Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Ethnobotanical study of homegarden plant diversity and management practices in Mida Kegni district, West Shewa zone, Oromia, Ethiopia

Belay Wagari
Ambo University
Birhanu Kebede
Ambo University
Siraj mammo
sirajmammo@gmail.com
Ambo University

Article

Keywords: /phrases: Homegarden, Local knowledge, Management Practices, Species Diversity

Posted Date: March 11th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-8914885/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License

Additional Declarations: No competing interests reported.

Abstract

This study aims to document and analyze the ethnobotanical diversity and management practices of homegarden plant species in Mida Kegni District, West Shewa Zone, Oromia Regional State, Ethiopia. Ethnobotanical information was gathered through semi-structured interviews, direct homegarden observations, and market surveys. The collected data were analyzed using descriptive statistical methods, including frequency, relative frequency, density, relative density, the Shannon–Wiener diversity index, and various ranking techniques to assess species diversity and cultural significance. A total of 160 informants were purposively selected from four kebeles, representing a broad cross-section of the community. Among them, 12 key informants were identified based on their age, gender, indigenous knowledge, and duration of residence in the area. The study identified and recorded 138 plant species distributed across 119 genera. Of these, herbs accounted for 54 species, trees for 37 species, shrubs for 38 species, and climbers for 9 species. Fabaceae was the richest family, comprising 15 species, followed by Poaceae with 11 species. The documented species were categorized according to their diverse uses, including food, medicine, spice, fodder, and construction materials. The findings further indicated that both men and women actively participate in the management and conservation of homegarden plants, highlighting the gender-inclusive nature of traditional agroforestry practices. The study concludes that homegardens in study district harbor rich ethnobotanical diversity and play a vital role in sustaining household livelihoods, food security, and biodiversity conservation. Hence, the promotion and scaling up of homegarden practices be prioritized as an effective strategy for conserving useful plant species.

1. Introduction

Ethnobotanical studies across Latin America, Asia, and Africa consistently demonstrate that homegardens function as important reservoirs of biodiversity and centers of traditional ecological knowledge. They are shaped by intentional plant selection, propagation, and maintenance practices transmitted across generations, reflecting strong human–plant relationships (Kumar & Nair, 2004; Galluzzi et al., 2010). Structurally complex and multilayered, homegardens integrate trees, shrubs, crops, livestock, and medicinal plants into multifunctional agroecosystems that enhance food security, ecosystem services, and landscape-level biodiversity conservation (Galhena et al., 2013; Vogl-Lukasser & Vogl, 2021). Their adaptive capacity has also positioned them as critical systems for climate resilience, soil fertility improvement, and microclimate regulation, particularly under conditions of land scarcity and socio-economic pressure.

In Ethiopia, homegarden agroforestry systems are widely practiced and recognized for their ecological and socio-cultural significance. Studies from southern and southwestern regions report high species richness, strong integration of indigenous species such as *Ensete ventricosum* and *Coffea arabica*, and diverse functional uses including food, medicine, fodder, and income generation (Yinebeb et al., 2022; Kassa et al., 2023). Recent evidence further highlights their contributions to soil organic carbon enhancement, climate change adaptation, and livelihood resilience (Wolka et al., 2023; Tunsisa et al., 2022). In Oromia, emerging studies reveal gender-differentiated management roles and rich plant diversity shaped by indigenous knowledge systems. However, these findings are geographically uneven and often limited to specific districts.

Despite the growing body of literature, a significant research gap remains in central and western Oromia, particularly in systematically documenting indigenous homegarden knowledge, species composition, and management dynamics under increasing pressures such as agricultural expansion, market integration, and land-use change. Most prior studies focus on southern Ethiopia, leaving districts such as Mida Kegni underrepresented in ethnobotanical inventories and comparative ecological analyses. Furthermore, limited empirical work has examined how socio-economic status, landholding size, and gendered labor organization influence plant diversity and management decisions in these areas. Addressing this gap is essential for understanding the evolving role of homegardens in biodiversity conservation and sustainable rural development. Therefore, the central research question guiding this study is: How do indigenous knowledge systems and household socio-economic factors influence plant species composition, diversity, and management practices in

homegardens of Mida Kegni District? Hence the study was conducted to document indigenous homegarden knowledge, assess plant species composition, and examine local management practices in Mida Kegni District, West Shewa Zone, Oromia Regional State, Ethiopia

2. Materials and Methods

2.1. Description of the Study Area

The district of Mida Kegni is part of the West Shewa Zone of the Oromia region in central Ethiopia, which is situated between latitudes 90°2'0" and 90°24'30"N and longitudes 370°26'00"E" and 370°39'05"E" (Fig. 1). Mida Kegni is roughly 218 kilometers from Ethiopia's capital, Addis Ababa. There are twenty-four rural kebeles (the lowest administrative unit) within the district. It is approximately 42,421 hectares in size. 27,298 hectares of this land are used for farming, 2,702 hectares for grazing, 721 hectares for forestry, and 11,700 hectares for other purposes. 1290 meters to 3058 meters above sea level is the range of altitudes.

The district has three traditional agro-ecology zones based on altitude: Kola (lowland less than 1600 meters) accounts for 24% of the study area, Woina-Dega (mid-highland between 1600 and 2300 meters) for 50%, and Dega (highland above 3200 meters) for 26%, according to the Mida Kegni District Agricultural and Rural Development Office's (MARDO) 2023 annual report (unpublished).

According to meteorological data released by the National Meteorological Service Agency, the study area's mean yearly rainfall has ranged from 186.4 mm in July to 183.2 mm in August, with the lowest mean total occurring in December at 6.5 mm. June had the lowest mean temperature for the past 32 years, at 26°C, while April had the highest, at 32.51°C. Of the approximately 95,123 people in the district, 46,738 (49.14%) were men and 48,385 (50.86%) were women. The study area's people used subsistence mixed agriculture as their primary source of income.

2.2. Methods

2.2.1. Techniques for selecting study sites and informants

Based on the data acquired from the reconnaissance survey, informants were chosen before to the actual data collection from the study district's administration, agricultural, and natural resource management offices. Consequently, data collection was carried out in every kebele in the district because of its small size, which includes only 25 kebeles (the smallest administrative divisions) and 380 households. The Mida Kegni District Agriculture Office provided the list of 380 families in the study region. The following formula, created by Yemane (1967) and Zar (2010), was used to estimate the sample size.

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

where, n = sample size N = Total number of households in all kebeles e = maximum variability or margin of error 5% (0.05) 1 = the probability of an event occurring

$$n = \frac{(380)}{1+380(0.06)2}$$ n = 160

According to Martin (1995), a systematic sampling technique was used to choose 160 respondents from the district, 140 of whom were men and 20 of whom were women. The sample size (160) was then divided by this household number. The informants were between the ages of 18 and 55.

2.2.2. Data collection

Ethnobotanical data was gathered using the procedures and methodology suggested by Martin (1995). In order to discuss the goal of the study and its importance to the communities, a meeting was arranged with the assistance of local administration before to interviewing and gathering plant specimens.

Using semi-structured interviews, focus groups, free listing, and guided field trips, 160 informants provided ethnobotanical data for an ethnobotanical research of homegarden plant diversity and management techniques, in accordance with Martin's (1995) recommendations. Oromic was used to write the semi-structured interview questions, and English was used to translate the responses during the documentation phase. An ethnobotanical study of the variety of plants grown in household gardens and their management techniques was one of the data gathered.

2.2.3. Data analysis

Preference ranking, direct matrix ranking, and descriptive static methods such as frequencies, relative frequencies, densities, and Shannon and Wiener's (1949) index of species diversity were used to organize the collected data. The results were also presented as pie charts, tables, graphs, use-categories, and growth habits. Tables and graphs were used to display the variety of home garden plants and management techniques, including their growth patterns, habitats, and informants' indigenous knowledge, as well as the distribution of homegarden plant species and families in the various agro-ecologies in the research area.

A preference ranking has been calculated to determine the degree of community preference for homegarden plants in the study area. A direct matrix ranking exercise was also used to choose essential species. As suggested by Martin (1995), a direct matrix ranking exercise was used to compare the diversity of plant species utilization. Out of all the home garden plant species that have been described, those with multiple functions were chosen. To determine the purposes of these species, twelve important informants were consulted. Five for best, four for very good, three for good, two for less used, one for least used, and zero for having no values were the usage values that these key informants were able to provide to each species. Each home garden plant species' scores were averaged before being ranked. Additionally, a priority ranking exercise aimed at determining perceived dangerous features of the homegarden plant species was completed by the twelve key informants.

2.2.4. Ethical and Regulatory Compliance

The study area's local communities' cultural perspectives were given particular consideration during the data collection process. The goals and values of the study were also communicated to the research participants. Any benefits that can be derived from the study should be beneficial to the community since indigenous knowledge belongs to them. The code of ethics for ethnobiology states that indigenous knowledge must be preserved and that the knowledge's owners should get some of the value created. At the end of the informants agreed and accepted the concept.

