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Critical Review on Wild Edible Plant Species Diversity, Its Edible Plant Parts and Mineral Contents of the Species in Ethiopia

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Ethiopia's diverse agroecological zones support a wide range of wild edible plants (WEPs) that grow naturally without cultivation. As part of the Eastern Afromontane and Horn of Africa biodiversity hotspots, the country hosts rich plant diversity with significant nutritional and ecological value. These important resources are poorly documented, and limited efforts exist to domesticate them or raise awareness about their mineral composition and edible plant parts among local communities. This review synthesises findings from ethnobotanical studies to examine WEP diversity, commonly consumed plant parts and their mineral composition, based on extensive literature from journal articles, manuals and reports. A total of 179 WEP species belonging to 49 families were identified. *Moraceae* was the most abundant family (16 species), followed by *Fabaceae* and *Asteraceae* (10 species each). *Solanaceae*, *Rhamnaceae* and *Amaranthaceae* contributed eight species each, while *Anacardiaceae* and *Tiliaceae* had seven species. These plants are consumed in multiple forms, including raw ripe fruits (48.6%), medicinal preparations (26.3%), fodder (17.3%), cooked leaves (3.4%), dried fruits, chewing gums, raw leaves and nectar. Growth habit analysis showed that trees accounted for the highest proportion (40.8%), followed by shrubs (27.4%) and herbs (23.5%). Mineral analysis of ten species revealed notable nutrient levels: *Ziziphus spina-christi* contained the highest calcium (1304.6 mg/kg), *Cordia monoica* had the highest phosphorus (76,461.7 mg/kg), and *Urtica simensis* had the highest iron (316 mg/g). Macronutrient assessments of five species showed that *Dioscorea praehensilis* had the highest carbohydrate content (83.8%), whereas *Talinum madagascariense* had the highest energy value. *Solanum nigrum* and *Cleome gynandra* exhibited superior protein and fibre levels. Despite their nutritional and economic importance, WEPs face increasing threats from agricultural expansion, deforestation, overgrazing, charcoal production and recurrent drought. Enhancing conservation efforts, raising community awareness and promoting sustainable use and domestication of priority species are crucial for improving food security, nutrition and biodiversity conservation in Ethiopia.

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INTRODUCTION

Historically, wild plant foods have been vital to human diets, with nearly 75,000 known edible species (Walters and Hamilton, 1993; Leonti *et al.*, 2006). Among these, about 200 species have been domesticated as food sources, but only roughly 30% contribute to 95% of global plant food consumption (Del Gobbo *et al.*, 2015; Gori *et al.*, 2022). The rise of industrial agriculture and modern global food systems has intensified the decline of many wild edible plant species, primarily due to an over-dependence on high-yield, genetically uniform crop monocultures (IPES-Food, 2016). Currently, just 12 crops and 5 animal species account for 75% of global food production (Hunter *et al.*, 2019), underscoring the inadequacy of conventional agricultural and food systems to meet nutritional and environmental demands. Consequently, wild edible plants either collected from nature or cultivated using minimal external inputs could significantly enhance diet diversity and help address 'hidden hunger' resulting from micronutrient deficiencies (Hunter *et al.*, 2019; Padulosi *et al.*, 2011).

In rural Africa, wild edible plants significantly support households by reducing vulnerability to environmental changes and aiding in coping with adverse conditions (Sabates *et al.*, 2012). They help alleviate malnutrition related to both micro- and macronutrients, while also bolstering food security, especially during poor harvests (Kibar and Hakan, 2017; Yiblet, 2024). Forests provide broader economic and social benefits for rural

communities, where wild edible, fruit-bearing species are crucial for food security during challenging crop yields (Dogan, 2004). In developing countries of Africa, wild edible plants significantly support households by reducing vulnerability to environmental changes and aiding in coping with adverse conditions (Sabates *et al.*, 2012).

Ethiopia is one of the developing countries and rich in biodiversity, housing two of the world's 34 biodiversity hotspots: the Eastern Afromontane and the Horn of Africa (Fashing *et al.*, 2022). The country is abundant in wild edible plants (WEPs), defined by the Food and Agriculture Organization (FAO) as plants that grow spontaneously in self-maintaining populations in natural or semi-natural ecosystems and can exist independently of direct human action (Shaheen *et al.*, 2017). These plants thrive in farmland, fallow areas and uncultivated regions (Freemark, 2002). The plant species might be found in various environments, including forests, agricultural fields and even disturbed areas like roadsides and wastelands (Mushtaq *et al.*, 2020).

To combat food insecurity and malnutrition, diversifying diets and exploring alternative food sources have been proposed. Recent research into the nutrient content of WEPs highlights their potential to enhance food security and dietary diversity, as they are widely available, affordable and able to grow without agricultural inputs like fertilisers (Badimo *et al.*, 2015). WEPs can contribute to more sustainable and resilient global

food production through diversification. They supplement staple diets with essential nutrients, including fibre, carbohydrates, iron, zinc, calcium, potassium, and vitamins C and A (Rana *et al.*, 2019). Malnutrition is one of the most significant societal challenges worldwide, leading to substantial health, economic and environmental issues (Behrman *et al.*, 2020). Many countries face a double burden of malnutrition, where undernutrition exists alongside overweight, obesity and other diet-related non-communicable diseases (NCDs) (Akombi *et al.*, 2017; Behrman, 2020; Swaminathan *et al.*, 2019). Notably, Sub-Saharan Africa (SSA) is experiencing more severe effects of poor diets and malnutrition, which are becoming increasingly critical public health concerns (Akombi *et al.*, 2017).

This region struggles with a fundamental deficiency in protein, energy foods and micronutrients (Ritchie & Roser, 2017). This gap in knowledge limits the sustainable utilisation and conservation of these vital resources, particularly in rural areas where communities rely on them for food security and traditional medicine (Asfaw & Tadesse, 2001).

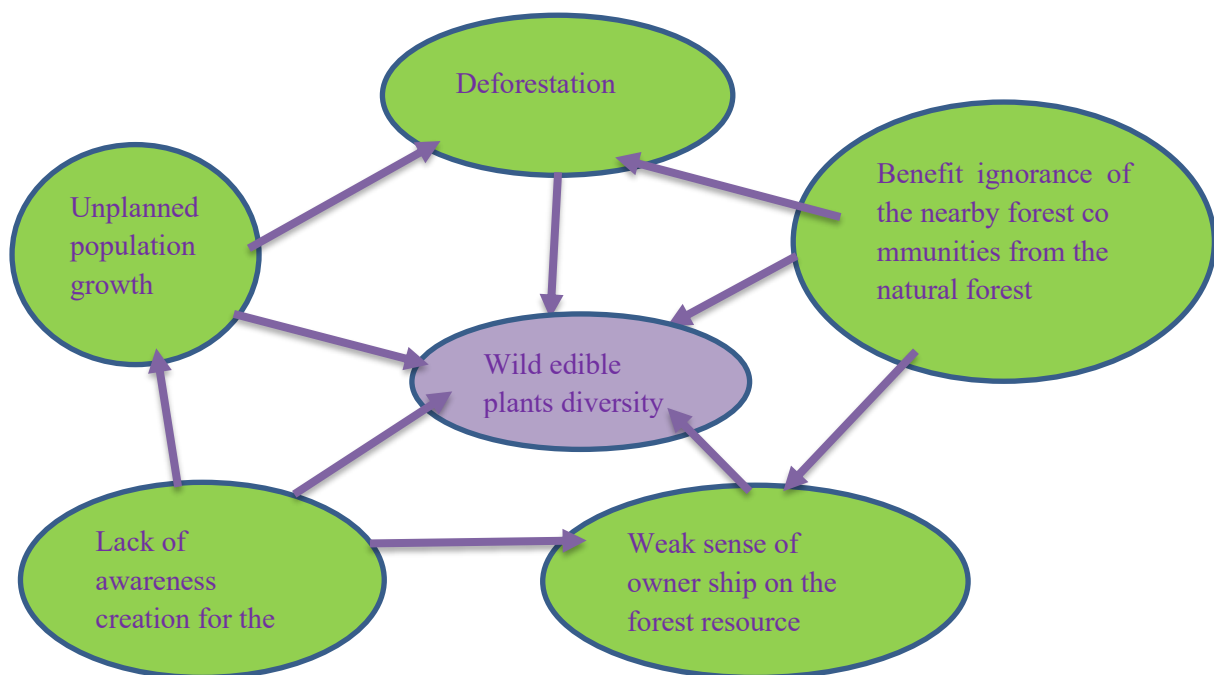
Despite growing global interest in biodiversity and natural health products, the potential benefits of Ethiopia's wild edible plants remain largely unexplored. These important resources are poorly documented, and limited efforts exist to

domesticate them or raise awareness about their mineral composition and edible plant parts among local communities. This review aims to systematically investigate the diversity of wild edible plants in Ethiopia, assess their edible plant parts and evaluate their mineral composition. By addressing these aspects, the research seeks to inform conservation strategies and enhance the well-being of local populations. Therefore, this review was conducted to have current information about the wild edible species diversity, its edible parts and mineral contents in Ethiopia.

