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Review article

A review on survey and analysis of ethnobotanical profiles of common indigenous wild edible plant species in Ethiopia

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Abstract: This survey focuses on the review and analysis of literature on ethnobotanical profiles of common indigenous wild edible plant species in Ethiopia. There is a need to integrate indigenous knowledge and scientific knowledge resulting in successful utilization and commercialization of species with promising ethnobotanical profiles at local, national as well as international levels. Fourteen published literature sources were referred where species reviewed appeared in at least six of the literature. A comparison of Ethiopia and elsewhere was done. A total of 54 indigenous angiosperm species belonging to 32 families were identified. The results indicated that potential indigenous plant species are belonging to different habitats and vegetation types of Ethiopia. Yet these species are underutilized and not properly considered to support food security drives. Indigenous species can serve as flagship species/keystone species/umbrella species. Therefore, experiences from elsewhere could be the lessons learned for Ethiopia to take ethnobotanical research and applications at the grassroots level.
Keywords: Ethnobotany - Indigenous - Wild edible plants - Folk vs Scientific knowledge.

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INTRODUCTION

According to Martin (1995), ethnobotany is a multi-disciplinary science. It encompasses botany, anthropology, economics, and linguistics. These disciplines study how a society relates to its environment where Indigenous knowledge and practices play significant roles in scientific disciplines (Balick & Cox 1996, Cotton 1996, Grenier 1998, Cunningham 2001). Hence, ethnobotany is the study of the interrelationship between people and plants, particularly how plants impact on human culture and practices, and how humans have used and modified plants, and how they represent them in their systems of knowledge (Mehra *et al*. 2014, Ngbolua *et al*. 2016, Srivastava & Shukla 2018). Hence, it was concluded that these relationships can be social, economic, symbolic, religious, commercial, and artistic practices.

When the knowledge of ethnobotany is integrated with indigenous knowledge and the scientific principles and concepts to attain both short-term and long-term aims, it is best referred to as ethnobotanical knowledge (Grenier 1998, Hamilton 2003, Bajpai *et al*. 2016, Ahmed *et al*. 2020). Ghimire *et al*. (2004), Sarkar & Devi (2017), Ichoron *et al*. (2019), Kassa *et al*. (2020) also argued that understanding the heterogeneity of knowledge and practices within a given area is crucial to design management practices that build on the intricate links between knowledge, practices, and institutional context. Studies of individual ethnobotanical knowledge have the potential to contribute to a systematic understanding of humanity's most widespread and ancient form of knowledge (Garcia *et al*. 2007, Sen & Behera 2016, Gadhvi & Modi 2019).

According to Grenier (1998), Indigenous knowledge (IK) is traditional, local knowledge that is unique to a given culture or society. In a given culture, a systematic body of knowledge can be acquired by local people through the accumulation of experiences, informal experiments and intimate understanding of the environment. Hence, Indigenous knowledge is both sacred and secular. Artefacts made by making use of plant materials are typical examples where IK plays a significant role (Bidgood 2001). On that note, items from the environment are used for ceremonies and rituals and for artistic creations such as song, dance, and storytelling. Securing

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natural resources and providing them for the survival of the people can be gained through Indigenous knowledge of ecosystems. It incorporates important methods of hunting, fishing, and gathering.

Hence, ethnobotanical profiles are all values put on certain botanical resources derived from all of the above concepts and practices. In other words, ethnobotanical profile implies that a certain plant species under question is rated based on its multipurpose values it contributes to mankind and the environment as well. Such rating is also influential in priority settings in conservation and management of species both in traditional and modern practices. For instance, Seta *et al.* (2013) stated that ethnobotanical accounts will offer applications in conservation and sustainable utilization of the resources in the best interest of the indigenous Wolayta people and the development of Ethiopia's agriculture sector. Since ethnobotany is a multidisciplinary subject and the science of systematics is the key for knowing what the plant species under question is all about, the concept and applications of the two subjects are inseparable. In this regard, the work by Burger (1967) on the families of flowering plants of Ethiopia and later the publications of the Flora of Ethiopia are success in knowing the vegetation potential of Ethiopia and associated ecosystem diversity.

The main objective of this paper is to review and analyze ethnobotanical profiles of common indigenous wild edible plant species in Ethiopia. The paper is also expected to come out with a clear picture of comparative studies undertaken both in Ethiopia and elsewhere on indigenous wild edible plants with regard to their processing and commercialization. Hence, experiences from other countries could be the lessons learned for Ethiopia to design research projects on proper use and management of vegetation resources in general and indigenous wild edible plants in particular. Published reference sources from various directions will be used as a guideline in providing relevant information about the species in question.

Relationships between ethnobotany and indigenous practices

Grenier (1998) explained IK in a more detailed way saying that the development of IK systems covering all aspects of life including management of the natural environment. It has been a matter of survival to the peoples who generated these systems. The knowledge systems are cumulative, representing generations of experiences, careful observations, and trial and error experiments during their lifetime of indigenous people. On the other hand, Martin (1995) explained that traditional knowledge or folk knowledge refers to what local people know about the natural environment, whereas he considered scientific knowledge as information derived from research activities. Martin's connotation here is to address the role of ethnobotanists in strengthening the link between communities and the environment that is important for conservation practices and implementation. That is, ethnobotanists can play very useful roles in rescuing disappearing knowledge and returning it to local communities. In the meantime, it conserves local ethnobotanical knowledge as part of living cultural-ecological systems. Hence, it helps to maintain a sense of pride in local cultural knowledge and practices. The basic difference between Griener's explanation of IK and Martin's explanation of traditional knowledge is that Martin tried to compare folk knowledge with scientific knowledge through elaboration.

Balick & Cox (1996) reminded us that we can become masters of our destiny if we take care of our environment. Hence, the authors emphasized the need to see conservation, like many other indigenous leaders, in terms that transcend economic or political issues. What we learn from an old African Proverb: "When a knowledgeable old person dies, the whole library disappears" is that indigenous knowledge (IK) should be properly recorded and documented. Grenier (1998) noted that IK systems are so dynamic that new knowledge systems are continuously added innovating from within and also internalize, use and adopt external knowledge to suit the local situation.

The above point reminds us the emphasis we have to give to indigenous knowledge systems. Through local inventories and ethnobotanical investigations, understanding on the values and quantities of harvested resources by local resource users can be gained. According to Cunningham (2001), the involvement of resource users as research partners is an essential part of a successful conservation strategy for useful plant species that are vulnerable to overexploitation. On one hand, the knowledge and perceptions of resource users such as traditional healers, craft workers and commercial medicinal plant harvesters provide valuable insight into the scarcity of useful plant species. Secondly, Cunningham (2001) further noted that dialogue with resource users is also a crucial part of developing conservation and resource management protocols. Thirdly, it enables specialist user groups to be identified.

The above points lead to the concept stated by Hamilton (2003) on the purpose of teaching applied ethnobotany with the main emphasis on several fundamental reasons for applying the approaches and methods of applied ethnobotany. He argued on three core points: Firstly, such approaches allow the knowledge, wisdom

and practices of local people to play fuller roles in identifying and finding solutions to problems of conservation and sustainable development. Secondly, local people are fully involved in investigations so that there is a better chance of participation. And thirdly, realistic cause studies of ways of balancing conservation with use became available which is valuable for informing the development of realistic national policies.

Wild edible plants

Levetin & McMahon (2008) noted that as humankind enters the 21st century, plant science is once again assuming a prominent role in research. This relatively new school of thought renewed emphasis on developing medicinal products from native plants thereby encouraging ethnobotanical endeavors. Among the driving forces behind such endeavors, according to these authors, for instance, is understanding the destruction of the rain forests that has made the timing for the research to be imperative and has spurred efforts on cataloguing the plant biodiversity in such environments.

According to Kallas (2010), Edible wild plants are endowed with one or more parts that can be used for food if gathered at the appropriate stage of growth and properly prepared. What do the phrases appropriate stage of growth and properly prepared indicate?

Appropriate stage of growth: It was stated that each edible plant has its ideal stage for eating. Knowing that stage not only provides the best food, but it is also safe. For instance, potatoes and elderberry are said to be both edible plants and poisonous plants. Hence, the key to the successful and safe use of wild plants for food is to focus on the parts or parts known to be edible. Kallas (2010) further noted that generalizing and improvising by eating unspecified parts of plants can be deadly. A typical example here, as noted by Kallas (2010) is the case of western blue elderberry, *Sambucus cerulean* (Raf.) R. Bolii (Caprifoliaceae), the branchlets of which have fully ripe edible berries but the leaves, stems, branches and barks are known to contain cyanide and other toxins.

