Traditional medicinal plant use of indigenous communities in Gurage Zone, Ethiopia

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Research

Abstract

Background: The traditional use of medicinal plants for curing and preventing illnesses has been paramount and widely practiced in Ethiopia for generations. This study was carried out in Gurage zone, Southern Nations, Nationalities and Peoples Region, Ethiopia. The study aims to document the state of traditional knowledge related to local plant uses for medicine and examine how the communities’ value and relate to medicinal plants.

Methods: Ethnobotanical data were collected using semi-structured interviews, in which 240 informants were involved. For data analysis, descriptive statistics and ethnobotanical indices, including informant consensus factors (ICF) and use preference were used.

Results: A total of 200 medicinal plant species that are used to treat human ailments were documented. Plant families Asteraceae (13%) and Lamiaceae (10%) were predominant whereas the most frequently used plant parts were the leaves, accounting to about 43.8% followed by roots (14%). Indigenous knowledge distribution in the community showed significant differences (p < 0.05) in the study groups for factors of age and educational level. The ICF value obtained which ranges between 0.49 and 0.92 indicates the presence of good agreement among the informants regarding therapeutic uses of reported medicinal plant species. More than 50% of the respondents prefer to use traditional medicine as the first line of treatment. For eight health problems traditional herbal medicines remain dominant and highly preferred treatment, irrespective of the presence of modern health services within short distance from their residence.

Conclusions: The richness of medicinal plant species recorded from the study area reflects the dependence of the communities on plant resources of their natural surroundings. Combined effect of various threatening factors are posing threat as a result widely used medicinal plants are becoming locally rare which calls for protecting and developing the resource for wider and better use.

Keywords: Gurage, medicinal plants, traditional knowledge

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Background
Over centuries, rural peoples around the world have relied on natural resources to fulfill their basic needs for survival. Thus, the people have developed their own locality-specific knowledge on plant use particularly as traditional medicine (TM) (Cotton 1996, Mahidol et al. 2002, Ghorbani et al. 2006). Besides, based on their traditional use a remarkable number (over 25%) of modern drugs have been isolated from plants (Newman et al. 2000).

A number of studies had been carried on different aspects of medicinal plants in Ethiopia (Addis et al. 2002, Lulekal et al. 2013, Belayneh & Bussa 2014, Kidane et al. 2014). However, similar studies on traditional medicinal plants in Gurage zone remained poorly characterized and understood. The zone is facing growing threats of traditional knowledge erosion mainly due to continual out migration of the youth, modernization that undermine the practice and reluctance of youngsters to carry forward traditional practices. Therefore, this study aimed at investigating traditional medicinal plant use of indigenous communities in Gurage Zone.

Materials and Methods
Study Area
Gurage Zone is located at 7°40'0"- 8°30'0"N and 37°50'0"- 38°40'0" E in the Southern Nations, Nationalities and Peoples Region of Ethiopia (Fig. 1). The altitude ranges from 1000 to 3600 m a.s.l. and covers an area of 5893.5 km² (Gurage Zone Finance and Economy Development Department, 2010). The mean annual temperature of the study area is within the ranges of 13-30 °C and receive an annual rainfall ranging from 600-1600 mm (Southern Nations, Nationalities and Peoples Region investment bureau report, 2008). Based on the recent classification of potential vegetation types of Ethiopia by Friis et al. (2011), the study area is largely covered by the dry evergreen Afromontane forest and grassland complex (the undifferentiated Afromontane forest subtype). Land use/cover map of the study area indicated that the cultivated land covered 52% and only 9.9% is covered by natural and human-made forest.

Figure 1. Map of Ethiopia and the study area

According to the 2013 CSA projection report the total population of Gurage Zone was estimated to reach 1523129 in 2014 (CSA 2013). The Zone is among the most densely populated areas in the country with 269 persons per km², higher than the average population density of the region (140 persons/km²) and the country (114 persons/km²). The Gurage Zone consists of peoples mainly belonging to the Gurage ethnic group (Cheha, Meskan, Muhir-Aklil and Sodo districts) that speaks Guragigna. Qebena
and Mareqo ethnic groups are also found in the Zone and they speak Qebena and Libido (Mareqo) languages respectively. According to the zone health department, the top ten causes of adult morbidity and mortality include malaria, acute upper respiratory infection, pneumonia, gastritis and duodenitis, diarrheal disease, infections of the skin and subcutaneous tissue, urinary tract infection, muscular rheumatism and rheumatism unspecified, helminthes and dental problems.

**Study site and Informant selection**

Formal and informal discussions regarding herbal medicine uses in the zone was undertaken with agriculture officers, health center authorities and also with elderly people of the area. Based on the information obtained, five districts were selected for the study (Cheha, Qebena, Mareqo, Meskan, Muhir-Akil, and Sodo districts). Based on further recommendation, availability of medicinal plants and herbal use practices, two kebeles (lowest administrative units) were purposively selected from each district.

General informants were selected by using random sampling method. This enable application of rigorous statistical analysis and could easily reflects plant use knowledge that exist within a population (Gomez-Beloz 2002, Vogl et al. 2004). A total of 240 informants (20 from each kebele), 138 males and 102 females, who volunteered to participate were selected randomly by a lottery method. In order to collect additional specific quantitative data, twenty-four key informants who are traditional healers and knowledgeable persons as being acknowledged by the local community were purposively selected (Martin 1995, Tongco 2007).

**Data collection**

Ethnomedicinal data were collected between May and October 2016. Structured and semi-structured interviews during walk-in-the-woods, plant ‘props’ (freshly collected plant material or photographs), focus group discussions, and observation were used for data collection (Martin 1995, Cotton 1996, Bernard 2002, Van Damme & Kindt 2012).

Written permission to conduct the research was obtained from the respective zone and district administrative officials. Prior informed consent was obtained from each informant before every interview.

**Plant collection and identification**

All plant specimens were collected, dried, identified and deposited in the National Herbarium (ETH) of Addis Ababa University. The plants were identified by using the Flora of Ethiopia and Eritrea (Edwards et al. 1995, 1997, 2000; Hedberg & Edwards 1989, 1995; Hedberg et al. 2003, 2004, 2006), in comparison with authenticated specimens from the herbarium and later confirmed by senior taxonomists of the herbarium.

**Data analysis**

Descriptive statistical methods (percentage and frequency) were used to summarize traditional knowledge of the community related to plant part used, method of preparation, mode of administration, time and condition of TM use preference. Ethnobotanical analysis tools preference ranking, and informant consensus factor were also used to identify the most culturally important medicinal plants (Martin 1995, Alexiades 1996). Informant consensus factor (ICF) was calculated to show the degree of homogeneity of the information collected and the degree of overall agreement on the treatment of different health disorders (Trotter & Logan 1986, Heinrich et al. 1998). ICF was calculated following Heinrich et al. (1998):

\[
  \text{ICF} = \frac{nur - nt}{nur - 1}
\]

Where: \(nur\) refers to the number of use reports of an informant for a particular ailment category and, \(nt\) to the number of species used for a particular illness.

Non-parametric Mann-Whitney Rank Sum analysis was used to examine traditional knowledge differences across age class, gender and educational level. These variables are considered as factors that determine traditional knowledge of a community (Eyssartier et al. 2008; Avocèvou-Ayisso et al. 2011, Lulekal et al. 2013, Kidane et al. 2014).

**Results**

**Diversity of medicinal plants**

A total of 200 species belonging to 169 genera and 77 families were mentioned as being used to treat human ailments in the study area (Additional file 1). In terms of percentage of species plant family Asteraceae (25 spp., 13%) appeared to be the most frequently used traditional herbal medicine followed by Lamiaceae (19 spp., 10%), Fabaceae (10 spp., 5%) and Solanaceae (9 spp., 5%) (Fig. 2).

**Plant parts used for remedy preparation**

The most frequently used plant parts for remedy preparations were leaves accounting for 111 species (46%) followed by roots 33 (14%) and seeds 25 (10%) (Table 1).

**Plant growth forms**

Herbs constitute the largest category recorded (47%) followed by shrubs (27%) and trees (20%) (Fig. 3).
Figure 2. Taxonomic diversity of medicinal plants used to treat human ailments in the study area.

Figure 3. Growth forms of species used in the traditional medicine
Table 1. Plant parts used for remedy preparation

| Part used    | Number | Percentage |
|--------------|--------|------------|
| Leaf         | 111    | 46         |
| Root         | 33     | 14         |
| Seed         | 25     | 10         |
| Leaf and root| 16     | 7          |
| Fruit        | 14     | 6          |
| Stem         | 12     | 5          |
| Bark         | 8      | 3          |
| Flower       | 5      | 2          |
| Latex        | 5      | 2          |
| Bulb/Corm    | 4      | 2          |
| Leaf and bark| 4      | 2          |
| Whole part   | 4      | 2          |
| Total        | 241    | 100        |

**Modes of remedy preparations**

Most of the remedies were primarily prepared by infusion (32%), crushing (29%) and decoction (11%) (Fig. 4). The majority (68%) of the remedies were prepared from newly harvested (fresh) plant parts. The remaining were prepared from either dried or fresh parts (28%) and few (4%) were prepared from dried plant parts only.

**Routes of remedy administration**

Internal and external route of application were reported. The majority of the remedies were administered orally (52%), followed by dermal or topical (27%), and dental (8%) application (Table 2).

