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Ethnobotanical Study on Medicinal Plants in Jimma Arjo District East Wellega Zone Oromia Regional State, Ethiopia

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Abstract

*Traditional medicinal knowledge in Ethiopia plays a vital role in primary healthcare for both humans and livestock. However, this knowledge is rapidly eroding due to modernization and environmental degradation. This study was conducted in the biologically diverse Jimma Arjo District from September 2019 to May 2020 with the aim of documenting indigenous medicinal plant knowledge before it disappears. The study engaged 111 informants in total, comprising 20 key individuals selected purposefully based on recommendations from local elders and authorities, and 91 general participants chosen through systematic random sampling. Information was collected through semi-structured interviews, direct field observations, and group discussions. The collected data were analyzed using descriptive statistics, informant consensus factor (ICF), preference ranking, and direct matrix ranking methods. Researchers identified 125 medicinal plant species distributed across 107 genera and 60 botanical families. The Fabaceae family had the highest representation, followed by Asteraceae. Among the recorded species, 58 were sourced from wild habitats, 35 from home gardens, and 32 from cultivated farmlands. In terms of growth form, herbs were the most prevalent (49 species), with shrubs coming next (39 species). Out of all documented plants, 62 were used solely to treat human diseases, 35 were intended for animal healthcare, and 28 served both purposes. Leaves were the most frequently utilized plant parts (32.73%), followed by roots (21.22%) and seeds (13.34%). The majority of remedies were administered orally, accounting for 56.97% of applications. A high ICF value (0.89) was found for respiratory ailments, indicating strong consensus among informants. *Acmella caulirhiza* and *Zingiber officinale* were the top-preferred species for treating tonsillitis. *Cordia africana* ranked highest for its multipurpose value, including uses in medicine, construction, and firewood. The findings underscore the urgency of conserving wild medicinal plants and prioritizing species with high community consensus for scientific validation. Protecting this indigenous knowledge is critical for sustaining local healthcare practices, integrating local knowledge with modern health system and biodiversity.*

Key Words: Human and livestock ailments, Jimma Arjo communities, Indigenous knowledge, Medicinal plants

1. Introduction

Local communities, especially in rural areas, rely heavily on indigenous knowledge as the basis for decision-making. This traditional wisdom plays a crucial role in shaping everyday practices such as agriculture, healthcare, food preparation, education, and the sustainable management of natural resources (Desta, 2009; Rivera-Ferre et al., 2012; Ntoko and Schmidt, 2021).

Beyond its local importance, the knowledge systems developed by indigenous and local communities hold significant value for the global community. These systems offer practical models for biodiversity conservation and the formulation of sustainable development policies.

The international importance of indigenous knowledge—particularly in relation to biological resources—has been widely recognized and reinforced through legal instruments. This acknowledgment is clearly articulated in both the preamble and Article 8(j) of the Convention on Biological Diversity (CBD, 1992), which has been ratified by 178 nations. These legal provisions emphasize the need to respect, safeguard, and promote the traditional knowledge, innovations, and practices of indigenous and local communities.

Ethnobotany—the scientific discipline that examines the interactions between people and plants—plays a crucial role in documenting and preserving traditional knowledge. It significantly contributes to the conservation of plant biodiversity, the discovery of novel medicinal compounds,

and the enhancement of living conditions for marginalized rural communities (Almeida et al., 2006). Across diverse cultures, plants have long served as essential resources for fulfilling basic human needs and supporting a variety of uses (Idu, 2009). Remarkably, many contemporary pharmaceuticals have their roots in traditional plant-based remedies (Subramoniam et al., 1999).

In recent years, there has been a surge in scientific efforts aimed at identifying new medicines that are both effective and biocompatible, with fewer adverse effects (Zhang et al., 2020). This trend has contributed to the growing popularity of herbal remedies used alongside conventional treatments (Sharma et al., 2021; Giannenas et al., 2020). As a result, the integration of traditional and modern medicine is increasingly being adopted within holistic healthcare systems.

Ethnobotanical studies have gained increasing attention in Ethiopia, as researchers seek to understand the long-standing interactions between people and plants across various regions (Mengesha, 2016; Chekol, 2017; Kassa & Demissew, 2020; Mammo & Abraha, 2021). Due to the country's significant cultural, ethnic, religious, and ecological diversity, a wide range of plant-related knowledge has developed within local communities. This diversity highlights the urgent need for further documentation, particularly in areas that have not yet been studied.

The systematic collection and preservation of this traditional knowledge not only

contribute to cultural heritage but also serve as a valuable resource for scientific research, especially in addressing public health challenges such as pandemics. Despite its richness, Ethiopia's traditional medicinal knowledge is rapidly declining, driven by factors such as modernization, environmental degradation, and the erosion of indigenous practices (Kloos, 2023).

Similar to other regions in Ethiopia, communities within the Oromia region—including those in Jimma Arjo District—have preserved a rich heritage of traditional knowledge used to treat both human and livestock ailments. Despite the widespread and enduring use of medicinal plants in Jimma Arjo District, these practices have not been systematically studied or documented. Recognizing this gap, and considering the persistence of these cultural health practices, the researcher initiated this foundational study. The primary goal is to compile and document the medicinal plants that have been used by the local community over many years, thereby contributing to the preservation of indigenous knowledge and supporting future research and development. The research also designed to answer the following questions. What are the commonly used medicinal plants for treating both human and livestock ailments in Jimma Arjo District? What are the most frequently occurring diseases managed using traditional herbal remedies? Do medicinal plants serve multiple functions within the community beyond their medicinal use (e.g., economic, cultural, or ecological roles)?

2. Materials and Methods

2.1. Description of the study area

Jimma Arjo District is located in the East Wellega Zone of the Oromia Regional State, Ethiopia. Geographically, it lies between 8°33' and 8°55' North and 36°22' and 36°44' East. The district is situated approximately 335 to 360 kilometers west of Addis Ababa, depending on the specific route taken. Travel by car typically takes around 6 to 8 hours, primarily along the Ambo–Nekemte road. The district is located about 65 kilometers southwest of Nekemte town, the administrative center of the East Wellega Zone. Its administrative capital is Arjo town. Jimma Arjo is bordered: To the southwest by the Didessa River, to the northwest by Diga Leka District, To the northeast by Guto Wayu District, and to the southeast by Nunu Kumba District (JARDS, 2018).

The district spans elevations ranging from 1,200 to 2,600 meters above sea level, featuring varied topography that includes both river valleys and highland areas. Several rivers flow through the region, with the Didessa River being the most prominent; it forms part of the district's western boundary. As a major tributary of the Abay (Blue Nile) River, the Didessa significantly influences the area's hydrological dynamics and agricultural capacity. Jimma Arjo receives substantial annual rainfall, typically between 1,200 mm and 2,000 mm, with the majority falling during the primary rainy season from June to September. This rainfall is vital for sustaining both agricultural activities and natural vegetation in the region (Figure 1) (JARDS, 2018).