Similarly, it was noted that mature milkweed pods, *Asclepias syriaca* L. (Asclepiadaceae), contain fully mature poisonous brown seeds. For this reason, the plant is considered both an edible and poisonous plant depending on the part and its stage of growth. Its pods are edible at the younger stage of growth. Therefore, Kallas concluded that the biggest and most dangerous mistake that one can make is when using wild foods without knowing parts of plants not known to be edible at its appropriate stage of harvest.

Other examples of the wild edible plant include the wild spinach, *Chenopodium album* L. (Chenopodaceae). Here, one could present an example of edible plant processing: Experiences from North America and elsewhere (www.wildfoodadventures.com).

Means of Preparation: Some edible plants may not become truly edible or palatable unless they are processed in some way so that they are ready for health consumption (Kallas 2010). Hence, processing may involve, among other things, physically removing certain parts of a plant like seeds from fruit or getting rid of a root, leaching undesirable water-soluble substances out of the plant part, for instance, tannin, or heating to a certain temperature. Experiences from North America indicated that the processing of wild spinach for food involves the removal of young buds and seeds at its appropriate stage of growth. The remaining part of the plant is then mixed with other wild edible greens and prepared into delicious cakes. Although the species of three genera; *Asclepias*, *Sambucus* and *Chenopodium* mentioned above are not among the commonly cited indigenous edible wild plants of Ethiopia, they are included here to give clues and lessons learned from other countries on proper processing and utilization of such species. The same processing steps also involve species of *Malva* and *Amaranthus* which are very common in rural home gardens of Ethiopia but not yet known by many Ethiopians on how to prepare for consumption for their best nutritional value.

It was stated that some plant species are wild and others are slightly or strongly associated with humans revealing a living analogue of the wild-semi-wild-domesticated continuum (Asfaw & Tadesse 2001). Moreover, wild edible plants are considered "Hidden Harvest" and play a critical role in ensuring food and livelihood security for countless families and communities around the world (Teketay *et al*. 2010). Moreover, they are a good source of income in the market at local, national as well as international levels. Paralleled to the above ideas, it was noted that efforts to feed the growing populations in developing nations have positioned plant scientists at the cutting age of genetic engineering with the creation of transgenic crops (Levetin & McMahon 2008).

Indigenous wild edible plants of Ethiopia

Ethiopia is an agrarian country and agriculture including forestry accounts for 54% of the Gross Domestic Product employing about 80% of the population (http://www.csa.gov.et). The above figure, according to the CSA (2008) report accounts for about 90% of the exports and supplies over 90% of the raw materials for agro-

industry. Moreover, the population of Ethiopia grew at an average annual rate of 2.6% between 1994 and 2007 CSA (2008) indicating that depending only on harvested crops to feed the ever-increasing population size may not guarantee food security. Therefore, search for alternatives for food diversification particularly in the rural areas calls for the need to maximize modern ways of edible wild plants utilization and commercialization.

It was stated that countries like Ethiopia that are trying to get out of the food insecurity and malnutrition loop have much to learn from the success stories of China and India (Addis 2009). Many authors discussed the potential of Ethiopia in harboring a number of underutilized edible plants most of which are wild edibles (Asfaw & Nigatu 1995, Asfaw & Tadesse 2001, Wondimu *et al*. 2006, Teketay *et al.* 2010, Lulekal *et al*. 2011). Information on wild edible plants of Ethiopia is scattered in botanical monographs, glossaries, and informal notes as well as in the rich oral traditions of the different communities (Asfaw & Tadesse 2001). Following the above investigation is that a number of studies on wild edible plants of the country were undertaken coming up with plausible recommendations.

Although some authors are also indirectly mentioned the presence of a vast number of wild edible plants of Ethiopia in their literature sources (Fitchtl & Adi 1994, Azene 2007, Negash 2010), the number of published books providing detailed information on wild edible plants is not sufficient. Lulekal *et al.* (2011) for instance indicated that all available ethnobotanical research outputs on Ethiopian wild edible plants address only about 5% of the 494 Ethiopian districts. It is a good indication of an insignificant share compared to the vast geographic, ethnic and cultural diversity of the country. Hence, it is a good connotation that researchers have to have a look at the research gaps and carry out ethnobotanical investigations by not only focusing on commonly known and widely available plants most of which occur in the central and highland regions but also in the most remote parts of the country such as southwestern Ethiopia. A preliminary list of indigenous edible wild plants present in Ethiopia has been prepared in the study with the help of available information (Appendix 1).

Available information on Ethiopian wild edible plants

It was stated that the consumption of wild plants seems more widespread in food-insecure areas where a wide range of species are consumed. Hence, local people know about the importance and the contribution of wild plants to their daily diet as well as being aware of possible health hazards such as stomach irritation occasionally occurring after consumption of certain wild plants (Guinand & Lemessa, 2000). A field survey carried out throughout Ethiopia indicated that considerable numbers of edible wild plants are available in Ethiopia and they are still underutilized. A summary of available information on edible wild plants in different regions of Ethiopia is indicated below. Table 1 represents indigenous wild edible plants in Ethiopia that are sold in markets. Table 2 represents a summary of marketed indigenous fruit species in Eastern Africa at local, national and international scales. Table 2 is a good representation for comparison that species common in Ethiopia as wild edibles are also common in the neighbouring countries. Indigenous fruit trees, which were reported to be edible in different regions of Ethiopia, are summarized in tables 3 and 4.

Table 1. Indigenous edible fruit trees which are sold in the market in different regions of Ethiopia.

Northern Ethiopia	Southwestern Ethiopia	Eastern Ethiopia	Southeastern Ethiopia
Adansonia digitata (**Bobacaceae**)	*Annona senegalensis* (**Annonaceae**)	*Berchemia discolor* (**Rhamnaceae**)	*Annona senegalensis* (**Annonaceae**)
Balanites aegyptiaca (**Balanitaceae**)	*Dovyalis abyssinica* (**Flacourtaceae**)	*Grewia ferruginea* (**Tiliaceae**)	*Flacourtia indica* (**Flacourtaceae**)
Carissa spinarum (**Apocyanaceae**)	*Syzygium guineense* (**Myrtaceae)**	*Protea gaguedi* (**Proteaceae**)	*Mimusops kummel* (**Sapotaceae**)
Cordia africana (**Boraginaceae**)	*Ximenia ameicana* (**Olacaceae**)	*Zizyphus mucronata* (**Rhamnaceae**)	*Syzygium guineense* (**Myrtaceae**)
Dovyalis abyssinica (**Flacourtaceae**)			*Tamarindus indica* (**Fabaceae**)
Mimusops kummel (**Sapotaceae**)			*Ximenia americana* (**Olacaceae**)
Rosa abyssinica (**Rosaceae**)			
Syzygium guineense (**Myrtaceae**)			
Tamarindus indica (**Fabaceae**)			
Ximenia americana (**Olacaceae**)			
Ziziphus spina-christi (**Rhamnacea**)			

Source: IPGR: http://www.biodiversityinternational.org/fileadmin/biodiversity/documents

Table 2. Marketed indigenous fruit species in eastern Africa.

Country	Local	National	International	% similarity with Ethiopia
Ethiopia	*Adansonia digitata* (**Bombacaceae**) *Annona senegalensis* (**Annonaceae**) *Balanites aegyptiaca* (**Balanitaceae**) *Dovyalis abyssinica* (**Flacourtaceae**) *Flacourtia indica* (**Flacourtaceae**) *Mimusops kummel* (**Sapotaceae**) *Syzyguim guineense* (**Myrtaceae**) *Ximenia americana* (**Olacaceae**)	*Mimusops kummel* (**Sapotaceae)** *Ziziphus spina-christi* (**Rhamnaceae**) *25%* *(2/8 X 100%)*	*Balanites aegyptiaca* (**Balanitaceae**) *Tamarindus indica* (**Fabaceae**) 25% (2/8 X 100%)	
Kenya	*Adansonia digitata* (**Bombacaceae**) *Berchemia discolor* (**Rhamnacae**) *Flacourtia indica* (**Flacourtaceae**) *Syzyguim guineense* (**Myrtaceae**) *Tamarindus indica* (**Fabaceae**) *Vitex doniana* (**Lamiaceae**) *Ximenia americana* (**Olacaceae**) *Ziziphus* sp. (**Rhamnaceae**)	*Adansonia digitata* (**Bombacaceae**) *Tamarindus indica* (**Fabaceae**) 25% (2/8 X 100%)	*Tamarindus indica* (**Fabaceae**) 13% (1/8 X 100%)	50% (4/8 X 100%)
Sudan	*Adansonia digitata* (**Bombacaceae**) *Balanites aegyptiaca* (**Balanitaceae**) *Borassus aethiopum* (**Arecaceae**) *Cordia* sp. (**Boraginacaea**) *Hyphaene thebaica* (**Arecaceae**) *Sclerocarya birrea* (**Anacardiaceae**) *Tamarindus indica* (**Fabaceae**)	*Adansonia digitata* (**Bombacaceae**) *Balanites aegyptiaca* (**Balanitaceae**) *Hyphaene thebaica* (**Arecaceae**) *Tamarindus indica* (**Fabaceae**) *(4/7)X100% = 57%*	*Adansonia digitata* (**Bombacaceae**) *Balanites aegyptiaca* (**Balanitaceae**) *Tamarindus indica* (**Fabaceae**) (3/7)X100% = 43%	(2/7) X 100% = 29%
Tanzania	*Adansonia digitata* (**Bombacaceae**) *Strychnos coccoloides* (**Loganiaceae**) *Tamarindus indica* (**Fabaceae**) *Vitex doniana* (**Lamiaceae**) *Vitex mombassae* (**Lamiaceae**)	none	none	(1/5)X100% = 20%