Conceptual Framework

The concepts outlined below represent factors that directly or indirectly affect the diversity of wild edible fruit-bearing plant species. Understanding these influences is essential for designing effective and sustainable management strategies. To reduce negative impacts, it is important to enhance community awareness on the sustainable use of these resources. Strengthening local knowledge and promoting responsible utilisation can help prevent the overexploitation and decline of wild edible plant species. In addition, maintaining a balance between population growth and the availability of these plant resources is critical for ensuring their long-term accessibility. Such efforts support both ecological stability and the livelihoods of present and future generations.

Figure 1: Conceptual Framework



Source: Author's perception

METHODS AND MATERIALS.

This critical review was concentrated on the diversity of wild edible plant species in Ethiopia, as well as their medicinal and mineral contents. It was carried out through an extensive literature review and analysis of existing studies, including journal articles, manuals, and reports sourced from Google. The study was primarily compiled by reviewing various relevant sources that address the diversity of wild edible plant species, mode of consumption and their medicinal and mineral contents, significance in Ethiopia.

Data Analysis

Qualitative analysis was performed to synthesise findings and identify patterns in the diversity, plant parts used by the communities, and mineral contents of wild edible plants. Comparative assessments were made to evaluate the significance of different species in local diets and mineral composition.

RESULTS AND DISCUSSIONS

Abundances of Wild Edible Plant Species in Ethiopia

Ethiopia is characterised by diverse topography and habitats, hosting a significant number of endemic flora and fauna. The country boasts approximately 6,000 higher plant species, with around 10% classified as endemic (Sklenar *et al.*, 2014). Additionally, Ethiopia is home to two of the 34 global biodiversity hotspots (Hanson *et al.*, 2009) and is recognised as the centre for the origin and diversification of numerous food plants and their wild relatives (Edwards, 1991). The 179 wild edible plant species were identified and reviewed, representing 49 families. Among these, the *Moraceae* family was the most prominent, comprising 16 species (32.6%). This was followed by the *Fabaceae* and *Asteraceae* families, each with 10 species (5.6%). The *Solanaceae*, *Rhamnaceae*, and *Amaranthaceae* families each contributed 8 species (4.5%), while the *Anacardiaceae* and *Tiliaceae* families included 7 species each (3.9%). The *Apocynaceae*, *Flacourtiaceae*, *Rosaceae*, *Acanthaceae*, *Ebanaceae*, *Cucurbitaceae*, and *Rutaceae* families each contained 5 species (2.8%). The *Polygonaceae* and *Sapotaceae* families contributed 4 species each (2.2%). Additionally, the *Oxalidaceae*, *Cactaceae*, *Asclepiadaceae*, *Urticaceae*, *Sapindaceae*,

Myrtaceae, and *Boraginaceae* families each had 3 species (1.7%). The remaining families, *Portulacaceae*, *Commelinaceae*, *Brassicaceae*, *Myrsinaceae*, *Moringaceae*, *Arecaceae*, *Meliaceae*, *Loganiaceae*, and *Canellaceae*, each contributed 2 species (1.1%) to the total of 179 species across 49 families. Lastly, the *Asparagaceae*, *Vitaceae*, *Dioscoreaceae*, *Balanitaceae*, *Orchidaceae*, *Berberidaceae*, *Lamiaceae*, *Hamamelidaceae*, *Simaroubaceae*, *Cannabaceae*, *Malvaceae*, *Capparidaceae*, and *Primulaceae* families each accounted for one species (0.6%) of the total wild edible plant species (Table 1). In another study conducted by Tadesse *et al.* (2025), the plant families with the largest number of WEP species were *Fabaceae* (51 species, 9.81%), *Rubiaceae* (25 species, 4.81%), *Anacardiaceae* (21 species, 4.04%), *Lamiaceae* (20 species, 3.85%), and *Moraceae* (19 species, 3.66%). As noted by Alemneh (2020), *Rosaceae* and *Polygonaceae* each had 3 species represented (9.4%), followed by *Anacardiaceae*, *Fabaceae*, *Lamiaceae*, *Moraceae*, and *Solanaceae*, each with 2 species (6.3%). The remaining 16 families were represented by a single species each (3.1%).

Mode of Consumption of Wild Edible Plants

Local communities utilised wild edible plants in various forms, including raw ripe fruits, dried fruits, medicinal applications, fodder, nectars consumed by children, cooked leaves, chewing gum, raw leaves, succulent shoots, raw or cooked vegetables, young leaves, and cooked fruits (Aschalew *et al.*, 2021; Abadi *et al.*, 2025 & Hassen, 2021). Out of the total 179 species, approximately 87 were consumed as raw ripe fruits, making up 48.6%. Two species were eaten as dried fruits (1.1%), 47 species were used for medicinal purposes (26.3%), and 31 species served as fodder (17.3%). Three species provided nectar for children (1.7%), while six species were consumed as cooked leaves (3.4%). Additionally, three species were chewed as gum (1.7%), and three species were accessed as raw leaves (1.7%). One species of succulent shoots contributed 0.6%. However, about 45 wild edible plant species could produce different edible plant parts

still unknown how they were consumed in the local communities (Table 1).

Local communities also consumed raw leaves and shoots from seven species, and three species were used as cooked vegetables (1.7%). Young leaves from one species were eaten (0.6%), and two species provided cooked fruits (1.1%). However, the uses of about 45 wild edible plant species (25.1%) remain unknown. The majority of wild edible plant species were consumed as raw ripe fruits, accounting for 48.6%, followed by medicinal plants at 26.3% and fodder plants at 17.3%. An equal number of two species were used as dried fruits, nectar for children, chewing gum, raw leaves and cooked vegetables, each representing 1.7%. Additionally, the communities, contributing 0.6%, accessed only one species of succulent shoots (Table 1). Another study indicated by Alemneh (2020), fruits represented the largest portion, comprising 17 species (53.1%), followed by leaves, which accounted for 6 species (18.8%). In Anbessa's (2016) study, fruits made up the majority of edible plant parts at 79.31%. The remaining edible components included tubers and fruits (3.45%), young shoots (6.90%), young shoots and fruits (3.45%), roots (3.45%) and gums (3.45%). The primary edible parts of wild edible plants were fruits (71.1%), followed by leaves (15.6%) and aerial shoots (11.1%). Most WEPs were consumed raw (60.0%), while others were cooked (28.9%), processed into alcoholic beverages (7.4%), or roasted (3.7%) (Hassen, 2021).