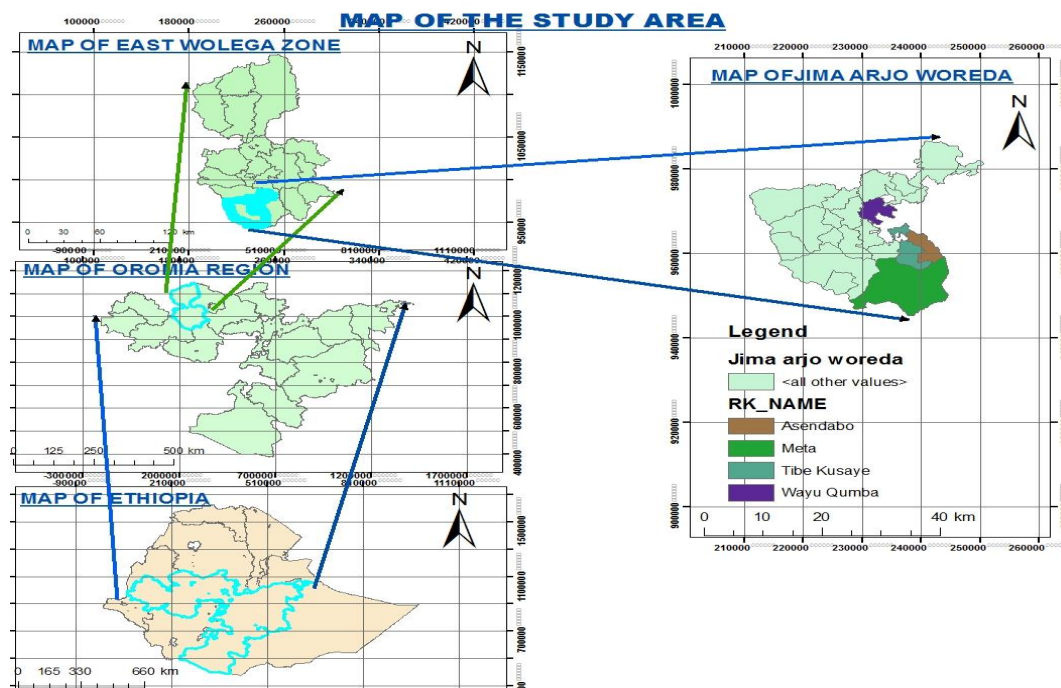


Figure 1 Map of Ethiopia showing the study area Jimma Arjo District

2.2. Population

Based on the 2007 census conducted by the Central Statistical Agency (CSA) and adjusted for population growth, the population of Jimma Arjo District was estimated to be approximately 108,000 in 2020. The district is overwhelmingly inhabited by the Oromo ethnic group, comprising 97.24% of the population, followed by the Amhara at 2.48%. Correspondingly, Afan Oromo is the first language for 99.48% of residents, reflecting the area's cultural and linguistic homogeneity. Religiously, the population is diverse, with Protestants representing the largest group at 48%, followed closely by Orthodox Christians at 45%. Muslims account for 5.6% of the population, while adherents of traditional religions make up 0.41%. Catholics and followers of other

religions constitute smaller shares, at 0.14% and 0.01% respectively.

2.3. Socioeconomic activity

Agriculture is the predominant economic activity in Jimma Arjo District, providing employment for the vast majority of the economically active population. About 97% of residents depend on farming for their livelihoods, while those living in urban areas typically engage in small-scale trade and daily labor. Both crop cultivation and livestock rearing are crucial for household consumption and sustenance. The district's main livestock include cattle, sheep, goats, and poultry, while the primary crops grown are teff, wheat, barley, beans, peas, and maize, reflecting a diverse and mixed farming system (JAARDS, 2018).

2.4. Health system

The district is served by one hospital, six health centers, twenty health posts, ten private clinics, and two private pharmacies. In 2021, the most common human diseases in the area included pneumonia, acute upper respiratory infections, diarrhea, skin and subcutaneous tissue infections, acute febrile illnesses, musculoskeletal and connective tissue disorders, helminthiasis, urinary tract infections, trauma (such as injuries and fractures), and dyspepsia (JAHCO, 2018). To control livestock diseases, the government has established thirteen animal clinics, supplemented by seven private clinics and five private pharmacies. The leading animal health concerns in the district are trypanosomiasis, blackleg, mastitis, internal and external parasitic infections, and salmonellosis (JAHCO, 2018).

2.5. Ethnobotanical Data collection

Reconnaissance survey

The survey was conducted in Jimma Arjo District from November 10 to 25, 2018, to gather preliminary information on medicinal plants across various traditional agro-ecological zones and to identify suitable sampling sites. The district's 20 rural kebeles were stratified according to their agro-ecological characteristics, and sampling locations were selected within these zones. This process resulted in the identification of three distinct traditional agro-climates in the district: Dega, Woina Dega, and Kola (JAARDS (2018).

Site selection

According to data from JAARDS (2018), the rural kebeles of the district are traditionally stratified into three agro-ecological zones: Dega, which includes Hindhe, Tibecafe, Hara, Harakeku, and Tibekusaye; Woina Dega, encompassing Lalo, Wayuqilxu, Wayukumba, Harooqumbaa, Jarsogarbi, Jarsokamisabera, Saka, Jamogiros, Jamogambala, and Asandabo; and Kola, comprising Wama Kura, Meta, Bedasa Didesa, Hunde Gudina, and Abote Didesa. Based on factors such as accessibility, representation across these agro-ecological zones, and the prevalence of traditional herbal practices, four kebeles were purposively selected for detailed documentation following thorough consultations with experts from the district's culture and agricultural offices, guided by Martin's (1995) methodology. Consequently, Tibe Kusaye, Wayu Kumba, Asandabo, and Meta were chosen in a 1:2:1 ratio from the Dega, Woina Dega, and Kola zones, respectively.

2.6. Sample size determination

Kothari(2004) formula was used to determine Participant size for this study and it is presented below.

$$n = \frac{Z^2 \cdot p \cdot q \cdot N}{e^2 (N-1) Z^2 \cdot P \cdot Q}$$

Where; n=sample size, Z= value of standard variant at 95% confidence level (1.96).

P= sample population (0.05)

q= 1-P, 0.95

e= the estimate with 0.04 error values.

N= total house hold population =6132

Then from this equation, sample size was as following

$$n = \frac{(1.96)^2 \times (0.05) \times (1-0.05) \times (6132)}{(0.04)^2 \times (6132-1) + (1.96)^2 \times (0.05) \times (0.95)} = 111$$

Informant selection

Proportional allocation was used to distribute the sample across the four selected kebeles, which together comprised 6,132 households: Tibe Kusaye (1,418), Asandabo (1,547), Wayu Kumba (1,431), and Meta (1,738). Informants were selected using a mixed sampling approach—systematic sampling was employed to identify 91 general informants, while purposive sampling was used to select 20 key informants. In total, 111 individuals participated in the study, including 105 males and 6 females, ranging in age from 24 to 75 years. The sampling procedure followed the guidelines outlined by Martin (1995).

Ethnobotanical Data Collection

Ethnobotanical data were gathered using established methods as outlined by Martin (1995), Alexiades (1996), and Cotton (1996). The primary data collection techniques included semi-structured interviews, focus group discussions, and guided field walks.

Semi structured Interview

Semi-structured interviews were conducted using questionnaires initially developed in English and then translated into Afaan Oromoo, the local language, to ensure clarity and accessibility. The interviews explored a range of topics, including the identification and classification of medicinal

plants, plant parts used, preparation methods, dosage, targeted ailments or organisms, modes of application, and the use of antidotes in cases of adverse reactions. Participants included a diverse mix of individuals—ranging from illiterate community members to professionals and experts working at various levels in both human and animal health sectors, as well as knowledgeable locals.

Focus group discussion

This method was conducted with selected key informants prior to the implementation of preference ranking and direct matrix ranking exercises. This approach helped ensure the accuracy and contextual relevance of information collected from general respondents. A total of ten key informants participated in discussions focused on three specific health conditions—tonsillitis, toothache, and blackleg—in order to identify and rank the most commonly used medicinal plants for treating these ailments. In addition, eight key informants were involved in evaluating and ranking the multipurpose uses of selected medicinal plant species.

Guided field walk

Field walks had conducted with the general as well as key informants during data collection to collect medicinal plant specimen, to observe medicinal plants on its natural setup, to observe medicinal plant local status and record their local name.

Collection and identification of medicinal plants

Ethnomedicinal plant specimens were collected systematically from various habitats throughout the study area. Each sample was assigned a unique identification number, pressed, and dried to preserve it for accurate identification. Preliminary identification was conducted using the *Flora of Ethiopia and Eritrea*, while specimens needing further confirmation were examined with the help of taxonomic experts at Debre Markos University. After final identification, the specimens were properly mounted, labeled, and deposited in the herbarium of Debre Markos University for future reference.

Ethical consideration

A permission letter was first issued by the Department of Biology at Debre Markos University to the chairperson of Jimma Arjo district, who subsequently forwarded it to the chairpersons of the selected kebeles. The kebele leaders granted oral consent for the research to be conducted. Informed consent was then obtained from each participant after a clear explanation of the study's purpose, with assurances given regarding the confidentiality of their responses. Interviewers were instructed to conduct themselves with courtesy and to respect the views and answers of all respondents throughout the data collection process.

