botanic Garden is conserving the plants both in-situ method (in original/natural habitat) at the garden, and Ex-situ by collecting from different parts of the country which is one of the objectives of the garden.

CONCLUSIONS

Traditional medicinal plants are central to the rural cultures and materials needs. People are knowledgeable about the plants distribution, use and conservation. Indigenous practices somehow contributed to the sustained use, management and conservation of medicinal and multiple use of indigenous trees. Traditional medicinal plants harvested mostly from wild vegetation's. They are also obtained from road side and farm lands. Leaves of the plants were found the dominant growth forms used for the preparations of traditional remedies followed by flower and roots for preparation of human remedies. Moreover they employ medicinal plants for different purposes besides their medicinal value such as charcoal and firewood, construction, furniture, spices and fumigants. These important medicinal plants are under threat and the indigenous knowledge is also eroding .The

major threats to medicinal plants and the associated knowledge on these particular plants are: agricultural expansions, fire wood collections grazing and drought in that order to overcome these problems traditional healers have gone far to get the plants that used for the medication. In spite of this fact ,traditional healers still depend to a greater extent on naturally growing species , as they believe those species in the wild vegetation are more powerful in the treatment of different ailment and health problems the scarcity of the plantation area for growing the plants in the city. As regard to the knowledge of medicinal plants among the traditional healers and the people living around all the selected five plant species are used as remedies against a variety of complaints for both humans and veterinary disease in the area. They are also the more cited species for their medical value as compared to other medicinal plants, which is again an indication of their relative abundance. The selective five plants are not used by the healers as compare to the desert plants. The collected plants from different parts of the country especially the plants from lowland are the most important for them for treatments of different disease.

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