Table 1:-List of Wild Edible Plant Species by Scientific Name, Family Name, Edible Parts and Mode of Consumption

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
1	<i>Ficus vasta</i> Forssk.	Moraceae	T	F, Raw ripe fruit	X, Raw ripen fruit eaten and dried fruit eaten, X, F, M, Fo, Fw,	(Tesfaye <i>et al.</i> , 2025; Abera & Kindye, 2022; Emire <i>et al.</i> , 2021; Hankiso <i>et al.</i> , 2023)
2	<i>Ficus sycomorus</i> L.	Moraceae	T	F	X, Similar to <i>F. auriculata</i> , Raw ripen fruit eaten and dried fruit eaten, X	(Tesfaye <i>et al.</i> , 2025; Hassen, 2021; Abera & Kindye, 2022, Emire <i>et al.</i> , 2021)
3	<i>Ficus sur</i> Forssk.	Moraceae	T	F	X	
4	<i>Ficus palmata</i>	Moraceae	S	F	X	
5	<i>Ficus glumosa</i>	Moraceae	T	F	X	
6	<i>Ficus auriculata</i> (Lour.)	Moraceae	T	F	Raw ripe fruit eaten,	Hassen, 2021
7	<i>Ficus capreaefolia</i> Del.	Moraceae	T	F	Raw ripe fruit eaten,	
8	<i>Ficus carica</i> L.	Moraceae	T	F	Raw ripe fruit eaten,	
9	<i>Ficus ingens</i> (Miq.) Miq.	Moraceae	T	F	Raw ripe fruit eaten,	
10	<i>Ficus ovata</i> Vahl.	Moraceae	T	F	Raw ripe fruit eaten,	
11	<i>Ficus palmata</i> Forssk.	Moraceae	T	F	Raw ripe fruit eaten,	
12	<i>Morus alba</i> L.	Moraceae	T	F	Fruits are edible in raw form	
13	<i>Morus nigra</i> L.	Moraceae	T	F	Raw ripe fruit eaten,	
14	<i>Rubus Fruticosus</i> L.	Moraceae	S	F	Raw ripe fruit eaten,	

No	Scientific Name	Family Name	Habit	Reported edible part used	wild	Reported medicinal part used and mode	Reference
15	<i>Ficus sur</i> Forssk	Moraceae	T	Fruit, Raw orange fruit	ripe	X, F, M, Fo, Ut, Raw ripen fruit eaten, Similar to <i>F. auriculata</i>	(Emire <i>et al.</i> , 2021; Hankiso <i>et al.</i> , 2023; Abera & Kindye, 2022; Hassen, 2021)
16	<i>Ficus</i>	Moraceae	T	Raw ripe fruit		Raw ripe fruit	
17	<i>Acanthus sennii</i> Chiov*	Acanthaceae	S	Sipping/sucking sweet liquid	nectar	F, Hb, Fin	Hankiso <i>et al.</i> , 2023
18	<i>Dicliptera laxata</i> C.B. Clarke	Acanthaceae	H	Leaf, young shoot		F, M, Hb	
Continued							
19	<i>Thunbergia ruspolii</i> Lindau*	Acanthaceae	H	Leaf with young shoot cooked		M, F, Fo	
20	<i>Acanthus polystachius</i> Delile	Acanthaceae	S	Fl		The nectar from flowers sucked by children's lips	Abera & Kindye, 2022.
21	<i>Acanthus sennii</i> Chiov.	Acanthaceae	S	Fl		The nectar from flowers sucked by children's lips	
22	<i>Ziziphus abyssinica</i> Hochst. ex A. Rich	Rhamnaceae	S	F		Ripe fruits are edible	Hassen, 2021
23	<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	T	F		Raw ripe fruit eaten,	
24	<i>Ziziphus mucronata</i> Wild.	Rhamnaceae	T	F		Raw ripe fruit eaten,	
25	<i>Ziziphus spina-christi</i> (L.)	Rhamnaceae	T	F		Raw ripe fruit eaten,	
26	<i>Sageretia thea</i> (Osbeck) M.C.	Rhamnaceae	S	F		Ripe fruits are edible raw	

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
27	<i>Ziziphus spina-christi</i> Wild.	Rhamnaceae	T&S	F	X	Tesfaye <i>et al.</i> , 2025
28	<i>Ziziphus abyssinica</i> Hoschst.	Rhamnaceae	T	F	X	
29	<i>Ziziphus mucronata</i> Wild.	Rhamnaceae	T	Fruit	X	Tesfaye <i>et al.</i> , 2021
30	<i>Acokanthera schimperi</i> (A. DC.) Schweinf	Apocynaceae	T	Raw ripe dried fruit	F, Fw,	Hankiso <i>et al.</i> , 2023
31	<i>Landolphia buchana-nii</i> (Hall.f.) Stapf	Apocynaceae	Cl	R	F, M,	
32	<i>Carissa edulis</i> (Forssk.) Vahl	Apocynaceae	S	F	X	Tesfaye <i>et al.</i> , 2025
33	<i>Carissa spinarum</i> L.	Apocynaceae	S	F, Fruit, F	Ripe fruits are edible. Raw ripe fruit eaten, X, Raw ripe dark black fruit, F, M, Fo,	(Hassen, 2021; Abera & Kindye, 2022; Emire <i>et al.</i> 2021; Hankiso <i>et al.</i> , 2023)
34	<i>Pentarrhinum insipidum</i> E.Mey.	Apocynaceae	H	Ag	Similar to <i>B. indica</i>	
35	<i>Ximenia americana</i> L.	Olacaceae	T	FRawripeyellowfruits eaten	Ripe fruits are edible F, Fo, M, Fw, X	(Hassen, 2021; Hankiso <i>et al.</i> , 2023; Emire <i>et al.</i> , 2025)
36	<i>Ximenia caffra</i> Sond.	Olacaceae	T\$S	F	Fruits are edible in raw form	Hassen, 2021
Continued						
37	<i>Achyranthes aspera</i> L.	Amaranthaceae	H	Leaf with young shoot cooked	Veg, M, Fo	Hankiso <i>et al.</i> , 2023
38	<i>Amaranthus caudatus</i> L.	Amaranthaceae	H	Leaf, young shoot, seed cooked	Veg, M, Hb	

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
39	<i>Amaranthus dubius Thell</i>	Amaranthaceae	H	Leaf with young shoot cooked	Veg, M, Fo, Hb	
40	<i>Amaranthus hybridus L.</i>	Amaranthaceae	S	L	Cooked leaves are edible	Hassen, 2021
41	<i>Amaranthus spinosus L.</i>	Amaranthaceae	H	L	Cooked leaves are edible	
42	<i>Amaranthus viridis L.</i>	Amaranthaceae	H	L	Cooked leaves are edible	
43	<i>Celosia argentea L.</i>	Amaranthaceae	H	L	The arial part is edible	
44	<i>Vitex doniana Sweet.</i>	Verbenaceae	T	F	Ripe fruits are edible	Hassen, 2021
45	<i>Lantana camara L.</i>	Verbenaceae	S	F	Fruits are edible	
46	<i>Ageratum conyzoides L</i>	Asteraceae	H	Leaves with young shoots cooked	F, M, Fo, Hb	Hankiso <i>et al.</i> , 2023
47	<i>Bidens pachy-loma (Oliv. & Hiern) Cufod</i>	Asteraceae	H	Young shoot, bud and leaf cooked	Veg, M, Fo	
48	<i>Bidens pilosa L.</i>	Asteraceae	H	Leaf with young shoot cooked	Veg, M, Fo	
49	<i>Vernonia auriculifera</i>	Asteraceae	T	Fruit	X	Emire <i>et al.</i> , 2021
50	<i>Blepharispermum villosum</i>	Asteraceae	S	Fruit	X	
51	<i>Urtica sinesis L.</i>	Urticaceae	H	L	Cooked leaves are edible	Hassen, 2021
Continued						
52	<i>Urtica simensis Steudel</i>	Urticaceae	H	L	Leaves cooked as vegetables	Abera & Kindye, 2022.
53	<i>Urtica urens L.</i>	Urticaceae	H	Leaf with bud cooked	Veg, M	Mulatu <i>et al.</i> , 2023

No	Scientific Name	Family Name	Habit	Reported edible part used	wild	Reported medicinal part used and mode	Reference
54	<i>Haplocoelumf oliolosum</i>	Sapindacea	T	Fruit		X	Emire <i>et al.</i> , 2021
55	<i>Allophyllus abyssinicus</i> (Hochst.) Radlk.	Sapindaceae	S	F, Raw ripe orange fruit		Fruits edible in raw, F, Fw, Ft, Hb	(Hassen, 2021; Hankiso <i>et al.</i> , 2023)
56	<i>Asparagus africanus Lam</i>	Asparagaceae	H	Raw ripe orange fruit		F, M	Hankiso <i>et al.</i> , 2023
57	<i>Tamarindus indica L.</i>	Fabaceae	T	FS		Ripe fruits and seeds are edible	Hassen, 2021
58	<i>Albizia isenbergiana</i> (A. Rich.) E.Fourn	Fabaceae	T	F		X	Tesfaye <i>et al.</i> , 2025
59	<i>Vachellia oerfota</i> (Forssk.) Kyal. & Boatwr.	Fabaceae	T	F		X	
60	<i>Astragalus atropilosulus</i> (Hochst) Bunge	Fabaceae	S	L, R (M)		X	
61	<i>Faidherbia albida</i> (Delile) A. Chev.	Fabaceae	T	L, P, B		X	
62	<i>Tamarindus indica L.</i>	Fabaceae	T	F		X	
63	<i>Acacia abyssinica</i> Hochst. Ex Benth.	Fabaceae	T	G		Chewed gum	the Abera & Kindye, 2022.
64	<i>Acacia seyal</i> Del.	Fabaceae	T	G		Chewed gum	the
65	<i>Albizia schimperiana</i> Oliv.	Fabaceae	T	G		Chewed gum	the
66	<i>Piliostigma thonningii</i> (Schumach.) Milne-Redh	Fabaceae	T	Leaf cooked roasted; chewed swallow the juice		F, M, Ch, Fw	Hankiso <i>et al.</i> , 2023
67	<i>Balanites aegyptiaca</i> (L.) Del	Balanitaceae	T	Raw ripe yellow fruit		M, Fo, Fw, Res, X	(Hankiso <i>et al.</i> , 2023; Tesfaye <i>et al.</i> , 2025)