Ethnobotanical Data Analysis

Informant consensus factor (ICF)

ICF was calculated for each ailments category to identify the agreements of informants on reported cures. The ICF was calculated based on (Heinrich et al., 1998).

$$ICF = \frac{nur - nt}{nur - 1} \quad \text{where}$$

ICF= informant consensus factor

nur = number of used citations in each category

nt= number of species used in each category

Preference ranking

Preference ranking had conducted for different plants with high citation report to treat tonsillitis, tooth ache and Black legfollowing(Martin, 1995)

Direct matrix ranking

Seven commonly reported multipurpose species and seven use-categories were involved in directmatrix ranking with eight key informants. Eight key informants were participated to assign use values to each species by using scales 5 to zero following (Martin, 1995)

Descriptive statistical methods

A descriptive statistical method was helpful to analyze the collected data using percentage and frequency on reported medicinal plants and associated indigenous knowledge

3. Results and Discussion

Diversity of medicinal plants in the study area

A total of 125 medicinal plant species were collected from the study area, representing 60 families and 107 genera (Appendix), indicating a rich diversity comparable to other studied regions. All species were identified and verified using the Flora of Ethiopia and Eritrea, consultations with plant taxonomists, and global databases such as the Medicinal Plant Names Services (<https://mpns.science.kew.org/mpns>, accessed on 2/10/2025). The families

Fabaceae and Asteraceae were the most dominant, containing the highest number of species (Figure 2), consistent with findings that these families are among the top three most species-rich in the Ethiopian flora (Dagne and Birhanu, 2023) and often show greater resilience to environmental

disturbances. Of the identified species, 62 were used exclusively for human ailments, 35 solely for livestock, and 28 for both, reflecting patterns observed in similar studies conducted elsewhere in Ethiopia (Abebe and Chane Teferi, 2021; Kassa et al., 2020).

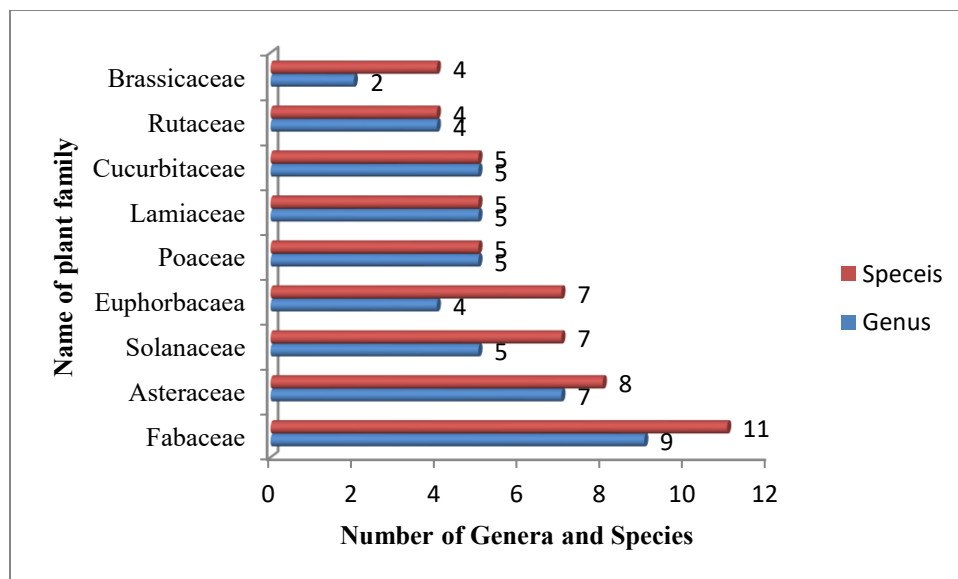


Figure 2. List of family with high number of plant species

Habitats, Growth habit, parts used and mode of application of medicinal plants of the study area

Of the medicinal plants collected, 58 species (46.4%) were obtained from wild habitats, 35 species (28%) from home gardens, and 32 species (25.6%) from cultivated areas. As noted by Kefalew et al. (2023), wild environments remain the primary source of herbal medicines, reflecting that cultivation practices are still not widely adopted in the study area. In terms of life forms, herbaceous plants were predominant with 49 species, followed by 39 shrubs (31.2%), 24

trees (19.2%), 11 climbers (8.8%), and 2 epiphytes (1.6%). Herbaceous species are particularly favored by herbalists due to their rapid growth cycle, often maturing within one year, and their ability to thrive in limited spaces. This preference aligns with findings from various herbal medicine studies (Rahman et al., 2013; Jugran et al., 2019; Abera, 2014; Haile, 2021).

Among the collected medicinal plants, leaves from 50 species were most frequently used for preparing remedies, followed by roots (29 species), seeds (15 species), and bark (12 species). Other plant parts—

including stems, bulbs, fibers, whole plants, latex, flowers, and tubers—were each reported for fewer than five species. Leaves are favored largely because of their rich chemical content, which contributes to their medicinal efficacy (Van Wyk and Wink, 2018; Pengelly, 2020; Yu et al., 2021). While roots are commonly utilized, harvesting them can harm the plants unless herbalists practice replanting in different locations. The predominant methods of preparation involved crushing and squeezing the plant materials, consistent with findings from Mekonnen et al. (2022).

Route of Administration

Oral and dermal routes were identified as the primary methods of administering medicinal plants in the study area (Figure 3). Among the district's three most prevalent diseases, diarrhea stands out, largely due to food borne or waterborne pathogens entering the body orally. This likely explains the predominant use of oral administration for herbal remedies, reflecting the high incidence of gastrointestinal conditions in the region. Nonetheless, oral use of herbal medicines requires caution, as excessive dosing may have harmful effects on patients (Holtmann et al., 2020).

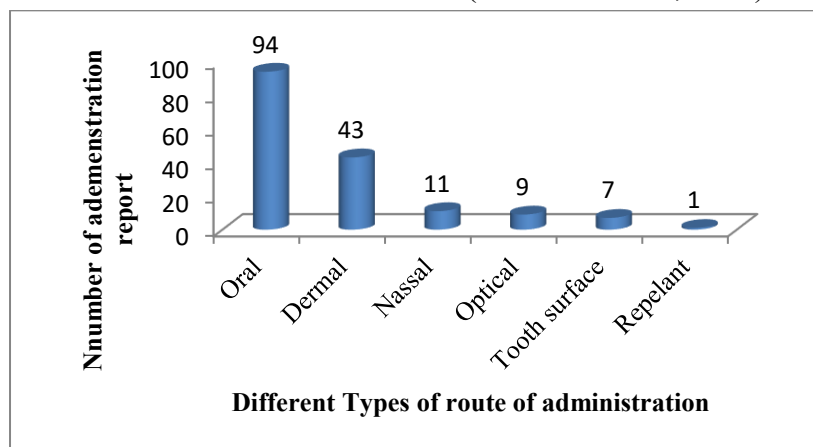


Figure 3. Administration routes of traditional medicinal plants for human and live stock ailments

Doses of herbal remedy application by the study area

In the study area, there were no standardized measurements for administering herbal doses. Herbalists typically used the width of a human finger to gauge quantities of roots or stems, while liquid preparations were measured using bottle lids, spoons, or coffee cups. Leaves and seeds were often counted individually. For livestock, doses were administered using bottles, tins, large spoons,

or other traditional or modern measuring tools of comparable size. This lack of standardized dosing is a common challenge in African Traditional Medicine, primarily due to the wide variety of indigenous healing practices, limited clinical research resources, and the absence of well-documented traditional medical knowledge (Busia, 2024).

Commonly mentioned medicinal plants

Among the medicinal plants documented in the study area, several were frequently cited by local communities, underscoring their important role in traditional healthcare practices. Specifically, *Acmella caulirhiza*, *Cucumis ficifolius*, *Allium sativum*, *Nicotiana tabacum*, *Zingiber officinale*, *Echinops kebericho*, and *Stereospermum kunthianum* showed a high level of informant consensus, each mentioned over 50 times (see Table 1). Research indicates that plants with higher citation frequencies tend to have greater relative efficacy in treating diseases (Trotter and Logan, 2019; Heinrich et al., 1998), highlighting the vital

contribution of these species in managing prevalent ailments within the community.

The high frequency of mentions for these medicinal plants is consistent with established ethnobotanical findings. Research by Trotter and Logan (2019) and Heinrich et al. (1998) confirms that plants cited more frequently tend to exhibit greater therapeutic efficacy or higher relative success in combating diseases. Consequently, the strong consensus observed around these particular species underscores their critical role in the prevention and treatment of various ailments within the study area (Trotter & Logan, 2019; Heinrich et al., 1998).

