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Journal of Ethnobiology and Ethnomedicine 2009, **5**:17 doi:10.1186/1746-4269-5-17

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ISSN 1746-4269

Article type Research

Submission date 13 April 2009

Acceptance date 25 June 2009

Publication date 25 June 2009

Article URL <http://www.ethnobiomed.com/content/5/1/17>

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Ethnobotanical survey of trees in Fundong, Northwest Region, Cameroon

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Abstract

Ethnobotanical investigations were conducted in Fundong Central Subdivision in the Northwest Region of Cameroon to identify trees growing in the area and collect information on their uses by the local people. This research covered a period of 12 months from May 2007 to April 2008. Ethnobotanical information was collected through the show-and-tell / semi-structured method and personal interviews during field trips. Three villages were investigated. A total of 82 tree species were identified belonging to 70 genera and 42 families. Among these species, 40 were widely used by the local people in traditional medicine to treat 48 human ailments. Tree species were also used for fuel wood, construction materials, wood carving and honey production. Leaves and barks were commonly used in traditional medicine while the wood, branches and the entire plants were commonly used for other purposes. In spite of the scarcity of natural forests in the study area, the local populations continue to depend on indigenous and exotic trees in their surroundings for their survival. There is therefore need for cultivation, protection and sustainable management of these valuable resources for rural livelihoods.

Introduction

Ethnobotany, an area of human ecology, defines the interface between people and their forests, and offers clues needed for rural development based on sustainable yields of forest products [1]. The importance of timber and other tree products from outside forests is attracting increasing attention, to help meet growing demands and reduce pressure on natural forests and plantations [2]. Trees growing in open areas seem to have potentials to provide options for rural livelihoods and biodiversity conservation [3]. These trees can contribute to poverty mitigation serving as subsistence “safety nets” or low income “gap fillers”. In addition to environmental stabilization, trees are useful for industrial, cultural, pharmaceutical, and socio-economic purposes to man, contributing billions of dollars yearly to the world’s economy. Estimates have shown that about 90 percent of cooking and heating energy comes from trees [4]. Traditional societies in Africa and elsewhere have always used plants to promote healing and traditional medicine is still the predominant means of health care in developing countries [5-7].

The Fundong area (Boyo division) forms part of the Bamenda Highlands of Cameroon. Forest in this area is becoming so rare that it is possible to miss it entirely. Vegetation is currently dominated by grassland with patches of savannah and farms [8]. Trees growing in the open areas of this region can contribute to the wide-ranging needs of the rural people. These trees are currently used in the region for multiple purposes such as honey production, food, dye, fibre, fodder, medicines, fuel wood, building materials and production of kitchen utensils. Some of these trees have support roles for sustainable agriculture, livestock production, and hunting activities while others have cultural, religious or judicial functions. Most of the activities are major income generating. For example, collection and marketing of the wide range of non-timber products such as edible fruits, nuts, seeds and medicines [9]. The barks of some trees are used to produce ropes, straps and traditional oil containers while the woods of some are often valued for fuel wood and furniture [10].

While the knowledge on the usefulness of these plants remains high, poor methods of exploitation, agriculture and over-exploitation are putting most species under pressure of extinction. Ethnobotanical studies have reported useful plant species in Cameroon [11, 12] and in the Bamenda highlands [13-15] but no ethnobotanical surveys of trees in the open areas of Fundong have been conducted.

The purpose of this investigation was therefore to document the uses of indigenous and cultivated species of trees growing in the open areas prior to their possible elimination through urbanization, deforestation and social development.

Materials and methods

Study Area

Boyo division is made up of four subdivisions (Fundong central, Bum, Belo and Njinikom). Fundong is the divisional headquarter and comprises several villages including Baiso, Abuh, and Fujua (Figure 1). This division falls between latitudes 6° 7' and 6° 24' N and between longitudes 10° 41' and 10° 31' E ([16], Fundong Rural council 2007). It shares territorial limits with five divisions of the Northwest Region of Cameroon (Menchum, Donga-Mantung, Bui, Ngoketunjia and Mezam divisions). The landscape is hilly with steep slopes increasing the rate of erosion. Deep valleys and flat plain-like features are limited to some depressions like Baiso. The name of the division originated from a hill (2220 m above sea level) situated at Njinikom called Boyo Hill. The division has a total surface area of 1592 km² with an estimated population of about 200000 inhabitants unevenly distributed across the entire surface area with Fundong alone having 47104 inhabitants. The rainy season starts from March and ends in November, with an average annual rainfall of 1200 mm. The dry season is from December to March, with February having the highest mean monthly temperature of 23 °C. The vegetation of this area is afro-montane ranging from 500 m to 2230 m above sea level and is dominated by humid savannah with patches of sparse or thick montane forest galleries within depressions [10]. Farming is the

main economic activity in the area with coffee, cola nuts, beans, corn and Irish potatoes being the main cash crops.

Data Collection and Analysis

Field trips and collection of ethnobotanical data were carried out from May 2007 to April 2008.