All methods were performed in accordance with relevant national and international guidelines and regulations. The study complied with the IUCN Policy Statement on Research Involving Species at Risk of Extinction and adhered to the principles of the Convention on the Trade in Endangered Species of Wild Fauna and Flora (CITES). All necessary permits and approvals were obtained prior to fieldwork and specimen collection.

3. Results and Discussions

3.1. Demographic characteristics of informants

This study included 160 participants, 140 of whom were men and 20 of whom were women. The participants' ages ranged from 18 to 55 years old. The respondents were all Oromo, living in rural areas, farming, and practicing their religion; of them, 120 (or 75%) were Protestant, 29 (18.13) were Orthodox, and 6 (3.75%) were Wakefata (Table 1).

Table 1
Demographics factor of respondents in the study area.

Sex		Male	Female	Total	Percent	Rank
Respondents		140	20	160		
Marital status	Single	4	1	5	3.13	4
	Married	126	15	141	88.13	1
	Divorced	6	2	8	5	2
	Widowed	4	2	6	3.75	3
Age of Respondents	18–25 year	3	1	4	2.5	4
	26–35 year	30	7	37	23.13	3
	36–45 year	49	7	56	35	2
	46–55 year	58	5	63	39.38	1
Education level	Illiterate	31	1	32	20	3
	1–4 Grade	45	6	51	31.88	1
	5–8 Grade	38	10	48	30	2
	9–12 Grade	26	3	29	18.13	4
Religion	Protestant	110	10	120	75	1
	Orthodox	26	8	34	21.25	2
	Wakefata	4	2	6	3.75	3
Source: Field Survey, 2024						

Particularly, the majority of the farmers who responded were men, and most of them were between the ages of 18 and 55. They made up the majority of the workforce, had extremely low educational backgrounds, and today make up 31.88% of the student body through programs in grades 1–4. The amount of land, age distribution, education level, andsex makeup of a household all affect how much labor is availablefor certain chores, which is important for the homegarden biodiversity (Olajide-Taiwo*et al.*,2010).

3.2. Diversity of Homegarden plants

In the study area, a total of 138 plant species commonly utilized by the local population were identified and documented. These species, distributed across 119 genera and 65 families, were recorded through a structured survey conducted at four different sites; involving 160 household samples (Table 5). Comparatively, Reta, (2016), reported a higher number of homegarden plant species 258 in Hawassa town, highlighting a notable variation in species richness between regions. This discrepancy may be attributed to ecological, cultural, and socioeconomic differences. The study also observed a growing decline in the transmission of indigenous knowledge, largely driven by modernization, shifting lifestyles, the erosion of cultural practices, and the influence of formal education systems findings that align with those of Wondimu et al., (2007). Additionally, factors such as farm size, the presence of woodlots, distance from main roads, and elevation were identified as key determinants of homegarden tree species diversity and density across both locations and households (Abebe et al., 2013).

This study highlights the urgent need for targeted conservation initiatives and in-depth research on endemic plant species to inform and strengthen effective preservation strategies. Different kebeles had different levels of plant species diversity,

which may have been caused by things like soil fertility, altitude, household garden size, socio-economic backgrounds, and accessibility to roads and marketplaces, in addition to religious considerations (Agize et al., 2013). The finding (Fig. 2) indicates that the Fabaceae family of plants is a highly popular choice for homegardens. With 11 species each (8%) Poaceae was the second most prevalent family of plants found in homegardens, followed by Asteraceae, Roaceae, and Solanaceae (7 (5.07%) each). 5 (3.62%) species were found in Brassicaceae, 4 (3%) in Myrtaceae, and 6 (4.35%) in Lamiaceae and Rutaceae. Each of the four families—Alliaceae, Celasteraceae, Cucurbitaceae, and Loganiaceae had three species (2.17%). Similarly, Fabaceae, Poaceae, and Asteraceae were frequently utilized by the Sebeta Hawas peo

(Habitamu Hailu and Zemede Asfaw, 2001) and the Dawro people (Agize et al., 2013). A study from Wolayta Seta et al. (2013) revealed a preference for Fabaceae (12.96%) and Poaceae (11.11%).

A direct comparison of species diversity reveals differences between the total number of plant species recorded in the study area's homegardens and those reported in other regions of Ethiopia. For example, the current findings align with Kebedew, (2018), who documented 138 plant species belonging to 104 genera and 58 families in homegardens and surrounding areas of Arbaminch. This figure is higher than the 75 species reported by Mengistu and Fitamo (2015) from homegardens in the Dilla Zuria District and the 52 species recorded by Yirefu Tefera et al. (2016) across three agroecological zones in the same district.

On the other hand, the present results fall short when compared to the 224 species reported by Feleke (2011) in homegardens of Basketo and Kafa, southern Ethiopia, and the 214 species documented by Agize et al., (2013) in the Dawro Zone. Similarly, they are lower than the 198 species recorded by Abebe et al., (2013) in Sidama and the 165 species reported by Tamrat (2011) in the Gedeo Zone, also located in southern Ethiopia.

3.3. Growth habits of homegarden plants

All growth habits of the documented home garden plants were included in this study, including shrubs, trees, herbs, and climbers (liana). The growth habit of herbs contributed the most (54, 39%) of all the home garden plant species identified, followed by that of shrubs (38, 28%) and trees (37, 27%), while the growth habit of climbers (liana) contributed the least (only 9, 6%), as shown in (Fig. 3). The growth patterns and species diversity in the Mida Kegni District differ notably from those observed in the Dilla Zurya District (Mengistu and Fitamo, 2015). Similarly, the composition and distribution of plant species in homegardensin Mida Kegni District vary from Sebeta Town (Hailu and Zemede, 2011), as well as among individual homegardens within the same locality.

3.4. Major Use Categories of Plants in the Study Area

Homegardens in the study areas serve multiple functions, offering a wide range of ecosystem services such as providing nutritionally balanced diets, traditional remedies for humans and livestock, firewood, construction materials, and income generation. They also contribute to soil fertility enhancement, wind protection, and various social and cultural benefits. These findings align with Feleke (2011), who noted that farmers maintain a diverse array of plant species in their homegardens to fulfill subsistence needs while preserving species for their actual or perceived utility. In total, 138 plant species were documented in the homegardens of Mida Kegni District and were categorized based on their functional uses (Fig. 4).

Twenty (42.55%) fruits, twelve (25.53%) seeds, five (11%) leaves and roots, three (6%), bulbs/tuber, and two (4%) plants make up the 47 food plant species that have been identified (Fig. 5). There are significant differences in the outcomes for various plant sections. Fruits 20 (42.55) have the highest total value, followed by seeds 12 (25.53). The lowest value is seen in stems, which are followed by bulbs and leaves/roots. Because they are frequently the most valuable in terms of both nutritional content and economic value, fruits may be valued higher. When they ripen, most fruits are eaten raw, or uncooked. Due to the fact that growing fruits and vegetables in a homegarden greatly increases the use of these foods in

many Asian nations, homegardening has proven to be a successful strategy to improve family food security (Melese and Fitamo, 2015).

3.5. Preference ranking

A preference grading of commonly stated home garden plants was carried out. In order for this, the informants were given a list of their top six home garden plants depending on the kind of food crops they utilized, and they were then ranked according to their usage. A score of 6 was assigned to the home garden plant thought to contain the most commonly used food crop plant species, while a value of 1 was assigned to the one with the least frequently used food crop plant species. Each species' overall score was used to determine preference ranking. Each informant's number was added to determine the overall rank of the exercise. Consequently, *Ipomoea batatas* was placed last and *Solanum tuberosum* was ranked first (Table 2).

Table 2
Simple preference ranking exercise on six commonly used food crop plant species and ranked 1–6 informants according to their significance in the study area

Plant species	Local name	Respondents												Total	Rank
		R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12		
Ipomoea batatas (L.) Lam.	Cemcemee	2	1	3	4	5	2	2	1	5	4	2	5	36	6
Beta vulgaris L. var. *vulgaris*	Hundee diimaa	4	2	4	2	3	3	4	5	5	4	6	3	45	4
Solanum tuberosum L.	Dinnicha	5	6	6	6	5	6	6	4	6	6	6	4	66	1
Allium sativum L.	Qullubbii Adii	6	6	5	4	4	6	3	4	3	5	6	6	58	2
Brassica oleraceae L.	Rafu marama	2	3	5	6	3	5	6	6	5	4	3	5	53	3
Daucus carota L.	Karotii	4	2	2	3	5	1	3	1	4	2	5	6	38	5

Similar to this, it displays the overall scores and ranks (1–6) of these significant medicinal plants together with their preference ranking based on how well they treat illnesses in the study area's homegardens. Consequently, *Ocimum lamifolium* Hochst. and *Allium sativum* L. were selected top and second, respectively. (Table 3)

Lepidium sativum L. was widely used in Ethiopian cooking and medicine; studies have often mentioned the beneficial effects of *Allium sativum* garlic on the heart (Wondimu &Yasin, 2014). Asfaw et al. (2010) reported that it is also well-known for its essential oils and medicinal properties in the Southern Nations, Nationalities, and Peoples' Region, where it is typically employed to treat digestive problems.