Table 1. High informant consensus plants

Medicinal plants	Citation	Diseases management report
<i>Acmella caulirhiza</i>	73.00	Tonsillitis
<i>Allium sativum</i>	62.00	Malaria, Stomachache, Asthma
<i>Cucumis ficifolius</i>	69.00	Black leg
<i>Echinops kebericho</i>	53.00	Colic, Evil eye
<i>Nicotiana tabacum</i>	59.00	Leech, snake bites
<i>Stereospermum kunthianum</i>	51.00	Toothache, Poisonous
<i>Zingiber officinale</i>	57.00	Tonsillitis

Informant Consensus Factor (ICF)

The potential of medicinal plants to treat various diseases was re-categorized according to the site of disease occurrence, condition, and treatment approach. Informant Consensus Factor (ICF) values for these categories ranged from 0.39 to 0.89, as presented in Table 2. These results confirm that the local community extensively utilizes available plant resources to manage the top ten diseases reported by

the district health office. This traditional knowledge plays a crucial role in bridging gaps where modern healthcare services are insufficient, demonstrating the community's reliance on herbal remedies for prevalent health challenges. The significant contribution of locally sourced herbal medicines highlights the urgent need to integrate traditional health practices with the modern healthcare system to improve overall disease management (Gakuya et al., 2020).

Table 2. Informant consensus factors of medicinal plants by aliment categories.

Diseases category		nt	No of use citations (nur)	ICF
Respiratory diseases		10.00	83.00	0.89
Head ache, eye, tooth ache		11.00	83.00	0.87
Snake bite, rabies and Evil eye problems		11.00	42.00	0.75
Gastrointestinal problems (GIT)		23.00	89.00	0.75
Hemorrhage, gonorrhea, Nose bleeding, and fracture.		9.00	24.00	0.65
Dermatological		29.00	47.00	0.39
Livestock diseases	Organ diseases (systemic) (black leg, emaciation, fashola, colic, and coccidian, Rabies, Trypanosomiasis)	15.00	84.00	0.83
	Locally treated (external parasites, Mastitis, wound, wart, leech, conjunctivitis, dermatitis, bloating and placental retention, wound)	24.00	79.00	0.7

Preference ranking of medicinal plants

To identify the most preferred medicinal plant species for the treatment of tonsillitis, toothache, and blackleg, the top five plants cited for each condition were selected and presented to ten key informants for evaluation (Table 3). Each informant was asked to rank the plants by assigning a score from 1 to 5, where 5 represented the most preferred and effective species, and 1 the least preferred. This preference ranking approach helped determine the relative importance and perceived effectiveness of each medicinal plant based on traditional knowledge and community experience.

For the treatment of tonsillitis, five pre-identified medicinal plants were presented to key informants for preference ranking. The aggregated results indicated that *Acmella caulirhiza* was the most preferred species, followed by *Zingiber officinale*. The traditional use of these plants for managing

tonsillitis is further supported by various studies, which highlight their anti-inflammatory and antimicrobial properties (Abebe et al., 2020; Tegene, 2018; Haile et al., 2022; Ayele et al., 2024).

For the treatment of toothache, five medicinal plants—each reported by more than ten general respondents—were selected and listed alphabetically in Afaan Oromo. These plants were then presented to ten key informants for preference ranking. *Stereospermum kunthianum* emerged as the most preferred species, followed by *Ehretia cymosa*. The use of *Stereospermum kunthianum* for managing toothache is well-documented in various studies (Alemeye et al., 2018; Bekele, 2021; Sarr et al., 2021), reinforcing its therapeutic significance and indicating a shared body of traditional knowledge across different localities.

Table 3. Preference ranking of plants that used to treat tonsillitis, toothache and black leg

Lists of Plants	Preference ranking of Respondents for tonsillitis(R1-R10)										Total	Rank
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10		
<i>Acmella caulirhiza</i>	5	5	3	4	3	4	5	5	5	5	44	1 st
<i>Zingiber officinale</i>	5	5	5	3	4	5	3	5	5	2	42	2 nd
<i>Albizia gummifera</i>	4	5	3	4	5	5	2	2	5	2	37	3 rd
<i>Rhamnus prinoides</i>	3	3	4	2	5	4	3	3	3	5	35	4 th
<i>Solanum marginatum</i>	2	3	2	5	4	3	4	5	3	1	32	5 th
List of plants	Preference ranking of respondents for toothache (R1-R10)											
<i>Stereospermum kunthianum</i>	3	4	5	5	4	5	5	5	4	5	45	1 st
<i>Ehretia cymosa</i>	4	3	4	4	3	4	4	4	3	4	37	2 nd
<i>Datura stramonium</i>	2	4	3	3	4	4	3	3	4	4	34	3 rd
<i>Platostoma rotundifolium</i>	4	3	3	3	4	2	3	3	4	2	31	4 th
<i>Dryanaria volkensii</i>	4	3	1	1	2	3	1	1	2	3	21	5 th
List of plants	Preference ranking of black leg (R1-R10)											
<i>Clutia abyssinica</i>	5	5	5	5	4	5	5	5	5	4	48	1 st
<i>Capsicum annum</i>	5	5	5	3	5	5	5	5	3	5	46	2 nd
<i>Cucumis ficifolius</i>	3	4	4	3	5	3	4	4	3	5	36	3 rd
<i>Ricinus communis</i>	2	3	3	4	3	2	3	3	5	2	35	4 th
<i>Amorphophallus gallaensis</i>	4	3	4	3	3	4	3	4	3	3	34	5 th

For the treatment of blackleg, five medicinal plants previously identified by participants were presented to key informants for preference ranking. Among these, *Cucumis ficifolius* was selected as the most preferred species, followed by *Capsicum annum*. The use of *Cucumis ficifolius* for managing blackleg is further supported by studies conducted in other communities, highlighting its recognized medicinal value and the presence of shared ethnoveterinary knowledge across different regions (Yineger et al., 2007; Asfaw et al., 2022).

Direct matrix ranking

A direct matrix ranking exercise was conducted with eight key informants, involving seven commonly reported multipurpose plant species and seven distinct use categories. Based on the total

scores assigned by the informants, *Cordia africana* was ranked first, followed by *Ehretia cymosa* (Table 4). Although these plants serve a wide range of functions within the community (Balick & Cox, 2020; Kuhnlein & Turner, 2020), their multiple uses place significant pressure on their natural populations, posing a serious challenge to their conservation and long-term sustainability.

Medicinal plant threats of the study area

The survival of many medicinal plant species is threatened by both human-induced and natural factors, with differing levels of impact. Key threats, including arable land expansion, harvesting for energy, trade, and overgrazing, contribute to 86.88%. Natural factors, like wet land reduction and plant diseases account for 13.64% (table 5)

Table 4. Multipurpose use of medicinal plants collected from the study area

List of plants	Construction	Fodder	Farm materials	Timber	Wood	Medicine	Charcoal	Total	Rank
<i>Cordia africana</i>	31	28	35	39	39	25	33	226	1 st
<i>Ehretia cymosa</i>	30	27	39	12	39	33	30	210	2 nd
<i>Celtis africana</i>	27	39	39	0	36	27	39	207	3 rd
<i>Albizia grandibracteata</i>	32	26	20	19	39	35	34	205	4 th
<i>Eucalyptus globules</i>	39	0	37	24	39	37	23	199	5 th
<i>Croton macrostachyus</i>	23	0	21	19	39	39	39	180	6 th
<i>Gymnanthemum amygdalinum</i>	22	39	21	0	38	36	18	174	7 th

The identified threats are also common in different areas affecting its distribution (Asfaw and Tadesse, 2001; Gemedo and Ganga, 2010).

Table 5. Cause, factor and its citation of the listed threats

Causes of threats	Reason of threat	Citations	percentage	Total%
Human activities	Arable land expansion	53	43.44	86.88
	Harvesting for energy, home use and trade	28	22.95	
	Over grazing	25	20.49	
Natural factors	Wetland reduction and Plant diseases	16	13.11	13.12
Total		122	100	100

4. Conclusions and Recommendations

The ethnobotanical investigation in Jimma Arjo District reveals a profound dependence on traditional medicinal plants, reflecting both the region's rich biodiversity and the community's deep-rooted indigenous knowledge. The documentation of 125 medicinal species underscores the ecological wealth of the area, while the prominence of families like Fabaceae and Asteraceae highlights their central role in local healing practices. Despite the effectiveness of these remedies, particularly for common ailments such as diarrhea and tonsillitis, the lack of standardized dosage and preparation

methods poses a barrier to their integration into modern healthcare frameworks.