Source: IPGR- http://www.biodiversityinternational.org/fileadmin/biodiversity/documents

Table 3. Similarity of wild edible plants existence between four regions of Ethiopia.

Species	Regions of Ethiopia					
	N and SW	N and E	N and SE	SW and E	SW and SE	E and SE
Annona senegalensis					✓	
Carisa spanarium	✓	✓		✓		
Cordia africana	✓	✓		✓		
Donyalis abyssinica	✓			✓		
Ficus sur	✓	✓	✓	✓	✓	✓
Grewia ferruginea	✓	✓		✓		
Mimusops kummel			✓			
Rhus vulgaris	✓					
Rosa abyssinica	✓		✓		✓	
Syzygium guineense	✓		✓		✓	
Tamarindus indica			✓			✓
Ximenia americana	✓		✓	✓	✓	✓

Note: N = Northern, SW = Southwestern, E = Eastern, SE = Southeastern.

A synthesis of ethnobotanical studies undertaken in Ethiopia over the last couple of decades revealed more than 300 species of wild edible plants consumed by people (Asfaw 2009). Therefore, it was recommended that desirable strategies including planting wild edible plants in the rehabilitation of degraded ecosystems and culturally protected forests of the elites species in farms are important in the protection and utilization of wild edibles in the best interest of food source diversification and environmental integrity. Moreover, church yards are best examples of culturally protected areas that play significant roles in the conservation of very rare but highly useful plant species.

Table 4. Indigenous edible fruit trees which were reported to be edible in different regions of Ethiopia.

Northern Ethiopia	Southwestern Ethiopia	Eastern Ethiopia	Southeastern Ethiopia
Adansonia digitata (**Bombacaceae**)	*Annona senegalensis* (**Annonaceae**)	*Berchemia discolor* (**Rhamnaceae**)	*Annona senegalensis* (**Annonaceae**)
Balanites aegyptiaca (**Balanitaceae**)	*Carissa spinarum* (**Apocyanaceae**)	*Carissa spinarum* (**Apocyanaceae**)	*Ficus sur* (**Moraceae**)
Carissa spinarum (**Apocyanaceae**)	*Clausena anisata* (**Rutaceae**)	*Cordia africana* (**Boraginaceae**)	*Flacourtia indica* (**Flacourtaceae**)
Cordia africana (**Boraginaceae**)	*Cordia africana* (**Boraginaceae**)	*Dovyalis abyssinica* (**Flacourtaceae**)	*Mimusops kummel* (**Sapotaceae**)
Dovyalis byssinica (**Flacourtaceae**)	*Dovyalis abyssinica* (**Flacourtaceae**)	*Ficus sur* (**Moraceae**)	*Rosa abyssinica* (**Rosaceae**)
Grewia ferruginea (**Tiliaceae**)	*Ficus sur* (**Moraceae**)	*Grewia ferruginea* (**Tiliaceae**)	*Syzygium guineense* (**Myrtaceae)**
Ficus sur (**Moraceae**)	*Grewia ferruginea* (**Tiliaceae**)	*Protea gaguedi* (**Proteaceae**)	*Tamarindus indica* (**Fabaceae**)
Ficus vasta (**Moraceae**)	*Phoenix reclinata* (**Arecaceae**)	*Rubus apetalus* (**Rosaceae**)	*Ximenia americana* (**Olacaceae**)
Mimusops kummel (**Sapotaceae**)	*Rhus vulgaris* (**Anacardiaceae**)	*Tamarindus indica* (**Fabaceae**)	
Rhus vulgaris (**Anacardiaceae**)	*Rosa abyssinica* (**Rosaceae**)	*Ximenia americana* (**Olacaceae**)	
Rosa abyssinica (**Rosaceae**)	*Syzygium guineense* (**Myrtaceae**)	*Zizyphus mucronata* (**Rhamnaceae**)	
Syzygium guineense (**Myrtaceae**)	*Ximenia americana* (**Olacaceae**)		
Tamarindus indica (**Fabaceae**)			
Ximenia americana (**Olacaceae**)			
Ziziphus spina-christi (**Rhamnaceae**)			

Source: IPGR - http://www.biodiversityinternational.org/fileadmin/biodiversity/documents

It is worth noting that the information compiled above (Table 1) does not to mean a species is not present, eaten or used in the area where it is not listed. These species (total number 17) are marketed, eight of them in one area and the other in two or three areas indicating their popularity among the local people and their level of preferences. Marketability could also indicate that a species could have become rare or obtained from a distant place and hence some people who no longer have any access to them can buy them. A further and deeper ethnobotanical study could show the history of use and marketing of the given wild edible plant. Alternatively, it could be so abundant that anyone could collect it from a nearby area and no one would be interested in buying it. Selling such wildly present products could also be taken as a sign of destitution by many.

The species included in the report are marketed at the national (25%) and international (25%) levels of the total. Only one of those marketed internationally is marketed internationally in the case of Kenya while both are marketed in Sudan. On the other hand, about 50% of the Ethiopian species are the same with Kenya while this proportion goes down to 29% in the case of Sudan and 20% in the case of Tanzania.

The highest similarity (9) is observed between Northern Ethiopia and Southwestern Ethiopia and the least similarity (3) is between Eastern Ethiopia and South Eastern Ethiopia (Table 3). This would automatically lead to a suggestion to plan for a detail study. On the other hand, family Rhamnaceae contains the highest percentage of wild edible plants (0.19%) followed by family Fabaceae (0.16) in Ethiopia (Appendix 2).

The result of the analysis revealed that the highest number of marketable indigenous wild edible fruits is found to be from Northern Ethiopia (about eleven species) followed by Southeastern Ethiopia (about six species). Southwestern Ethiopia and eastern Ethiopia showed similarity in the number of marketable indigenous wild edible fruit trees in Ethiopia (about four species each) (Fig. 1). It also indicates that there is variation in indigenous wild edible plant species composition among the different floristic regions of Ethiopia (Fig. 2). The implication is that such variations among the different regions of Ethiopia in the distribution of marketable indigenous wild edible plant species could be explained through detailed studies in unexplored parts of Ethiopian regions thereby identifying potential areas where conservation, management as well as optimal harvesting of the plants to support food security.