Table 2
Preference ranking of these important medicinal plants based on their effectiveness in healing ailment in the study area.

Species name	Local name	Respondents												Total	Rank
		R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12		
Allium sativum L.	Qullubii adii	6	6	5	6	6	6	6	5	4	6	6	6	68	1
Lepidium sativum L.	Feecoo	6	5	5	6	4	3	6	6	3	4	5	6	59	2
Trigonella foenum-graecum L.	Sunqoo	5	6	4	6	6	5	4	3	6	3	5	4	57	3
Hagenia abyssinica (Bruce) J.F. Gmel.	Heexoo	2	5	5	6	3	2	6	4	5	5	4	3	50	4
Vernonia amygdalina Delile	Eebicha	3	6	2	3	3	6	2	3	4	5	1	1	39	5
Ocimum lamifolium Hochst.	Ancabbii	1	4	1	1	3	6	3	4	5	1	2	4	35	6

3.6. Direct matrix ranking

According to 12 key informants in the study area, the locals have used the six home garden plants for a variety of other purposes, including fuel wood, live fence, fire wood, ornamental, shade, spice, construction, medicine, and furniture (5 = Excellent, 4 = Very Good, 3 = Good, 2 = Less Used, 1 = Least Used, and 0 = No Value). *Cupressus lusitanica, Eucalyptus globulus, Acacia decurrens, Cordia Africana, Juniperus procera, and Hagenia abyssinica* were ranked first through sixth, respectively, according to the direct matrix ranking exercise (Table 4). The house gardens in Sebeta town (Hailu and Asfaw, 2011), Holeta town (Amberber et al., 2014), and Wolayita Zone (Seta *et al.*,, 2013) are comparable to the homegardens in Mida Kegni District in this way.

Table 4
Direct matrix ranking of eight plant species against eight use criteria (5 = Excellent; 4 = very good; 3 = good; 2 = less used; 1 = least used and 0 = no value).

Use categories	*Cupressus lusitanica*	*Eucalyptus globulus*	*Acacia decurrens*	*Cordia Africana*	*Juniperus procera*	*Hagenia abyssinica*	Total	*Rank*
Furniture	2	5	2	5	5	4	30	4
Construction	3	4	5	5	5	3	31	2
Live fance	2	5	1	5	4	5	26	5
Fire wood	5	5	2	5	5	3	31	2
Ornamental	3	1	2	4	3	1	19	6
Shade	3	5	3	5	5	5	34	1
Spice	0	0	0	0	0	0	0	8
Medicine	0	3	0	0	0	0	3	7
Total score	18	28	15	29	27	21		
Rank	5	2	6	1	3	4		

3.7. Indigenous Knowledge and Homegarden Management

Homegarden management practices in the study area are based on traditional Indigenous knowledge passed down through generations. Both men and women participate in these activities, with a clear division of labor among families. Women tend to ornamentals, vegetables, and spices, while men focus on cultivating cash crops, digging, designing, fencing, seed finding, and seedling. Children also contribute by planting ornamentals and fruits and assisting in maintaining the homegarden.

Seed selection practices in homegardens are crucial for maintaining plant health and productivity. Local seed sources are essential for plant genetic resource management at the community level. Farmers acquire seeds and seedlings for various homegarden components through purchase, self-saving, sharing among homegarden owners, and from agricultural bureaus. This exchange fosters knowledge sharing in cultivation and management practices among homegarden owners, facilitating the dissemination of cultural diversity and Indigenous knowledge across kebeles.

Furthermore, the fertility of homegarden soil is sustained through the incorporation of organic fertilizers such as house refuse, animal manures, and crop residues. To control pests like termites, locals employ methods like spreading ash on the soil, frequent digging during the dry season to expose pests to sunlight before planting, and using chemical fertilizers in small percentages.

To protect and conserve homegarden soil, locals plant shrubs near erosion-prone areas and select plants with spines, thorns, and multipurpose uses for live fencing. Inorganic fertilizers are used for cereals, root and tuber crops, and pulses. Local farmers use various methods to protect their homegardens and adjoining agricultural fields from threats such as domestic and wild animals, birds, and invertebrate pests.

In conclusion, homegarden management practices in the study area are based on traditional Indigenous knowledge and traditional practices. Programs that support both men and women in agricultural training and resource management are likely to yield better outcomes in terms of productivity and sustainability.

Table 5
List of Homegarden plants documented from Mida kegni District.

No.	Scientific name	Family name	Local name	Plant form	Use category	coll No.
1	*Ajuga integrifolia* Lam.	Lamiaceae	Harmaguusaa	H	M	130BW
2	*Albizia gummifera* (J.F. Gmel.) C.A.Sm.	Fabaceae	Mukarbaa	T	Lf,Fd	098BW
3	*Albizia schimperiana* Oliv.	Fabaceae	Himalaa	T	Lf,S,Fu,Fw	031BW
4	*Allium cepa L. var. aggregatum*	Alliaceae	Qullubii diimaa	H	F,Sp,IS	070BW
5	*Allium porrum* L.	Alliaceae	Qullubii baaroo	H	F,IS	120BW
6	*Allium sativum* L.	Alliaceae	Qullubii adii	H	F,M, Sp,IS	221BW
7	*Apodytes dimidiata* (E. Mey. ex Arn.)	Icacinaceae	Qumbaala	T	S,Fu,Lf,Fw	041BW
8	*Artemisia abyssinica*	Asteraceae	Sariti	H	Sp	102BW
9	*Arundinaria alpine* (K. Schum.) C. E. Hubb.	Poaceae	Leemmana	S	Fu,Lf,C,S	084BW
10	*Arundo donax* L.	Poaceae	Shanbakkoo	S	Fu, Lf,Fw	116BW
11	*Asplenium aethiopicum*	Aspleniaceae	Fern(Eng.)	S	O, SF	058BW
12	*Bersama abyssinica* Fresen.	Melianthaceae	Lolchiisaa	S	Lf,Fw	094BW
13	*Beta vulgaris* L. var. *vulgaris*	Amaranthaceae	Hundee diimaa	H	M,F,IS	007BW
14	*Brassica carinata* A. Braun	Brassicaceae	Raafuu	H	F,IS	105BW
15	*Brassica integrifolia* (M. Bieb.) Boiss.	Brassicaceae	Raafuu guraage	H	F,IS	125BW
16	*Brassica nigra* (L.) Koch	Brassicaceae	Sanaafica	H	M, sp	012BW
17	*Brassica oleracea* L.	Brassicaceae	Raafuu maramaa	H	F,IS	124BW
18	*Brassica rapa* L.	Brassicaceae	Qosxaa	H	F,IS	097BW
19	*Brucea antidysenterica* J.F. Mill.	Simarobaceae	Qomonyoo	S	FW	008BW
20	*Buddleja polystachya* Fresen	Loganiaceae	Qawwisaa	T	Lf,Fw	016BW
21	*Caesalpinia decapetala* (Roth) Alston	Fabaceae	Arangamaa	C	Lf, M	009BW
22	*Calpurnea aurea* Desv.	Fabaceae	Ceekaa	S	Lf, M	111BW
23	*Canavalia africana* Dunn	Fabaceae	Adongaarree	H	F,IS	040BW
24	*Canavalia ensiformis* (L.) DC.	Fabaceae	Boloqqee	C	F,IS	035BW
25	*Capsicum annuum* L.	Solanaceae	Qaara faranji	H	F,Sp,IS	045BW
26	*Capsicum frutescens* L.	Solanaceae	Qaaraa abasha	H	Sp,IS	068BW
27	*Carica papaya* L.	Caricaceae	Pappaayyaa	H	F, M	051BW
28	*Carissa spinarum* L.	Apocyraceae	Agamsa	S	Lf	006BW