Three villages were investigated in this study (Abuh, Fujua and Baiso) using the show-and-tell/semi-structured method adapted from [17]. Semi-structured questionnaires were used to interview the local population about their ethnobotanical knowledge of trees. Personal interviews and inquiries were also conducted during field trips. Interviewees were chosen without distinction of gender after seeking the consent from each respondent. People from all age groups, except children below 18 years were interviewed on their knowledge about the uses of trees in this region. The random sampling technique was used and a total of 110 questionnaires were distributed out to 70 males and 40 females in the site of the study. Information regarding the different uses of trees, parts used, origin, availability, and vernacular names was recorded. Informants were asked to name trees they knew, and to reveal the uses of the respective species. Informants often accompanied the investigators to the field to collect plant material. In cases of illiterate informants, photographs and fresh plant specimens from the field were presented to them and questionnaires were filled from their responses. Information was also recorded on the medicinal use of trees, plant parts used, diseases treated, modes of preparation and administration.

The working language was the dialect spoken in this region, Bikom, and the authors faced no language problems, one of them (Muh CN) being a native of the area. Due to the limited number of trees in the area, most people especially forestry workers knew each by name. Most plants were easily identified by their common or traditional names. Plants were initially identified by the authors and botanists from the Forestry Department, Fundong. Identifications were later validated in the Cameroon National Herbarium in Yaounde (YA). Collected specimens were

preserved in the field using standard methods proposed by [18]. Voucher specimens were collected, preserved and deposited at the University of Dschang Teaching Herbarium.

Data on plant species, families, uses, origin, availability, and vernacular names and diseases treated were entered into excel worksheets where frequencies and abundance of each species were worked out. Data regarding plant uses were summarized as proposed by [19]. The frequency of occurrence of species was calculated in percentages per quadrat. Species present in 80-100 % of quadrats were termed abundant, 60-70 % was frequent, 20-40 % was occasional or few and less than 20 % were rare.

Results

A total of 82 tree species were recorded in this study and all of them were reported as being useful in the lives of the local populations. Twenty five species did not have vernacular names amongst which 13 were exotic. Some of these species were introduced in the country during the colonial period as ornamental plants. They include *Callistemon viminalis*, *Eucalyptus globulus* and *Syzygium staudtii* from Australia, agroforestry species like *Calliandra callothyrsus*, *Leucaena leucocephala*, and *Casuarina equisetifolia* from Central America, the *Citrus* species from Southeast Asia, *Cupressus benthami* and *Pinus sylvestris* from Europe and the *Podocarpus* species from Sao Tome Island. Most of the tree species are wild (64 %) while 36 % have been cultivated. A majority of respondents indicated that they use trees to supplement their monthly income and for nutritional purposes. This study revealed some common uses of trees in the site of the study amongst which medicinal use, construction materials, handicraft and fuel wood were the most important (Additional file 1). The most commonly used plant parts were wood, branches, barks and fruits. In some cases the entire plant was useful.

A total of forty species (49 % of identified species) were used to treat 48 human ailments in the area of study. Treatments were administered topically, orally, by inhalation and as steam baths. The oral route was the most frequently used route of administration (74 %) while inhalation was the least (4.6 %). The leaves (42 %) and stem barks (36 %) were the most popular plant parts used in the various herbal preparations while roots, seeds and fruits were used occasionally. Flowers, nuts, latex and resins were rarely used. Decoctions, macerations and concoctions, necessitating a mixture of several plants are commonly used in treating malaria, infertility, typhoid, yellow fever, diarrhea, constipation, epilepsy, piles and sexually transmitted diseases (Additional file 1). Wounds, fractures, boils and other skin diseases are treated topically. The Bignoniaceae and Apocynaceae are the most represented families in terms of medicinal plant diversity. The most frequent plant species used include *Carica papaya*, *Prunus africana*, *Rauvolfia vomitoria*, *Kigelia africana*, *Spathodea campanulata* and *Psidium guajava*. *Prunus africana* is the most threatened medicinal plant in this area. The bark of *Bersama abyssinica* and seeds of *Carica papaya* are used as vermifuges (to repel intestinal worms) while the leaves of *Bridelia speciosa* are helpful in the treatment of diabetes. The roots and barks of *Rauvolfia vomitoria* are used throughout the area to calm mental patients.