**Dose, side effects and antidotes of administered herbals**

Informant responses indicated that there were variations in dosage of remedies and medicinal plant species used for the same kind of health problems. Age of patients was one of the determining factors that is used to estimate the amount of remedies to be taken. Length of fingertips for roots (e.g. Cucumis ficifolius A. Rich., Polygala sadebeckiana Gurke), number of seeds/fruit (e.g. Bersama abyssinica Fresen., Coffea arabica L.) and hand full of leaves (e.g. Ajuga integrifolia Buch-Ham., Pittosporum viridiflorum Sims) were usually used to estimate required dosage for preparation of the remedies. With regard to dosage during application spoon, coffee cup and glass were used to measure the amount to be taken. Remedies could be taken once or until cured, which depends on the kind of ailment. Most often, young and adults take amount of cup or a glass, if taken orally. However, children less than ten years and old aged (> 70 years) patients are given less than half of coffee cup or a teaspoon.

Most of the respondents (60%) recognize the amount of TM that should be taken and/or their side effects. Informants believe that taking high dosage of herbals such as Ipomoea purpurea (L.) Roth. cause urinary retention, mental illness in the case of Datura stramonium L., and liver problems (Justicia schimperi ana (Hochst. ex Nees) T. Anders.). Some
medicinal herbs such as *Brassica nigra* (L.) Koch, *Lepidium sativum* L., *Linum usitatissimum* L. and *Phytolacca dodecandra* L’Herit., were prohibited for pregnant women (less than 3 months), which are believed to cause miscarriage. Whenever possible or when strong medicinal plants are taken (strong medicinal plants defined by informants as those causing side effects), food and drinks such as honey, butter, milk, and local beer “TELA” (mostly made from malt and dried leaves of *Rhamnus prinoides* L’Herit.) were recommended to be taken. These were thought to reduce side effects that might result in adverse actions, and hence taken as antidotes.

**Preference of medicinal plants**

Fifteen medicinal plants that are used to treat dental problems were selected for preference ranking (Table 3). The result showed that different medicinal plant species were primarily preferred in the study districts. Species *Acmella caulirhiza* Del. (most favoured in Cheha), *Ocimum utriculfolium* Roth (Mareqo), *Olea europaea* L. subsp. *cuspidata* (Wall. ex G.Don (Sodo), *Olinia rochetiana* A. Juss. (Meskan and Muhir-Akili), and *Polygala sadebeckiana* Gurke (Qebena) were the most favored medicinal plants to treat dental problems.

| Species                          | Study districts | Sum | Rank |
|----------------------------------|-----------------|-----|------|
|                                  | C   | MA | ME  | SO  | Q   | MQ |
| *Olinia rochetiana*              | 15  | 21 | 28  | 13  | 21  | -  |
| *Allium sativum*                 | 16  | 11 | 11  | 18  | 13  | 15 |
| *Datura stramonium*              | -   | 14 | 21  | 12  | 20  | 8  |
| *Acmella caulirhiza*             | 23  | -  | 18  | 11  | -   | 20 |
| *Olea europaea* subsp. *cuspidata* | -   | 10 | 15  | 20  | 12  | -  |
| *Polygala sadebeckiana*          | -   | 12 | -   | 25  | -   | 37 |
| *Premna schimperi*               | 19  | -  | -   | 16  | -   | 35 |
| *Ekebergia capensis*             | 18  | -  | 12  | -   | -   | 30 |
| *Rubia cordifolia*               | 10  | 16 | -   | -   | -   | 26 |
| *Ocimum utriculfolium*           | -   | -  | -   | -   | -   | 22 |
| *Clematis simensis*              | 10  | -  | -   | 10  | -   | 20 |
| *Gladiolous abyssinicus*         | 11  | -  | -   | 5   | -   | 16 |
| *Lepidium sativum*               | -   | -  | -   | -   | 12  | 12 |
| *Achyranthes aspera*             | -   | -  | -   | -   | 7   | 7  |
| *Ocimum lamiiifolium*            | -   | -  | 7   | -   | -   | 7  |

(Study districts - Cheha (C); Muhir-Akili (MA); Meskan (ME); Sodo (SO); Qebena (Q); Mareqo (MQ)). *- medicinal plants not indicated as being useful for dental problems. Higher score refer most preferred in the district (indicated in bold). Rank was done by summing up the preference score of each study district.

| Routes of administration | Frequency | Percentage |
|--------------------------|-----------|------------|
| Oral (drink, eat)        | 142       | 52         |
| Dental                   | 21        | 8          |
| Nasal                    | 13        | 5          |
| Oral (oral cavity)       | 12        | 4          |
| Eyes                     | 6         | 2          |
| Dermal or topical, tied  | 75        | 27         |
| Herbal bath (smoke, steam) | 6      | 2          |
The ICF value obtained indicated the presence of good agreement (0.49 - 0.92) among informants regarding ailments treated by medicinal plants (Table 4). Higher informant consensus (0.89) was obtained for unclassified, infectious and intestinal parasitic diseases, diseases of the respiratory system and diseases of the musculoskeletal system.

Category of ailments (inflammation related to anthrax and liver diseases) which are culturally accepted being treated effectively with medicinal plants have also scored relatively higher ICF values (0.87 and 0.83 respectively).

Table 4. Informant consensus factor (ICF) values

| Major use categories                        | Number of use report (Nur) | Use report taxa (Nt) | ICF (Nur/Nt/Nur-1) |
|---------------------------------------------|-----------------------------|---------------------|--------------------|
| Diseases of the musculoskeletal system      | 224                         | 25                  | 0.89               |
| Diseases of the respiratory system          | 376                         | 43                  | 0.89               |
| Infectious and intestinal parasitic diseases| 733                         | 85                  | 0.89               |
| Headache, fever and malaria                 | 284                         | 36                  | 0.88               |
| Dental & oral diseases                      | 190                         | 26                  | 0.87               |
| Inflammation related to anthrax             | 159                         | 22                  | 0.87               |
| Diseases of the genitourinary system        | 120                         | 17                  | 0.87               |
| Diseases of the digestive system            | 416                         | 59                  | 0.86               |
| Liver diseases/complaints                   | 151                         | 27                  | 0.83               |
| Pregnancy, childbirth and the puerperium    | 95                          | 19                  | 0.81               |
| Diseases of the skin and subcutaneous tissue| 307                         | 63                  | 0.8                |
| Diseases of the eye and adnexa              | 53                          | 19                  | 0.65               |
| Injury, poisoning and certain other consequences of external causes | 61                         | 25                  | 0.6                |
| Diseases of the circulatory system          | 38                          | 20                  | 0.49               |
| Unclassified                                | 1102                        | 87                  | 0.92               |

Traditional knowledge of the community and the routes of transfer

The informants (138 men and 102 women) were either native born or had been living in the zone for more than 15 years. The ages of the interviewees ranged from 17 to 85 years old. Most of the respondents (79%) were above 35 years of age. Informants reported different number of medicinal plants in the demographic characters considered. The statistical details that could show variation in medicinal plants reported in different demographic characters are presented in Table 5. A significant difference in the number of medicinal plants mentioned were found between the age groups, with greater number of medicinal plants mentioned by elderly peoples (above 40 years) than young ones (15-40 years) (Mann-Whitney Rank Sum Test, p < 0.05). Educational level also showed significant differences in which the illiterates cited more plants than educated informants did. On average higher number of medicinal plants were cited by men but the statistical analysis showed no significant difference (p > 0.05). However, the presence of gender specific knowledge were reported.

Traditional knowledge transfer techniques in the study area were solely oral. Eighty two percent (82%) of the respondents knew about TM primarily through a family member and 18% from neighbors and relatives.

Table 5. Demographic characteristics and traditional knowledge of informants

| Demographic categories | No. of informants | p-value |
|------------------------|-------------------|---------|
| Gender                 |                   |         |
| Female                 | 102               | 0.275   |
| Male                   | 138               |         |
| Age                    |                   |         |
| 15-40                  | 78                | 0.001   |
| >40                    | 162               |         |
| Educational level      |                   |         |
| Educated               | 66                | 0.013   |
| Illiterate             | 174               |         |
Traditional belief and medicinal plants efficacy

There are practices or beliefs that the local community should follow during medicinal plant collection, preparation, and application. During medicinal plant preparation from *Clerodendrum myricoides* (Hochst.) Vatke it should be collected without making any sound or talking by the collector. In the case of using herbals to cure herpes zoster the person who administers the medicine should follow some locally accepted guidelines. These includes being virgin, had contracted the same disease before and treatment should have to be applied early in the morning. The local peoples also showed a preference to collect plant parts from *Croton macrostachyus* Del. from isolated tree that grows outside patch of trees. These practices and beliefs are believed to seriously affect the healing potential of medicinal herbs.

Habitat, availability and threats to medicinal plants

About 74% of the medicinal plants were from wild habitat collected freely from the immediate environment (forests, along streams, roadsides, crop fields, inside Eucalyptus plantation areas and fallow lands). Only 26% were reported to be cultivated in homegardens for their use as medicine or non-medicinal values.

The majority of the reported medicinal plants are abundantly available and accessed with less effort in the study area. However, some medicinal plants are rare. Rare as perceived by the locals for inaccessibility through time for immediate collection and use. Based on priority ranking exercise on eight medicinal plants *Cucumis ficifolius* A. Rich. (in Mareqo, Meskan, Sodo,) and *Polygala sadebeckiana* Gurke (in Muhir-Akil, Qebena and Cheha) were among the rare species in the study districts (Table 6).

In a group discussion with key informants, factors that are considered as the main threats for medicinal plants in the study area were recorded and priority ranking was done. Based on the destructive effects of each threatening factor, the primary threat for medicinal plants in all the studied areas was agricultural expansion followed by recurrent drought, deforestation and overgrazing respectively.