No.	Scientific name	Family name	Local name	Plant form	Use category	coll No.
29	*Carthamus tinctorius* L.	Asteraceae	Suufii	H	F,Sp	055BW
30	*Casuarina equisetifolia* L.	Casuarinoceae	Shewashuwe	T	Or,Lf	064BW
31	*Catha edulis* (Vahl) Forssk. ex Endl.	Celasteraceae	Jimaa	S	St,IS	108BW
32	*Chamaecytisus proliferus* L.	Fabaceae	Muka loonii	T	Fd	061BW
33	*Citrus aurantifolia* (Christm.) Swingle	Rutaceae	Loomii	S	F,M	014BW
34	*Citrus aurantium* L.	Rutaceae	Qomxaaxxee	S	M,F	037BW
35	*Citrus sinesis* L. Osb	Rutaceae	Burtukaana	S	F	027BW
36	*Clausena anisata* (Willd.) Oliv.	Rutaceae	Ulumaayii	S	Fu,Lf,	022BW
37	*Clematis simensis Fresen.*	Rununclceae	Hida fiitii	C	C	025BW
38	*Coccinia abyssinica* (Lam.) Wight & Arn.	Cucurbitaceae	Ancootee	H	F	030BW
39	*Coffea arabica* L.	Rubiaceae	Buna	S	M,St,IS	113BW
40	*Cordia africana* Lam.	Boraginaceae	Waddeessa	T	Fu,S,SF	135BW
41	*Coriandrum sativum* L.	Apiaceae	Dimbilaala	H	Sp.IS	123BW
42	*Croton macrostachyus* Hochst.	Euphorbiaceae	Bakkanniisa	T	M,Fw,S,Fu	090BW
43	*Cucurbita pepo* L.	Cucurbitaceae	Buqqee	H	F,M	100BW
44	*Cupressus lusitanica* Mill.	Cupressaceae	Gatira faranji	T	C, S,fu,Lf,Cs,Or	033BW
45	*Cymbopogon citratus* (DC.) Stapf	Poaceae	Tej-sar	H	M,Fd,Or	026BW
46	*Cynodon dactylon* (L.) Pers.	Poaceae	Marga	H	Fd,Cs	114BW
47	*Datura stramonium* L.	Solanaceae	Asangiraa	H	M,SF	106BW
48	*Daucus carota* L.	Apiaceae	Kaarotii	H	F ,IS	024BW
49	*Dodonaea angustifolia* J. Roem. & Schult.	Sapindaceae	Ittacha	S	M,Lf	036BW
50	*Dombeya torrida* (J. H. Kinahan) J. H. Hemsl.	Sterculiaceae	Dannissaa	S	Lf,Fw,Fu	013BW
51	*Dovyalis caffra* (Hook. f.) Warb.	Flacourtiaceae	Koshommii	S	Fw,Fd, Lf,	091BW
52	*Echinops kebericho* Mesfin	Asteraceae	Qarabichoo	H	M,Cs	104BW
53	*Ekebergia capensis* Sparrm.	Meliaceae	Somboo	T	Fw,Fu,C,Fd,S	118BW
54	*Embelia schimperi* Vatke	Myrsinaceae	Haanquu	S	M	038BW
55	*Ensete ventricosum* (Welw.) Cheesman	Musaceae	Qoccoo	H	M,F,Fd,SF	018BW
56	*Eragrostis citralis* (Steud.) Nees	Poaceae	Xaafii	H	F,IS	001BW
57	*Erythrina brucei* Schweinf.	Fabaceae	Waleensuu	T	Fu,Lf,S	112BW
58	*Eucalyptus camaldulensis Dehnh.*	Myrtaceae	Barzafii Diimaa	T	C,Fw	028BW

No.	Scientific name	Family name	Local name	Plant form	Use category	coll No.
59	*Eucalyptus globulus* Labill.	Myrtaceae	Barzafii adii	T	Fw,C,M, S	119BW
60	*Eucalyptus racemosa* Sm.	Ebenaceae	Mi'eessaa	S	S,Lf,Fw	115BW
61	*Ficus sur* Forssk.	Moraceae	Harbuu	T	Fd,F,Fw,S	032BW
62	*Ficus vasta* Forssk	Moraceae	Qilxuu	T	St, S	023BW
63	*Fodder beet*	Solanaceae	Dinicha looni	H	Fd	019BW
64	*Fragaria vesca* L.	Rosaceae	Goraa	H	F	011BW
65	*Galium aparinoides* Forssk	Rubiaceae	Maxxannee	H	O,SF	015BW
66	*Grevillea robusta* A. Cunn.	Proteaceae	Giraaviilaa	T	Fu,C,Lf,S	047BW
67	*Hagenia abyssinica* (Bruce) J.F. Gmel.	Rosaceae	Heexoo	T	M, S,Fu,Fw	088BW
68	*Hippocratea goetzii* Loes.	Celastraceae	Hida gafarsa	C	C	093BW
69	*Hordeum vulgare* L.	Poaceae	Garbuu	H	F	103BW
70	*Ipomoea batatas* (L.) Lam.	Convolvulaceae	Mixaaxisa	H	F,IS	092BW
71	*Jacaranda mimosifolia* D. Don	Bignoniaceae	Muka qawee	T	Fd	021BW
72	*Jasminum abyssinicum* Hochest.ex Dc.	Oleaceae	Hida Ichilbe	C	C	017BW
73	*Juniperus procera* Hochst.	Cupressaceae	Gatira abasha	T	Fu,C,Lf,S,Fw,SF	127BW
74	*Justicia schimperiana* (Nees) T.Anderson	Acantheceae	Dhummugaa	S	M,Lf,Or	004BW
75	*Lactuca sativa L.*	Asteraceae	Salaaxaa	H	F,IS	138BW
76	*Lagenaria abyssinica* (Hochst.) Coss.	Cucurbitaceae	Buqe Hadoftu	C	Or,F	126BW
77	*Lepidium sativum* L.	Cruciferae	Feecoo	H	M	133BW
78	*Linum usitatissimum* L.	Linaceae	Talbaa	H	F,IS	082BW
79	*Lippia abyssinica* (Hochst.) C. Presl	Verbenaceae	Kusaayee	S	Ar	109BW
80	*Lycopersicon esculentum* Mill.	Solanaceae	Timaatimii	H	F,IS	085BW
81	*Maesa lanceolata* Forssk	Myrsinaceae	Abbayyii	S	Fw	054BW
82	*Malus sylvestris* Mill	Rosaceae	Apilii	S	F, IS	049BW
83	*Mangifera indica* L.	Anacardiaceae	Maangoo	T	F,IS	053BW
84	*Maytenus arbutoides* (A. Rich.) Loes.	Celasteraceae	Kombolcha	T	Fw	122BW
85	*Musa × paradisiaca* L.	Musaceae	Muzii	H	F,IS	096BW
86	*Myrica salicifolia* A.Rich.	Myrsicaceae	Barooddoo	T	Fw,Fu,S	083BW
87	*Myrsine Africana* L.	Myrsicaceae	Qacama	S	Fw	039BW
88	*Nicotiana tobacum* L.	Solanaceae	Tamboo	S	M,St,IS	059BW

No.	Scientific name	Family name	Local name	Plant form	Use category	coll No.
89	*Nuxia congesta* R.Br. ex Fresen	Loganiaceae	Anfaarree	T	Fw,Fu,S	078BW
90	*Ocimum lamifolium* Hochst.	Lamiaceae	Ancabbii	H	M	128BW
91	*Olea europaea* L.	Oleaceae	Ejersa	T	C,Lf,S	137BW
92	*Olinia rochetiana* A.Juss.	Oliniaceae	Soolee	T	Lf,Fw	029BW
93	*Opuntia ficus-indica* (L.) Mill.	Cactaceae	Aadaamii	S	Lf	020BW
94	*Osyris quadripartita* (A. Rich.) A. DC.	Santalaceae	Waatoo	T	Lf,Fw	050BW
95	*Otostegia integrifolia* Benth.	Lamiaceae	Cingiitii	S	Ar	002BW
96	*Pennisetum purpureum* Schumach.	Poaceae	Marga arbaa	H	Fd,SF	042BW
97	*Periploca linearifolia* Benth.	Ascaceae	Hidda ananoo	C	C	087BW
98	*Persea americana* Mill.	Rutaceae	Avokaadoo	T	F,IS	043BW
99	*Phoenix reclinata* Jacq.	Arecaceae	Meexii	T	Or,Cs, S	052BW
100	*Phytolacca dodecandra* L'Hér.	Phytolaccaceae	Andoodee	S	O	063BW
101	*Pisum sativum* L.	Fabaceae	Qamadii	H	F	073BW
102	*Podocarpus falcatus* (Thunb.) R.Br. ex Mirb.	Podocarpaceae	Birbirsa	T	Fu,C,S	076BW
103	*Premna schimperi* Engl.	Lamiaceae	Urgeessaa	S	Lf	080BW
104	*Prunus africana* (Hook. f.) Kalkman.	Rosaceae	Garbii	T	M,Fu,S	003BW
105	*Prunus persica* (L.) Batsch.	Rusaceae	Kookii	S	F,S,IS	071BW
106	*Psidium guajava* L.	Myrtaceae	Zayitunaa	C	F,IS	074BW
107	*Rhamnus prinoides* (Hochst. ex A. Rich.) K. Schum.	Rhamnaceae	Geeshoo	H	St,IS	136BW
108	*Rhamnus staddo* A.Rich.	Rhamnaceae	Qadiidaa	S	Ar	131BW
109	*Rhus glutinosa* A. Rich	Anacardiaceae	Xaxeessa	T	Fw	067BW
110	*Ricinus communis* L.	Euphorbiacaeae	Qobboo	H	O,SF	065BW
111	*Rosa abyssinica* lindley	Rosaceae	Qaqqawwee	S	F,Lf	034BW
112	*Rosa x richardii* Rehd.	Rosaceae	Habaaboo	H	Or	129BW
113	*Rosmarinus officinalis* L.	Lamiaceae	Siga-metibesha	H	Sp,IS	069BW
114	*Rubus apetalus poir.*	Rosaceae	Goraa arbaa	S	F,Lf	107BW
115	*Rumex palensensis* (Fresen.).	Polygonaceae	Dhangaggo	S	Lf	005BW
116	*Ruta chalepensis* L.	Rutaceae	Cilaattama	S	M,Sp,Cs,IS	099BW
117	*Saccharum officinarum* L.	Poaceae	Shonkora agada	H	F,IS,Fd	046BW