Discussion

Virtually all trees identified in the different families are useful in one way or the other in the lives of the rural population. Most species serve more than one function, for example in addition to its main function as fuel wood, *Bridelia speciosa* is widely used by the people in the manufacturing of tool handles (hoes, spears, axes, cutlasses and knives). Parts of this plant are also applied in traditional medical preparations for diabetes and constipation. Other species of the genus *Bridelia* have been reported elsewhere in Cameroon as important medicinal plants. For example, Focho et al. [7] report that the Aguambu-Bamumbu people use *B. micrantha* to treat cough and chest complaints. Adjanohoun et al [11] reported the use of young shoots of *B. atroviridis* to treat constipation. In addition to the use of *Eucalyptus globulus* as timber, this plant is the main source of fuel wood in the study region. Its leaves are also used in the preparation of remedies for cough and other diseases. *Ficus chlamydocarpa*, *F. elastica*, *Millettia courauri* and *Markhamia tomentosa* are other such multipurpose plants. Because of the relatively high population density of Fundong, land ownership disputes are common. Several *Ficus* species are used traditionally to demarcate boundaries. Fuelwood is an important commodity in the region and Fundong people cover great distances to collect it. Of the 82 species recorded 30 are used as fuelwood. The main species used are *Albizia gummifera*, *Schefflera manii*, *Nuxia congesta*, *Gmelina arborea*, *Eucalyptus globulus* and *Pinus sylvestris*. Some like *Nuxia congesta* are becoming rare but are still collected for fuelwood. Bussmann et al. [20] have also reported that *Albizia gummifera* is an important source of firewood among the Maasai in Kenya. *Voacanga africana* is used in the area of study only for medicinal purposes. It is so much exploited for medicine that it has become a rare plant. Most of the trees recorded are considered to be few or rare. This is an indication of unsustainable methods of exploitation of these resources.

The application of leaves and stem barks in most herbal preparations can be attributed to the fact that these organs are known to accumulate in high concentrations, active components of most herbal preparations. These components which have been shown to relieve disease conditions in

patients include alkaloids, tannins and inulin [21]. Leaves have also been reported to be the most commonly used plant part in other parts of Africa [22]. Trees are used to treat ailments ranging from common cold to complex pathological disorders relating to poor blood circulation, gastrointestinal diseases, respiratory ailments, genital-urinary system as well as infertility, impotence, rheumatism and asthma. Some plants are used to treat more than one disease. For example, *Jatropha curcas* is used to treat epilepsy, gastritis, wounds, poisoning, mental disorders and as an abortifacient, *Spathodea campanulata* is used to treat malaria, mental disorders and hemorrhoids and *Kigelia africana* is effective in the treatment of male sexual impotence, rheumatism, pneumonia, wounds, filaria and cataract. The main methods of preparation of remedies were decoctions and concoctions while the mode of administration was oral for internal infections and topical for skin diseases.

Some of the species identified in this study have been reported to treat the same ailments elsewhere in Cameroon. Adjanooun et al. [7] also reported the use of *Ficus exasperata* in the treatment of hemorrhoids in some parts of Cameroon. *Mangifera indica*, *Carica papaya*, *Citrus aurantifolia*, *Psidium guajava*, *Kigelia africana*, *Markhamia tomentosa* and *Spathodea campanulata* are used to treat ailments of the reproductive system in parts of West Africa [23], [24]. Similar uses of these plants in the Bamenda Highlands have been documented by Tame and Thomas [25]. The study has revealed that medicinal plants still play a vital role in the primary health care of the people of Fundong.

Some individuals have created forests of *Eucalyptus* species for the production of electric poles and fuel wood. Others grow *Casuariana* and *Pinus* species extensively for Christmas trees and fuel wood. However, there are no state run plantations in the country for their cultivation.

Conclusion

Many people in Fundong still depend on plants growing around them for most of their needs. The younger generations in this region are more interested in western lifestyles but some

indigenous knowledge of plants still remains. Of the 82 tree species identified in the area of study, 40 are used to treat common ailments. All of the species are utilized by the local people to improve their livelihoods. The population has to be educated on propagation and conservation of the plants especially those used to treat the most common ailments.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All the authors participated in the field work and in the preparation of the manuscript. DAF and MCN identified the plant specimens in the field before validation in the National Herbarium. All the authors participated in the analysis of data.

Acknowledgements

The authors gratefully acknowledge the collaboration of the forestry workers and villagers of Abuh, Fujua and Baiso during the study, and botanists at the Cameroon National Herbarium for their help in validating the identities of specimens.

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Figure legends**Figure 1. Map of Boyo region****Additional files**

Additional file 1

File format: PDF

Title: Supplementary table

Description: Ethnobotany of trees in Fundong.