Current herbal use practices in the study area

Even though most (95%) of the informants agreed that TK as well its application has been declining, the informants also agreed that in special conditions it is still widely practiced. Factors that determine why, when and for which ailment types informants prefer to use TM were identified. Availability and effectiveness were the major determining factors why informants of the study area use TM. It is mostly used as healthcare option for many informants “before” they visit health centers (Table 7). Moreover, the respondents indicated that for eight health problems herbals remain dominant and highly preferred, irrespective of the presence of health center in the area. Higher percentages of informants for liver problems (in most of the study districts); evil spirit (in Meskan) and anthrax (Muhir-Akil and Cheha) preferred the use of herbals than conventional healthcare systems (Table 8).

| Species                  | Cheha | Muhir-Akil | Meskan | Sodo | Qebena | Mareqo |
|--------------------------|-------|------------|--------|------|--------|--------|
| *Ajuga integrifolia*     | 3     | 3          | 5      | 4    | 2      | 4      |
| *Artemisia afra*         | 4     | 4          | 4      | 5    | 3      | 5      |
| *Bridelia micrantha*     | -     | -          | -      | -    | 4      | -      |
| *Cucumis ficifolius*     | 5     | 5          | 6      | 6    | 5      | 6      |
| *Leucas argentea*        | 2     | 1          | 3      | 3    | -      | 1      |
| *Ocimum lamifolium*      | 1     | -          | 1      | 1    | -      | 2      |
| *Polygala sadebeckiana*  | 6     | 6          | -      | -    | 6      | -      |
| *Verbena officinalis*    | 1     | 2          | 2      | 1    | 3      |        |

Scores 1 to 6 were assigned for the level of rarity of a species where, "1" abundant, "6"-very rare; "-" medicinal plant not included for ranking in the respective district
Table 7. Percentage of informants for the attributes why and when the people prefer to use traditional medicine (TM)

| Study districts | Cheha | Muhir-Aklil | Meskan | Sodo | Qebena | Mareqo |
|-----------------|-------|-------------|-------|------|--------|--------|
| **Why prefer to use TM** |       |             |       |      |        |        |
| Effective       | 65    | 30          | 30    | 45   | 22.5   | 47.5   |
| Accessible      | 10    | 25          | 17.5  | 32.5 | 50     | 27.5   |
| Affordable      | 20    | 0           | 35    | 12.5 | 17.5   | 12.5   |
| For minor health problems | 5     | 45          | 17.5  | 10   | 7.5    | 10     |
| Lack of better option (from health service) | -     | -           | -     | 2.5  | 2.5    |        |
| **When prefer to use TM** |       |             |       |      |        |        |
| After           | 15    | 5           | 12.5  | 7.5  | 2.5    | 22.5   |
| Before          | 55    | 95          | 65    | 92.5 | 80     | 52.5   |
| Before and After| 25    | 0           | 22.5  | 0    | 15     | 20     |
| I don't use     | 5     | 0           | 0     | 0    | 2.5    | 5      |

Note: When referees to ‘before or after’ visiting health center

Table 8. Percentage of informants for the ailments primarily treated with traditional medicine

| Ailment types       | Cheha | Muhir-Aklil | Meskan | Sodo | Qebena | Mareqo |
|---------------------|-------|-------------|-------|------|--------|--------|
| Liver problems      | 32.5  | 27.5        | 42.5  | 60   | 42.5   | 90     |
| Evil sprit          | 10    | -           | 42.5  | 10   | 5      | 5      |
| Indigestion         | 20    | -           | 2.5   | -    | 15     | -      |
| Anthrax             | 32.5  | 67.5        | -     | -    | 27.5   | -      |
| Hemorrhoids         | -     | -           | 7.5   | 5    | -      | -      |
| Pyoderma            | -     | -           | -     | -    | -      | -      |
| Herpes zoster       | -     | -           | 2.5   | -    | -      | -      |
| Rabies              | -     | -           | -     | 25   | -      | -      |
| For any ailment     | -     | -           | 2.5   | -    | -      | -      |
| No preference       | 5     | 5           | -     | -    | 10     | 5      |

Discussion
The tendency for a few plant families to stand out is reported in many ethnomedicinal plant studies. In the present study the higher number of species that belong to few families (Asteraceae, Lamiaceae, Fabaceae, Solanaceae) could be attributed to the wider distribution and abundance of these families and associated knowledge in the study area and also among the flora of the country (Demsis 2013, Kelbessa & Demissew 2014). It is also reported that the best represented floristic families of a region are often suggested as being used frequently by the community (Moerman et al. 1999).

Herbs were the most widely used plant remedies followed by shrubs and trees. The wider application of herbs might be associated with their relatively higher efficacy which has been associated with their remarkably medicinal properties in TM system (Albuquerque & Lucena 2005, Baydoun et al. 2015). Many of the forest patches found in Gurage zone are degraded and topographically less accessible to humans (Demsis 2013). This scenario could have also forced the local people to depend more on herbaceous medicinal plants which are relatively common (esp. in wet season) and also left the community to transfer primarily the knowledge related to the most accessible herbs.

In the present study leaves were commonly used plant part in herbal medicines. Previous studies also reported leaves as the most commonly used plant part (Belayneh & Bussa 2014, Kidane et al. 2014; Tuasha et al. 2018; Umair et al. 2019). Some findings suggested that leaves are rich in bioactive secondary metabolites which is secreted primarily to defend the plants against destructive entities are of medicinal values to the human body (Umair et al. 2019). The use of leaves is less destructive to the plant when compared to other part of the plant such as the roots. However, the second most used plant part were the roots which involves digging the whole plant especially in case of herbaceous plants or juvenile ones, which hinder the survival of the plant. As a
result, it is most likely that the plant parts used could affect the sustainable utilization of medicinal plant resources in the study area. In particular, the most culturally important medicinal plants such as *Cucumis ficifolius* (in Mareqo district), *Polygala sadebeckiana* (in Cheha, Qebena and Muhir-Akil districts) and *Verbena officinalis* (in all study districts) were harvested for their roots. These species were also reported as being less available through time in the study area due to overexploitation.

High informant consensus was obtained for infectious and intestinal parasitic diseases, diseases of the respiratory system and diseases of the musculoskeletal system. These ailments were among the commonly reported ailments and high ICF values exhibit the presence of good agreement among the informants regarding therapeutic uses of reported medicinal plant species. Interestingly high ICF values for the same illness categories have been reported in Wonago District by and Mesfin et al. (2009) and by Enyew et al. (2014) in a study conducted in Fiche District, Ethiopia. Medicinal plants with higher informant consensus value could reflect the important number of use reports for a particular use category and can allow more particular identification of species. These in turn allow identification of species used for a particular use category. These species have been widely used by many people for a long period of time and could be used in further phytochemical and pharmacological studies (Baydoun et al. 2015).

About 56 different human diseases were recorded in the study area. Higher number of human ailments (as cited by more than 60% of informants) were often treated with herbal medicines. This citation frequency of plant remedies reflects the prevalence of health conditions in the study area as suggested by Vandebroek et al. (2008) in a comparison study conducted in Quechua community, Bolivia. It could also indicate the long existing practice of TK in the study area as shown in the preference of informants in using TM primarily for treating various ailments.

**Conclusions**

There is rich traditional herbal knowledge and system in Gurage zone. As a result, several health problems are widely addressed by traditionally used medicinal plant species. Especially, for treating certain types of ailments the local people prefer using TM regardless of accesses to primary (modern) healthcare service. In addition, irrespective of medicinal plants availability in the locality, plants that are widely accepted in the culture are frequently cited and best preferred across different districts. This shows that availability of a species, in a forest or other collecting sites, doesn’t always limit its use in a certain community. Due to combined effect of various threatening factors are posing threat as a result widely used medicinal plants are becoming locally rare.

**Declarations**

**List of abbreviations:** See in text

**Ethics approval and consent to participate:** All participants provided oral prior informed consent

**Consent for publication:** Not applicable

**Availability of data and materials:** All data are published in the manuscript.

**Competing interests:** The authors declare that they have no competing interests

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### Additional file 1. List of medicinal plants used to treat human ailments: scientific name; plant family; vernacular name; growth form; plant parts used; ailment treated; condition of use; methods of preparation; routes of administration; other plant species mixed with or additives; study sites.