The study also brings to light the dual roles of certain plant species as both medicinal and multipurpose resources, which, while essential to local livelihoods, places them at risk of overexploitation. This calls for immediate conservation measures, including sustainable harvesting practices and community-based resource management. Integrating traditional knowledge with scientific validation and policy support will not only enhance healthcare access in rural areas but also safeguard cultural heritage and biodiversity for future generations.

The findings affirm the indispensable role of traditional medicinal plants in the district's healthcare system and highlight the need for collaborative approaches to safeguard this valuable cultural and biological heritage.

Over all, for the sustainable utilization of the herbal knowledge, Research institutions and health authorities should provide regular and inclusive training programs for traditional healers, focusing on safe preparation methods, dosage standardization, hygiene, and record-keeping. This will help enhance the effectiveness and safety of traditional treatments.

Collaborative research between ethnobotanists, pharmacologists, and healthcare professionals is essential to scientifically validate the efficacy and safety of the most commonly used medicinal plants. This will build a bridge between traditional knowledge and modern medicine.

Sustainable harvesting practices must be promoted, especially for multipurpose and overexploited species. Community-based conservation programs, including the establishment of herbal gardens and protected areas, should be encouraged. Urgent efforts are needed to systematically document traditional medicinal knowledge before it is lost. This includes creating local and national databases, involving elders and key informants in the process.

Data Availability

The data used in this study is available in the appendices or the link attached by the editors

Conflicts of Interest

Authors declare that they have no competing interests.

Authors' Contributions

GE participated in the design of the research, data collection, verification of the analytical methods, and writing the manuscript and HR participated in the design of field survey research and verification of the analytical methods. All authors read and approved the final manuscript

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Appendix. Scientific name , Local name; family name; Growth forms; plant parts used; Disease it control, route of administration , Treat for human or Livestock and Preparation method of collected medicinal plants.

Key: **G.form** (Growth form), **H**(Herbs), **SH**(Shrub), **CL**(Climber), **T**(Tree), **EP**(Epiphyte), **L**(Leaf), **Se**(Seed), **R**(Root), **B**(Bark), **FL** (Flower) , **Fr**(Fruit), **ST**(stem) **Lt**(Latex), **Rh**(Rhizome), **R.P** (Retained placenta), **Hm**(Human), **Lst** (Live stock) , **Or**(Oral), **N**(Nasal), **TS**(tooth surface), **De**(Dermal), **Op**(Optical), **Bl**(Bulbs), **Ta** (tooth ache) , **GF**(growth form, **PU**(parts used) , **DC**(Diseases Control) , **RA**(Route of Administration), **TF**(Treat for)

S.No	Botanical Names	Vernacular Name	Family Name	GF	PU	DC	RA	TF	Methods of preparation and does	Voucher No
1	<i>Acanthus polystachius</i> Del.	Sokorruu	Achanthaceae	SH	R	Rabies	Or	Lst	The root is traditionally crushed and administered orally, mixed with milk or coffee, as a remedy for rabies.	GE-010
2	<i>Acmella caulirhiza</i> Del.	Gubduu	Asteraceae	H	FL	Tonsillitis	Or	Hm	One or two flowers chewed and swallowed.	GE-012
3	<i>Aframomum corrorima</i> (A. Braun) P.C.M. Jansen	Ogiyoo	Zingiberaceae	H	Se	Diarrhea	Or	Hm	The seed of <i>Aframomum corrorima</i> chewed then swallow the contents.	GE-030
4	<i>Ajuga integrifolia</i> Buch.-Ham. ex D. Don	Goondii	Lamiaceae	H	L	Rheumatism	Or	Hm	The leaves are squeezed to extract the juice, and one glass of the preparation, mixed with salt, is taken once daily for three consecutive days.	GE-023
5	<i>Albizia grandibracteata</i> Taub.	Hambabeessa	Fabaceae	T	B	Snake bite	Or	Hm/Lst	The fresh bark is crushed and mixed with water, and the resulting mixture is consumed as a remedy	GE-100
6	<i>Albizia gummifera</i> (J.F. Gmel.) C.A. Sm	Muka arbaa	Fabaceae	T	B	Tonsillitis	Or	Hm	The bark of <i>Albizia gummifera</i> is chewed by a traditional healer, and the resulting extract is applied directly to the patient's tonsils as a treatment	GE-099
7	<i>Allium cepa</i> L.	Qullubbii diimaa	Alliaceae	H	Bl	Coccidian	Or	Lst	The preparation is crushed and given to poultry as a treatment	GE-088
8	<i>Allium sativum</i> L.	Qullubbii adii	Alliaceae	H	Bl	Abdominal pain	Or	Hm	The bulb of <i>Allium sativum</i> and the rhizome of <i>Zingiber officinale</i> are pounded and traditionally consumed with injera as a remedy	GE-078
						Asthma	Or	Hm	The bulbs are crushed and mixed with honey, and two spoonfuls of the mixture are administered each morning until the condition is cured	
						Malaria	Or	Hm	The preparation is consumed along with <i>injera</i> and <i>Capsicum annum</i> L. for three consecutive days in the morning, prior to eating breakfast.	
9	<i>Alsophila manniana</i> (Hook.) R.M. Tryon	Tirmmii	Cyathea	H	L	Bats urine	De	Hm	Bandaged the Concoction plant part	GE-109
10	<i>Allophlus macrobotrys</i> Gilg,	Gursadee	Sapindaceae	T	L	Thinness	Or	Lst	The leaves are combined with salt and administered to cattle as a treatment.	GE-014
11	<i>Aloe kefaensis</i> Gilbert & Sebsebe	Hargisa	Asphodelaceae	H	L	Wound	De	Hm	The latex is topically applied to the wound for treatment.	GE-024
12	<i>Amorphophallus gallaensis</i> (Engl.) N. E. Br.	Qicuu	Araceae	H	Rh	Black leg	Or	Lst	The root should be crushed, mixed with water, and administered to a cow affected by blackleg.	GE-032
13	<i>Asparagus africanus</i> Lam.	Sariitii	Asparagaceae	CL	L	Fashola	Or	Lst	Crushed stem and leaves are used as a remedy for thinness	GE-044
14	<i>Avena abyssinica</i> Hochts	Omborii	Poaceae	H	Se	Fracture	Or	Hm	Powder boils and serve as syrup .	GE-052
15	<i>Bersama abyssinica</i> Fresen	Lolchiisaa	Melanthaceae	T	L	Fashola	Or	Lst	The leaves are combined with those of <i>Embelia schimperi</i> and the bark of <i>Croton macrostachyus</i> , crushed together, and then administered..	GE-063
16	<i>Bidens Pachyloma</i> (Oliv. & Hiern) Cufod.	Keelloo	Asteracea	H	L	Athletes' foot	De	Hm	Put on the hot plant part on the infected part	GE-064
17	<i>Brassica carinata</i> (A. Braun) D.A. German	Raafuu	Brassicaceae	H	Se	Bloating	Or	Lst	<i>Brassica carinata</i> mixed with <i>Allium sativum</i> . Powdering and making it liquid and drunk	GE-077
18	<i>Mutarda nigra</i> (L.) Bernh	Sinaafica	Brassicaceae	H	Se	Abdominal cramp	Or	Hm	The powdered mixture is combined with water and consumed with injera	GE-094