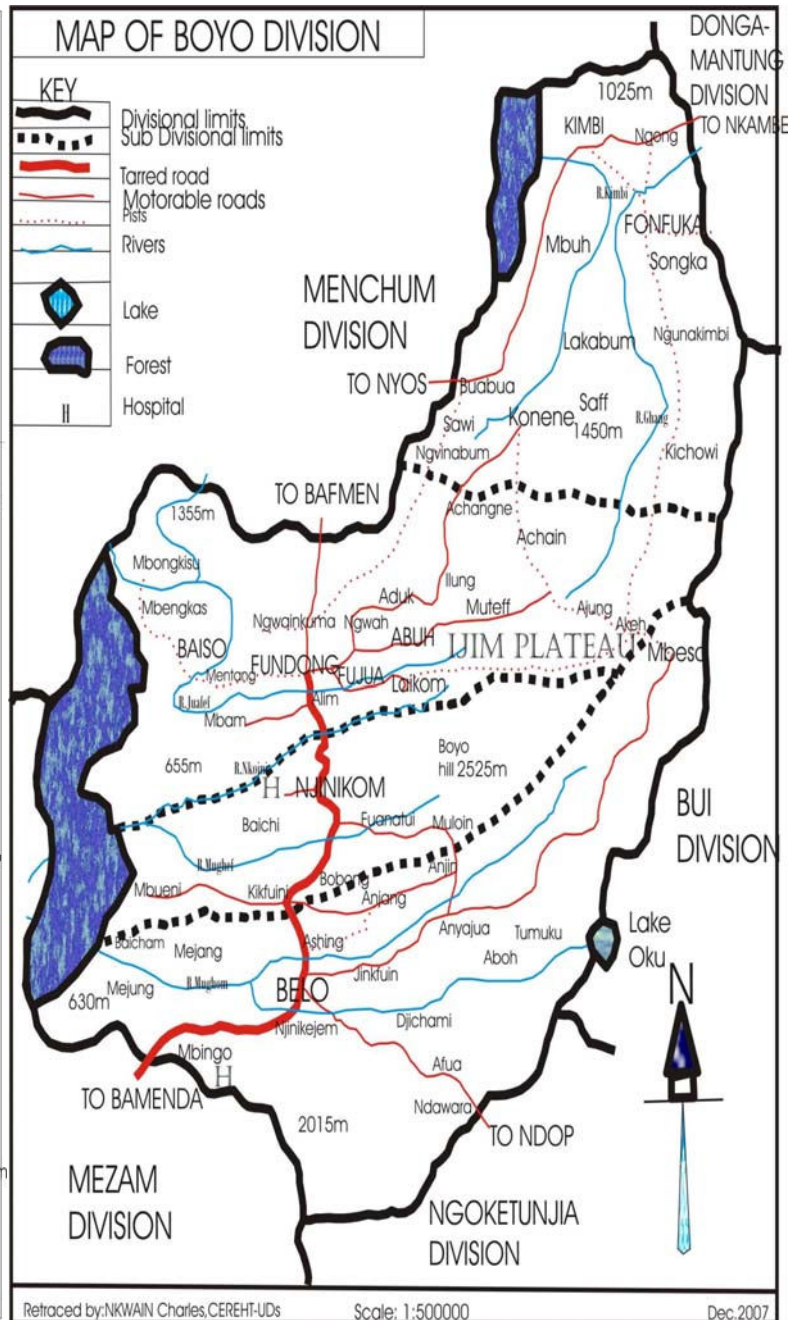
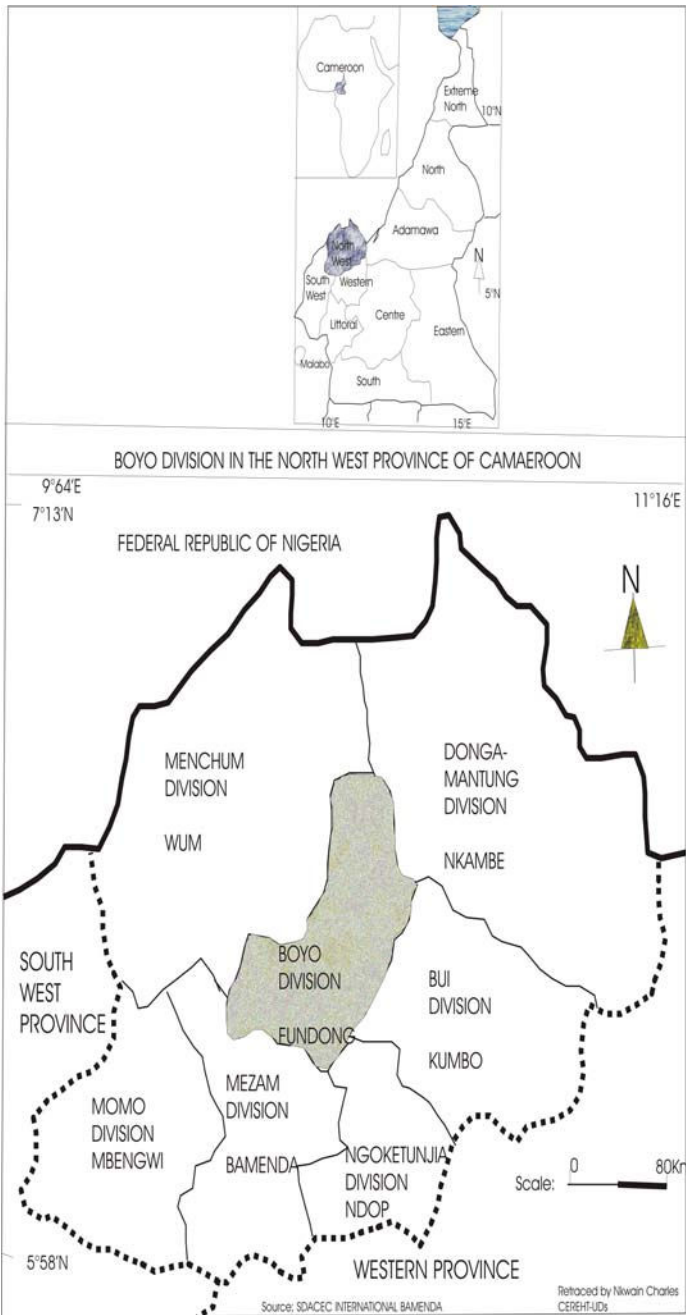