**Key:** Vernacular name: Guragigna (G); Qebena (Q); Mareqo (M); Amharic (A). Growth form (GF) - Tree (T); Shrub (S); Herb (H); Climber (C), Epiphyte. Part used (PU) - Leaf, L; Root, R; Fruit, Fr; Exocarp, Ex; Bark, B; Stem, St; Root bark, Rab; Flower, Fl; Bulb, Bu; Seed, Se; Corm, C; Tuber, Tu; Rhizome, Rh; Latex, Lat. Methods of preparation (MOP): Extract the Juice - Squeezed with little water added; Crushed – plant part material pounded/powdered; Infusion - soaked in water and filter; Decoction - boiled in water and filtered. Routes of administration (ROA). Study sites-Cheha (C); Qebena (Q); Mareqo (MQ); Meskan (ME); Muhir-Aklil (MA); Sodo (SO). Bold - Endemic, "*" - Cultivated.

| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-------------------------------|-----|-----|------------|
| *Acacia abyssinica* Hochst. ex Benth. [Fabaceae] | Teme-gerar (Q) | T | B | Indigestion (Qiter) | Decoction | Oral | AT02 |
|  |  |  | L | Malaria | Infusion | Oral |  |
|  |  |  |  | Tonsillitis | Infusion | Gargle to rinse the throat |  |
|  |  |  |  | Wounds | Extract the juice / squeezed | Topical |  |
| *Acacia seyal* Del. [Fabaceae] | Wacho-gerar (G, M), Urbu (G) | T | B | Indigestion (Qiter), Liver complaint (Qoya, Seme dinku) | Decoction | Oral | AT03 |
|  |  |  |  | Tonsillitis | Infusion | Gargle to rinse the throat |  |
|  |  |  |  | St | Tinea versicolor (Bechero) | Collect water from wet burning stem | Topical |  |
| *Achyranthes aspera* L. [Amaranthaceae] | Sha-spe-megene (G) | H | L | Toothache | Crushed | Hold with teeth | AT04 |
|  |  |  |  | General health (increase weight, improve strength and boost immunity of infants) | Decoction | Oral |  |
|  |  |  |  | Remove dirt from eyes | Extract the juice/ squeezed | Drop into the eyes |  |
|  |  |  |  | Skin burn | Crushed | Topical |  |
| *Acmella caulirhiza* Del. [Asteraceae] | Anshet (G), Afetego (A) | H | Fl, L, R | Tonsillitis | Infusion | Gargle to rinse the throat | AT05 |
|  |  |  |  | Toothache | Crushed | Hold with teeth |  |
| *Acokanthera schimperi* (A.DC.) Schweinf. [Apocynaceae] | Adere (G) | T | L | Indigestion (Qiter) | Infusion | Oral | AT06 |
|  |  |  |  |  |  |  |  |
| *Agave sisalana* Perrine ex Engl. [Agavaceae] | Alage (A) | S | L, R | Evil spirit (Dorer, Likift, Buda), General malaise (Michi) | Boiled | Steam bath | AT08 |
|  |  |  |  | L | Abdominal bloating | Infusion | Oral |  |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-------------------------------|-----|-----|------------|
| Agarista salicifolia (Comm. ex Lam.) Don [Ericaceae] | Adia (G) | S | B | Abdominal pain | Decoction | Oral | AT09 |
| Ajuga integrifolia Buch-Ham. [Lamiaceae] | Anamuro, ema telit (G), Anamurcho (Q) | H | L | Anorexia, Rheumatic pain (Deme-tukiy), Abdominal pain | Infusion/Decoction | Oral | AT10 |
| Albizia schimperiana Oliv. [Fabaceae] | Sasa (A) | T | Rb | Skin burn | Crushed | Topical | AT11 |
| Allium cepa L. [Alliaceae]* | Besh- shinkurt (G) | H | Bu | Retained placenta | Crushed | Oral (Eat) | AT12 |
| Allium sativum L. [Alliaceae]* | Tuma (G) | H | Bu | General malaise (Mich), Malaria, Abdominal pain, Common cold, coughing, Pneumonia (Sinbabie) | Decoction | Oral | AT13 |
| Aloe pubescens Reynolds. [Aloaceae] | Merdedeye, Yefuga gedel (G) | H | R, Lat, L | General health (increase weight, improve strength and boost immunity of infants), Stabbing pain, General malaise (Mich), Swelling Toothache | Decoction | Oral | AT14 |
| Amaranthus lividus L. [Amaranthaceae] | Meryit (G) | H | L | Indigestion (Qiter) | Boiled | Oral (eat) | AT15 |
| Apodytes dimidiata E. Mey. ex Arn. [Icacinaceae] | Wendemu (A), Gefye (G) | T | B | Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequiriye (Gu), cholera, General health (increase weight, improve strength and boost immunity of infants) | Decoction | Oral | AT16 |
| Argemone mexicana L. [Papaveraceae] | Nech-lebash (A) | H | Lat | Wound, Dandruff | Extract the latex | Topical | AT17 |
| Artemisia abyssinica Sch. Bip. ex A. Rich. [Asteraceae] | Chekugne (A, G), Chiyanchiye (G) | H | L | Coughing, Pneumonia (Sinbabie), Abdominal pain, Diarrhoea Evil spirit (Dorer, Likift, Buda) | Infusion | Oral | AT18 |
| Artemisia afra Jacq. ex Wild. [Asteraceae]* | Naterar (G) | H | L | Headache, General malaise Indigestion (Qiter) | Extract juice/squeezed | Nose drops | AT19 |
| | | | | | Infusion | Oral | |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|-------------------------|---------------------------------|----|----|-----------------------------|-----|-----|-------------|
| Arundinaria alpina K. Schum. [Poaceae] | Eneet, awsar(G) | S | L | Abdominal pain, Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequurrye (Gu), cholera | Infusion | Oral | AT20 |
| Asparagus africanus Lam. [Asparagaceae] | Yefur ded (G), Siriti (M) | C | L | Herpes zoster | Crushed | Topical and expose to sun | AT21 |
| Balanites aegyptiaca (L.) Del. [Balanitaceae] | Bedeno (A, G) | T | Lat | Headache | Infusion | Nose drops | AT22 |
| Becium obovatum (E. Mey. ex Benth.) N.E. Br. [Lamiaceae] | Kurata, Hureta (G) | H | R | Anthrax (Shem-itere) | Infusion | Oral | AT23 |
| Bersama abyssinica Fresen. [Melianthaceae] | Kurata, Hureta (G) | T | Se | Hemorrhoid, Skin burn, Dandruff, Scabies | Crushed | Topical | AT24 |
| Brassica carinata A. Br. [Brassicaceae]* | Senafich (A) | H | Se | Anthrax (Shem-itere), Gastritis, Liver complaint (Qoya, Seme dinku) | Roast, grind and drink the infusion | Oral | AT25 |
| Brassica nigra (L.) Koch [Brassicaceae]* | Senafich (A) | H | Se | Indigestion (Qiter), Amoebiasis | Grind and drink the infusion/eat as spice | Oral | AT26 |
| Bridelia micrantha (Hochst.) Baill. [Euphorbiaceae] | Anenebu, Qibeber (G) | T | B | Indigestion (Qiter) | Decoction | Oral | AT27 |
| Bruea antidysenterica J.F .Mill. [Simaroubaceae] | Yemoyet bosha (G) | T | L | Evil spirit (Dorer, Likift, Buda) | Crushed | Topical /holding | AT28 |
| Buddleja polystachya Fresen. [Loganiaceae] | Anfar (A, G) | S | R | Wound (on male genital part) | Roast and grind | Topical | AT29 |
| Buddleja polystachya Fresen. | Anfar (A, G) | S | R | Wound (on male genital part) | Roast and grind | Topical | AT29 |
| Buddleia polystachya Fresen. [Loganiaceae] | Anfar (A, G) | S | R | Wound (on male genital part) | Roast and grind | Topical | AT29 |
| Buddleia polystachya Fresen. [Loganiaceae] | Anfar (A, G) | S | R | Wound (on male genital part) | Roast and grind | Topical | AT29 |
| Calpurnia aurea (Ait.) Benth. [Fabaceae] | Zegnet, Singo (G) | S | L, St | Toothache | Crushed | Hold with teeth | AT31 |
| Capsicum annuum L. [Solanaceae]* | Papaya(A) | T | L, R | Malaria | Infusion /Decoction | Oral | AT33 |
| Carduus schimperi Sch. Bip. [Asteraceae] | Yete-soohe (G) | H | R | Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequurrye (Gu), cholera, Hyperemesis, General health (increase weight, improve strength and boost immunity of infants) | Infusion /Decoction | Oral | AT33 |
| Carica papaya L. [Caricaceae]* | Papaya(A) | T | L, R | Malaria | Infusion /Decoction | Oral | AT34 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|----------------------------------|----|----|-----------------------------|-----|-----|------------|
| Carissa spinarum L. [Apocynaceae] | General malaise | Infusion | Oral | AT35 |
| Catha edulis (Vahl) Forssk. ex Endl. [Celastraceae]* | Chat (A) | T | L | Tonsillitis | Infusion | Oral | AT36 |
| Caucanthus auriculatus Forsk. [Malpighiaceae] | Epilipsy (Azurit) | Infusion | Oral | AT37 |
| Chenopodium sp. [Chenopodiaceae] | Amedmado (A) | H | L | Haemorrhoids | Crushed | Topical | AT38 |
| Citrus aurantifolia (Christm.) Swingle [Rutaceae]* | Anthrax (Shem-itere) | Infusion | Oral | AT39 |
| Citrus aurantium L. [Rutaceae]* | Hyperemesis | Infusion | Oral | AT40 |
| Citrus medica L. [Rutaceae]* | Evil spirit (Dorer, Likift, Buda) | Infusion | Oral | AT41 |
| Claussenia anisata (Wild.) Benth. [Rutaceae] | General malaise (Michi), Stabbing pain, Malaria, Evil spirit (Dorer, Likift, Buda) | Infusion | Oral | AT42 |
| Clematis longicauda Steud. ex A. Rich. [Ranunculaceae] | General malaise (Mich) | Infusion | Nose drops | AT43 |
| Clematis simensis Fresen. [Ranunculaceae] | Pyoderma (Wegfiy, Kofa), Wound | Crushed | Topical | AT44 |
| Clerodendrum myricoides (Hochst.) Vatke [Lamiaceae] | Abdominal pain, Diarrheal disease (Child) (Ye-dengiyar or Ye-sequiryer (Gu), cholera, Tonsillitis | Infusion | Oral | AT45 |
| Clutia abyssinica Kaub. & Spach. [Euphorbiaceae] | TB (Neqeresa), Abdominal pain, Anthrax (Shem-itere) | Infusion | Oral | AT46 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|-------------------------|---------------------------------|----|----|-------------------------------|-----|-----|-------------|
| Coffea arabica L. [Rubiaceae]* | | S | Se | Wound, Skin burn | Roast / grind | Topical | AT47 |
| | | L | General health (increase weight, improve strength and boost immunity of infants) | Decoction | Oral |
| Colocasia esculenta (L.) Schott [Araceae]* | Godelyi (A) | H | Tu | Anthrax (Shem-itere), Wound, Swelling | Decoction | Topical | AT48 |
| Convolvulus sagittatus Thunb. [Convolvulaceae] | Minen debo (M) | H | R | Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequrye (G), Indigestion (Qiter) | Infusion | Oral | AT49 |
| Convolvulus cf. Kilimandschari Engl. [Convolvulaceae] | Abeta (G) | C | R | Indigestion (Qiter), Abdominal pain | Infusion / Decoction | Oral | AT50 |
| Conyza abyssinica Sch. Bip. ex A. Rich. [Asteraceae] | Yefur ded (G) | H | L | Wound | Crushed | Topical | AT51 |
| Crotalaria incana L. [Fabaceae] | Meza qutel (G), Yejeb ater (A) | H | L | Wound, Skin burn | Crushed | Topical | AT52 |
| Croton macrostachyus Del. [Euphorbiaceae] | Mekenisa (G, A), Wanshehena (G) | T | L (bud) | Wound, Blood clotting, Tinea versicolor (Bechero), Common wart | Crushed | Topical | AT53 |
| | | | | Nasal congestion | Extract juice/ squeezed | Nose drops |
| | | | | B, L | Indigestion (Qiter), Abdominal pain (and bloating, Intestinal parasite) | Infusion | Oral |
| | | | | L | General malaise (Michi), Headache | Decoction, boiled | Oral, Steam bath | Extract juice/ squeezed | Nose drops |
| | | | | L | Jaundice | Infusion | Oral |
| | | | | L | Swelling | Boiled | Steam bath |
| | | | | B, L | Retained placenta | Infusion / Decoction | Oral |
| | | | | Se | Pyoderma (Wegfiy, Kofa) | Crushed | Topical |
| Cucumis ficifolius A. Rich. [Cucurbitaceae] | Hulgerecho (M), Adene debaqula (Q), Yemeder qimbba, Yafer-granger (G) | H | R | Anthrax (Shem-itere), Liver complaint (Qoya, Seme dinku), Abdominal pain, Diarrhoea, Indigestion (Qiter), Retained placenta | Infusion / Decoction | Oral | AT54 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-----------------------------|-----|-----|------------|
| *Cucurbita pepo* L. [Cucurbitaceae]* | | | | Toothache Crushed | Hold with teeth | | |
| | | | | Evil spirit (Dorer, Likift, Buda) Infusion | Oral | | |
| Cucurbita pepo L. [Cucurbitaceae]* | | | | Crushed Hold with teeth | | | |
| Cyathula uncinulata (Schrad.) Schinz [Amaranthaceae] | | | | Mental disorder, Headache, Teniasis (Seto (K), Chima (G) Roast, grind and drink the infusion | Oral | | AT55 |
| | | | | Oral | | | |
| Cyathula uncinulata (Schrad.) Schinz [Amaranthaceae] | | | | Swellings, General malaise (Mich) Boiled Steam bath | | | AT56 |
| | | | | Eye infection (Wucher) Extract juice/squeezed Drops into the eyes | | | |
| Cytopogon citratus (DC. ex Nees) Stapt [Poaceae]* | | | | Hiticho (M), Deg sar (G), Moseret (G) Infusion Oral | | | AT57 |
| | | | | R, L Abdominal pain Infusion Oral | | | |
| Cynoglossum coeruleum Hochst. ex A.DC. [Boraginaceae] | | | | Yitebtye (G), Bertetusa (Q), Hatemaqo (Q) Extract juice/squeezed Nose drops | | | AT58 |
| | | | | Wound Extract juice/squeezed Topical | | | |
| Cyphostemma cyphopetalum (Fresen.) Desc. Ex Wild & R.B. Dr umm [Vitaceae] | | | | Toleje (G) Crushed Topical | | | AT59 |
| | | | | St Swelling, Skin burn Crushed Topical | | | |
| Cyphostemma niveum (Hochst. Ex Schweinf.) Desc. [Vitaceae] | | | | General malaise (Mich) Boiled Steam bath | | | AT60 |
| | | | | Extract juice/squeezed Nose drops | | | |
| Dactyloctenium aegyptium (L.) Willd. [Poaceae] | | | | Anthrax (Shem-itere), Dengetegna Infusion Oral | | | AT61 |
| | | | | Ashma, Azurit Infusion/decoc tion Oral | | | AT62 |