S.No	Botanical Names	Vernacular Name	Family Name	GF	PU	DC	RA	TF	Methods of preparation and does	Voucher No
						Colic	Or	Lst	Mix the powder with water and drink one cup, as you would tea.	
19	<i>Brassica oleracea</i> L.	Abiraangoo	Brassicaceae	H	L	Cellulites	Or	Hm	Boil and add salt on the leaf and eat	GE-096
20	<i>Brucea antidysenterica</i> J.F.Mill.	Qomonyoo	Simaroubaceae	SH	L	Headache	N	Hm	Sniffing the squeezed leaf	GE-103
					Se	Rabies	Or	Hm	The solution baked with teff flour and given for 5 days	
21	<i>Buddleja polystachya</i> Fresen.	Anfaarree	Loganaceae	SH	L	Eye	Op	Lst	Squeezed the leaf and added on cattle eye.	GE-123
22	<i>Calpurnia aurea</i> (Aiton) Benth	Cekkaa	Fabaceae	SH	L	Ecto -pasite	De	Lst	Washing by the leaf	GE-002
23	<i>Capsicum annum</i> L.	Mimmixa	Solanaceae	H	FR	poor appetite	Or	Hm	Eat with injera.	GE-011
						Black leg	Or	Lst	Rubbed the tongue of cattle with black leg.	
24	<i>Carduus shimperi</i> Sch. Hip	Balaan warrantee	Asteraceae	H	R	Black leg	Or	Lst	Drinking the solution	GE-025
25	<i>Carissa spinarum</i> L	Agamsa	Apocynaceae	SH		Abdominal cramp	Or	Hm	Drink one cup of the solution for five days	GE-027
26	<i>Catha edulis</i> (Vahl) Endl	Caatii	Celastraceae	SH	L	Cough	Or	Hm	Drinking one cup of the solution after mixing with leaves of <i>Ruta chalepensis</i> until cure	GE-033
27	<i>Caylusea abyssinica</i> (Fresen.) Fisch. & C.A.Mey	Reencii	Residaceae	H	R	Heart burn	Or	Hm	Chewing and swallowing	GE-038
						abdominal cramp	Or	Hm	Eat after cooking	
28	<i>Celtis africana</i> Burm.f.	Ce'ii	Ulmaceae	T	L	Wound	De	Hm	Drop the solution on the wound	GE-043
29	<i>Celtis philippensis</i> Blanco	Togee	Ulmaceae	H	L	Eye	Op	Hm	Put on the leaf on the eye.	GE-049
30	<i>Citrus × limon</i> (L.) Osbeck	Loomii	Rutaceae	SH	FR	Coccidian	Or	Lst	The solution mixed with <i>Citrus lemon</i> and given to hen for drink	GE-050
						Hypertension	Or	Hm	Sucked the juice	
						Asthma	Or	Hm	Sucked the solution regularly at morning and night.	
31	<i>Clausena anisata</i> (Willd.) Hook.f. ex Benth	Ulmaayii	Rutaceae	SH	R	Excess menstruation	Or	Hm	The solution mixed with <i>Cordia africana</i> root and one cup will drink for three days.	GE-071
					L	Ecto parasite	De	Lst	Sweep the hen house by the leaf	
32	<i>Clematis hirsuta</i> Perr. & Guill	Hidda fiitii	Ranunculaceae	CL	L	Bats urine	De	Hm	Put the hot sample	GE-013
					T a		T.S	Hm	Chew by the infected teeth	
33	<i>Clutia abyssinica</i> Jaub. & Spack	Qaqaroo	Euphorbiaceae	SH	F	Black leg	De	Lst	Tied to cow's horn for a week.	GE-097
34	<i>Clutia lanceolata</i> Forssk.	Ule foonii	Euphorbiaceae	SH	L	Ecto parasite	De	Lst	Wash by leaf solution	GE-056
					R	Ta	Or	Hm	Put the juice on teeth surface	
35	<i>Coccinia abyssinica</i> (Lam.) Cogn.	Ancootee	Cucurbitaceae	CL	R	Fracture	Or	Hm	Taken the solution as syrup with butter.	GE-058
36	<i>Coleus maculosus</i> subsp. <i>edulis</i> (Vatke) A.J.Paton	Dinnicha	Solanaceae	H	R	Malaria	N	Hm	Sniffing after coking	GE-047
						Mastitis	Or	Lst	Cooked the root and give to cow for high milk production.	
37	<i>Coleus abyssinicus</i> (Fresen.) A.J.Paton	Yeroo	Lamiaceae	H	L	Eye	Op	Hm	Add the droplets of the plant part after crushing and smashing	GE-062
38	<i>Colocasia esculenta</i> (L.) Schott	Goodarree	Araceae	H	RH	R.P	N	Lst	Crushed root taken	GE-039
39	<i>Combretum paniculatum</i> Vent	Baggee	Combretaceae	CL	R	Eye	Op	Hm	Applied one droplets to eye	GE-015
40	<i>Combretum collinum</i> Fresen.	Unuunuu	Combretaceae	T	B	Fashola	Or	Lst	The part crushed mixed with coffee and drink	GE-104
41	<i>Combretum molle</i> R. Br. ex G. Don	Darakkuu	Combretaceae	T	B	Kwashiorkor	Or	Hm	The part crushed, and the solution mixed with water for drinking	GE-105
42	<i>Cordia africana</i> Lam.	Waddeessa	Boraginaceae	T	B	Leprosy	Or	Hm	The bark is crushed and mixed with water, then consumed as one cup	GE-107
43	<i>Crinum ornatum</i> (Aiton) Herb	Qullubbii daggala	Amaryllidaceae	H	Tub er	Black leg	Or	Lst	The selected plant part is crushed, combined with water, and taken as a drink	GE-118
44	<i>Croton macrostachyus</i> Hochst. ex Delile	Bakkanniisa	Euphorbiaceae	T	L	Head ache	De	Hm	Put on fire the leaves of <i>Justicia shimprina</i> with this plant and then apply topically on head.	GE-119
						Bleeding	De	Hm	Put on the Squeezed solution on the part	
						Ring worm	De	Hm	Painting the area	