Figure 1

Additional files provided with this submission:

Additional file 1: table 1.pdf, 101K

<http://www.ethnobiomed.com/imedia/1658684667283245/supp1.pdf>

Table 1: Ethnobotany of trees in Fundong

No. spp	Family/ Species	Common/ local name	Habitat	Observation	Traditional uses	Freq	Parts used in medicine	Diseases treated	Preparation and Administration
1	Agavaceae <i>Dracaena arborea</i> Baker	Anchochom	IS	Available	Grown in compounds as a panacea for witchcraft. Wood carving, Construction of bridges, Musical instruments	8	Leaves Whole plant	Liver disorders Witchcraft	Decoction is taken orally. Plant is grown in the compound.
2	Anacardiaceae <i>Mangifera indica</i> L.	Mango tree	ES	Available	Fruits are eaten, Medicine Agroforestry, Honey production,	26	Bark Leaves	Dental caries Syphilis, Malaria, Typhoid fever	Pulverized bark is applied topically or hot decoction is used as mouth wash. Concoction with the bark of <i>Persea americana</i> is taken orally.
3	Annonaceae <i>Annona muricata</i> L.	Sweetsop	IS	Available	Used in agroforestry systems, Fruits are eaten	5			
4	Annonaceae <i>Annona squamosa</i> L.	Soursop	IS	Few	Fruits are eaten, Used in agroforestry	9			

					systems					
5	Annonaceae <i>Artocarpus altilis</i> (Pakinson) Fosberg	Bread fruit	IS	Few	Fruits are eaten, Provides timber and shade in farms, Medicine	3				
6	Apocynaceae <i>Alstonia boonei</i> De Wild	-	IS	Few	Fuelwood, Medicine	17	Roots	Epilepsy	Decoction is taken orally.	
							Bark	Mental retardation, malaria, hernia	Cold infusion is taken orally or as enema until healed.	
							Latex	Snake bite	Latex of stem is applied topically.	
7	Apocynaceae <i>Rauvolfia vomitoria</i> Afzel.	Ijah	IS	Few	Medicine, Honey production	27	Root bark	Snake bite	Paste is applied topically.	
							Bark	Hypertension,	Decoction is taken orally.	
							Leaves	Menstrual pains, Intestinal worms	Pulverized with water is taken as an enema.	
8	Apocynaceae <i>Voacanga africana</i> Stapf.	Utong	IS	Rare	Medicine	23	Bark	Poisons	Bark decoction is taken orally.	
							Fruits	Vision	Juice is used as eye drop.	
							Leaves	Gonorrhoea	Concoction with <i>Vitex doniana</i> fruits is taken	

							Roots	Carious teeth	orally. Pulverized root bark is applied topically.
9	Araliaceae <i>Polyscias fulva</i> (Hiern) Harms	Umbrella tree	IS	Few	Wood carving, Medicine, Honey production, Musical instruments	17	Leaves Bark	Jaundice, Headache Pneumonia	Infusion is taken orally. Concoction with <i>Pennisetum purpureum</i> is taken orally.
10	Araliaceae <i>Schefflera abyssinica</i> Horst.Ex. A. Rich.	Uwoh	IS	Available	Honey production, Fuelwood, Construction	3			
11	Araliaceae <i>Schefflera manii</i> (Hook.f.) Harms	Uwos	IS	Many	Construction, Honey production, Fuelwood	7			
12	Arecaceae <i>Cocos nucifera</i> L.	Coconut palm	IS	Few	Fruits are eaten, Fuelwood, Agroforestry	7	Fruit Root	Difficult lactation, Dandruff, Scabies. Liver ailments	Fruits are eaten. Decoction is taken orally.
13	Arecaceae <i>Elaeis guineensis</i> Jack.Jack	Asomme	ES	Available	Fuelwood, Fruits are eaten, Agroforestry, Honey production,	15	Wine Kernel oil	Difficult lactation Anticonvulsant,	Fresh wine is drunk Oil is applied on the body and is taken orally with

					Medicine		Nuts	Dysentery	salt. Nuts are eaten with pulverized leaves of <i>Psidium guajava</i>
14	Arecaceae <i>Phoenix dactylifera</i> L	Date palm	ES	Few	Ornamentals	12			
15	Bignoniaceae <i>Kigelia africana</i> (Lam.) Benth.	Atem	ES	Few	Medicine, Honey production	31	Bark, Fruits	Male sexual impotence Rheumatism, Pneumonia, Wounds, Filaria	Decoction is taken orally. Concoction with lime is taken orally.
16	Bignoniaceae <i>Markhamia lutea</i> (Benth) K. Schum ex Engl	Eyngweh atum	IS	Few	Tool handles and wood carving, Honey production, Shade	2			
17	Bignoniaceae <i>Markhamia tomentosa</i> K. Schum ex Engl ex	Eyngueh	IS	Few	Tool handles and wood carving, Honey production	6	Bark	Male sexual impotence	Decoction is taken orally.