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
68	<i>Syzygium guineense</i> (Willd.) DC	Myrtaceae	T	F	Similar to <i>C. spinarum</i> , X, Raw ripen fruit eaten, X	Hassen, 2021; Tesfaye <i>et al.</i> , 2025; Abera & Kindye, 2022; Emire <i>et al.</i> , 2021)
Continued						
69	<i>Syzygium guineense</i> (Willd.) DC. subsp. <i>afromontanum</i> F. W. L. D. C.	Myrtaceae	T	Raw ripe different colored fruit	F, M, Hb, F	Hankiso <i>et al.</i> 2023
70	<i>Syzygium guineense</i> (Willd.) DC. Var. <i>guineense</i>	Myrtaceae	T	Raw ripe different coloured fresh fruit	F, M, Hb, F	
71	<i>Asparagus africanus</i> Lam	Asparagaceae	H	Raw ripe orange fruit	F, M	
72	<i>Solanum torvum</i> SW.	Solanaceae	S	F	Similar to <i>P. peruviana</i>	Abera & Kindye, 2022.
73	<i>Solanum nigrum</i> L.	Solanaceae	H	F	Raw ripe fruit is eaten	(Abera & Kindye, 2022; Hassen, 2021)
74	<i>Physalis peruviana</i> L.	Solanaceae	H	F, Raw ripe orange fruit	Raw ripe fruit is eaten	(Abera & Kindye, 2022. Hankiso <i>et al.</i> ; 2023; Emire <i>et al.</i> , 2021)
75	<i>Datura stramonium</i> L.	Solanaceae	H	Fl	The nectar from flowers sucked by children's lips	
76	<i>Sideroxylon oxyacanthum</i> Baill	Sapotaceae	T	Raw ripe fruit	F, M, Fo,	Hankiso <i>et al.</i> , 2023
77	<i>Solanum nigrum</i> L.	Solanaceae	H	Above ground, leaf cooked /raw ripe	F, M, Fo, Hb	
78	<i>Solanum</i> sp.	Solanaceae	S	Leaf, young shoot cooked	Veg, M, Hb	
79	<i>Solanum villosum</i> Mill	Solanaceae	H	Leaf, bud, ripe fruit	Veg, M, Fo, Hb	

No	Scientific Name	Family Name	Ha bit	Reported edible part used	wild	Reported medicinal part used and mode	Reference
80	<i>Ageratum conyzoides</i> L	Asteraceae	H	Leaves with young shoots are cooked		F, M, Fo, Hb	
81	<i>Bidens pachy-loma</i> (Oliv. & Hiern) Cufod	Asteraceae	H	Young shoot, bud and leaf cooked		Veg, M, Fo	
82	<i>Bidens pilosa</i> L.	Asteraceae	H	Leaf with young shoot cooked		Veg, M, Fo	
Continued							
83	<i>Vernonia auriculifera</i>	Asteraceae	T	Fruit		X	Emire <i>et al.</i> , 2021
84	<i>Blepharisperum villosum</i>	Asteraceae	S	Fruit		X	
85	<i>Sisymbrium officinale</i> (L) Scop.	Brassicaceae	H	L		Cooked leaves are edible	Hassen, 2021
86	<i>Nasturtium officinale</i> W.T. Aiton	Brassicaceae	H	Ag		Mostly cooked or edible raw	
87	<i>Bridelia</i> sp.	Euphorbiaceae	T	Light-green leaf, young shoot cooked		M, F, Fo,	Hankiso <i>et al.</i> , 2023
88	<i>Flueggea virosa</i> Guill. & Perr	Euphorbiaceae	S	F		X	Tesfaye <i>et al.</i> , 2025
89	<i>Sclerocarya birrea</i> (A.Rich.) Hochst.	Anacardiaceae	T	F, Fruit		Ripe fruits are edible raw, X	(Hassen, 2021; Emire <i>et al.</i> , 2021
90	<i>Rhus natalensis</i> Bernh.	Anacardiaceae	T	F		X	Tesfaye <i>et al.</i> , 2025
91	<i>Rhus glutinosa</i> Hochst. ex. A. Rich.	Anacardiaceae	T & S	F		X	
92	<i>Rhus glutinosa</i> A.Rich.	Anacardiaceae	T & S			Raw ripe fruit	Abera & Kindye, 2022.

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
93	<i>Rhus Meikle</i>	<i>vulgaris</i> Anacardiaceae	S	F	Raw ripe fruit is eaten	
94	<i>Rhus Krauss</i>	<i>natalensis</i> Anacardiaceae	T	Fruit	X	Emire <i>et al.</i> , 2021
95	<i>Rhus Meikle</i>	<i>vulgaris</i> Anacardiaceae	T	Fruit, Light green raw ripe fruit	X,F, M, Fo,	(Emire <i>et al.</i> , 2021; Hankiso <i>et al.</i> , 2023)
96	<i>Commelina benghalensis</i> L	Commeliaceae	H	T, Leaf and young bud	Raw tuber eaten	(Abera & Kindye, 2022; Hankiso <i>et al.</i> , 2023)
97	<i>Commelina Burm. f.</i>	<i>diffusa</i> Commelinaceae	H	L	Raw leaves are edible vegetable	Hassen, 2021
98	<i>Rumex Jacq.</i>	<i>abyssinicus</i> Polygonaceae	S	RS	The tuber used as a tea and Juvenile shoot is edible raw	
99	<i>Rumex Vahl.</i>	<i>nervosus</i> Polygonaceae	S		The succulent shoot is edible.	
100	<i>Rumex Jacq.</i>	<i>abyssinicus</i> Polygonaceae	H	St. Leaf, young shoot roasted	Suck liquid in the young stem, F, M, Fo	(Abera & Kindye, 2022; Hankiso <i>et al.</i> , 2023)
101	<i>Rumex Vahl</i>	<i>nervosus</i> Polygonaceae	S	St, Roasted leaf, young shoot	Suck liquid in young stem and burn with fire, F, M, Fo	
102	<i>Cordia Lam.</i>	<i>sinensis</i> Boraginaceae	T	F	X	Tesfaye <i>et al.</i> , 2025
103	<i>Ehretia Tonn.</i>	<i>cymosa</i> Boraginaceae	T	R (SB, M)	X	

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
104	<i>Cordia africana</i> Lam.	Boraginaceae	T	F, Raw ripe yellow fruit	Fruits are edible raw. Raw ripe fruit eaten, M, F,	(Hassen, 2021; Tesfaye <i>et al.</i> , 2025; Abera & Kindye, 2022; Emire <i>et al.</i> , 2021; Hankiso <i>et al.</i> , 2023)
105	<i>Rosa abyssinica</i> Lindley.	Rosaceae	T & S	R (SB)	X	Hassen, 2021
106	<i>Rosa abyssinica</i> Lindley.	Rosaceae	S	F	Raw ripe fruit eaten and sundried fruit e	(Abera & Kindye, 2022; Hassen, 2021)
107	<i>Rosa abyssinica</i> R. BR	Rosaceae	S	Fruit	X	Emire <i>et al.</i> , 2021
Continued						
108	<i>Rubus apetalus</i> Poir	Rosaceae	S	Black raw ripe fruit	F, M, Fo, Hb, Fin	(Hankiso <i>et al.</i> , 2023; Tesfaye <i>et al.</i> , 2025)
109	<i>Rubus steudneri</i> Schweinf	Rosaceae	S	Raw ripe fruit	F, M, Fo, Hb,	
110	<i>Dovyalis abyssinica</i> (A. Rich.)	Flacourtiaceae	T	Eaten yellow raw	F, M, Fo,	Hankiso <i>et al.</i> , 2023
111	<i>Dovyalis caffra</i> (Hook. f. & Harv.) Hook. f	Flacourtiaceae	S	Raw ripe yellow fruit	F, M, Lf	
112	<i>Flacourtia indica</i> (Burm.f.) Merr	Flacourtiaceae	T	Raw ripe dark brown	F,	(Emire <i>et al.</i> , 2021; Hankiso <i>et al.</i> , 2023)
113	<i>Oncoba spinosa</i> Forssk	Flacourtiaceae	T	Raw ripe dark-brown-colored fruit	F, M, Fo,	
114	<i>Dovyalis abyssinica</i> (A. Rich.) Warb.	Flacourtiaceae	S	F	Raw ripe fruit is eaten	(Abera & Kindye, 2022; Tesfaye <i>et al.</i> , 2025; Hassen, 2021; Emire <i>et al.</i> , 2021)