S.No	Botanical Names	Vernacular Name	Family Name	GF	PU	DC	RA	TF	Methods of preparation and does	Voucher No
45	<i>Cucumis ficifolius</i> A.Rich.	Hiddii hoolaa	Cucurbitaceae	CL	R	Black leg	Or	Lst	Crushed and the solution filtered and one bottle served	GE-121
46	<i>Cucurbita pepo</i> L.	Dabaaqula	Cucurbitaceae	CL	Se	Tapeworm	Or	Hm	Eat the roasted sample	GE-006
47	<i>Cymbopogon citratus</i> (DC.) Stapf	Marga citaa	Poaceae	H	L	Ta	T S	Hm	Put the leaves on tooth	GE-008
48	<i>Cynodon dactylon</i> (L.) Pers.	Coqorsa	Poaceae	H	L	Snake bite	De	Hm/Lst	Chewed the leaves of <i>Vachellia abyssinica</i> with this plant and then applied topically.	GE-009
49	<i>Cynoglossum amplifolium</i> Hochst. ex A.DC. in DC	Gurra harree	Boraginaceae	H	L	Fibril illness	De	Hm	squeezing the part and applied it	GE-026
50	<i>Cyphostemma adenocaulis</i> (Steud. ex A.Rich.) Desc. ex Wild & R.B.Drumm.	Hida reeffaa	Vitaceae	CL	ST	Blotting	Or	Lst	Crushing and drink one cup of the solution mixed with water	GE-034
51	<i>Cyphostemma pannosum</i> Vollesen	Faca'aa	Vitaceae	H	R	Black leg	Or	Lst	crushing the root of <i>Allium sativum</i> with this plant part and drink it	GE-037
52	<i>Datura stramonium</i> L.	Asaangira	Solanaceae	H	S	Ta	Sniff	Hm	Smoking the seed after putting on fire	GE-045
53	<i>Dodonaea viscosa</i> subsp. <i>angustifolia</i> (L.f.) J.G.West	Ittacha	Sapindaceae	SH	ST	Wound	De	Lst	Powdered dried leaves of <i>Dodonaea viscosa</i> subsp. <i>angustifolia</i> are used as a wound dressing for pack animals	GE-053
54	<i>Dracaena steudneri</i> Engl	Afarfattuu	Dracaenaceae	SH	R	Rabies	Or	Hm/Lst	The crushed preparation is combined with sugar and administered to humans, and one cup of the solution is given as tea to livestock	GE-057
55	<i>Drynaria volkensii</i> Heiron.	Atoo	Polypodiaceae	EP	ST	Ta	TS	Hm	Heat the fresh stem over a fire until it becomes hot, then hold it between the affected teeth for 10 minutes	GE-069
56	<i>Echinops kebericho</i> Mesfin.	Qarabichoo	Asteraceae	H	R	Colic	Or	Lst	The powdered preparation is combined with water and consumed as a single glass.	GE-065
						Evil eye	N	Hm	The dried root is smoked	
57	<i>Ehretia cymosa</i> Thonn.	Ulaagaa	Boraginaceae	T	L	Ta	TS	Hm	Crushing and put on infected teeth	GE-074
58	<i>Embelia schimperi</i> Vatke	Hanquu	Myrsinaceae	SH	FR	Tape worm	Or	Hm	Swallowing the fruit	GE-076
59	<i>Erythrina abyssinica</i> Lam.	Beroo	Fabaceae	T	B	Eye	Op	Lst	Crushing and squeezing and applied the exudates on infected eye	GE-081
60	<i>Erythrina brucei</i> Schweinf	Waleensuu	Fabaceae	T	S	Eye	Op	Lst	Put on the squeezed solution on eye	GE-083
					B	Wound	De	Lst	The barks crushing the part and put on it	GE-089
61	<i>Eucalyptus globulus</i> Labill	Bargamoo adii	Myrtaceae	T	L	Common cough	N	Hm	Sniffing the solution	GE-095
62	<i>Euphorbia ampliphylla</i> Pax	Adaamii	Euphorbiaceae	T	Lt	Wart	De	Hm	Apply the exudates on the affected part.	GE-091
63	<i>Euphorbia cotinifolia</i> L.	Ababaa diimaa	Euphorbiaceae	SH	Lt	Tinea corporis	De	Hm	Applied the exudates on the affected skin	GE-021
64	<i>Euphorbia tirucalli</i> L.	Cadaa	Euphorbiaceae	SH	Lt	Wart	De	Hm	Put the latex	GE-031
						Tinea corporis	De	Hm	Put the exudates	
65	<i>Gardenia ternifolia</i> Schumacher & Thonn.	Gambeela	Rubaceae	T	FR	Wart	De	Hm	Rubbed the affected part by warm plant part.	GE-111
66	<i>Geranium arabicum</i> Forss	Qoricha gandii	Geraniaceae	H	WP	Trypanomiasis	Or	Lst	Squeezing and drinking the solution	GE-110
67	<i>Glinus lotoides</i> L.	Ingirxii	Molluginaceae	H	Se	Tape worm	Or	Hm	Rousted seed of this plant with <i>Guizotia abyssinica</i> and eat	GE-042
68	<i>Grewia ferruginea</i> Hochst. ex A. Rich.	Dhoqonuu	Tiliaceae	SH	Fiber	Ret.Pl	Or	Lst	Soak the plant material in water, then drink the liquid	GE-035
						Dandruff	De	Hm	Hair is washed with the fiber of <i>Grewia ferruginea</i> , used like soap	GE-084
69	<i>Gymnosporia senegalensis</i> (Lam.) Loes	Kombolcha	Celastraceae	T	L	Snake bite	Or	Lst	Drink after Powdering the plant part and mixed with the root powder of <i>Phytolacca dodecandra</i>	GE-115
70	<i>Gymnanthemum auriculiferum</i> (Hiern) Isawumi	Reejjii	Asteraceae	SH	L R	Wound	De.	Hm	Add the squeezed plant part	GE-116
						Coil	Or	Lst	Drinking the crushed plant part after mixing with water	
71	<i>Gymnanthemum amygdalinum</i> (Delile)	Eebicha	Asteraceae	SH		Cough	Or	Hm	Drinking 1/2 coffee cup of the squeezed plant part	GE-122

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	Sch.Bip				L	Mastitis	Or	Lst	The leaves are takes to cow in case of control mastitis and increase secretion of high yield of milk.	
72	<i>Hagenia abyssinica</i> (Bruce) J.F.Gmel	Heexoo	Rosaceae	T	Se	Tape worm	Or	Hm	Crush the plant part, mix it with water, and drink half a cup along with local beer	GE-092
73	<i>Helinus mystacinus</i> (Aiton) E.Mey. ex Steud	Hoomachoo	Rhamnaceae	CL	L	Fashola	Or	Lst	Crushing and mixing with water for drink	GE-102
74	<i>Hordeum vulgare</i> L.	Garbuu	Poaceae	H	Se	Gastritis	Or	Hm	The powder of <i>Hordeum vulgare</i> seed mixed with water and then drinks in the morning every day.	GE-036
75	<i>Hylodesmum repandum</i> (Vahl) H.Ohashi & R.R.Mill	Wadal	Fabaceae	H	R	Thinness	Or	Lst	Crushing root mixed with local bear and drink it	GE-048
76	<i>Juniperus procera</i> Hochst. ex Endl	Gaattiraa	Cupressaceae	T	L	Bloating	Orr	Lst	Crush the leaves, mix them with water, and then drink the mixture	GE-066
77	<i>Justicia schimperiana</i> (Hochst. ex Nees) T. Anders.	Dhummuugaa	Acanthaceae	SH	R	Rabies	Or	Hm/Lst	Crushing and squeezing the plant part and the solution mixed with milk for drinking.	GE-070
78	<i>Kalanchoe petitiiana</i> A. Rich	Bosoqqee	Crassulaceae	H	L	Ascaris	Or	Hm	Drinking the squeezed plant part	GE-125
79	<i>Lagenaria siceraria</i> (Molina) Standl	Hadhooftuu	Cucurbitaceae	CL	L	Athletes foot	De	Hu	Heat the plant part and place it on the affected area	GE-120
80	<i>Lepidium sativum</i> L.	Shinfaa	Brassicaceae	H	Se	wound	De	Hm/Lst	The crushed seed applied on wound	GE-113
						Bloat	Or	Lst	Crashing of the <i>Lepidium sativum</i> seed and bulb of <i>Allium sativum</i> are mixed with the mentioned plant part for drink	
81	<i>Linum utitatisissimum</i> L.	Talbaa	Linaceae	H	Se	Ret.Pl	Or	Lst	Dissolving the powder plant part with water and drink.	GE-117
						Urinary tract	Or	Hm	Powdering mixing with water and drinking r	
82	<i>Lippia abyssinica</i> (Otto & A.Dietr.) Cufod	Kusaayee	Verbenaceae	SH	L	R.P	N	Hm	Sniffing the plant part	GE-003
83	<i>Maesa lanceolata</i> Forssk.	Abbavyii	Myrsinaceae	SH	Se	Scabies	De	Hm	Washing the affected body by the plant part	GE-017
84	<i>Mangifera indica</i> L.	Mangoo	Acardaceae	T	FR	Gastritis	Or	Hm	Eat the ripened fruit	GE-022
85	<i>Milletia ferruginea</i> (Hochst.) Hochst. ex Baker	Sootalloo	Fabaceae	T	S	Jigger	De	Hm	Mix the powder with butter and paste to affected part.	GE-123
86	<i>Momordica foetida</i> Schumach	Humbaawoo	Cucurbitaceae	CL	R	Rabies	Or	Hm/Lst	Filtered the crashed part and then added with milk and serve as drink one cup.	GE-046
					L	Gonorrhea	Or	Hm	Socking the Crushed plant part and mixed with the crushed root of <i>Phytolacca dodecandra</i> , drink the extracted liquid	
						Abdominal cramp	Or	Hm	Mix and squeeze the plant part together with the leaves of <i>Ruta chalepensis</i> , then drink one cup like coffee.	
87	<i>Nicotiana tabacum</i> L.	Tamboo	Solanaceae	H	L	Expel leeches	N	Lst	Applying through nose the Squeezed plant part	GE-061
						Snake bite	Or	Hm/Lst	Drinking the crushed Leaves after mixing with water	
88	<i>Ocimum gratissimum</i> subsp. <i>gratissimum</i>	Ancabbii	Lamiaceae	SH	L	Fibril illness	De	Hm	Put the squeezed juice on body part	GE-041
89	<i>Olea europaea</i> subsp. <i>cuspidata</i> (Wall. & G.Don) Cif	Ejersa	Oleaceae	T	L	Eye	O	Lst	Apply the squeezed droplet on the affected eye	GE-054
90	<i>Oxalis corniculata</i> L.	Qoricha sariitii	Oxalidaceae	H	WP	Herbs' zoster	De	Hm	Concoction of whole part rubbed to affected part.	GE-060
91	<i>Oxynathra abyssinica</i> (A. Rich.) Munro	Shimala	Poaceae	SH	ST	Mastitis	De	Hm	The heated steam put on breast	GE-028
92	<i>Pavonia urens</i> Cav.	Incinnii	Malvaceae	SH	L	R.P	Or	Lst	Crashing the plant part and give to cow to eat	GE-019