No.	Scientific name	Family name	Local name	Plant form	Use category	coll No.
118	*Salix subserrata* Willd.	Salicaceae	Aleltuu	S	S, Fu	086BW
119	*Senecio gigas* (Vatke)	Asteraceae	Jirma jaldeessaa	S	Lf	095BW
120	*Sesamum orientale* L	Fabaceae	Salixii	H	F,IS	062BW
121	*Snowdenia polystachya* (Fresen.) Pilg	Gramineae	Muja	H	Fd	060BW
122	*Solanum tuberosum* L.	Solanaceae	Dinicha	H	F,IS	132BW
123	*Sorghum bicolor* (L.) Moench.	Poaceae	Bisingaa	H	F, IS	134BW
124	*Syzygium guineense* (Willd.) DC.	Myratceae	Goosuu	T	F, Lf	072BW
125	*Syzygium guineense* var.	Myrtaceae	Baddeessaa	T	F, Lf,S, Fw	057BW
126	*Thymus schimper*	Lamiaceae	To sign	H	Sp	066BW
127	*Trigonella foenum-graecum* L.	Fabaceae	Sunqoo	H	M	110BW
128	*Triticum aestivum* L.	Poaceae	Qamadii	H	F, IS	101BW
129	*Urtica simensis* Steudel.	Urticaceae	Saammaa	H	Lf, Fd,SF	117BW
130	*Vachellia seyal* Del.	Fabaceae	Doddota	T	Lf,S,Fu,Fw,	010BW
131	*Vachellia abyssinica* Hochst. ex Benth.	Fabaceae	Laaftoo	T	Fw, S, SF	056BW
132	*Vachellia decurrens* (J.C.Wendl.) Willd.	Fabaceae	Laaftoo faranjii	T	Fu,Lf,S, Fw	089BW
133	*Vernonia amygdalina* Delile	Asteraceae	Eebicha	S	Lf, M, Fd,SF	075BW
134	*Vernonia auriculifera* Hiern	Asteraceae	Reejjii	S	LF, Fw	081BW
135	*Vicia faba* L.	Fabaceae	Baaqelaa	H	F,IS	077BW
136	*Vitis vinifera* L.	Vitaceae	Weyini	C	F	079BW
137	*Zea mays* L.	Poaceae	Boqolloo	H	F, IS	044BW
138	*Zingiber officinale* Roscoe	Zingiberaceae	Zinjibila	H	M, Sp	048BW

4. Conclusions and Recommendations

4.1. Conclusions

This research underscores the remarkable plant species diversity found within the homegardens of the study area, documenting 138 species belonging to 119 genera and 65 families. Among these, the Fabaceae family emerged as the most dominant, reflecting its vital role in local agricultural systems and dietary habits. The presence of diverse families such as Poaceae and Asteraceae highlights the ecological richness of these systems and their potential for varied agricultural, nutritional, and ecological applications.

The study categorized the recorded species into 17 distinct usage groups, showcasing the multi functionality of homegarden plants. These roles extend far beyond food production, encompassing medicinal, cultural, ecological, and economic functions that are deeply integrated into the daily lives of the local community.

Importantly, the research also reveals the depth of Indigenous knowledge possessed by homegarden owners. This includes traditional practices in planting, weeding, soil fertility management, seed selection, and the conservation of valuable plant species within homegarden systems. Such knowledge is pivotal for the maintenance, resilience, and ecological health of these gardens, especially in the face of environmental and socioeconomic pressures.

The integration of traditional practices with conventional techniques—such as the use of organic and inorganic fertilizers and pest control methods—reflects a synergistic approach that can enhance the sustainability and productivity of homegardens. This blending of knowledge systems supports both biodiversity conservation and local food security.

the findings emphasize the critical need to conserve plant diversity in homegardens while fostering support systems that promote improved agricultural practices. By reinforcing Indigenous knowledge and introducing context-specific innovations, stakeholders can mitigate challenges faced by homegarden ecosystems. Promoting biodiversity in these multifunctional spaces will not only enhance household food security but also safeguard cultural heritage and strengthen sustainable livelihoods

4.2. Recommendations

The study's findings lead to several key recommendations for enhancing the management and productivity of homegardens. Agricultural experts at all levels should assist the indigenous homegarden management system and offer training to communities to educate them about the features of homegardens, encouraging the adoption of new technologies. Government and non-governmental groups are urged to supply farmers with high-quality seeds and seedlings to boost homegarden productivity. Additionally, the Mida Kegni and the zone's agricultural offices should play a vital role in educating the local population about conservation and management techniques to ensure the sustainable use of plant species, thereby maintaining the natural balance of plant compositions. Supporting home gardening is essential not only for the production of food, medicinal plants, and other multifunctional plants but also for the care and preservation of plant biodiversity. Furthermore, closing gender gaps and maximizing men and female involvement is crucial for achieving the goals of homegarden plant diversity management.

Declarations

Conflict of interest

The authors declare no conflict of interest related to this paper.

Funding declaration

No fund is received for research from any organization

Authors Contribution

BW collected data and wrote the 1st draft Manuscript, B.K. methodology and revised 1st daft and SM supervised the data collection and Edited the manuscript.

Consent for publication

The authors have agreed to submit and approved the manuscript for submission.

Data availability

The data used to support the findings of this study are included within the article

Ethics approval and consent to participate

Permission to collect data was obtained from Ambo University Institutional Research Ethical Committee (AUIREC) through a written letter with reference number AUIREC /007/13/2022 and. Informants had agreed and signed the informed consent before starting the survey and the interview as well as consent to publish this information was obtained.

References

1. Abebe, T., Sterck, F. J., Wiersum, K. F., & Bongers, F. (2013). Diversity, composition and density of trees and shrubs in agroforestry homegardens in Southern Ethiopia. Agroforestry systems, 87(6), 1283-1293
2. Acharya, A., & Karki, T. B. (2022). Homegardens for climate resilience and food security: A review. Sustainability, 14(3), 1452. https://doi.org/10.3390/su14031452
3. Agize, M., Demissew, S., & Asfaw, Z. (2013). Indigenous knowledge on management of homegardens and plants in Loma and Gena Bosa districts (weredas) of Dawro Zone, Southern Ethiopia: plant biodiversity conservation, sustainable utilization and environmental protection. *Int J Sci: Basic Appl Res (IJSBAR)*, *10*, 63-99.
4. Ahmed, S., et al. (2021). Home gardening as a promising strategy to improve household food and nutrition security: A review. Food Reviews International, 1–20. https://doi.org/10.1080/87559129.2021.1933136
5. Amberber, M., Argaw, M., & Asfaw, Z. (2014). The role of homegardens for in situ conservation of plant biodiversity in Holeta Town, Oromia National Regional State, Ethiopia. International Journal of Biodiversity and Conservation, 6(1), 8-16.
6. Asfaw (2004). Homegarden and agrodiversity In: Eyzaguirre P.B.Lnares of editors. The Enset based homegarden of Ethiopia.Washington Smithsonian institution volume-6 :123-147.
7. Asfaw, Zewdie, Lemenih, Mohd, & Hager, Hager. (2010). Bamboo and hardwood species for building in the Southern Nations, Nationalities, and Peoples' Region of Ethiopia. Forests, Trees and Livelihoods, 19(3), 173-188.
8. Chalite, G. C. (2020). Management and the influence of socioeconomic factors on tree species diversity in traditional agroforestry practices in Demba Goffa District, South Ethiopia. Journal of Horticulture and Forestry, 12(1), 13-19.
9. Edo, K., Kidane, L., & Beyene, T. (2024). Socio-ecological benefits of home garden agroforestry and indigenous management practices in Digelu Tijo District. *MEJS*. https://www.ajol.info
10. Feleke, W. (2000). A study on biodiversity management in daaddegoyo (traditional homegardens) by Kaficho people of Bonga Area (Southwestern Ethiopia): an ethnobotanic approach (Doctoral dissertation, MSc thesis, Biology Department, Addis Ababa University).
11. Feleke, W. (2011). Homegardens and spices of Baketo and Kafa (South west Ethiopia): Plant diversity, product valorization and implications to biodiversity conservation. Ph. D Thesis, in Botanical science, Addis Ababa University, Addis Ababa.
12. Fernandes, E. C. M., & Nair, P. K. R. (1986). An evaluation of the structure and function of tropical homegardens. Agricultural Systems, 21(4), 279–310.
13. Galhena, D. H., Freed, R., & Maredia, K. M. (2013). Homegardens: A promising approach to enhance household food security and wellbeing. Agriculture & Food Security, 2(1), 8. https://doi.org/10.1186/2048-7010-2-8
14. Galluzzi, G., Eyzaguirre, P., & Negri, V. (2010). Homegardens: neglected hotspots of agrobiodiversity and cultural diversity. Biodiversity and Conservation, 19(13), 3635–3654.
15. Hailu, H., & Asfaw, Z. (2011). Homegardens and agrobiodiversity conservation in Sabata town, Oromia regional state, Ethiopia. SINET: Ethiopian Journal of Science, 34(1), 1-16.
16. Kassa G., Bekele T., Demissew S., Abebe T. (2023). *Plant species diversity, plant use, and classification of agroforestry homegardens in southern and southwestern Ethiopia*. Heliyon, 9(6):e16341. DOI:10.1016/j.heliyon.2023.e16341
17. Kumar, B. M., & Nair, P. K. R. (2004). The enigma of tropical homegardens. Agroforestry Systems, 61(1), 135–152. https://doi.org/10.1023/B:AGFO.0000028995.13227.ca