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
115	<i>Portulaca oleracea</i> L.	Portulacaceae	H	L	Raw leaves and shoots are edible	Hassen, 2021
Continued						
116	<i>Portulaca quadrifida</i> L.	Portulacaceae	H	L	Used as a salad/vegetable	
117	<i>Cyphostemma pannosum</i> Vollesen.*	Vitaceae	H	Dark raw ripe fruit	F, M	Hankiso <i>et al.</i> , 2023
118	<i>Dioscorea schimperiana</i> Kunth	Dioscoreaceae	Cl	Tuber cooked and eaten	F, M	
119	<i>Oxalis stricta</i> L.	Oxalidaceae	H	Ag	Arial shoots are edible raw	Hassen, 2021
120	<i>Oxalis obliquifolia</i> A. Rich.	Oxalidaceae	H	W	Leaves burnt with fire, eaten and raw leaves are also eaten	Abera & Kindye, 2022.
121	<i>Oxalis corniculata</i> L.	Oxalidaceae	H	Leaf is eaten by cooked	F, M, Hb, Fin	Hankiso <i>et al.</i> , 2023
122	<i>Opuntia hyptiacantha</i> F.A.C.Weber	Cactaceae	S	F	Similar to <i>O. ficus-indica</i>	
123	<i>Opuntia streptacantha</i> Lem.	Cactaceae	S	F	Similar to <i>O. ficus-indica</i>	

No	Scientific Name	Family Name	Ha bit	Reported edible part used	wild	Reported medicinal part used and mode	Reference
124	<i>Opuntia ficus-indica</i> (L.) Miller	Cactaceae	S	F		Raw ripe fruit is eaten	(Abera & Kindye, 2022; Emire <i>et al.</i> , 2021; Hassen, 2021)
125	<i>Myrsine africana</i> L.	Myrsinaceae	S	Raw ripe fruit		F, Fo, Tb, Cul	Hankiso <i>et al.</i> , 2023
126	<i>Embelia schimperi</i> Vatke	Myrsinaceae	S	F		Raw ripe fruit is eaten	(Abera & Kindye, 2022; Emire <i>et al.</i> , 2021)
127	<i>Moringa oleifera</i> Lam.	Moringaceae	T	L		Cooked leaves are edible	Hassen, 2021; Mulatu <i>et al.</i> , 2023
128	<i>Moringa stenopetala</i> (Bak.f.) Cufod.	Moringaceae	T	L		Similar to <i>M. oleifera</i>	
129	<i>Momordica dioica</i> Roxb.ex Willd	Cucurbitaceae	C	F		Fruits are edible raw	Hassen, 2021
130	<i>Cucumis dipsaceus</i> Ehrenb Ex.	Cucurbitaceae	C	L		Raw/cooked vegetable is edible	
131	<i>Coccinia abyssinica</i> (Lam.) Cong.	Cucurbitaceae	C	Tu		Its tuber is edible	
132	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	C	F		Fruits are edible raw	
133	<i>Momordica foetida</i> Schumach	Cucurbitaceae	Cl	Raw ripe fruit		F, M	(Hankiso <i>et al.</i> , 2023; Emire <i>et al.</i> , 2021)
134	<i>Phoenix reclinata</i> acq	Arecaceae	T	Raw ripe orange fruit		F, M, Fo, Con, Hb, Fn	
135	<i>Phoenix reclinata</i> Jacq.	Arecaceae	S	F		Raw ripe fruit is eaten	Abera & Kindye, 2022.
136	<i>Mimusops kummel</i> Bruce ex A.DC	Sapotaceae	T	F		Ripen fruits are edible in raw	(Hassen, 2021; Tesfaye <i>et al.</i> , 2025; Emire <i>et al.</i> , 2021)

No	Scientific Name	Family Name	Habit	Reported edible part used	Reported medicinal part used and mode	Reference
137	<i>Mimusops kummel</i> A. DC.	Sapotaceae	T	F	Raw ripe fruit are eaten, and dried fruit are eaten	Abera & Kindye, 2022.
138	<i>Sideroxylon oxyacanthum</i> Baill	Sapotaceae	T	Raw ripe fruit	F, M, Fo, Fw, Df	Hankiso <i>et al.</i> , 2023
139	<i>Mimusops kummel</i> A. DC. Kumel	Sapotaceae	T		F, Con, Fw, Ch	
140	<i>Habenaria decumbens</i> Thomas & Cribb *	Orchidaceae	H		F, M	
141	<i>Grewia bicolor</i> Juss.	Tiliaceae	T	F	Similar to <i>F. auriculata</i>	Hassen, 2021
142	<i>Grewia tenax</i> (Forssk.) Fiori.	Tiliaceae	T	F	Ripe fruits are edible raw	
143	<i>Corchorus trilocularis</i> L.	Tiliaceae	H	L	Young leaves are edible raw	
144	<i>Grewia tembensis</i> Fresen.	Tiliaceae	S	F	X	Tesfaye et al., 2025
145	<i>Grewia mollis</i> Juss.	Tiliaceae	S	F	X	
146	<i>Grewia flavescens</i> Juss	Tiliaceae	S	F	X	
147	<i>Grewia ferruginea</i> Hochst. ex A. Rich.	Tiliaceae	S	F	Raw ripe fruit is eaten	(Abera & Kindye, 2022; Hassen, 2021)

No	Scientific Name	Family Name	Habit	Reported wild edible part used	Reported medicinal part used and mode	Reference
148	<i>Rytigynia neglecta</i> (Hiern.) Robyns	Rubiaceae	S	Raw ripe deep black fruit, sweet taste	F, M, Fo	(Hankiso <i>et al.</i> , 2023; Emire <i>et al.</i> , 2021)
149	<i>Vangueria volkensii</i> K. Schum	Rubiaceae	S	Raw ripe dark fruit	F, Fw	
150	<i>Gardenia ternifolia</i> Schumach. &Thonn.	Rubiaceae	T	Fruit	X	Emire <i>et al.</i> , 2021
151	<i>Vangueriamadagascariensis</i> J.F. Gmel.	Rubiaceae	T&S	F	X	Tesfaye <i>et al.</i> , 2025
152	<i>Canthium setiflorum</i> Hiern.	Rubiaceae	S	F, R, L (M)	X	
Continued						
153	<i>Caralluma edulis</i> (Edgew.)	Asclepiadaceae	H	L	Similar to <i>B. indica</i>	Hassen, 2021
154	<i>Caralluma tuberculata</i> N.E.Br.	Asclepiadaceae	H	Ag	Similar to <i>B. indica</i>	
155	<i>Boucerosia indica</i> (Wight& Arn).	Asclepiadaceae	H	Ag	The Succulent stem with the flower is edible	
156	<i>Euclea divinorum</i> Hiern	Ebenaceae	T	Raw dark black fruit	F, M, Df, Fw, Hb, Fin	(Hankiso <i>et al.</i> , 2023; Abadi <i>et al.</i> , 2025)
157	<i>Diospyros mespiliformis</i> Hochst. exA. DC	Ebenaceae	T	Raw ripe fruit	F, Fw, Ch, Con, Ft, Ut	
158	<i>Euclea racemosa</i> Murr.	Ebenaceae	S	F	Raw ripe fruit is eaten	Abera &Kindye, 2022.