| Datura stramonium L. [Solanaceae] | | | | Toothache Mix with butter and burn Inhalate the smoke direct into the teeth using tube | | | AT63 |
| | | | | Dandruff, Pyroderma (Wegfiy, Kofa), Crushed Topical | | | |
| | | | | Headache, Hemorrhoid Crushed Topical | | | |
| | | | | Inflammation (Insect bite) Extract juice/squeezed Topical | | | |
| | | | | Abdominal pain Infusion Oral | | | AT64 |
| Dicrocephala integrifolia (L. f.) Kuntze. [Asteraceae] | | | | Abdominal pain Infusion Oral | | | |
| | | | | Wound Crushed Topical | | | |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|----------------------------------|----|----|-------------------------------|-----|-----|-------------|
| Discopodium penninervium Hochst. [Solanaceae] | Enchochika (G) | T | L (Old / yellow) | Indigestion (Qiter), Abdominal pain (Children) | Infusion/Decoction | Oral | AT65 |
|                          |                                  |    | L | General health (increase weight, improve strength and boost immunity of infants) | Infusion | Oral |   |
| Dioscorea alata L. [Dioscoreaceae]* | Boyna (A, G) | H | L | Tinea versicolor (Bechero) | Crushed | Topical | AT66 |
| Dissotis senegambiensis (Guill. & Perr.) Triana [Melastomataceae] | Koshim (A) | S | L, B | Indigestion (Qiter) | Infusion/Decoction | Oral | AT68 |
| Dovyalis abyssinica (A. Rich.) Warb. [Flacourtiaecae] | Yimar-soohe, Dender (G), umar soohe (Q) | H | R | Abdominal pain, Diarrhea | Infusion | Oral | AT69 |
| Echinops hispidus Fresen. [Asteraceae] | Chosa (G), Kebericho (M, Q) | H | R | Abdominal pain, Indigestion (Qiter) | Crushed/Chewed ed, infusion | Oral | AT70 |
| Ekebergia capensis Sparrm. [Meliaceae] | Guareba (G) | T | L | Toothache | Crush and Boil | Hold with teeth | AT71 |
| Eleusine floccifolia (Forssk.) Spreng. [Poaceae] | H | L | L, Se | Wound (bitten by hyena) | Crushed | Topical | AT72 |
| Embelia schimperi Vatke [Myrsinaceae] | Enqueqe (G), Enqoqo (A) | C | Se | Teniasis "Chima (G)", "Seto (K)" | Infusion | Oral | AT73 |
| Ensete ventricosum (Welw.) Cheesman [Musaceae] * | Eset (G), Enset (A) | S | Cr | Liver complaint (Qoya, Semedinku), Bone fracture, Retained placenta, Indigestion (Qiter), Toothache | Cooked | Oral |   |
| Erica arborea L. [Ericaceae] |                                  | S | L | Indigestion (Qiter), Abdominal bloating | Infusion | Oral | AT75 |
| Eucalyptus globulus Labill. [Myrtaceae]* | Antakirt (G) | T | L | Common cold, Headache, General malaise "Mich" | Boiled | Steam bath | AT76 |
| Euclea divinorum Hiern. [Ebenaceae] | Migyar, Mesa (G) | T | L | Indigestion (Qiter) | Infusion | Oral | AT77 |
| Euphorbia cotinifolia L. [Euphorbiaceae]* |                                  | S | Lat | Tinea versicolor (Bechero) | Extract latex | Topical | AT79 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|----------------------------------|----|----|------------------------------|-----|-----|-------------|
| *Euphorbia schimperiana* Scheele [Euphorbiaceae] | Edemo (G), Aybegedemo (M) | H  | Lat | Common warts “Qintebiye (G)” | Extract latex | Topical | AT80 |
| *Euphorbia tirucalli* L. [Euphorbiaceae] | | S  | Lat | Piles, Common warts (Qintebiye (G)), Dandruff | Extract latex | Topical | AT81 |
| *Ficus sur* Forsk. [Moraceae] | Sobial, Neche-warka (G) | T  | Fr | Pyoderma (Wegfiy, Kofa) | Extract juice | Topical | AT82 |
| *Ficus sycomorus* L. [Moraceae] | Wedisha (G) | T  | Lat | Pyoderma “Wegfiy, Kofa” | Extract latex | Topical | AT83 |
| *Ficus vasta* Forsk. [Moraceae] | Azodichito (Q), Shebra, Werha (G), Neche-shola (A) | T  | B  | Indigestion (Qiter) | Infusion | Oral | AT84 |
| *Foeniculum vulgare* Miller [Apiaceae] | Wet-ambo (G), Enshelal (Q), Ansho (M) | H  | R, L | Gonorrhoea (Emate) | Infusion/Decoction | Oral | AT85 |
| *Fuerstia africana* T.C.E. Fr. [Lamiaceae] | Yegiye ensosla (G), Hureda (M) | H  | L  | General malaise (Mich), Headache | Infusion | Nose drops | AT86 |
| *Gardenia ternifolia* Schumach. & Thonn. [Rubiaceae]* | Genbalyi (A), Habuliy (G) | T  | L  | Malaria | Decoction | Oral | AT87 |
| *Geranium arabicum* Forsk. [Geraniaceae] | | H  | L  | Wound | Extract juice | Topical | AT88 |
| *Gladiolus abyssinicus* (Brongn. ex Lemaire) Goldblatt & de Vos [Iridaceae] | Inzerezyi (G) | H  | Cr | Toothache, Anthrax (Shemiterere) | Crushed/chewed | Hold with teeth | AT89 |
| *Gnidia stenophylla* Gilg [Thymelaceae] | Mesemes (G) | H  | L, R | Indigestion (Qiter), Abdominal pain, Diarrhea | Infusion | Oral | AT90 |
| | | | | | Oral | | |
| *Guizotia abyssinica* (L. f.) Cass. [Asteraceae]* | Nug (A) | H  | Se | Coughing, Common cold | Roast, grind and drink the decoction | Oral | AT91 |
| *Guizotia schimperi* Sch. Bip. ex Walp. [Asteraceae] | Mocho (A) | H  | L  | Dandruff (with sores on the scalp), Wound | Crushed | Topical | AT92 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|----------------------------|-----|-----|-------------|
| *Hagenia abyssinica* (Bruce) J.F. Gmel. [Rosaceae] | | T | Fl | Teniasis "Chima (G)", "Seto (K)", Abdominal pain, Diarrhea | Infusion | Oral | AT93 |
| | | | Fl, Se | Anorexia, Indigestion (Qiter), Malaria | Infusion | Oral | |
| *Haplocarpha schimperi* (Sch. Bip.) Beauv. [Asteraceae] | Ayene beda (G) | H | R | Pyoderma "Wegfiy, Kofa" | Crushed | Topical | AT94 |
| *Helianthus annuus* L. [Asteraceae]* | Suf (A) | H | Se | Coughing, Common cold | Decoction | Oral | AT95 |
| *Helichrysum stenopterum* DC. [Asteraceae] | Yekeshihiye (G) | S | R | Amoebiasis | Infusion | Oral | AT97 |
| | | | L | Wound (Silensa); Herpes zoster; Skin burn | Crushed | Topical | |
| *Hibiscus micranthus* L. f. [Malvaceae] | Badefacha (M) | H | L | Indigestion (Qiter) (dyspepsia) | Infusion | Oral | AT99 |
| *Hypoestes forskalii* (Vahl) R. Br. [Acanthaceae]* | Yete beder (G) | H | L | Anemia, Amoebiasis, Gonorrhea (Emate), Afterpains, Stabbing pain, Anthrax (Shem-itere), Retained placenta, Menstrual pain, General health (increase weight, improve strength and boost immunity of infants) | Decoction | Oral | AT100 |
| *Impatiens tinctoria* A. Rich. [Balsaminaceae] | Inshoshela (A) | H | L | Eye infection (Wucher) | Extract juice/ squeeze | Drops into the eyes | AT101 |
| | | | | Indigestion (Qiter) | Infusion | Oral | |
| *Ipomoea purpurea* (L.) Roth. [Convolvulaceae] | Abeta (G) | H | L, St(twins) | Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequriye (Gu), cholera, Abdominal pain, Sleeping problem (child) | Infusion | Oral | AT102 |
| *Jasminum abyssinicum* Hochst. ex DC. [Oleaceae] | Torso (G) | C | L | Eye disease | Extract juice/ squeeze | Topical | AT103 |
| | | | R | Wound | Extract juice | Topical | |
| *Jatropha curcas* L. [Euphorbiaceae]* | Qondali (G) | S | Se | Epilepsy | Infusion | Oral | AT104 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-------------------------------|-----|-----|-------------|
| *Juniperus procera* Hochst. ex Endl. [Cupressaceae] | T | L | Afterpains, Retained placenta | Decoction | Oral | AT105 |
| *Justicia schimperiana* (Hochst. ex Nees) T. Anders. [Acanthaceae] | S | L | Liver complaint (Qoya, Seme dinku), Malaria; General malaise (Michi), Swelling, Rheumatic pain, Loose ability to move | Infusion/ Decoction | Oral | AT106 |
| *Kalanchoe densiflora* Rolfe [Crassulaceae] | H | L, R | Tonsilitis | Infusion | Gargle to rinse the throat | AT107 |
| *Lactuca inermis* Forssk. [Asteraceae] | H | L, R | Pyoderma (Wegfly, Kofa), Common wart (Qintebiye, Foshe foshat) | Crushed | Topical | AT110 |
| *Lagenaria siceraria* (Molina) Standl. [Cucurbitaceae] | H | L | Dandruff (with sores on the scalp), Wound | Crushed | Topical | AT111 |
| *Laggera crispata* (Vahl) Hepper & Wood. [Asteraceae] | H | L | Eye infection, To keep infected eye clean, Wound | Crushed | Topical, leaf also used to clean the eyes | AT112 |
| *Lannea schimperi* (A. Rich.) Engl. [Anacardiaceae] | T | Se | Dandruff (with sores on the scalp) | Crushed | Topical | AT113 |
| *Lens culinaris* Medik. [Fabaceae]* | H | Se | Herpes zoster | Crushed | Topical | AT115 |
| *Leonotis ocymifolia* (Burm. f.) Iwarsson [Lamiaceae] | S | L | Ascariasis | Infusion | Oral | AT116 |
| *Lepidium sativum* L. [Brassicaceae]* | Feto (A) | H | Se | Abdominal pain, Diarrhea, Amoebiasis, Gonorrhoea (Emate) Stabbing pain, Indigestion (Qiter), Headache, Evil spirit (Dorer, Likift, Buda), General malaise (Michi), | Infusion | Oral | AT117 |
| *Leucas argentea* Gurke [Lamiaceae] | Fiza, Kiza (G) | H | L | Indigestion (Qiter), Diarrhea, Abdominal pain, Constipation (Children) | Infusion/ Decoction | Oral | AT118 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-----------------------------|-----|-----|-------------|
| Linum usitatissimum L. [Linaceae] | Telba (A) | H | Se | Retained placenta, Amoebiasis, Abdominal pain, Gastritis, Constipation | Infusion/Decoction | Oral | AT119 |
| Lippia adoensis Hochst. ex Walp. var. adoensis [Verbenaceae] | Kesse (A) | S | L | Abdominal pain, Diarrhea, Indigestion (Qiter), General malaise (Michi) | Infusion | Oral | AT112 |
| Lycopersicon esculentum Mill. [Solanaceae]* | | | | Toothache | | | |
| Lysimachia ruhmeriana Vatke [Primulaceae] | | | | Urinary retention | | | |
| Maesa lanceolata Forssk. [Myrsinaceae] | Aguaj (G), Qelew (A) | T | L | Malaria, Intestinal parasites | Infusion | Oral | AT123 |
| Maytenus heterophylla (Eckl. & Zeyh.) Robson [Celastraceae] | Cheryi (G) | S | L | Tonsilitis | Infusion | Oral/ Nose drops | AT126 |
| Maytenus senegalensis (Lam.) Exell [Celastraceae] | Cheryi (G) | S | L | Anthrax (Sherm-ître) | Infusion/ Extract the juice | Oral | AT127 |
| Melia azedarach L. [Meliaceae] | | T | L | Malaria | Infusion | Oral | AT128 |
| Microglossa pyrifolia (Lam.) O. Kuntze [Asteraceae] | Chinar (G) | S | L | Toothache | Crushed/Chewed | Hold with teeth | AT129 |
| Momordica foetida Schumach. [Cucurbitaceae] | Araret, Tere (G, S), Yehonzet beye (G) | H | L | Wound, Dandruff, Evil spirit (Dorer, Likift, Buda) | Crushed | Topical | AT130 |
| Moringa stenopetala (Bak. f.) Cuf. [Moringaceae]* | Shiferaw (A) | T | L | Malaria, Gastritis, Hypertension | Decoction | Oral | AT131 |
| Myrica salicifolia A. Rich. [Myricaceae] | Cheta, telota (G) | T | B | Indigestion (Qiter) | Infusion/Decoction | Oral | AT132 |
| Myrsine africana L. [Myrsinaceae] | Qechemewe (G), Qechemo (A) | S | Se | Abdominal pain ( also as prevention) | Infusion | Oral | AT133 |
| Nigella sativa L. [Ranunculaceae]* | Tique azemud (A), Gmebel menzuta (Q) | H | Se | Abdominal pain, General malaise, Headache; | Grind,soak in water/ Infusion | Nose drops | AT134 |
| Ocimum basilicum L. [Lamiaceae]* | Meso bela (A) | H | L | Abdominal bloating | Infusion | Oral | AT135 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-----------------------------|-----|-----|-------------|
| Ocimum lamiifolium Hochst. ex Benth. [Lamiaceae]* | Damakese (A) | S | L | Common cold, coughing, pneumonia (Sinbabie), general malaise (Michi), Headache | Decoction | Bath | AT136 |
| Ocimum urticifolium Roth [Lamiaceae] | Yelebe fuanfa, Delibekera (Q) | S | L | Toothache | Crushed | Hold with teeth | AT137 |
| Olea europaea L. subsp. cuspidata (Wall. ex G.Don [Oleaceae]* | Wera (A), Bunne (G) | T | St, L | Toothache | Crushed (warm)/ Chewed | Hold with teeth | AT138 |
| Olinia rochetiana A. Juss. [Oliniaceae] | Tife (A) | T | B, L, St | Wound, Pyodermia (Wegfly, Kofa) | Crushed | Topical | AT139 |
| Otostegia tomentosa A. Rich. [Lamiaceae] | Yesetan abeba (A) | S | L | Wound, Pyodermia (Wegfly, Kofa) | Crushed | Topical | AT140 |
| Oxalis comiculata L. [Oxalidaceae] | Yetay asebo (G) | H | Whole | Abdominal pain | Decoction | Oral | AT141 |
| Oxygonum sinuatum (Meisn.) Dammer [Polygonaceae] | Menatef (A, G) | H | L, R | Indigestion (Qiter), Diarrhea (Children), Abdominal bloating, Excess vomiting (Hyperemesis) | Infusion | Oral | AT143 |
| Pentas schimperiana (A. Rich.) Vatke [Rubiaceae]* | Mesabur (Q) | S | L, R | Back pain, Bone fracture | Infusion/ Decoction | Oral | AT144 |
| Persea americana Mill. [Lauraceae]* | Abokato (A) | T | Fr | Dandruff | Crushed | Topical | AT145 |
| Persicaria senegalensis (Meisn.) Sojak [Polygonaceae] | Nech azhe (G) | H | L | Retained placenta | Infusion | Oral | AT146 |
| Phragmanthera macrosolen (A. Rich.) M. Gilbert [Loranthaceae] | Teqetla (A) (hemiparasite growing on Acacia sp.) | S/E piph yte | Whole plant | Evil spirit (Dorer, Likiff, Buda), General malasia (micl) | Infusion | Oral | AT147 |