18. Kumari, R., Singh, B., & Srivastava, A. (2023). Enhancing household nutrition through homegardens: A pathway to sustainable food systems. Sustainable Agriculture Reviews, 58, 131–150. https://doi.org/10.1007/978-3-030-98259-2_7
19. Kunhamu, T. K. (2021). Homegardens as sustainable land use practice: prospects and challenges.
20. Mammo, S., & Dereje, Y. (2025). Woody species diversity of homegarden agroforestry and their contribution to livelihoods improvement in Dendi District, Central Ethiopia. Agroforestry Systems, 99(3), 59.
21. Martin G.J. (1995) Ethnobotany. Amethod of manual chapman and Hall London Pp-265 270.
22. Mekonen, T., Giday, M., & Kelbessa, E. (2015). Ethnobotanical study of homegarden plants in Sebeta-Awas District of the Oromia Region of Ethiopia to assess use, species diversity and management practices. Journal of ethnobiology and ethnomedicine, 11, 1-13.
23. Mellisse, B. T., Tolera, M., & Derese, A. (2024). Traditional homegardens change to perennial monocropping of khat (Catha edulis) reduced woody species and enset conservation and climate change mitigation potentials of the Wondo Genet landscape of southern Ethiopia. Heliyon, 10(1).
24. Mengistu, M., & Fitamo, D. (2015). Plant species diversity and composition of the homegardens in Dilla Zuriya Woreda, Gedeo Zone, SNNPRS, Ethiopia. Plant, 3(6), 80.
25. Meragiaw, M., Woldu, Z., Singh, B.R., 2022. Land use and land cover dynamics and traditional agroforestry practices in Wonchi District, Ethiopia. PeerJ 10, e12898.
26. Kebebew (2018) Diversity and Management of Useful Homegardens Plant Species in Arba Minch Town, Southern Ethiopia: Implication for Plant Diversity Conservation and Food Security. International Journal of Economic Plants 5(3): 137-148.
27. Nora, A., (2012). Title of the work. *Journal Name*, Volume (Issue), Page range. DOI/Publisher.
28. Olajide-Taiwo, F. B., Adeoye, I. B., Adebisi-Adelani, O., Odeleye, O. M., Fabiyi, A. O and Olajide-Taiwo L. O. (2010). Assessment of the Benefits and Constraints of Home gardening in the Neighborhood of the National Horticultural Research Institute, Ibadan, Oyo State. Am-Eu.J. A.E.S. 7 (4): 478-483.
29. Peyre, A., Guidal, A., Wiersum, K. F., & Bongers, F. (2006). Homegarden dynamics in Kerala, India: A typology based on household experiences. Agroforestry Systems, 66(3), 231–247.
30. Putri W.K. Luchman, H.J.Batoro (2016). Ethnobotanical survey of homegardens in pandasari and sumberejo to support ecotourism program in Bromo Tengger Semeru National park Indosia. Department of Biology, Faculty of Mathematics and Natural Science Brawijaya University veteran streetMalang 65145 East Java Indosia.
31. Reta, R. (2016). Useful plant species diversity in homegardens and its contribution to house hold food security.Department of Biology Hawassa College of teachers education.
32. Seta, T., (2007). Diversity in Enset-based homegardens and its significance to household food supply in Wolaita (Southernn Ethiopia): an ethnobotanical approach. M.Sc thesis-unpublished. Addis Ababa University, Addis Ababa.
33. Seta, T., Demissew, S., & Asfaw, Z. (2013). Homegardens of wolayta, southern Ethiopia. An ethnobotanical profile. Academia Journal of Medicinal Plants, 1(1), 14-30.
34. Shannon, C.E. and Wiener, W. (1949). The Mathematical theory of communication. University of Illinois, Chicago, USA.
35. Shiferaw, S. et al. (2024). Diversity and ethnobotanical study of homegarden plants in Goba District, Oromia, Ethiopia. *Discover Plants*. https://link.springer.com
36. Tamrat, S. (2011). *Study of useful plants in and around GATE UDUMA (Traditional Gedeo Homegardens) in Kochere Wereda of Gedeo Zone, SNNPR, Ethiopia: an Ethnobotanical Approach* (Doctoral dissertation, Addis Ababa University).
37. Taro, Y., 1967. How to Calculate a Reliable Sample Size Using Taro Yamane Method. Tebkew, M., Asfaw, Z., Zewudie, S., 2014. Underutilized wild edible plants in the Chilga District, Northwestern Ethiopia: focus on wild woody plants. Agric. Food Secur. 3, 1–16.

38. Tefera M., Mirutse G., & Ensermu, K. (2015). Ethnobotanical study of homegarden plants in Sebeta-Awas District of the Oromia Region of Ethiopia to assess use, species diversity and management practices.
39. Terfassa, G. (2021). The role of homegarden agroforestry in biodiversity conservation at yayo coffee forest biosphere reserve, Chora District, South-western Ethiopia. Ecology and Evolutionary Biology, 6(3), 78.
40. Tunsisa, B., Erbo, K., & Muchie, A. (2022). Role of Homegarden Agroforestry Practice in Climate Change Adaptation in Aleta Chuko Woreda, Sidama Region, Southern Ethiopia.
41. Vogl-Lukasser, B., & Vogl, C. R. (2021). Homegardens and their multifunctionality: A review from an agroecological perspective. Frontiers in Sustainable Food Systems, 5, 621038. https://doi.org/10.3389/fsufs.2021.621038
42. Wassihun, B., Asfaw, Z., & Demissew, S. (2003). Ethnobotanical study of useful plants in daniio gade (home-gardens) in Southern Ethiopia. Ethiopian journal of Biological Sciences, 2(2), 119-141.
43. Weldebirhan, T., Terefe, D., & Bekele, D. (2023). Diversity and Composition of Homegarden Agroforestry Implication for Biodiversity Conservation in Bure District, Ilubabor Zone, Southwest Ethiopia. Ecology and Evolutionary Biology, 8(3), 50-54.
44. Wolka, K., Biazin, B., Martinsen, V., & Mulder, J. (2021). Soil organic carbon and associated soil properties in Enset (Ensete ventricosum Welw. Cheesman)-based homegardens in Ethiopia. *Soil and Tillage Research*, *205*, 104791.
45. Wondimu, T. and Yasin, A. (2014). *The Therapeutic Effects of Garlic: A Review*. *Journal of Herbal Medicine*, 4(2), 103-108.
46. Wondimu, T., Asfaw, Z., & Kelbessa, E. (2007). Ethnobotanical study of medicinal plants around 'Dheeraa'town, Arsi Zone, Ethiopia. Journal of Ethnopharmacology, 112(1), 152-161.
47. Yemane, T., 1967. Statistics: An introductory analysis, 2nd Edition, New York.
48. Yinebeb M., Lulekal E., Bekele T., Lemessa D. (2022). *Composition of homegarden plants and cultural use in an indigenous community in Northwest Ethiopia*. J Ethnobiol Ethnomed, 18(47):1–14. DOI:10.1186/s13002-022-00545-5.
49. Yirefu, Teshome, Wendawek, Abebe, & Bogale, Tefera. (2016). Woody plants species diversity of home garden agroforestry in three agroecological zones of Dilla Zuria district, Gedeo Zone, Southern Ethiopia. *International Journal of Fauna and Biological Studies, 3*(3), 98–106.
50. Zar, J.H., 2010. Biostatistical Analysis:Department of Biological Sciences Northern Illinois University .3rd Edition. New York .947p