	Engl				Fuelwood, Planted on boundaries, Medicine				
18	Bignoniaceae <i>Spathodea campanulata</i> P. Beauv	-	IS	Few	Fuelwood, Medicine	18	Bark Leaves	Malaria Mental disorders Haemorrhoids	Decoction is taken orally. Drop cold infusion into nostrils. Pulverized leaves are applied topically
19	Bixaceae <i>Bixa orellana</i> L.	Lipstick tree	IS	Few	Red pigment is used as a natural lipstick and in traditional ceremonies	5			
20	Boraginaceae <i>Cordia millenii</i> Bak	-	IS	Available	Fuelwood, Mecicine	4	Leaves	Convulsion in children	Concoction with <i>Centella asiatica</i> is taken orally.
21	Burseraceae <i>Canarium schweinfurthii</i> Engle	Ambah	IS	Few	Fruits are eaten, Honey production, Timber for consruction, Agroforestry.	15	Resin	Chest pain	Pulverized resin mixed with palm oil is taken orally.
22	Burseraceae <i>Dacryodes edulis</i> (G. Don) H.J. Lam	Ajong	IS	Few	Fruits are eaten Agroforesty, Honey production.	18	Leaves	Convulsion in children	Concoction with <i>Centella asiatica</i> is taken orally.

23	Caesalpinaceae <i>Cassia leptophylla</i> L	-	ES	Available	Ornamentals, Honey production, Fodder	16			
24	Caricaceae <i>Carica papaya</i> L.	Pawpaw	ES	Available	Fruits are eaten, Medicine, Honey production, Insecticides	34	Seeds, Fruits Leaves Seeds	Round worms, Diabetes, Anaemia, Asthma Malaria, Jaundice Dysentery	Seeds are chewed and juice from ripe fruits is taken orally. Dry leaves are taken as tea. Concoction with <i>Cymbopogon</i> <i>citratuss</i> is taken orally Seeds are chewed with salt.
25	Casuarinaceae <i>Casuarina</i> <i>equisetifolia</i> Forssk.	-	ES	Few	Ornamental, Shade, Timber for constructing materials	7			
26	Combretaceae <i>Terminalia catapa</i> L.	Shade tree	IS	Few	Shade, Medicine	11	Leaves	Diabetes Diarrhea	Infusion or maceration is orally taken. Pulverized leaves mixed with kernel oil are taken orally.
27	Cupressaceae	Cypress	ES	Available	Timber for	21			

	<i>Cupressus benthamii</i> Gord.				construction, Fuelwood, shade, Honey production, Insecticides.				
28	Ericaceae <i>Agauria salicifolia</i> Hook.f. Olive.	Ling	IS	Available	Fuelwood, ropes and construction material	11	Leaves, Bark	Syphilis	Decoction is taken orally
29	Euphorbiaceae <i>Aleurites montana</i> (Lour.) H.E.Wilson	Jung tree	IS	Rare	Ornamental, Shade	3			
30	Euphorbiaceae <i>Bridelia speciosa</i> Mull. Arg.	Sem	IS	Few	Tool handles, Fuelwood, Medicine	5	Leaves	Diabetes, constipation	Maceration or infusion of leaves is taken orally.
31	Euphorbiaceae <i>Croton macrostachyus</i> Hochst.ex Delile	Ejuam	IS	Many	Wood carving, Tool handles, Fuelwood, Insecticide, Honey production.	10	Bark	Pneumonia	Decoction is taken orally.
32	Euphorbiaceae <i>Jatropha curcas</i> L.	-	ES	Few	Medicine	9	Roots Leaves Seeds Latex	Epilepsy Gastritis Abortifacient, Mental disorders	Decoction is taken orally Maceration is taken orally with lemon. Seeds are burnt and eaten. Pulverized dry seeds are taken orally

								Wounds	Latex is applied topically.
								Poisoning	Pulverized seeds are eaten with food.
33	Euphorbiaceae <i>Ricinodendron heudelotii</i> (Bails.) Heckel	Njangsang	IS	Few	Food additive, Timber	11			
34	Euphorbiaceae <i>Sorindeia mibroedi</i> Engle & Brehmer	-	ES	Few	Ornamentals, Shade	3			
35	Guttiferae <i>Garcinia kola</i> Heckel. Engle	Ibi-aku	ES	Few	Fruits are eaten, Timber, Medicine	9	Fruits Root bark	Aphrodisiac, Gastritis Tuberculosis Asthma	Fruits are eaten. Decoction is taken orally.
36	Huaceae <i>Afrostrirax lepidophyllus</i> Dougl.ex.Loud	Fulum	IS	Few	Food additive, Agroforestry	7			
37	Ixoraceae <i>Ixora foliosa</i> Hiern.	Fegvu	IS	Many	Fuelwood, Construction materials	19			
38	Lauraceae <i>Persea americana</i> Mil.	Pear tree	ES	Available	Medicine, Fruits are eaten Agroforestry, Seeds are used in dyeing activities	30	Leaves	Hypertention Jaundice	Decoction with a bit of salt is taken orally Decoction is taken orally
39	Loganiaceae	Fighia	IS	Rare	Musical	7			