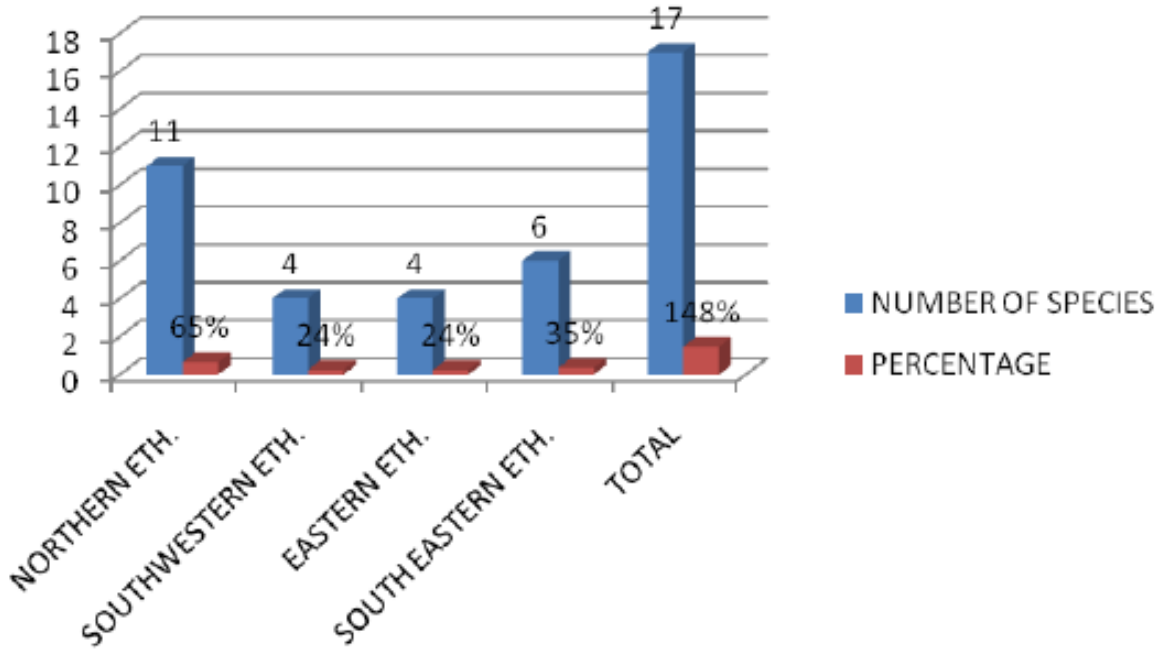

Figure 1. Distribution of marketable indigenous wild edible fruit trees in different regions of Ethiopia.

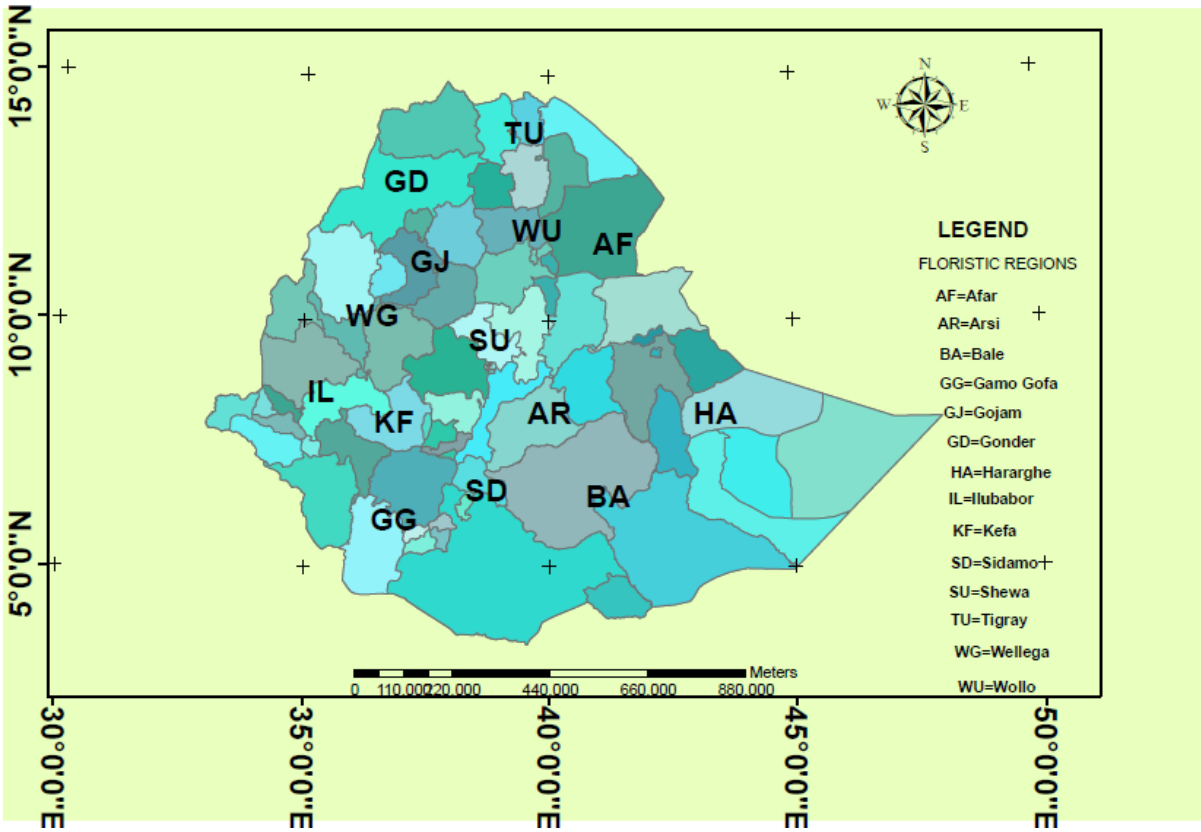

Figure 2. Ethiopian floristic regions.

Similarly, there are variations as well as similarities in the number of marketed indigenous wild edible fruit species between countries of East Africa at local, national and international scales. For instance, both Ethiopia and Kenya are similar in having eight species as locally marketable and two species nationally marketable. But two species are marketable internationally in Ethiopia and only one species is marketable internationally in Kenya. In Sudan, about seven species are locally marketable, four species are nationally marketable and three species are internationally marketable. In Tanzania, only five species are locally marketable and no species are marketable both nationally and internationally (Fig. 3).

Comparison of the similarity in the wild edible plant experience between the four regions of Ethiopia indicates that nine species are common to Northern and Southwestern Ethiopia, six species are common to

Northern and Southeastern Ethiopia, six species are common to Southwestern and Eastern Ethiopia, five species are common to Southwestern and Southeastern Ethiopia, four species are common to Northern and Eastern Ethiopia and three species are common to Eastern and Southeastern Ethiopia (Fig. 4).

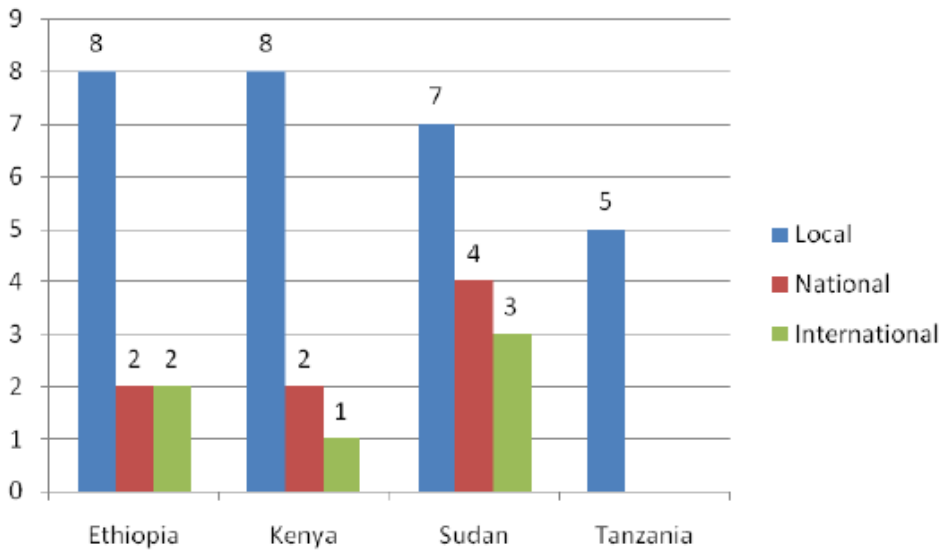

Figure 3. Frequencies (numbers) of marketed indigenous fruit species in Eastern Africa.