Figures

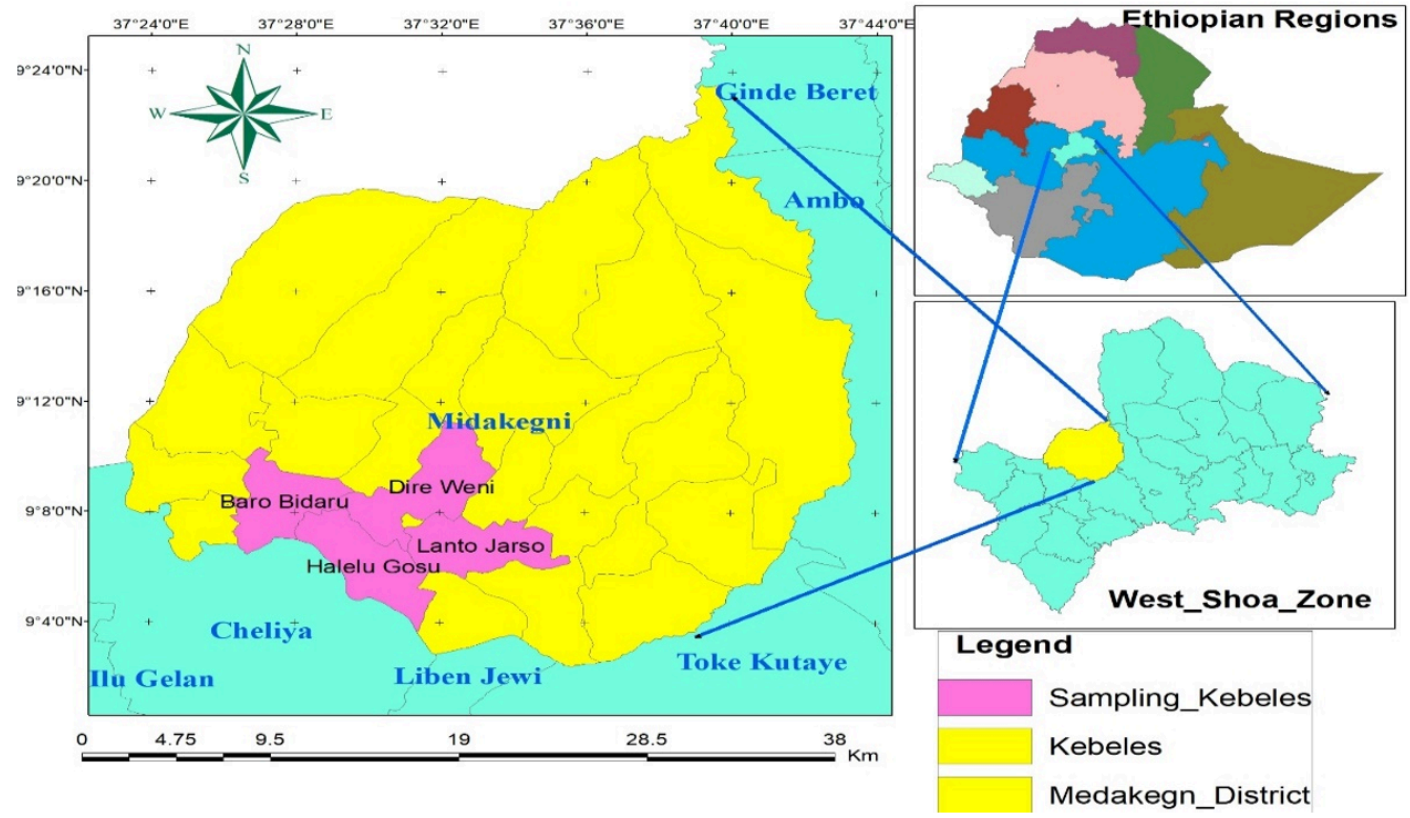


Figure 1

Map of the study area

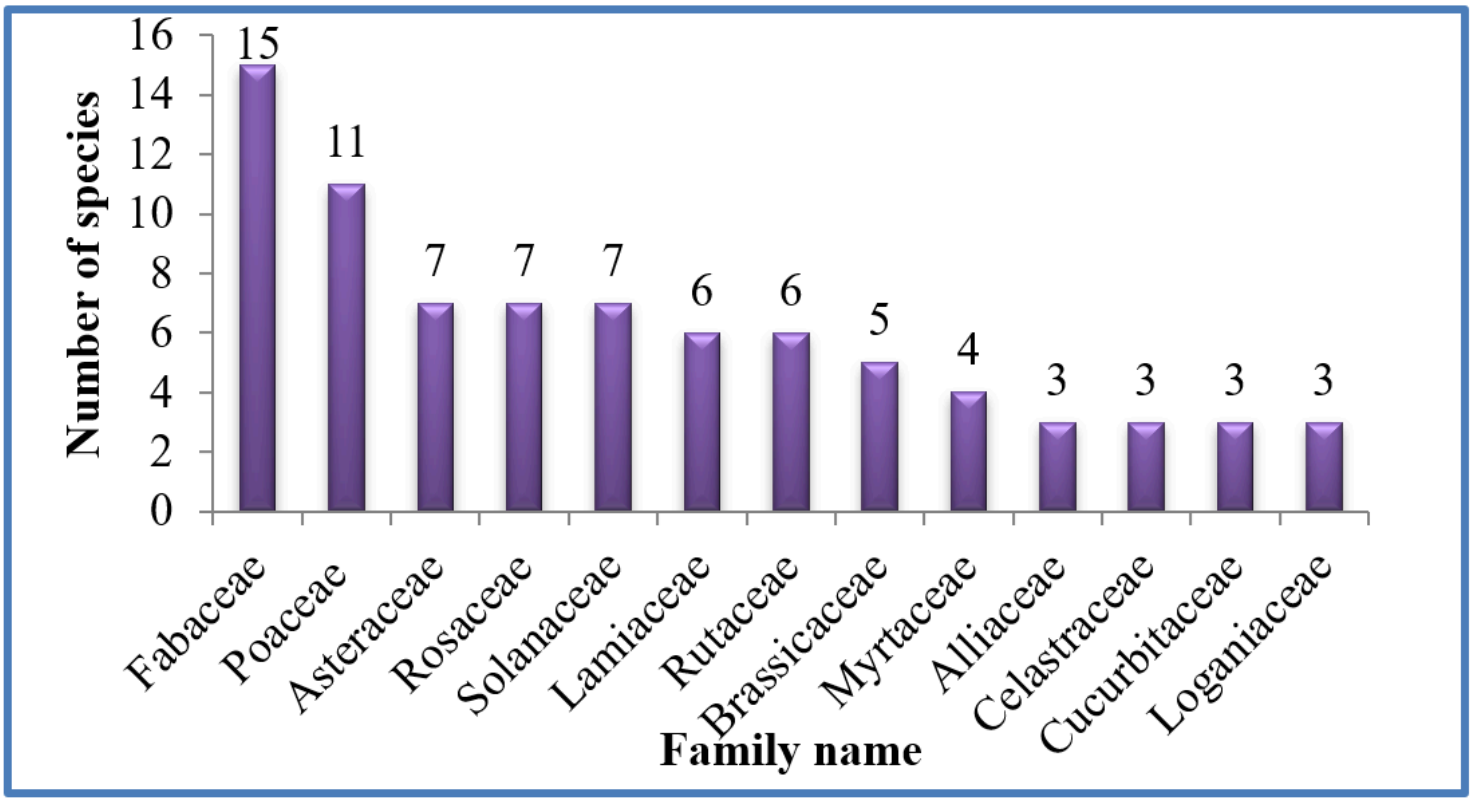


Figure 2

Top 13 useful plant species family diversity in the homegardens of the study area.