	<i>Nuxia congesta</i> R.Br.ex.Fresen.					instruments, Honey production, Fuelwood				
40	Meliaceae <i>Azadirachta indica</i> L.	Neem	IS	Few		Medicine, Timber for construction	7	Leaves Bark	Skin diseases Malaria	Decoction or infusion is taken orally or as a bath. Decoction is taken orally
41	Meliaceae <i>Carapa grandiflora</i> Sprague	Evin	ES	Few		Timber for construction, Fuelwood	11			
42	Meliaceae <i>Chlorophora excelsa</i> Benth and Hook f.	Iroko	ES	Few		Timber for construction, Medicine, Wood carving	3			
43	Meliaceae <i>Entandrophragma cylindricum</i> Sprague	Mahogany	IS	Few		Timber for construction, Fuelwood	14			
44	Meliaceae <i>Khaya senegalensis</i> (Desr.) A. Juss.	Mahogany	IS	Rare		Timber, Fuelwood	11			
45	Melanthaceae <i>Bersama abyssinica</i> Fresen	-	ES	few		Fuelwood, Medicine	2	Bark	Round worms	Decoction is taken orally
46	Mimosaceae <i>Acacia spectabilis</i> A.Cunn.ex.Benth.	-	ES	Available		Ornamentals, Improve soil fertility, Fodder	19			

47	Mimosaceae <i>Albizia gummifera</i> (J.F.Gmel) C.A.	Fuwem	IS	Few	Fuelwood, Tool handles, Medicine	7	Bark , Leaves	Constipation, Bile Filaria, eye pains Abdominal pains	Decoction is taken orally Decoction is taken orally and as eye drop.
48	Mimosaceae <i>Calliandra calothyrsus</i> Meissn.	-	ES	Available	Ornamentals, Green manure, Fodder	28			
49	Mimosaceae <i>Leucaena leucocephala</i> Lam. De Wit	-	ES	Available	Green manure, Agroforestry	29			
50	Moraceae <i>Ficus chlamydocarpa</i> (Warb) ex Mildbr. & Burret	Fig tree	IS	Rare	Fruits are used to feed domestic animals and birds, Planted on boundaries	17			
51	Moraceae <i>Ficus elastica</i> Robx.	Male stick	IS	Available	Latex used to set traps for birds, Produces gum Food for livestock Planted on boundaries	13			
52	Moraceae <i>Ficus exasperata</i> Vahl.	Sand-pepper tree	IS	Available	Sponge for cleaning household	7	Leaves	Haemorrhoids (Piles), Boils Ringworms	Pulverized leaves are applied topically

					utencils, Medicine			Chest pain	Scrape affected part with leaf. Pulverized dried leaves are taken orally
53	Moraceae <i>Ficus natalensis</i> Hochst.	Fegvum	IS	Few	Timber for construction, Shade	3			
54	Moraceae <i>Ficus vogelii</i> (Miq.) Miq	Aloin	IS	Few	Fodder, Life fences	1			
55	Myrsinaceae <i>Maesa lanceolata</i> Forssk	Seim	ES	Rare	Fuelwood, Medicine	13	Fruits	Ascaries and round worms	Crushed fruits are orally taken as a single dose
56	Myrtaceae <i>Callistemon viminalis</i> L.	-	ES	Few	Ornamentals, Shade, Boundaries, Timber for construction.	12			
57	Myrtaceae <i>Eucalyptus globulus</i> (Labill.) Pers	Gum tree	ES	Available	Timber for construction, Fuelwood, Shade, Medicine	10	Flowers Leaves	Cough Catarrh asthma malaria, Jaundice	Cold infusion or decoction is taken orally Decoction is taken orally
58	Myrtaceae <i>Psidium guajava</i> L.A	Futam	IS	Available	Fruits are eaten, Medicine, Tool handles	23	Leaves	Dysentery Diarrhoea	Pulverized leaves are eaten with the nuts of <i>Elaeis guineensis</i> . Maceration is