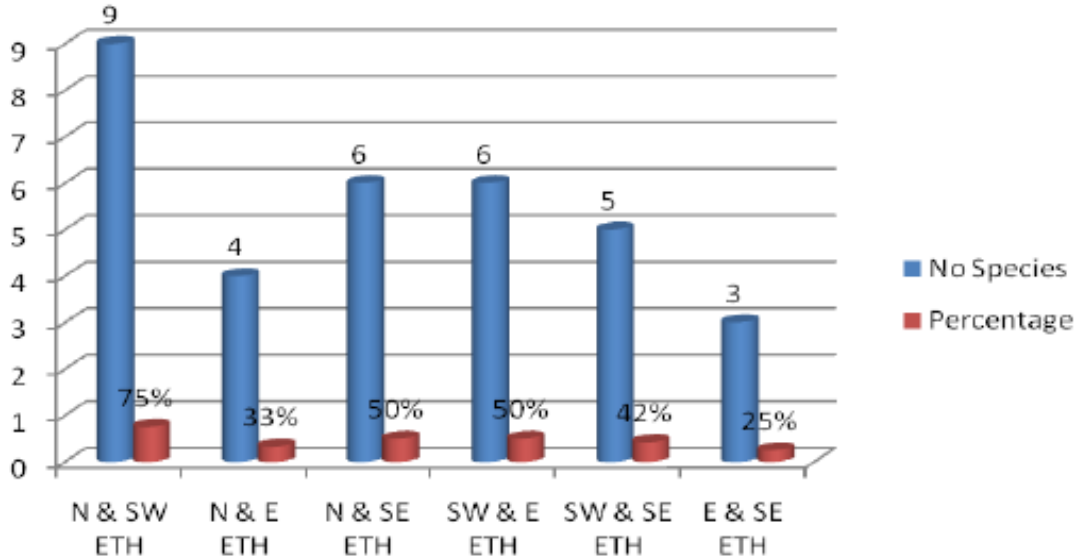

Figure 4. Resemblance of wild edible plants existence between four regions of Ethiopia

Finally, it was indicated that about 65% of the indigenous wild edible fruit trees are from Northern Ethiopia followed by 52% of them from Southwestern Ethiopia. Eastern and Southeastern Ethiopia are reported to be 48% and 35% respectively (Fig. 5). It indicates that regions with the highest percentages of indigenous wild edible plant species represent potential areas for priority settings for conservation, sustainable use as well as proper management of wild edible plants.

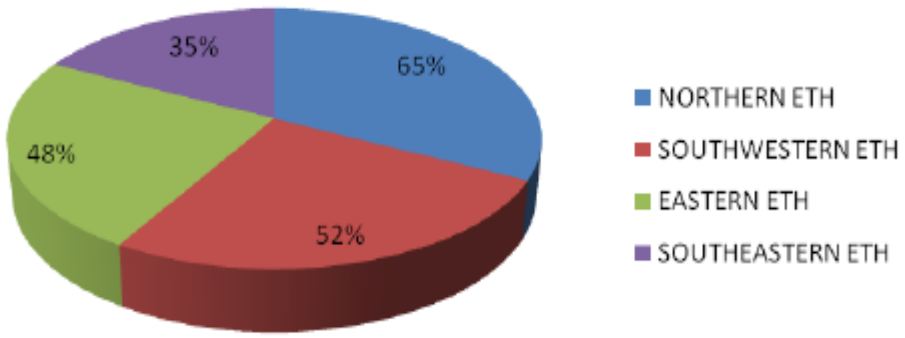

Figure 5. Percentage distributions of indigenous wild edible fruit trees which were reported to be edible in different regions of Ethiopia.

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Appendix 1: Preliminary list of indigenous edible wild plants in Ethiopia.

SN	Scientific Name	Vernacular Name	Altitude(m)	Flora Region	Ethnobotanical Aspects	Source
1	*Acacia abyssinica* Hocst. ex Benth. (1846) **Fabaceae** Vol. 3: 89 (1989)	Bazra Girar (Am) Lafto (Or) Keselto (Af) Umberella thorne (Eng) Tsatsi (Ag) Cheba (Tg)	1500–2800	GD, GJ, WG, BA, AR, IL, KF, SD, TU, SU	Fire wood, charcoal, poles, posts, tool handles, food (edible gum), medicine, fodder, bee forage, shade (for cattle), nitrogen fixation, soil conservation, fence (cut branches)	1, 3, 4, 6, 8, 9
2	*Acacia albida* Del. (1813) **Fabaceae** Vol. 3: 84 (1989)	Laaftoo (Or.) Garbii (Or.) Grar (Am.)	Up to 2600	TU, SU, GD, WU, AR, HA, SD, GG	Fire wood, Timber(construction), posts, utensils, food(pods for flovring, boiled seeds), medicine(bark), fodder(pods, leaves), shade, mulch, nitrogen fixation, soil conservation, soil improvement, wind breaks, tannin, dye, soap, fence (cut branches)	1, 3, 6, 7, 8, 9
3	*Annona senegalensis* Pers. (1806) **Annonaceae** Vol. 2, (1): 11 (2000)	Gishta (Af) Giishta (Am) Wild custand Apple (Eng) Komate (Or) Eta (Wt)	400–1600	In Combretem woodlands and wooded grasslands in the Moist and Wet Kola agro-climatic zones of WG, GJ, IL, KF, GG, BA	Fire wood, timber, pole, tool handles, food (fruit), ornamental, windbreak, fiber (bark), yellow-brown dye (bark)	1, 3, 6, 7, 8, 9
4	*Arundinaria alpina* K.Schum. (1895) **Poaceae** Vol. 7: 3 (1995)	Anini (Ag) Kerkeha (Am) Mountain Bamboo (Eng) Washo (Ga) Kias (Gm) Jimna (Gmz) Shineto (Kf) Lemana (Or)	2200–3300	GJ, SU, KF, GG, SD, BA	Furniture, poles, construction, utensils (containers for grain, local spinnig tools), food (shoots), fodder (shoots, leaves and young stems), ornamental, soil conservation (plantation as well as materials for checkdams), basketary, fencing materials	1, 3, 4, 8, 9

5	*Balanites aegyptiaca* (L.) Del. (1813) **Balanitaceaea** Vol. 3: 433 (1989)	Qutsa (Ag) Toow (Agn) Bedeno (Am) Baddn (Br) Desert date (Eng) Domay (Ga) Toyun (Mjr) Tor (Nur) Bedena (Or) Got (Sm) Indrur (Tg)	0–1800	Common in the Dry and Moist Kolla agroclimatic zones of the Rift-valley in GG, SD, TU, WU, SU, GJ, IL, AR, and upland HA regions	Fire wood, charcoal, timber (furniture), poles, utensils, tool handles, Food (fruit), medicine (infusion from roots, emulsion from fruits), fodder (leaves, young shoots, fruit), shade, mulch, windbreak, gum, ceremonial meetings, fencing(cut branches), oil (fruit), emulsion of fruit kills snails and fishes	1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14,
6	*Berchemia discolor* (Klotzsch) Hemsl (1868) **Rhamnaceae** Vol. 3: 393 (1989)	Jejeba (Am) Wild almond (Eng) Jejeba (Or) Amor (Sm) Aba (Tg)	800–1900	WU, SU, GG, BA, HA	Timber (construction, furniture), poles, drink (leaves), medicine (roots), fodder (fruit, leaves), bee forage, shade, ornamental, windbreak, resin, black dye (powdered heartwood, roots)	1, 3, 4, 6, 8, 9
7	*Borassus aethiopum* Mart. (1838) **Arecaceae** Vol. 6: 518 (1997)	Zambaba (Am) Udua (Agn) African fan pulm (Eng)		Found in flood plains and along water courses in Moist and Wet Kolla and Weyna Dega agroclimatic zones in the western parts of IL and KF	Timber roofing, door frames), poles, tool handles, food (fruit, seeds, young seedlings), palm wine (sap of flower shoots), medicines (roots, flowers, oil), fodder (fruit, young leaves), fiber leaves), thatch, oil (fruit, pulp)	1, 3, 4, 6, 8, 9, 14
8	*Bridelia micrantha* (Hochst.) Baill. (1863) **Euphorbiaceae** Vol. 2, 2: 269 (1995)	Yenebir tifir (Am) Ush (Gm) Galalo (Or)	1200–2200	GD, GJ, SU, AR, BA, GG, KF, WG, IL, SD	Fire wood, food (fruit), medicines (bark, roots), shade, mulch	1, 2, 3, 4, 6, 8, 9
9	*Carissa spinarum* L. (1767) **Apocyanaceae** Vol. 4,1: 174 (2003)	Aguami (Ag) Agam (Am) Soha (Gmz) Agamsa (Or) Awawa (Sh) Orgabat (Sm)	500–2600	Grows in woodlands and forests where Euphorbia, Acacia, and Croton commonly occur in Dry Moist Weina Dega agroclimatic zones in all regions	Fire wood, food (fruit), medicines (roots), ornamental and soil conservation	1, 2, 3, 4, 6, 8, 9, 12, 13, 14