Note: GF = Scientific name; PU = Vernacular name (Local language); MOP = Ailment treated (Local name); ROA = Decoction, Oral, Extract juice/squeeze, Nose drops, Tothache, Crushed, Hold with teeth, Crushed, boiled, Crushed (warm)/ Chewed, Infusion/ Decoction, Topical, Boiled, Steam bath.
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-------------------------------|-----|-----|-------------|
| *Phytolacca dodecandra* L’Herit. [Phytolacaceae] | Endod (A) | S  | R  | Rabies                       | Infusion | Oral | AT148       |
| *Pittosporum viridiflorum* Sims [Pittosporaceae] | Ulaga (G) | T  | L  | Coughing, Pneumonia (Sinbabie), TB, Abdominal pain | Infusion | Oral | AT149       |
| *Plantago lanceolata* L. [Plantaginaceae] | Yefur enzir, Qoshqoshye (G) | H  | L  | Wound                        | Crushed | Topical | AT150       |
| *Plantago palmata* Hook.f. [Plantaginaceae] |  | H  | L  | Wound                        | Crushed | Topical | AT151       |
| *Plectranthus cylindraceus* Hochst. ex Benth. [Lamiaceae] | Qintele sat (G) | H  | L  | Swelling, Evil spirit (Dorer, Likift, Buda), Rheumatism, | Crushed | Bath | AT152       |
| *Podocarpus falcatus* (Thunb) R. Br. ex Mirb. [Podocarpaceae] | Zigba (A, G) | T  | B, L | Coughing | Decoction | Oral | AT155       |
| *Polygala sadebeckiana* Gurke [Polygalaceae] |  | H  | R  | Toothache, Anthrax (Shem-iter), Abdominal pain, Indigestion (Qiter) | Crushed | Hold with teeth | AT156       |
| *Premna schimperi* Engl. [Lamiaceae] | Teqoqe (G), Wankisa (G, Q), Ye fiyel kolo (A) | S  | L  | Toothache | Crushed | Hold with teeth | AT157       |
| *Prunus persica* (L.) Batsch [Rosaceae] | Kok (A, G) | T  | L  | General malaise "Michi", Indigestion (Qiter), Stabbing pain, Anthrax (Shem-iter) | Infusion | Oral | AT158       |
| *Pseuderthria hookeri* Wight & Arn. [Fabaceae] |  | H  | R  | Liver complaint (Qoya, Seme dink) | Crushed/Pounded | Smell | AT159       |
| *Psidium guajava* L. [Myrtaceae] | Zeyetun (A) | T  | Ex | Wound, Dandruff | Crushed | Topical | AT160       |
|  |  |  | Fr | Constipation | Crushed | Oral |  |
|  |  |  | L  | Hemorrhoids | Boiled | Wash |  |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|----------------------------------|----|----|-------------------------------|-----|-----|-------------|
| *Pycnostachys abyssinica* Fresen. [Lamiaceae] | Fuanfa (G) | S | L | Abdominal pain, Diarrhea, Malaria, General malaise (Michi), General health (increase weight, improve strength and boost immunity of infants) | Infusion/Decoction | Oral | AT162 |
| *Ranunculus multifidus* Forssk. [Ranunculaceae] | H | R | Cancer, Ulcer, ‘Neqersa’, Pyoderma ‘Wegfiy, Kofa’ | Infusion | Oral | AT163 |
| *Rhamnus prinoides* L. Herit. [Rhamnaceae]* | S | L (bud) | Tonsilitis | Infusion | Gargle to rinse the throat | AT164 |
| *Rhus vulgaris* Meikle [Anacardiaceae] | S | St | Toothache | Crushed | Hold with teeth | AT167 |
| *Rhynchosia minima* (L.) DC. [Fabaceae] | Yefur enzir (G) | H | L | herpes zoster (- wound on nose which expands in time) | Crushed | Topical | AT168 |
| *Ricinus communis* L. [Euphorbiaceae] | Gulo (G) | S | Se | Chigger bites (Mujelia, Ferfer) | Infusion | Topical | AT169 |
| *Rosa hybrida* L. [Rosaceae]* | Mahle-weld (A) | S | Fl | Eye infection (Wucher) | Infusion | Drop into the eyes | AT170 |
| *Rosmarinus officinalis* L. [Lamiaceae] * | S | L | Hypertension | Infusion/Decoction | Oral | AT171 |
| *Rubia cordifolia* L. [Rubiaceae] | Enchiber (G) | H | R | Toothache | Crushed | Hold with teeth | AT172 |
| *Rumex abyssinicus* Jacq. [Polygonaceae] | Hambo (G), Yebechambo, Weshe temo (Q) | H | R | Gonorrhoea (Emate), Liver complaint (Qoya, Seemedinku), Kidney problem | Infusion/Decoction | Oral | AT173 |
| *Rumex nepalensis* Spreng. [Polygonaceae] | Chabe (Q), Tumeya, tuya, yegrid amber(G) | H | R | Abdominal pain, Abdominal bloating, Diarrhea (Children), Indigestion (Qiter) | Infusion, Crushed/Chewed | Oral | AT174 |