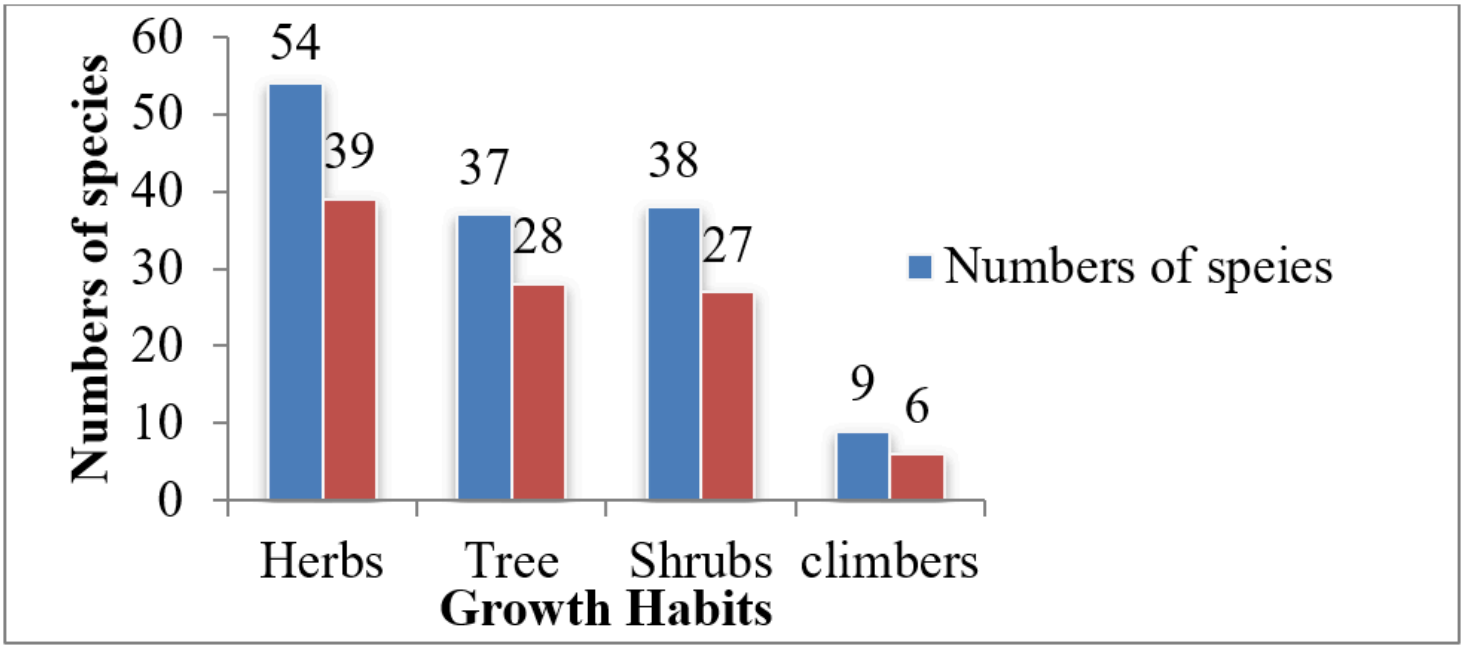


Figure 3

Growth habits of wild edible plants of Mida Kegni District.

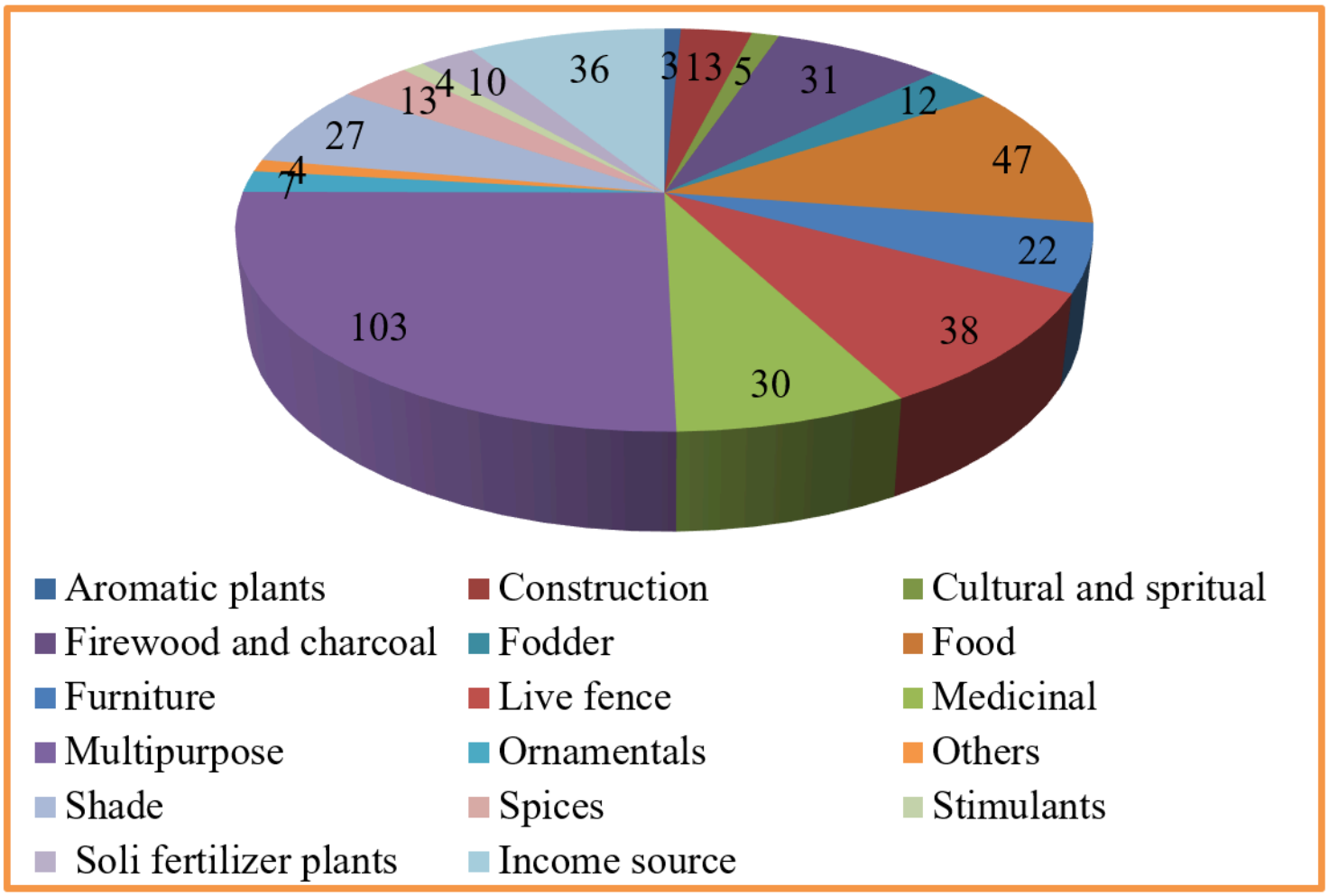


Figure 4

The use value categories of plant species and their numbers of plant species in the homegardens of study area

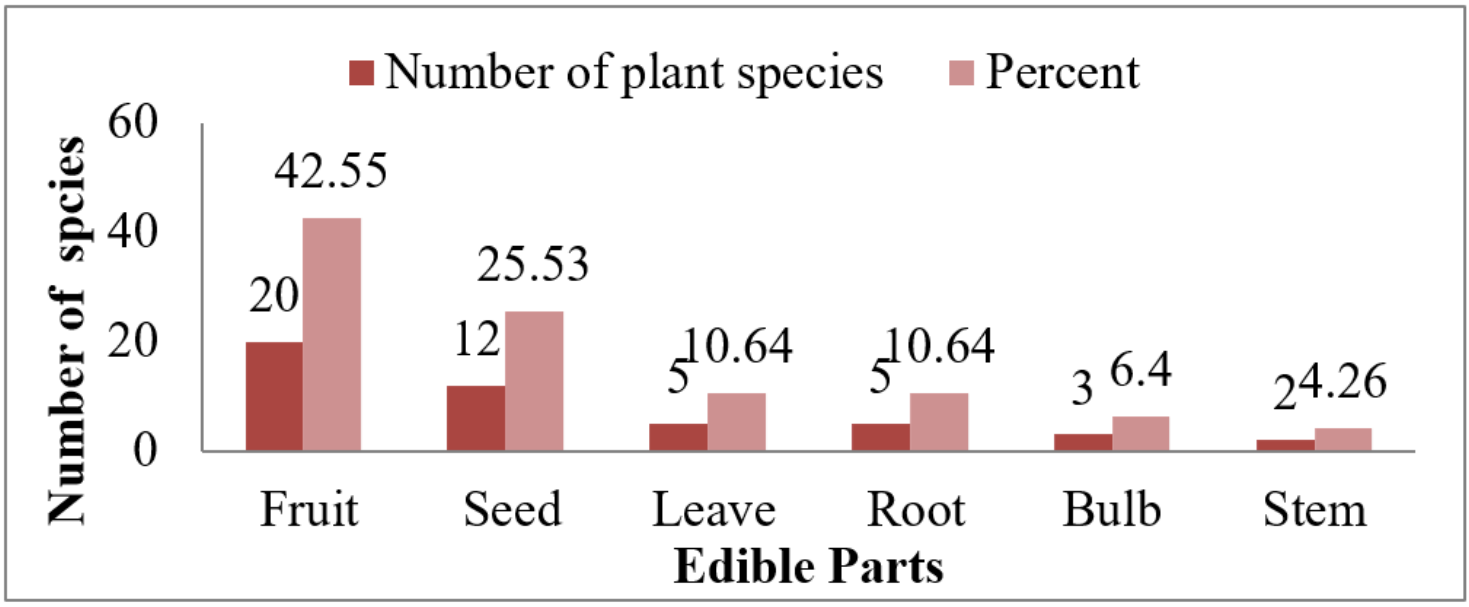


Figure 5

Edible parts of reported homegarden plants in Mida Kegni District.