10	**Catha edulis* Hemsl. (1907) **Celastraceae** Vol. 3: 56 (1989)	Kat (Af) Chat (Am) Chata (Km) Chati, Jima (Or) Chat (Tg) Chat (Gr) Chatya (Wt)	1400–2200	TU, WU, WG, SU, HA, SD	Firewood, medicines (leaves, roots, bark), stimulant drug (shoots, stalked leaves). It is a cash crop in Ethiopia	1, 3, 9
11	*Celtis toka* (Forssk.) Hepper & J.R.I. Wood (1983) **Ulmaceae** Vol. 3: 267 (1989)	Lero (Agn) Oleme (Mjr)	400–600 (1400–2000)	Gambella, IL, GG	Fire wood, timber (construction), handles, farm implements, food (fruits)	1, 3, 4, 8, 9
12	*Commiphora africana* (A.Rich.) Engl. (1883) **Burseraceae** Vol. 3: 55 (1989)	Qwa (Ag) Anga (Am) Commiphora (Eng) Dogama (Ga) Hamessa (Or) Kobbok (Sm) Anqua (Tg)	500–1900	TU, GD, WU, WG, KF, SU, GG, SD, BA, HA	Fire wood, utensils, food (fruit), Drink (bark), fodder (for camels, goats), medicine (roots, bark, fruit, resin), live fence, gum resin	1, 3, 4, 6, 8, 9
13	*Cordeauxia edulis* Hemsl. (1907) **Fabaceae** Vol. 3: 55 (1989)	Yeheb nut (Eng) Ehb, Qud, Quda (Sm)	0–600	Found naturally in semi-arid bush land and scrub in sandy soils of the Bereh agro-climatic zones in eastern Ogaden in HA region and extending to Somalia	Fire wood, food (seeds), fodder (foliage), bee forage, mulch, soil conservation, nitrogen fixation, live fence, dye (red dye from leaves), tannin	1, 3, 4, 8, 9
14	*Cordia Africana* Lam. (1792) **Boraginaceae** Vol. 5: 68 (2006)	Bugtsi (Ag) Wanza (Am) Large leaved cordia (Eng) Abanga (Brt) Giku (Gim) Banja (Gmz) Odesha (Gr) Dampaeu (Mjr) Urogu (Nur) Dibo, Wadesa (Or) Wadicho (Sm) Aubi, Ekbi (Tg)	900–2500	It grows well in Dry, Moist and Wet Weyna Dega agro-climatic zones in almost all regions	Fire wood, timber (furniture, beehives, boxes, mortars), food (fruit), medicine (juice from bark, roots), fodder (leaves), bee forage, shade, ornamental, mulch, soil conservation	1, 2, 3, 4, 6, 8, 9, 11, 12, 13

15	*Diospyros mespiliformis* Hochst. ex A.DC. (1844) **Ebenaceae** Vol. 4 (1): 50 (2003)	Adew (Agn) Ayeb (Am) African ebony (Eng) Dimmin (Mjr) Ayeb (Tg)	300–2000	It occurs mostly on rocky hillsides in lowland savannah Euphorbia thickets and along river banks in Bereha, Moist, and Wet Kola and Woinadega agro-climatic zones in most regions	Fire wood, timber (construction, furniture), carving, walking sticks, food (fruit: fresh, fermented drink), Medicine (bark, roots fruit), bee forage, shade	1, 2, 3, 4, 6, 8, 9, 11, 14
16	*Dobera glabra* (Forssk.) Pior. (1812) **Salvadoraceae** Vol. 3: 353 (1989)	Garas (Af) Geresa (Tg) Garas, Haras (Sm)	400–1300	SU (Awash), HA, BA, SD	Fire wood, timber (local use), utensils (containers, mortars, water troughs), food (fruits, seeds), fodder (leaves), shade, tooth brushs (stems), gum	1, 2, 3, 4, 6, 8, 9
17	*Dovyalis abyssinica* (Regel.) Schwantes (1928) **Flacourtaceae** Vol. 2, 1: 242 (2000)	Koshim (Am) Angqgo (Or) Ongolatz (Sm) Aihada (Tg)	1700–3000	Usually found along river courses in humid lower highland forest and Juniperous and Podocapus forest, of Moist and Wet Eynadega and Dega agroclimatic zones in most regions	Food (fruit), medicine (leaves), bee forage, live fence	1, 2, 3, 4, 5, 6, 8, 9
18	*Embelia schimperi* Vatke (1876) **Myrsinaceae** Vol. 4 (1): 69 (2003)	Enkoki (Ag) Enqoqo (Am) Enqoqo (Gr) Hanku (Or) Kanko (Sd) Enkqoqo (Tg)	1700–2800	Usually found as anundestory tree in semi-humid highland forest with Celtis, Podocarpus, Juniperos, Ekebergia and Pouteria in Moist and Wet weinadega and lower Dega agro-climatic zones in almost all regions	Fire wood, Medicine (fruit), against tape worm, food (fruit)	1, 3, 4, 6, 8, 9, 12

19	*Euclea racemosa* Murr. (1974) **Ebenaceae** Vol. 4 (1): 51 (2003)	Dedeho (Am) Miessa (Or) Dobobos (Sm) Kellau (Tg)	1000–2400	Grows indry woodland, bush land, riverine forest, and marginal arid areas in Dry, Moist and Wet Kolla and Weyna Dega agro-climatic zones in most regions	Fire wood, farm tools, food (fruit), ornamental, dye, live fence, boundary marking	1, 2, 3, 4, 8, 9
20	*Ficus sur* Forssk. (1775) **Moraceae** Vol. 3: 287 (1989)	Emwi (Ag) Olan (Agn) Shola (Am) Mensha (Brt) Cape fig (Eng) Mop (Nur) Habru, Harbu (Or)	1400–2500	Found along river banks, in upland rain forest, mountain grassland or secondary scrub in Moist and Wet Weyna Dega agro-climatic zones in nearly all regions	Timber (local furniture, boxes), food (fruit), medicine (bark, milky sap, roots), shade, ceremonial	1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 14,
21	*Ficus sycomorus* L. (1753) **Moraceae** Vol. 3; 285 (1989)	Emwi (Ag) Bamba, Shola (Am) Akuku, Oda (Or) Sycamore fig (Eng) Sagla, Shegla (Tg)	500–2000	Found along rivers and lake margins, in woodlands and wooded grasslands, evergreen area	Fire wood, carvings, beehives, food (fruit), medicine (latex), shade, ornamental, mulch, soil conservation, soil improvement	1,2, 3, 4, 5, 6, 8, 9, 11, 13
22	*Flacourtia indica* Bum.f. (1768) **Flacourtiaceae** Vol. 2 (1): 358 (2000)	Indian plum (Eng)	400–2100	It grows from the coastal plains to the highlands in a variety of climates and soils but is never very common It does well in dry and Moist Kolla and Woyna Dega agro-climatic zones in almost all regions	Fire wood, timber (tools), farm tools, fodder (leaves), food (fruit), medicine (leaves, bark, roots), live fence	1, 2, 3, 4, 6, 8, 9, 14
23	*Flueggea virosa* (Willd.) Voigt. (1845) **Euphorbiaceae** Vol. 2 (2): 272 (1995)	Kechachilo (Am) Awagino (Br)	120–2000	A shrub found mostly in open Acacia-C or riverine forests on alluvial flats, on black-cotton soil and well drained rocky slops. It is widespread in Dry and Moi-Bereha and Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones	Fire wood, fish traps (branch lets), medicine (bark, roots), food (fruit)	1, 3, 4, 6, 8, 9

24	*Gardenia ternifolia* Schumach & Thonn. (1827) **Rubiaceae** Vol. 4 (1): 253 (2003)	Dowa (Agn) Large-leaved common gardenia (Eng) Kota (Gmz) Tangang (Mjr)	300–2250 (1400–2000 mm Rain Fall)**	Gambella, GD, WU, GJ, SU, WG, KF, IL, SD, HA	Tool handles (branch wood), food (fruit), bee forage, tooth brushes	1, 2, 3, 4, 6, 8, 9
25	*Grewia bicolor* Juss. (1910) **Tiliaceae** Vol. 2 (2): 148 (1995)	Sefa (AM) Haroresa (Or) Kobesh (Sm) Aba, Dawa (Tg)	500–1800	Found in Acacia woodland, wooded grassland, along rivers and streams, on sandy soils, and exposed rocky ground. It grows well in Moist and Wet Kolla and Weyna Dega agro-climatic zones	Fire wood, timber, poles, tool handles, bows, arrows walking sticks, food(ripe fruits), medicine (roots, bark), fodder (leaves, fruits)	1, 2, 3, 4, 6, 7, 8, 9
26	*Grewia ferruginea* Hochst ex A. (1847) **Tiliaceae** Vol. 2 (2): 150 (1995)	Fo (Af) Alenqoza (Am) Gingno (Ga) Sakebo (Gm) Bururi, Dokenu (Or) Lato (Sm) Sankwab (Tg)	1300–2700	A widespread shrub growing in riverine forest, near lakes and along rivers in open *Acacia combretum* woodland in Dry and Moist Weina Dega as well as Moist and Dry agro-climatic zones	Fire wood timber (local construction), farm tools, food (fruit), fodder (leaves), rope (bark)	1, 3, 4, 6, 8, 9
27	*Grewia villosa* Willd. (1804) **Tiliaceae** Vol. 2 (2): 152 (1995)	Lenquata (Am) Ogundi (Br) Ogundi (Or)	400–1800	Grows often on river banks liable to flooding, or on stony ground, in the shade of larger trees Performs well in Moist and Wet Kolla and Weyna Dega agro-climatic zones in almost all regions	Fire wood, poles, tool handles, walking sticks, bowls, arrows, food (fruit), medicine (roots, bark), fodder (leaves), fiber (bark)	1, 2, 3, 4, 6, 8, 9, 14
28	*Hyphaene thebaica* (L.) Mart. (1838) **Arecaceae** Vol. 6: 522 (1997)	Zembaba (Am) Kone (Br) Down palm (Eng) Meti (Or) Bar(Sm) Kambash (Tg)	100 m below sea level to 1,000 m	AF, GD, GJ, IL	Timber, food (nuts), baskets and mats (leaves)	1, 3, 4, 6, 8, 9