No	Scientific Name	Family Name	Habit	Reported edible part used	wild	Reported medicinal part used and mode	Reference
159	<i>Euclea racemosa</i> Murray subsp. <i>schimperi</i> (A.DC.) F. White	Ebenaceae	S	F		X	Tesfaye <i>et al.</i> , 2025
160	<i>Diospyros mespeliformis</i> A. DC.	Ebenaceae	T	F		Ripe fruits are edible	Hassen, 2021
161	<i>Toddalia asiatica</i> (L.) Lam	Rutaceae	Cl	Raw ripe fruit	orange	F, M, Fo	Hankiso <i>et al.</i> , 2023
162	<i>Vepris dainelli</i>	Rutaceae	T	Fruit		X	Emire <i>et al.</i> , 2021
163	<i>Clausena anisata</i> (Wild.) Benth.	Rutaceae	S	Fruit		X	
164	<i>Teclea nobilis</i> Del.	Rutaceae	T	Fruit		X	
165	<i>Casimiroa edulis</i> L.	Rutaceae	T	F		Its fruits are edible raw	Hassen, 2021
166	<i>Berberis lyceum</i> Royle.	Berberidaceae	S	F		Raw or cooked fruits are edible	
167	<i>Thymus schimperi</i> Ron.*	Lamiaceae	H	Leaf, bud as spices		F, Sp, M	Hankiso <i>et al.</i> , 2023
168	<i>Ekebergia capensis</i> Sparrm.	Meliaceae	T	F		X	Tesfaye <i>et al.</i> , 2025
169	<i>Turraea hollistii</i>	Meliaceae	T	Fruit		X	Emire <i>et al.</i> , 2021
170	<i>Trichocladus ellipticus</i> Eckl. & Zeyh	Hamamelidaceae	S	Matured raw leaf		F, M, Fo, Fw, Hb, Fin	

No	Scientific Name	Family Name	Habit	Reported wild edible part used	Reported medicinal part used and mode	Reference
171	<i>Buddleja polystachya</i> Fresen.	Loganiaceae	T&S	F	X	Tesfaye <i>et al.</i> , 2025
172	<i>Myrica salicifolia</i> Hoches tex.A. Rich	Loganiaceae	T	Fruit	X	Emire <i>et al.</i> , 2021
<i>Continued</i>						
173	<i>Sprague</i>	Canellaceae	T	Raw ripe light-green spherical fruit	F, Con, Ft, Cul, Ut, Po	Hankiso <i>et al.</i> , 2023
174	<i>Opuntia ficus-indica</i> (L.)Miller	Cactaceae	S	Fruit	X	Emire <i>et al.</i> , 2021
175	<i>Brucea ferruginia</i>	Simaroubaceae	T	Fruit	X	
176	<i>Celtis africana</i> Burm.f.	Cannabaceae	S	F	X	Tesfaye <i>et al.</i> , 2025
177	<i>Adansonia digitata</i> L.	Malvaceae	T	F	X	
178	<i>Capparis decidua</i> (Forssk.) Edgew.	Capparidaceae	S	F	X	
179	<i>Myrsine africana</i> L.	Primulaceae	T	L, R	X	

Mode of consumption for the listed wild edible plant species:- unknown(X), Flower (F), Medicine(M), Fodder(Fo), Houseutensile(Ut), Firewood(FW), Herb(Hb), Timber production(TP), Vegetables(Veg), Charcoal(Ch), Root®, Leaf(LF), Tuber(Tu), Cultural(Cul), Construction(Con), Fencing(Fn), Dryfencing(DF), Spice(SP), Farming tool(FT) and Pole(Po).

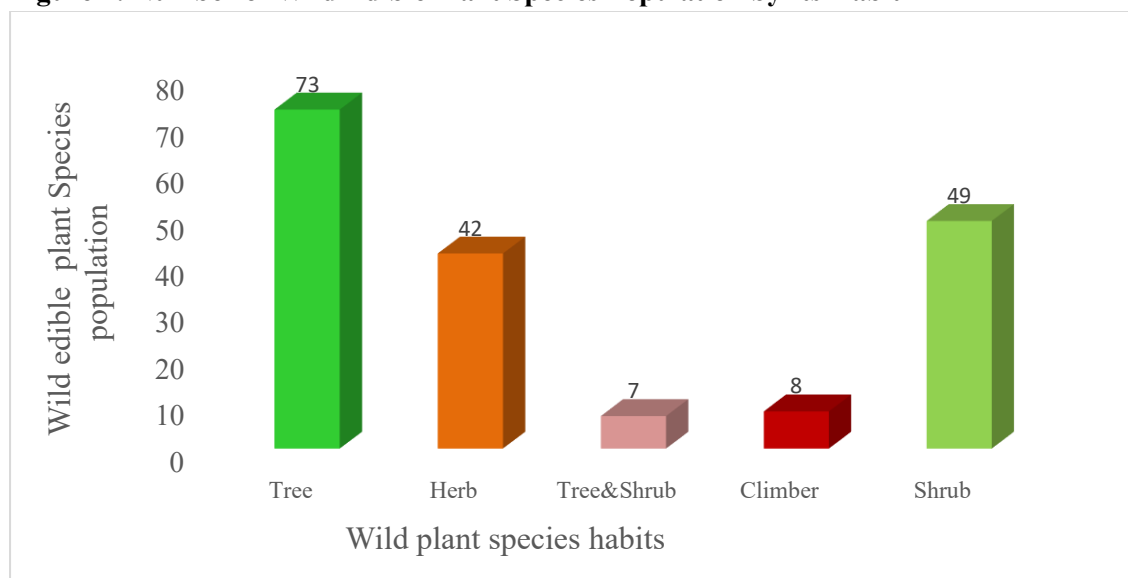
Source: Tesfaye *et al.* (2025), Emire *et al.* (2021), Hankiso *et al.* (2023), Hassen (2021) and Abera & Kindye (2022).

Habits of Wild Edible Plant Species

Wild edible plant species were classified into various habits, including tree, herb, tree or shrub, climber and shrub. The highest proportion consisted of trees, making up 40.8%, followed by shrubs at 27.4%, herbs at 23.5%, climbers at 4.5% and tree or shrub species at 4% (Figure 1). In contrast, the findings of Alemayehu et al. (2015) revealed that among the wild edible plants, 27 (51%) were shrubs, 14 (26%) were trees, and 12 (23%) were herbs. Shrubs and trees were harvested more frequently than other types of plants. According to Anbessa (2016), the growth habits of wild edible plants were characterised by shrubs (37.93%) and trees (27.59%), followed by growth forms that combine trees and shrubs (13.79%), herbaceous forms (13.79%), and climbers (6.90%).

The potential of wild edible plants varied by location due to differences in altitude (Tesfaye *et al.*, 2025). Their distribution was shaped by agro-ecological zones, with overall potential classified as low (55.29%), medium (40.59%), and high (4.18%) (Abdella *et al.*, 2023). The lowland areas demonstrated medium potential, whereas the midland areas had the lowest potential, and the highland areas exhibited low potential for wild edible fruit trees (Tebkew *et al.*, 2014). In general, the production potential from trees and shrubs exceeded that of herbs and climbers, and in contrast, the number of wild edible plant species was greater in the highland and midland agro-ecologies compared to the lowland areas (Abdella *et al.*, 2023).

Figure 1: Number of Wild Edible Plant Species Population by Its Habit



Mineral Contents of Wild Edible Plant Species (WEPS)

Minerals are essential for building body structures and regulating numerous chemical reactions, even though they are needed in limited amounts. Factors like water availability and altitude can influence the accessibility of minerals (Feyssa *et al.*, 2012). Macronutrients are crucial for supporting various bodily functions, including respiration, immune response, blood circulation, digestion and reproduction (Ali *et al.*, 2023). Ten wild edible plant species were identified, along

with their mineral contents for calcium (Ca), iron (Fe), zinc (Zn), and phosphorus (P). *Ziziphus spina-christi* (L.) Willd had the highest calcium content at 1304.6 mg/kg, followed by *Vangueria apiculata* K. Schum (1043.6 mg/kg), *Cordia monoica* Roxb (870 mg/kg), *Opuntia humifusa* (Raf.) Raf (782.8 mg/kg), *Vrtica simensis* (754.9 mg/kg), *Rumex abyssinicus* (489.5 mg/kg), *Opuntia ficus-indica* (355.4 mg/kg), *Euclea racemosa* L. (261 mg/kg), *Erucastrum abyssinicum* (150.1 mg/kg), and *Amaranthus graecizans* (138.4 mg/kg). In terms of

phosphorus, *Cordia monoica* Roxb recorded the highest level at 76461.7 mg/kg, followed by *Vangueria apiculata* K. Schum (4308 mg/kg), *Ziziphus spina-christi* (L.) Willd (4154 mg/kg), *Euclea racemosa* L. (462 mg/kg), and *Opuntia humifusa* (Raf.) (308 mg/kg). *Urtica simensis* led in iron content with 316 mg/g, surpassing other wild plant species such as *Rumex abyssinicus* (23.4 mg/g), *Amaranthus graecizans* (15 mg/g), *Erucastrum abyssinicum* (13.7 mg/g), and *Opuntia ficus-indica* (4.6 mg/g) (Figures 2 & 3). A similar study conducted by Tahir *et al.* (2023) extracted and identified the Ca, Zn, and P contents in various wild edible plant species, including *B. aegyptiaca* (L.) Delile and *Z. spina-christi* (L.) Desf. Additionally, the iron, zinc, and potassium levels in the fruits of *B. aegyptiaca* (L.) and *C. africana* Lam were approximately 50% higher than those found in *Z. spina-christi* (L.) Desf.