- **GF**: Scientific name
- **PU**: Vernacular name (Local language)
- **MOP**: Method of preparation
- **ROA**: Route of administration
- **Voucher No.**: Voucher number
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-----------------------------|-----|-----|------------|
| *Rumex nervosus* Vahl [Polygonaceae] | Angago, yegeye chima (G) | S | L (bud) | Herpes zoster, common wart, Tinea versicolor (Bechero) | Crushed | Topical | AT175 |
| *Ruta chalepensis* L. [Rutaceae]* | Tena adam (A) | H | L, Se | Abdominal pain, Diarrhea, Abdominal bloating, General malaise (Michi), Evil spirit (Dorer, Likift, Buda), Rheumatic Pain, Afterpains, Common cold, Coughing, Headache, Stabbing pain, Loss of appetite (Anorexia), smelly flatus | Infusion | Oral | AT176 |
| *Salvia nilotica* Jacq. [Lamiaceae] | Amam, Guneliye, Meza qutel (G) | H | L | Wound, Pyoderma “Wegfly, Kofa”, Skin burn, Eye infection “wucher, Meza” General malaise (Michi) Infusion/Decoction, boiled Oral, Steam bath | Crushed | Topical | AT177 |
| *Satureja abyssinica* (Benth.) Briq. [Lamiaceae] | Debeqqo (G) | H | L, St (twings) | Indigestion (Qiter), Abdominal pain, Abdominal bloating | Infusion | Oral | AT178 |
| *Satureja punctata* (Benth.) Briq. [Lamiaceae] | Debeqqo (G) | H | L | Indigestion (Qiter) | Infusion | Oral | AT179 |
| *Schinus molle* L. [Anacardiaceae] | Trumantre (G) | T | Fr | Tonsillitis | Infusion | Gargle to rinse the throat | AT180 |
| *Scolopia theifolia* Gilg [Salicaceae] | Koshim (A), Aweta (G) | S | St | Stop weird pregnancy craving | Crushed | Oral | AT181 |
| *Senna multiglandulosa* (Jacq.) Irwin & Bameby [Fabaceae] | | S | Se | Gonorrhoea (Emate) | Infusion | Oral | AT182 |
| *Senna septemtrionalis* (Viv.) Irwin & Bameby [Fabaceae] | Chachate (A), Sememeki (G) | S | L | Wound, Pyoderma “Wegfly, Kofa”, “Silensa”, Dandruff, Common warts, Snake bite, Antrax | Crushed | Topical | AT183 |
| *Sida rhombifolia* L. [Malvaceae] | Bedefacha (M) | H | R | Abdominal pain, Diarrhea, amebiasis | Infusion | Oral | AT184 |
| *Sida schimperiana* Hochst. ex A. Rich. [Malvaceae] | Chifereg (A), Anjajewet (G) | S | R | Teniasis “Chima (G)”, “Seto (K)”, Diarrhea, General malaises | Infusion | Oral | AT185 |
| *Sideroxylon oxyacanthum* Baill. [Sapotaceae] | Miteja (G) | S | St, B | Indigestion (Qiter) | Infusion/Decoction | Oral | AT186 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|------------------------------|-----|-----|------------|
| *Silene macrosolen* A. Rich. [Caryophyllaceae] | Wegert (A) | H | R | Evil spirit (Dorer, Likift, Buda), repel snake | Burn | Smell the smoke | AT187 |
| *Smilax aspera* L. [Smilacaceae] | Yezogare gaje(G) | C | L | Liver complaint (Qoya, Seme dinku) | Infusion | Oral | AT188 |
| *Solanecio gigas* (Valteke) C. Jeffrey [Asteraceae] | Tonbi (G), Yezogare gaje (G, Q) | S | L, R | Liver complaint (Qoya, Seme dinku, Awezager), Retained placenta, Abdominal pain | Infusion | Oral | AT189 |
|  |  |  | L | Malaria | Infusion | Oral |  |
|  |  |  |  | Swelling | Crushed | Bath |  |
| *Solanecio mannii* (Hook. f.) C. Jeffrey [Asteraceae] | Gemar (G) | S | L | Liver complaint (Qoya, Seme dinku), Evil spirit (Dorer, Likift, Buda), | Infusion/ decoction | Oral | AT190 |
| *Solanum anguivi* Lam. [Solanaceae] |  | S | Fr | Rabies, Snake bite | Infusion/ cooked | Oral | AT191 |
| *Solanum giganteum* Jacq. [Solanaceae] |  | S | L | Common warts, Anthrax (Shem-itere) | Crushed | Topical | AT192 |
| *Solanum incanum* L. [Solanaceae] | Embuay (A), Zereche (G) | S | R | Abdominal pain, Diarrhea, Indigestion (Qiter), General malaises (Michi) | Infusion / Chewed | Oral | AT193 |
|  |  |  | Fr | Anthrax (Shem-itere), Swelling, Dandruff, Wound | Crushed | Topical |  |
|  |  |  | Fr, R | Tonsillitis | Infusion | Gargle to rinse the throat |  |
|  |  |  | L | Epistaxis | Extract juice/ squeeze | Nose drops, Smell |  |
| *Solanum nigrum* L. [Solanaceae] | Emberebuniye(G) | H | Fr | Rabies | Infusion | Oral | AT194 |
|  |  |  | L | Wound, Dandruff (Sores on the scalp), common warts | Crushed | Topical |  |
| *Stephania abyssinica* (Dillon & A.Rich.) Walp. [Menispermaceae] | Foreformat, Kelalla (G) | H | R | Indigestion (Qiter), Stabbing pain, Liver complaint (Qoya, Seme dinku), Malaria, Diarrhea, General malaise (Mich), | Infusion | Oral | AT195 |
| *Stereospermum kunthianum* Cham. [Bignoniaceae] | Emequashiyet, Bretefeje (G) | T | B | Indigestion (Qiter) | Infusion / Decoction | Oral | AT196 |
| *Tagetes minuta* L. [Asteraceae] | Chiyanchiye (G) | H | L | Wound | Crushed | Topical | AT197 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|---------------------------------|----|----|-------------------------------|-----|-----|------------|
| Tapinanthus globiferus (A. Rich.) Tieghem [Loranthaceae] | Teqetla (A) (hemiparasite growing on coffee, chat, peach) | S/E | Whole plant | Evil spirit (Dorer, Likift, Buda), Depression, General malaise (Michi) | Burn | Smell the smoke | AT198 |
| | | | | Retained placenta | | | |
| Teclea nobilis Del. [Rutaceae] | Ader (G) | T | L | Indigestion (Qiter), Abdominal pain | Infusion | Oral | AT199 |
| Thunbergia ruspolii Lindau [Acanthaceae] | Yangacha qomet, Afuakiyi (G) | H | L, R | Abdominal pain, Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequriye (Gu), cholera, Liver complaint (Qoya, Seme dinku), General malaise (Michi), Hemorrhoid, General health (increase weight, improve strength and boost immunity of infants) | Infusion/Decocition | Oral | AT200 |
| Thymus schimperi Ronniger [Lamiaceae] | Tosign (A) | H | L | Hypertension | Decoction | Oral | AT201 |
| Toddalia asiatica (L.) Lam. [Rutaceae] | Asegomare, Biter, Zega berbero (G) | C | L | Teniasis “Chima (G)”, “Seto (Q)” | Infusion | Oral | AT202 |
| Verbascum sinaiticum Benth. [Scrophulariaceae] | Yemar enzir (G), Halemecha, Huleten huta (M), Yumar amel (Q) | H | Rb, R | Abdominal pain, Diarrhea, Diarrheal disease (Child) (Ye-dengiya-qar or Ye-sequriye (Gu), cholera, General health (increase weight, improve strength and boost immunity of infants), Indigestion (Qiter) | Infusion/Decocition | Oral | AT203 |
| | | | | L | Liver complaint (Qoya, Seme dinku), Indigestion (Qiter) | Infusion/Decocition | Oral | |
| | | | | | Evil spirit (Dorer, Likift, Buda) | Crushed | Bath | |
| Verbena officinalis L. [Verbenaceae] | Qesqes (G) | H | L, R | Abdominal pain, Diarrhea, Indigestion (Qiter), Malaria, Excess vomiting (Hyperemesis), General malaise (Michi), | Infusion | Oral | AT204 |
| | | | | | | Crushed | Topical | |
| Vernonia myriantha Hook. f. [Asteraceae] | Dengrita, Aguaje(G, Q) | S | L | Wound | Crushed | Topical | AT205 |
| Scientific name [Family] | Vernacular name (Local language) | GF | PU | Ailment treated (Local name) | MOP | ROA | Voucher No. |
|--------------------------|----------------------------------|----|----|-------------------------------|-----|-----|------------|
| Vernonia amygdalina Del. [Asteraceae] | Gola (G), Heba (M) | S | L, St | Intestinal parasites, Abdominal pain, Malaria, Gastritis, Retained placenta | Infusion | Oral | AT206 |
| Vernonia subligera O. Hoffm. [Asteraceae] | Ereja (G) | S | L | Wound, Blood clotting | Crushed | Topical | AT207 |
| Vernonia theophrastifolia Scheinf. Ex Oliv. & Hiern [Asteraceae] | S | L | Spider bite | Crushed | Topical | AT208 |
| Vernonia thomsoniana Oliv. & Hiern ex Oliv. [Asteraceae] | Agunba (Q) | S | L | Malaria, Indigestion (Qiter) | Infusion | Oral | AT209 |
| Withania somnifera (L.) Dunal [Solanaceae]* | Gezawa (A) | S | L, R | Evil spirit (Dorer, Likift, Buda), General malaise (Michi), Swelling, Itching, | Infusion, Decoction, Boil, Burn | Oral, Steam bath, Smoke | AT210 |
| Xanthium strumarium L. [Asteraceae] | Yetey-soohe (G), Gereba uta(M) | H | L | Tinea versicolor (bechero), Pyoderma "Wegfiy, Kofa" | Crushed | Topical | AT211 |
| Zea mays L. [Poaceae] * | H | R | Indigestion (Qiter) | Infusion | Oral | AT212 |
| Zingiber officinale Roscoe [Zingiberaceae] * | H | Rh | Tonsillitis, Abdominal pain, Toothache, Common cold, Coughing | Decoction, crushed/chewed | Oral | AT213 |
### Major use categories and list of ailments/symptoms