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93	<i>Phoenix reclinata</i> Jacq.	Meexxi	<i>Arecaceae</i>	SH	Se	Eye	Or	Lst	Combine the powder with butter and use it on the affected eye	GE-005
94	<i>Phytolacca dodecandra</i> L'Hér.	Handoodee	Phytolaccaceae	H	R	Rabies	Or	Hm/ Lst	Mixing the filtrate with milk after crashing then half cup/ one cup served respectively	GE-007
95	<i>Plantago lanceolata</i> L.	Qorxobbii	Plantaginaceae	H	L	Wound	De	Hm	Put on the crashed plant part	GE-016
96	<i>Platostoma rotundifolium</i> (Briq.) A.J.Paton	Maraasisaa	Lamiaceae	SH	L	Ta	TS	Hm	Hold the squeezed plant part on the affected part	GE-040
					R	Colic	Or	Lst	Drinking the Crushed plant part after mixing with water.	
97	<i>Plumbago zeylanica</i> L.	Ameeraa	Plumbaginaceae	H	ST	Rheumatism	De	Hst	Tying the part	
98	<i>Prunus africana</i> (Hook.f.) Kalkman	Hoomii	Rosaceae	T	B	Wound	De	Hm/ Lst	Put the powdered on injured part	GE-059
99	<i>Pterolobium stellatum</i> (Forssk.) Brenan	Qonxar	Fabaceae	H	Se	Ta	TS	Hm	Put on the crushed plant part	GE-067
					B	Colic	Or	Lst	Drinking after crushing	
100	<i>Ranunculus multifidus</i> Forssl.	Qoricha simbiraa	Ranunculaceae	H	Wp	Bats urine	De	Hm	Put on affected area after crashing	GE-073
101	<i>Rhamnus prinoides</i> L'Hér.	Geeshoo	Rhamnaceae	SH	Se	Tenea corporis	De	Hm	Rubbing by fresh seed	GE-093
					L	Tonsillitis	Or	Hm	Chewing and swallowing the fresh plant part	
102	<i>Searsia natalensis</i> (Bernh. ex C.Krauss) F.A.Barkley	Xaaxessaa	Anacardaceae	SH	R	Thinness	Or	Lst	The crushed root is filtered, and the liquid is given to skinny cattle.	GE-106
103	<i>Ricinus communis</i> L.	Qobboo	Euphorbiaceae	SH	R	Black leg	Or	Lst	Drinking after Crushing and powdering mixed with water. 1 liter is taken	GE-018
					Se	Dry wound	De	Hm	Painting after crushing	
104	<i>Rumex abyssinicus</i> Jacq	Dhangaggoo	Polygonaceae	H	R	Tenea corporis	De	Hm	Pasting 1 spoon after crushing the sample	GE-020
					L	R.P	Or	Lst	Drinking the crushed leaf in water	
105	<i>Rumex nepalensis</i> Spreng.	Timijjii	Polygonaceae	H	L	Tenea corporis	De	Hm	Put the crushed plant part on affected skin.	GE-029
					R	Abdominal crimp	Or	Hm	Drinking the Squeezed plant part	
106	<i>Ruta chalepensis</i> L.	Cilaaaddama	Rutaceae	H	L	Common cold	Or	Hm	Hot solutions should be consumed in a coffee cup	GE-004
					Se	Abdominal crimp	Or	Hm	Drinking ½ coffee cup after Squeezing the plant part	
107	<i>Salix mucronata</i> Thunb	Alaltuu	<i>Salicaceae</i>	SH	R	Black leg	Or	Lst	Drinking the crushed plant part after Mixed with the root of <i>Acanthus polystachius</i>	GE-051
108	<i>Salvia nilotica</i> Jacq	Abbaa qiddii	Lamiaceae	H	L	Fibrill	De	Hm	Rubbed the squeezed plant part after mixing with the leaf of <i>Croton macrostachyus</i>	GE-068
109	<i>Scadoxus nutans</i> (Friis & J. Bjernstad) Friis & Nordal	Arfaasee	Amaryllideaceae	H	L	Eye	Or	Lst	Dropping the extracted plant part	GE-055
110	<i>Scepcarpus hypselodendron</i> (Hochst. ex A.Rich.) T.Wells & A.K.Monro	Laanqessaa	Urticaceae	EP	Fiber	R.P.	Or	Lst	Drinking the crushed plant part	GE-124
111	<i>Securidaca longepedunculata</i> Fresen.	Xamanaayii	Polygalaceae	SH	R	Stomach ache	Or	Hm	Drinking after pounding the plant part with water	GE-075
						Evil eye	N	Hm	Put the crushed plant part on fire then sniffed	
112	<i>Sesbania goetzei</i> Harms	Heennaa	Fabaceae	SH	L	Wound		Lst	Crushing the plant part and put on the sample at affected shoulder	GE-080

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							De		of bull	
113	<i>Sida tenuicarpa</i> Vollesen	Karaabaa	Malvaceae	SH	L	Diarrhea	Or	Hm	Drinking the crushed plant part after mixing with water	GE-079
114	<i>Solanecio mannii</i> (Hook.f.) C.Jeffrey	Jirma jaldeessaa	Asteraceae	SH	L	Evil eye	N	Hm	In hale the plant part after boiling	GE-085
115	<i>Solanum giganteum</i> Jacq	Hiddii saree	Solanaceae	SH	R	Poor apatite	Or	Hm	Drinking the crushing plant part with coffee cup	GE-082
116	<i>Solanum incanum</i> L.	Hiddii	Solanaceae	SH	FR	Nasal bleeding	N	Hm	The fruit burst and the internal liquid sniff.	GE-098
					R	Mastitis	De	Lst	Washing the body part after Crushing for three days	
117	<i>Solanum marginatum</i> L.f	Hongorca	Solanaceae	SH	FR	Tonsillitis	Or	Hm	Drinking the sap after squeezing	GE-086
						Dry Wound	De	Lst	Add the internal part of the plant on the affected part.	
					R	Colic	Or	Lst	Drinking the root after crushing	
118	<i>Stephania abyssinica</i> (Quart.-Dill. & A.Rich.) Walp.	Kalaalaa	Mensipermaceae	CL	L	Eye	Op	Lst	Added on the squeezed plant part on to the affected part	GE-087
119	<i>Stereospermum kunthianum</i> Cham.	Botoroo	Bignoniaceae	T	B	Snake bite	Or	Hm/ Lst	Drinking ½ coffee cup the sample after crushing and mixed with water	GE-090
						Ta	T.S	Hm	Put on the plant part in the affected teeth	
					R	Colic	Or	Lst	Drinking the plant part after crushing it	
120	<i>Tagetes minuta</i> L.	Qoricha goondaa	Asteraceae	H	Wp	Ant	Repl.	Ant	Put the leaves over the ant	GE-101
121	<i>Trigonella foenumgraecum</i> L.	Sunqoo	Fabaceae	H	Se	Gastritis	Or	Hm	Drinking the Powdered plant part mixed with water	GE-112
122	<i>Vepris nobilis</i> (Delile) Mziray	Hadheessa	Rutaceae	SH	B	Fashola	Or	Lst	Drinking the Crashed plant part mixed with leaves of <i>Buddlejapolystachya</i>	GE-108
123	<i>Vachellia abyssinica</i> (Hochst. ex Benth.) Kyal. & Boatwr	Laaftoo	Fabaceae	T	L	Snake bite	De	Hu/L st	Young <i>Vachellia abyssinica</i> and <i>Cynodon dactylon</i> leaves are chewed, and their sap is applied to the body	GE-010
124	<i>Ximenia americana</i> L.	Hudhaa	Olcaceae	SH	R	Abdominal cramp	Or	Hm	Drinking the Crushed plant part after mixing with water.	GE-114
125	<i>Zingiber officinale</i> Roscoe	Jibinbila	Zingiberacea	H	RH	Tonsillitis	Or	Hm	Swallowing the rhizome after chewing	GE-126