Amaranthus hybridus seeds are notably rich in macroelements such as Na, Mg, and Ca, but have low potassium (K) content. In contrast, the leaves of *Haplocarpha schimperi* are high in K and low in Ca. Although *Erucastrum arabicum* is generally low in macroelements, its K content exceeds that of *Amaranthus hybridus* seeds and *Urtica simensis* leaves (Adamu *et al.*, 2022).

Wild fruits are rich in phenols, which are recognised for their physiological benefits, including antioxidant, anti-inflammatory, anti-carcinogenic and anti-parasitic properties. Additionally, these plants contain anthraquinones, known for their strong antimalarial effects and commonly used to treat malaria and diarrhoea (Mukherjee *et al.*, 1998). Furthermore, fruit extracts have demonstrated activity against various bacteria responsible for diarrhoea (Djoukeng *et al.*, 2005) and have been shown to help lower blood pressure (Singh *et al.*, 1998).

Figure 2: Mineral Contents per Each Selected Wild Edible Plant Species

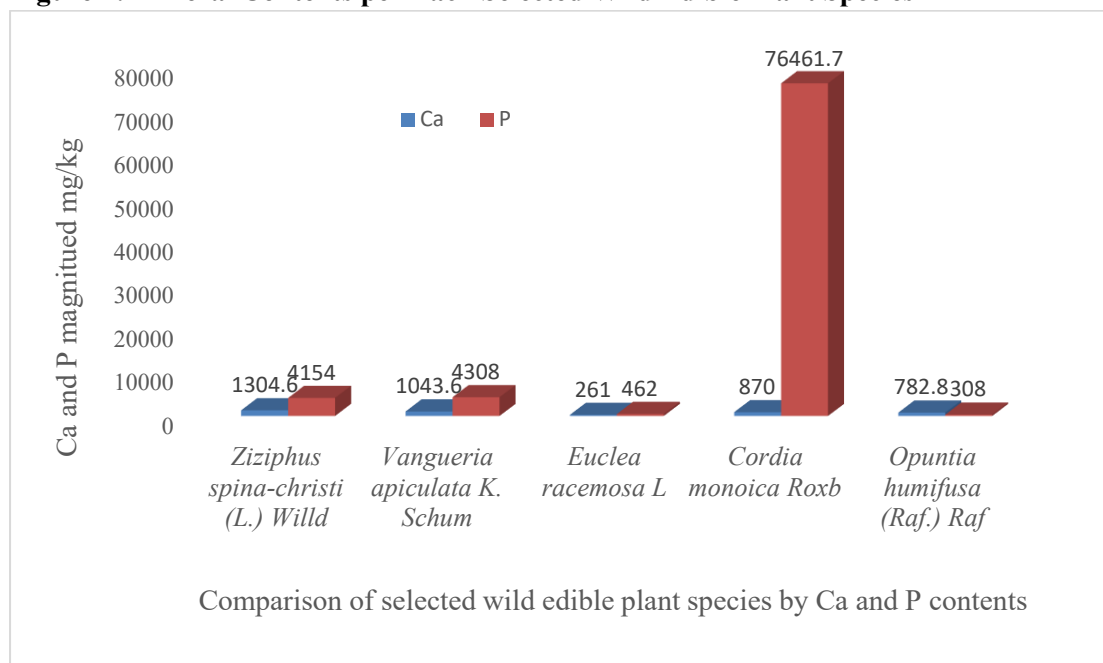
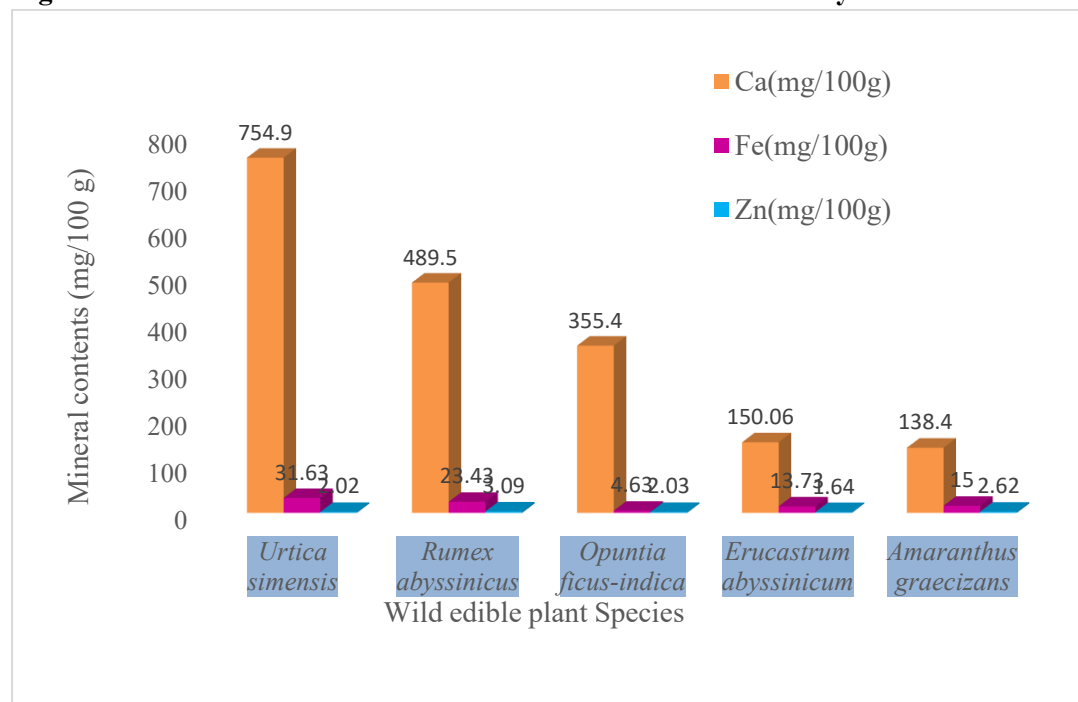
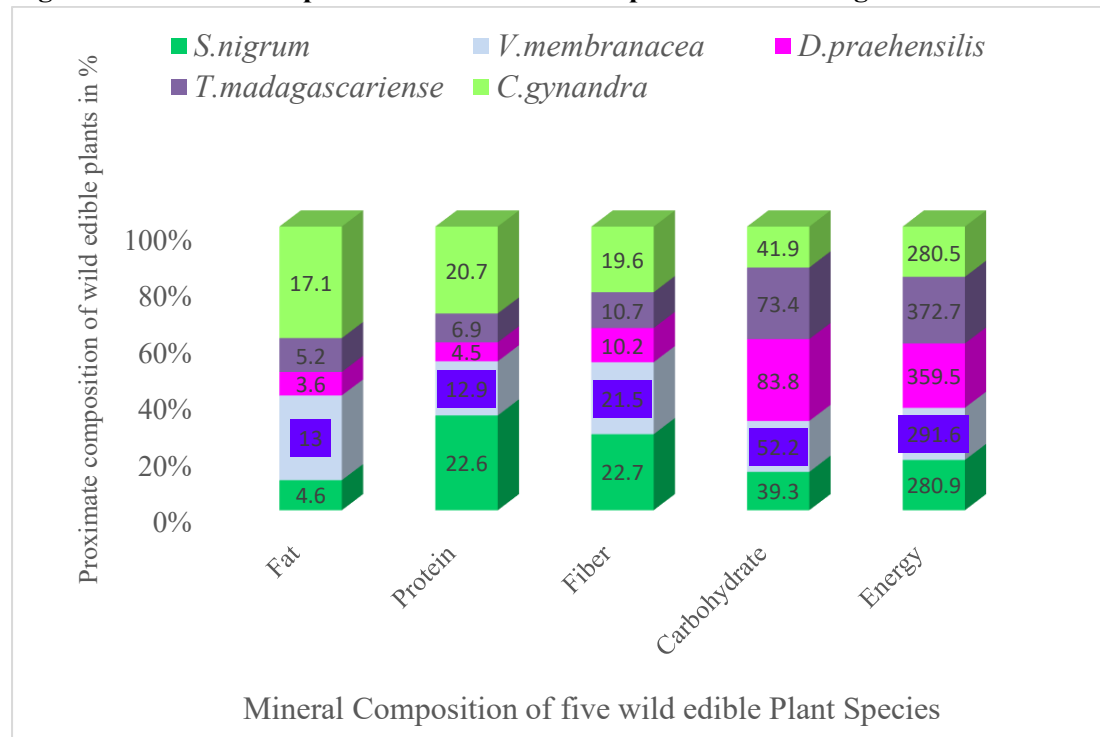