| Major use categories | Included ailments/symptoms (local name) |
|----------------------|-----------------------------------------|
| **Infectious and intestinal parasitic diseases (IIP)** | Diarrhea  
Abdominal bloating  
Abdominal pain or stomach cramps  
Intestinal parasite, Amoebiasis  
Cholera (Yesqiyre) |
| **Diseases of the digestive system (DDS)** | Indigestion (Qiter)  
Gastritis  
Flatulence |
| **Diseases of the respiratory system (DRS)** | Common cold  
Strong cough (Sinbabi)  
Asthma  
Pneumonia  
TB (Neqeresa)  
Tonsillitis |
| **Diseases of the genitourinary system (DGS)** | Gonorrhea (Emat)  
Urine retention |
| **Diseases of the musculoskeletal system (DMS)** | Lose ability to move or be paralyzed (Deme tukiy)  
Rheumatic pain  
Stabbing pain (Wegat)  
Back pain  
Fractures |
| **Diseases of the skin and subcutaneous tissue (DSS)** | Common wart (Qintebiye, Foshe foshat)  
Dandruff  
Pyoderma (Koffa, Wigefye, Silensa)  
Wound -with boils, abscesses  
Scabies and continuous itching |
| **Diseases of the eye and adnexa (DEA)** | Eye infection (Wucher) |
| **Injury, poisoning and certain other consequences of external causes (IPE)** | Skin burn  
Rabies  
Snake bite  
Herpes zoster |
| **Headache, fever and malaria (HFM)** | Fever  
Headache  
Malaria  
Severe headache (Dan felt) |
| **Dental & oral diseases (DOD)** | Toothache |
| **Diseases of the circulatory system (DCS)** | Hypertension  
Hemorrhoids |
| **Pregnancy, childbirth and the puerperium (PCP)** | Retained placenta  
Lack of milk  
Birth complications |
| **Liver complaints (LC)** | Hepatitis, Jaundice (Qoya, Seme diniku) |
| **Inflammation related to Anthrax (IRA)** | Anthrax, blackleg |
| **Unclassified (OUH)** | Epistaxis (nosebleed) (Neser)  
Anemia  
Epilepsy (Azurit)  
Evil spirit (Lekift)  
Febrile illness (General malaise)(Michi)  
General health (increase weight, improve strength and boost immunity for infants)  
Anorexia (loss of appetite)  
Localized swelling  
Hyperemesis (Excessive vomiting) |