29	*Lannea wewitschii* (Hiern.) Engl. (1898) **Anacardiaceae** Vol. 3: 519 (1989)	Arim (Agn) Cholmi (Mjr)	1100–1250	IL, KF	Timber (construction), food (fruit)	1, 3, 4, 8, 9
30	*Lepidotrichilia volkensii* (Gurke) Leroy (1963) **Meliaceae** Vol. 3: 485 (1989)	Kijang (Agn)	1050–2800	IL, KF, SD, HA, SU, WG regions	Fire wood, timber (local construction), food (fruit)	1, 3, 4, 8, 9
31	*Manilkara butugi* Chiov. (1940) **Sapotaceae** Vol. 4 (1): 57 (2003)	Butigi (Am) Butugi, Gajo (Or)	1200–2200	WG, IL, KF, SD	Fire wood, timber (local use, heavy construction), farm tools, tool handles, food (fruit)	1, 3, 4, 6, 8, 9
32	*Mimusops kummel* A. DC. (1844) **Sapotaceae** Vol. 4 (1): 55 (2003)	Ishe, Shiye (Am) Gugurandija (Gmz) Gayu (Kf) Bururi, Qoladi, Mito (Or)	1200–2500	Occurs in drier mountain forests and humid highland forest. Performs well in Moist and Wet Weina dega agro-climatic zones in all regions, mainly along rivers and forest fringes	Fire wood, char coal, timber (heavy and local construction), tool handles, local utensils, food (fruit)	1, 2, 3, 4, 6, 8, 9
33	*Oncoba spinosa* Forssk. (1775) **Flacourtiacea** Vol. 3: (1989)	Adiquala (Agn) Ekuku, Tsewa (Am) Wild rose (Eng) Asisa (Gmz) Akukku, Aboba Daggooo, Kokolfa Korkoro (Or)	400–1800	TU, SU, AR, WG, IL, KF, SD, BA, HA	Timber (inlays, cabinet work), food (fruit), medicine (root decoctions), oil (from seed; used for paints and varnish)	1, 2, 3, 4, 6, 8, 9
34	*Phoenix reclinata* Jacq. (1801) **Arecaceae** (Vol. 6: 515 (1997)	Selen, Zembaba (Am) Meti (Br) Wild date palm (Eng)	700–2600	Found in tropical Africa, it grows in the humid lowland woodlands, highland forests and on open rocky hillsides in Dry and Moist Kolla and Weina Dega agro-climatic zones in nearly all regions	Timber (local doors, roofing, windows), food (fruit), ornamental, soil conservation, fibbers (leaves, leaf bases), roofing (leaves), basketary, mats (leaves, dye)	1, 3, 4, 8, 11

35	*Piliostigma thonningii* (Schumach.) Milne-Redh. (1947) **Fabaceae** Vol. 3: 67 (1989)	Frqa (Ag) Yekolla wanza (Am) Abirtubata (Br) Camel's foot tree, Monkey bread (Eng) Ambarda, Lilu (Gr) Kora (Or) Amam-gemel (Tg) Kalkalla, Kalkallo (Wt)	500–2000	Grows at medium to low altitudes, especially in the Gibe River valley and various areas of IL region. It performs well in Moist and Wet Weinadega agro-climatic zones and occurs in most regions	Fire wood, charcoal, poles, timber (houses), food (pods), drink (leaves, pods), medicine(leaves, bark, roots, pods), fodder (pods, shoots), bee forage, ornamental, mulch, soil conservation, nitrogen fixation, tannin, dye (pods, seeds, bark, root), rope (bark, root fibers)	1, 3, 4, 6, 8, 9, 14
36	*Rhamnus prinoides* L'Herit. (1788) **Rhamnaceae** Vol. 3: 390 (1989)	Gebbo (Ag) Gesho (Am) Gishe (Gr) Gesho (Or) Gesho (Tg)	1000–3200	It is widespread and locally cultivated from medium to high altitudes, in grasslands, in rain forests and on the margins of evergreen forests in Moist and Wet Kolla, Weyna Dega and Moist Dega agro-climatic zones	Fire wood, flavouring (leaves), medicine (root)	1, 2, 3,4, 8, 9, 11, 12
37	*Rhoicissus tridentata* (L.f.) Willd & Drummond (1963) **Vitaceae** Vol. 3: 401 (1989)	Aba woldu, Wodel Asfes (Am) Bitter grape (Eng) Dangogo siyaka, Gale lala, Hida refe (Or) Hayab (Sm), Karshiro (Tg)	1200–2400	Grows in moist and Wet Kolla, Dega and Weyna Dega agro-climatic zones of most regions	Food (fruit), medicine (roots), bee forage	1, 3, 4, 6, 8, 9
38	*Rosa abyssinica* Lindley (1820) **Rosaceae** Vol. 3: 35 (1989)	Mawordi, Gimtsi (Ag) Kega (Am) Abyssinian rose (Eng) Engocha (Gr) Enqoto, Gora (Hd) Enqoto, Goro (Or) Dayero (Sm) Tsege-reda-chisba (Wt)	1700–3300	TU, GD, WU, GJ, SU, HA, AR, BA	Fire wood, food (fruit), medicine (flowers, roots, fruit), live fence	1, 3, 4, 6, 8, 9

39	*Salvadora persica* L. (1753) **Salvadoraceae** Vol. 3: 354 (1989)	Dadaho (Af) Shwelsha (Ag) Aday Yeharer-mefa Qya (Am) Toothbrush tree (Eng) Geji (Nur) Aday, Aras, Rumei (Sm) Hadai (Tg)	0–1350 (<200 mmRF)**	AF, SU, HA, SD, GG, KF	Fire wood, food (fruit), medicine (latex, stem, roots), fodder (fruit, leaves) shade, soil conservation, tooth brushes	1, 2, 3, 4, 6, 8, 9, 14
40	*Sclerocarya birrea* (A. Rich.) Hochst (1844) **Anacardiaceae** Vol. 3: 519 (1989)	Didissa, Didigssa (Or) Chobwe (Nur) Gwemel (Tm)	400–1700	TU, SU, Gambella GG, SD	Food (fruit), jelly, drink (fermented fruit juice), medicine (bark)	1, 3, 4, 6, 8, 9, 13, 14
41	*Strychnos innocua* Del. (1826) **Loganiaceae** Vol. 4 (1): 76 (2003)	Adiiquala leach (Agn) Inguachia, Merenz Amburqa (Am) Oola (Gmz) Mungule (Sm) Unguaka, Unguak-Heby (Tg)	600–1100	GJ, IL, KF, SD	Food (fruit), fire wood, local tools, flavoring (additive to local brew)	1, 3, 4, 8, 9
42	*Strychnos spinosa* Lam. (1974) **Loganiaceae** Vol. 4 (1): 78 (2003)	Merenz (Am) Natal orange (Eng) Gura, Lokua (Tg) Delebdoi (Sm)	600–700	IL, TU, SU, Somaliland	Firewood, charcoal, timber (furniture, boxes), food (fruit), medicine (fruit, leaves, bark, roots), fodder (leaves), musical instruments (dry fruit shell)	1, 3, 4, 9