Figure 3: Mineral Contents of Five Wild Edible Plants in the Study Area

Source: Yalew Yiblet and Endale Adamu (2023)

The five selected wild edible plant species *S. nigrum*, *T. madagascariense*, *V. membranacea*, *D. praehensilis*, and *C. gynandra* were reviewed and analysed based on their mineral composition, which includes crude fat, protein, fibre, carbohydrate and energy content. *D. praehensilis* exhibited lower mineral composition percentages, with fat at 3.6%, protein at 4.5%, and fibre at 10.2%, compared to the other four species. In terms of energy content, *D. praehensilis* ranked second with 359.5%, following *T. madagascariense* at 372.7%, and was followed by *V. membranacea* (291.6%), *S. nigrum* (280.9%), and *C. gynandra* (280.5%). The highest percentages of carbohydrate, fat, protein and fibre

were recorded in *D. praehensilis* (83.8%), *C. gynandra* (17.1%), and *S. nigrum* for both protein and fibre (22.6% and 22.7%, respectively) (Figure 4). Mokria *et al.* (2022) noted that *B. aegyptiaca* had a higher carbohydrate content compared to its protein and fat values. Santini and Ettore (2017) noted that wild edible plants play a significant nutraceutical role for local communities. For instance, unripe roasted fruits of *C. spinarum* and the seeds of *C. africana* were consumed to help expel ascaris, while the trunk hearts of *P. reclinata* were eaten to alleviate malaria. Additionally, the tubers of *D. praehensilis* were used as a treatment for male impotency.

Figure 4: Mineral Composition of Five Selected Species in Percentage

Source:-Yimer *et al.*, 2023

Livelihood Contribution of Wild Edible Plant Species

Wild edible plant species have a significant role in filling the food insufficiency and insecurity gap in Ethiopia for a long time (Lulekal *et al.*, 2011). The species also play a crucial role in providing supplementary food for local communities, especially during periods of food scarcity, particularly for the impoverished (Teketay *et al.*, 2010). These plants serve as essential resources, filling gaps in food supply for resource-poor community members. According to Guzo *et al.* (2023), wild edible plants can contribute approximately 70.59% to seasonal food supply, 27.65% to annual food supply, and 1.76% to regular food supply. While their economic significance is relatively low compared to other activities, selling fruits in local markets can provide some income for the poorest individuals, helping to supplement their food and meet basic needs. Additionally, certain wild edible plants serve as alternative income sources (Guzo *et al.*, 2023).

Major Threatening Factors for Wild Edible Plant Species Degradation in Ethiopia

Local communities have affected wild edible plant species through various activities, including deforestation for new settlements, agricultural expansion, construction, charcoal production, overgrazing and fencing (Hankiso *et al.*, 2023). Similar findings by Guzo *et al.* (2023) identified several anthropogenic factors leading to the degradation of wild edible plants, such as agricultural land expansion, fuel wood harvesting, selective harvesting for diverse purposes, overgrazing, urbanisation and fire. Natural factors contributing to this degradation included drought and land degradation. Tahir *et al.* (2023) highlighted that the main threats to wild edible plant resources were primarily deforestation, noted 88 times (54%), followed by drought (35 mentions or 22%) and agricultural expansion (20 mentions or 12%). Yiblet and Adamu (2023) also pointed out that important wild food plants are being destroyed by various anthropogenic factors, leading to a concerning rate of endangerment for these species. A study by Girmay *et al.* (2023) in the North-Western zone of the Tigray region

indicated that the increasing human population is a primary driver of wild edible plant degradation, with consequences including overgrazing and deforestation, each accounting for 23% of total threats, followed by agricultural expansion (17%), over-harvesting (15%), and fire and timber production (7% each). A similar study conducted by Abdella *et al.* (2023) identified several factors threatening wild edible plants, including agricultural expansion, deforestation, overgrazing, charcoal production, fuel wood collection, tree pests and diseases, urbanisation, drought, and the age of trees. Specifically, agricultural expansion contributed 45.88%, deforestation 23.53%, overgrazing 13.53%, and charcoal production 5.88%, while fuel wood collection accounted for 5.29%, making these the most significant threats. Other findings reported by Emire *et al.* (2021) indicated that in the Burji District of the Segan Area Zone in Southern Ethiopia, as well as in Derashe and Kucha Districts in South Ethiopia, agricultural expansion, overgrazing, and fuelwood collection were identified as the primary threats. According to Tebkew *et al.* (2014), the identification and preference ranking of the major threats to useful wild edible plants (UWEPs) based on their destructive impacts revealed that illegal charcoal production, fuelwood collection, construction activities, agricultural land expansion, overgrazing, and fire were the predominant threats. Repeated reconstruction of the forest department, also a major challenge for sustainable forest resources management (Siraj *et al.*, 2018).

Measurement Actions to be Taken for the Sustainability of Wild Edible Plant Species

For any management practices to be effectively implemented by the nearby local communities in the natural forest, these communities must benefit from the forest in order to foster a sense of ownership. To ensure the preservation of wild edible plant species for future generations, **in situ** conservation management practices are the most effective means of conserving biota in their natural habitats. Regarding fruit species, this approach is related to wild fruit species and the occasional spontaneous seedlings of cultivated

plants that grow within the natural vegetation (Emire *et al.*, 2021). It is also essential to enhance forestland protection by strengthening law enforcement and fostering the commitment of both formal and informal institutions in forest resource management. Moreover, expanding capacity-building programs and improving market access can significantly contribute to the sustainable management of forest resources by increasing local community participation in decision-making processes (Girma *et al.*, 2023). The forest department and all stakeholders must participate in the wild edible plants management implementation and conservation strategy for resource sustainability by benefiting from the forest resources without compromising the next generation.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Ethiopia harbours a rich diversity of wild edible plant species (WEPs), with 179 species identified across 49 families. These plants play a vital role in supplementing the nutritional, medicinal, and economic needs of rural communities. WEPs provide essential macronutrients, micronutrients, and bioactive compounds that help combat food insecurity, malnutrition and common health issues. Despite their immense potential, the utilisation and conservation of WEPs remain limited due to insufficient documentation, undervaluation and increasing anthropogenic pressures. Major threats, including agricultural expansion, deforestation, overgrazing, charcoal production and recurrent drought, are accelerating the degradation of these vital resources.

To ensure the sustainable use of WEPs, integrated conservation strategies are urgently required. These should include both **in situ** and **ex situ** approaches, community-based management, awareness creation, and the domestication of priority species. Furthermore, scientific research on their nutritional composition, pharmacological potential and ecological roles should be strengthened. Recognising and promoting the contribution of wild edible plants in national food

security and biodiversity conservation policies will be crucial for achieving sustainable livelihoods and ecological resilience in Ethiopia.

Recommendations

- Research should focus on wild edible plants to cultivate their edible parts for local communities as staple foods.
- Local communities should be encouraged to recognise and utilise underutilised wild edible plant species to address starvation and food insecurity.
- A sustainable management system for wild edible plants needs to be implemented.

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