							Jaundice, Cough	taken of young leaves is taken orally.
							Catarrh, Gonorrhoea	Concoction with <i>Prunus africana</i> is orally taken.
59	Myrtaceae <i>Syzygium staudtii</i> (Engl.) Mildbr.	Ugweih	IS	Few	Honey production , Wood carving, Fuelwood	11		
60	Papilionaceae <i>Entada abyssinica</i> Steud ex Rich	Felvung	IS	Rare	Medicine, Fuelwood	11	Bark	Gonorrhoea Syphilis, Candidiasis, Male and Female infertility
61	Papilionaceae <i>Erythrina excelsa</i> (Welw.) C.DC.	Sapelli	IS	Available	Ornamental, Shade and Construction	7		
62	Papilionaceae <i>Millettia conrauri</i> De wild	Efume	IS	Few	Wood carving, Bark is used to make oil Containers and coffins for traditional leaders, Medicine	13		
63	Papilionaceae <i>Newtonia</i>	Aloni	IS	Available	Wood carving, Tool	1		

	<i>buchananii</i> Baker				handles, Fuelwood				
64	Papilionaceae <i>Pterocarpus soyauxii</i> Taub.	Cam wood	IS	Few	Red pigment is used in traditional marriages, Timber	21	Bark	Madness Anaemia Against evil spirits	Put pulverized bark into nostrils. Decoction is taken orally Powdered bark is taken orally
65	Pinaceae <i>Pinus sylvestris</i> Dougl.ex Loud	Pine	ES	Few	Timber, Shade, Fuelwood	9			
66	Podocarpaceae <i>Podocarpus mannii</i> Thunb.	Nkeng	IS	Many	Timber, Ornamentals, Fuelwood	16			
67	Podocarpaceae <i>Podocarpus latifolius</i> (Thunb) Mirb.	Nkeng-aku	IS	Available	Timber, Ornamentals, Fuelwood	3			
68	Proteaceae <i>Grevillea robusta</i> A.Cunn.	-	ES	Available	Honey production, Timber for construction, Shade	21			
69	Rhamnaceae <i>Maesopsis eminii</i> Engl.	Fang kijem	ES	Available	Timber, Shade, Fuelwood, Medicine	17			
70	Rosaceae	Kanda stick	ES	Many	Fuelwood,	29	Leaves	Hypertention	Decoction with a

	<i>Prunus africana</i> (Hook.F.) Kalkman				Timber, Medicine			Jaundice	bit of salt is taken orally. Decoction is taken orally.
71	Rutaceae <i>Citrus aurantifolia</i> Swingle	Lime	ES	Few	Fruits are eaten, Agroforestry plant	5	Leaves Fruits	Abdominal pains Filaria	Decoction is taken orally. Juice is applied on the body after a bath.
72	Rutaceae <i>Citrus limon</i> Meyer	Grape	ES	Few	Fruits are eaten, Agroforestry	5	Fruits Leaves	Cough, Loss of appetite Goitre, impotence	Juice from ripe fruits is taken orally. Maceration of leaves is taken orally.
73	Rutaceae <i>Citrus paradisi</i> Gros Sujet.	Lemon	ES	Available	Fruits are eaten, Agroforestry	14	Fruit	Tuberculosis	Juice is taken orally.
74	Rutaceae <i>Citrus sinensis</i> L.	Orange	ES	Available	Fruits are eaten, Agroforestry	10	Fruit Leaves	Tuberculosis Malaria	Juice is taken orally Concoction with <i>Bidens pilosa</i> and <i>Carica papaya</i> is taken orally.
75	Sapindaceae <i>Allophylus bullatus</i> Radlk	-	IS	Few	Ornamental, Timber for construction	8			
76	Solanaceae <i>Cyphomandra</i> <i>betacea</i> (Cav)	Ajuanjongna	IS	Few	Fruits are eaten	9			

Sendt.									
77	Solanaceae <i>Solanum torvum</i> L.	Finyiah	IS	Available	Grown in farms as a panacea for witchcrafts, Medicine	13	Fruit, bark Leaves Fruits, roots	Infertility Gastritis Pneumonia	Decoction is taken orally. Leaves are chewed with limestone. Pulverized roots and fruits in water are taken orally.
78	Sterculiaceae <i>Cola acuminata</i> (P.Beauv.) Scohott and Engl.	Ibi (Cola nut)	IS	Available	Fruits are eaten, Agroforestry, Medicine, Seeds used to dye traditional equipment	33	Bark Fruits	Gonorrhoea Cough	Decoction is taken orally. Fruits are eaten.
79	Thymeleaceae <i>Gnidia glauca</i> (Fresen.) Grilg.	Ejeo	IS	Available	Fuelwood, Construction materials	11			
80	Ulmaceae <i>Trema guineensis</i> (L.) Blume.	Fang kom	IS	Few	Toolhandles, Fuelwood, Medicine	21	Leaves	Male and female infertility	Maceration or infusion is taken orally
81	Verbenaceae <i>Gmelina arborea</i> L.	Abiuuy	ES	Few	Timber for construction, Fuelwood, Tool handles	7			
82	Verbenaceae <i>Vitex doniana</i> Schum. & Thonn.	-	IS	Few	Timber, Fuelwood, Medicine	7	Bark	Syphilis	Concoction with bark of <i>Voacanga africana</i> is taken orally

Habitat: ES = Exotic species, IN = Indigenous species, IS = Introduced species.

No. spp: number of species Freq: frequency of respondents