43	*Syzyguim guineense* (Willd.) DC. (1828) **Myrtaceae** Vol. 2 (2): 77 (1995)	Awlish (Ag) Liu (Agn) Dokma (Am) Badessa, Gosu (Or)	1200–2600	All regions	Fire wood, charcoal, timber, (general construction, furniture), poles, tool handles, carvings, food (fruit), tea substitute, (leaves), medicines (bark, roots, leaves), bee forage, dye and tannin (bark)	1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13
44	*Tamarindus indica* L. (1753) **Fabaceae** Vol. 3: 66 (1989)	Humer, Roka (Am) Tamarind (Eng) Roka (Or) Humer, Roka (Sm) Humer (Tg)	0–1500	Occurs in Bereha and Dry and Moist Kolla agro-climatic zones of most regions	Fire wood, charcoal, timber (furniture, boats, general purposes), poles, food (fruit pulp for drink, fruit, spice), medicine (bark, leaves, roots, fruit), fodder(leaves, fruit), shade, ornamental, mulch, nitrogen fixation, wind break	1, 3,4, 6, 8, 9, 14
45	*Vernonia amygdalina* Del. (1826) **Asteraceae** Vol. 4 (2): 78 (2004)	Khokhisti (Ag) Grawa (Am) Bitter leaf, tree Vernonia (Eng) Banja (Gmz) Geshi (Mjr) Aebicha (Or) Banja (Sh)	600–2700	GJ, WG, IL, SU, HA, AR, BA, SD	Fire wood, charcoal, food (leaves), medicine (roots, bark, leaves), fodder, ornamental, mulch, soil improvement, live fence, toothbrushes (stems), stakes	1, 3, 4, 6, 9, 11, 12
46	*Vitex doniana* Sweet (1827) **Verbenaceae** Vol. 5: 521 (2006)	Plem (Am) Black pulm (Eng) Kokora (Gmz) Gorke (Sh)	0–1800	GJ, WG, KF, SD	Fire wood, charcoal, timber (construction, furniture), poles, food (fruit), medicine (bark, leaves, root, fruit), fodder (leaves, fruit), bees forage, shade, dye (bark)	1, 3, 4, 6, 8, 9
47	*Warburgia ugandensis* Sprague. (1906) **Canellaceae** Vol. 2 (2): 1 (1995)	Kanafa, Zogdom (Am) East African green Heart (Eng) Befti (Or)	1300–2200	It is found in lower rain forest and drier highland forest areas in Moist and Wet Kolla and Weyna Dega agro-climatic zones of BA region, only known from the Dolomena are and part of Harana Forest.	Fire wood, timber (furniture), tools, food (seasoning), medicine (bark, roots, young twigs), fodder (leaves, fruit), shade, ornamental, mulch, resin	1, 2, 3, 4, 6, 9, 12

48	*Woodfordia uniflora* (A. Rich.) Koehne (1881) **Lythraceae** Vol. 2 (1): 396 (2000)	Mamarte (Or)	1200–2500	GD, GJ, KF, SD, BA, HA	Fire wood, farm tools and food (fruit)	1, 3, 4, 6, 9
49	*Ximenia Americana* L. (1753) **Olacaceae** Vol. 3: 356 (1989)	Tutuqa (Ag) Inkoy (Am) Viv (Brt) Hog plum (Eng) Hazte (Ga) Meyo (Gmz) Awre-mudube, Hudi (Or) Kula (Sh) Hudaye (Sm) Mlebtta (Tg) Astie (Wt)	500–2100 rarely above 2400 m	All regions	Fire wood, charcoal, timber (utensils), food (fruit), medicine (roots, bark, leaves), fodder, live fence	1, 3, 4, 6, 8, 9, 11, 12, 13, 14
50	*Ziziphus mauritiana* Lam. (1789) **Rhmnaceae** Vol. 3: 396 (1989)	Qurquran(Am) Kurkurrah (Br) Jujube (Eng) Gaba, Gabi (Nur) Qurqura (Or) Gob (Sm) Geva (Tg)	400–1600	IL, GG, BA, SD, HA	Fire wood, charcoal, timber (utensils), fodder (leaves, fruit, food (fruit), bee forage, soil conservation, live fence, fencing material, (dry branches)	1, 2, 3, 4, 6, 8, 9
51	*Ziziphus mucronata* Wild. (1809) **Rhamnaceae** Vol. 3: 393 (1989)	Geba(Ag) Ado qurqura (Am) Buffalo-thorn (Eng) Ado-qurqura (Or) Eddi-shebele (Sm) Gaba-hamaz (Tg) Ado-qurqura (Or) Gammo-gadie (Wt)	100–2100	It grows in Acacia-Terminalia, Acacia-Balanites and Boswellia woodlands and bushlands, on alluvial soils, and in dry riverine forests in all regions. It does well in Bereha and Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones of almost all regions	Firewood, charcoal, timber (farm tools, local construction), food (fruit), medicine (roots, fruit), shade, live fence, fencing material (dry branches)	2, 3, 4, 6, 8, 9, 14,

52	*Ziziphus pubescens* Oliv. (1887) **Rhamnaceae** Vol. 3: 393 (1989)	Lero (Agn) Oleme (Mjr) Riak (Nur)	300–1400 (1400–2000 mm RF)**	Grorws in Moist and Kolla Bereha, The species is common in Gambella and in the Weyto valley around Jinka	Fire wood, timber (general construction), tool handles, food (fruit), fodder (leaves)	2, 3, 4, 6, 8, 9
53	*Ziziphus spina-christi* (L.) Def. (1798) **Rhamnaceae** Vol. 3: 395 (1989)	Lang (Agn) Qurqura (Am) Atsoda (Brt) Bow (Nur) Qurqura (Or) Geba (Tg)	0–1900	Occurs in Bereha and Dry and Moist Kolla agro-climatic zones in Afar plains, Dire Dawa, HA, BA, GG, SU, WU, and TU	Fire wood, charcoal, timber (spear shafts, roof beams), furniture, utensils, food (fruit), fodder (fruit, leaves), shade, live fence, fencing material (dry branches)	2, 3, 4, 6, 8, 9, 12
54	*Urtica simensis* Steudel (1850) **Urticaceae** Vol. 3: 303 (1989)	Sama, Alablabit (Am) Saamaa (Or)	1500–3400	TU GO GJ SU AR BA SO; Apparently endemic in Ethiopia, with a closely related somewhat taller and more robust species with serrate leaves and larger stipules	Edible, eaten as a pot herb in some areas. The indication from TV is based on a sight record; a collection from this region should be made for confirmation	6, 8, 12

Note: * = Catha edulis in some highland rural areas of Ethiopia there are places where the plant is even not recognized as edible although the plant still exists. Therefore Catha edulis is better considered semi-wild edible, ** =Rain fall

Sources: 1. Flora of Ethiopia and Eritrea; 2. Peters et al. (1992); 3. Bekele-Tesemma (2007); 4. Teketay *et al.* (2010); 5. Negash (2010); 6. Asfaw & Tadesse (2001); 7. Wondimu *et al.* (2006); 8. Lulekal *et al.* (2011); 9. Friis *et al.* (2011); 10. Wassihun *et al.* (2006); 11. Fitchtl & Adi (1994); 12. Abebe *et al.* (2003); 13. Balemie & Kebebew (2006); 14. Assefa & Abebe (2011).

Appendix 2: Inspected number and proportion of indigenous wild edible plant families in Ethiopia.

S.N.	Families	Number of Species	Percentage
1	Rhamnaceae	6	0.19
2	Fabaceae	5	0.16
3	Arecaceae	3	0.09
4	Flacourtaceae	3	0.09
5	Tiliaceae	3	0.09
6	Euphorbiaceae	2	0.06
7	Ebenaceae	2	0.06
8	Salvadoraceae	2	0.06
9	Moraceae	2	0.06
10	Anacardiaceae	2	0.06
11	Sapotaceae	2	0.06
12	Loganiaceae	2	0.06
13	Annonaceae	1	0.03
14	Poaceae	1	0.03
15	Balanitaceae	1	0.03
16	Apocyanaceae	1	0.03
17	Celastraceae	1	0.03
18	Ulmaceae	1	0.03
19	Burseraceae	1	0.03
20	Boraginaceae	1	0.03
21	Myrsinaceae	1	0.03
22	Rubiaceae	1	0.03
23	Meliaceae	1	0.03
24	Vitaceae	1	0.03
25	Rosaceae	1	0.03
26	Myrtaceae	1	0.03
27	Asteraceae	1	0.03
28	Verbenaceae	1	0.03
29	Canellaceae	1	0.03
30	Lythraceae	1	0.03
31	Olacaceae	1	0.03
32	Urticaceae	1	0.03

Note: These are not the only families of wild edible plants in Ethiopia. The result is only based on 14 literatures analysed and the criteria set for analysis.