

Full Length Research Paper

Medicinal plants of Aguambu – Bamumbu in the Lebialem highlands, southwest province of Cameroon

Focho, D. A.^{1*}, Ndam, W. T.¹ and Fonge, B. A.²

¹Department of Plant Biology, University of Dschang, P. O. Box 67, Dschang, Cameroon.

²Department of Plant and Animal Sciences, University of Buea, Cameroon.

Accepted 19 March, 2011

Ethnobotanical investigations were conducted in Aguambu – Bamumbu Village in Wabane Subdivision (Lebialem Division), Southwest Province of Cameroon to identify the different medicinal plants used in the traditional pharmacopoeia for the treatment of diseases affecting the human body. Ethnobotanical information was collected through questionnaires and personal interviews during field trips. A total of 248 respondents were interviewed and 133 medicinal plants belonging to 59 families identified and documented. Among these plants, 55 were used to treat ailments of the digestive system, 49 for ailments of the urinary - genital system, 25 for ailments of the nervous system, 11 for ailments of the respiratory system and 3 for ailments of the cardiovascular system. The modes of herbal drugs preparation were concoctions, decoctions, macerations and infusions. The most frequently used plant parts were the leaves.

Key words: Ethnobotany, medicinal plants, biodiversity, Lebialem highlands.

*Corresponding author: E-mail: dfocho@yahoo.co.uk.

INTRODUCTION

Traditional societies in Africa and elsewhere have always used herbs to promote healing (Bussmann, 2006). According to Okoli et al. (2007), traditional medical practices on the African continent date as far back as 4000 years and were the sole medical system for health care before the advent of orthodox or modern medicine. Even today, traditional medicine is still the predominant means of health care in developing countries where about 80% of their total population depends on it for their well being (WHO, 1978). Plants are the basis for the development of modern drugs and medicinal plants have been used for many years in daily life to treat diseases all over the world (Ates and Erzdogrul, 2003). However, the knowledge of medicinal plants is rapidly dwindling due to the influence of western lifestyles, reduction in number of traditional healers and lack of interest of the younger generations to carry on the tradition (Bussman et al., 2006; Muthu et al., 2006).

Ethnobotanical investigations carried out in Cameroon in 1996 covered many parts of the country but left out certain regions despite their richness in medicinal plants.

An example of such a region is the Bamumbu region in Wabane subdivision (Adjanohoun et al., 1996). The region was declared unfit for human habitation after a landslide in 2003 killed 21 people and destroyed agricultural products and domestic animals (Zogning et al., 2007). There is no functioning government or private health centre in the region. People trek for about sixteen kilometres to consult a medical doctor. The natives therefore depend on traditional medicine for the treatment of ailments prevalent in the region. The traditional healers operate in organized traditional healing homes. In this area systematic ethnobotanical survey has not been done. The objective of this study was to interact with local traditional healers and villagers and document indigenous knowledge on medicinal plants, their usage and the type of diseases treated.

MATERIALS AND METHODS

Study area

Lebialem is located in the North Eastern part of the Southwest Province of Cameroon (Latitudes 5°38' N and 5°43' N and between Longitude 9°58' E and 10°27' E). Wabane Subdivision where the study site is located has a surface area of about 298 km² (Figure 1).



Figure 1. Study area.

It is found on the western slope of the Bamboutos Mountain located between latitudes 5°38 N and 5°43 N and longitudes 9°58 E and 10°06 E. The climate of this region is similar to that of the Cameroon mountain range which is characterized by high winds and low sunshine. The average daily temperature varies very much with season and ranges from 17 to 32°C (Nkempi, 2004). The average annual rainfall is between 2000 and 3000 mm. There are a few patches of montane forest dotted within the topographical range of 1600 to 2550 m and the dominant vegetation is grassland. The forest is dominated with mostly *Adenocarpus mannii*, *Agauria salicifolia*, *Chytranthus gillettii*, *Gambeya africana* and *Schefflera barteri*. This forest was once home to the famous *Prunus africana*

Collection of information

Ethnobotanical information was collected in Aguambu using the method described by Jovel et al. (1996), consisting of general conversation and questionnaires. Methods of selecting informants depended on the distribution of the local people having folk knowledge. The respondents were local traditional healers and villagers who had practical knowledge of medicinal plants used as herbal remedies. Informants were asked to collect plant specimens they knew and used in the treatment of diseases in the area. They accompanied the researchers to the field to identify the various plant species when they were not growing or cultivated near their homes. Field trips were made between June to October 2007. A total of 248 informants aged 20 and above comprising 67% males and 33% females were interviewed. Of the 248 informants, 97 (39%) were traditional medical practitioners. The data collected included local names of the plants, diseases treated, the plant parts

but due to over exploitation, the tree has almost become rare. The soil is very fertile and of volcanic origin (Zogning et al., 2007).

Wabane has a rural population of about 30,000 inhabitants living in isolated homes dotted on mountain tops comprised of the Mundani clan who speak the mundani dialect. The people rely mostly on agriculture for daily life and as a source of income. Most of the forests in the region have been degraded and transformed to farmland and people trek long distances to collect medicinal plants. Some important medicinal plants are limited to sacred forests which are accessible only to a selected group of persons. Since some of the major medicinal plants have become rare, the natives have started domestication of plants like *P. africana*.

used, the methods of herbal drug preparation and administration. Standard methods were used in plant material collection, drying, mounting, preparation and preservation (Jain and Rao, 1976). Plants were identified by their vernacular names and later validated at the Cameroon National Herbarium Yaoundé (YA). Voucher specimens were deposited in the University of Dschang Teaching Herbarium.

RESULTS

Table 1 gives the percentages of respondents in terms of their ages. It shows that the respondents are mostly in the age group of 60 years and above (44%). The youths are the least represented.

Table 2 gives the scientific name/family, local name, parts used, diseases treated, mode of preparation and

Table 1. Percentages of respondents in Aguambu according to their age group.

Age group (Years)	Number of respondents	Percentage of respondents
Youths (20-39)	41	17%
Adults (40-59)	97	39%
Elderly (60-above)	110	44%

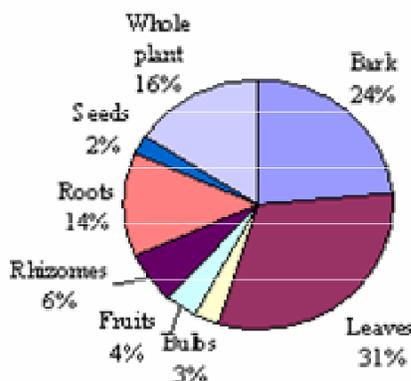


Figure 2. Percentages of parts of plants used.

administration of medicine and the frequency of citation for the different medicinal plants. A total of 133 medicinal plants belonging to 59 families are documented.

In Table 3, the plant species are regrouped according to the ailments they are used to manage. It indicates that some of the plants are multipurpose species used in the treatment of several different ailments. Also, diseases of the digestive system are treated with up to 55 different plant species and only one species is used to treat diabetes. Figure 2 gives the percentages of plant parts used. The leaves are the most commonly used plant parts while seeds and bulbs are the least used.

DISCUSSION

The older generation (44%) is the custodians of traditional knowledge on medicinal plant uses while the younger generation (17 %) shows little interest in the practice of the tradition (Table 1). The government's declaration of the region as being unsuitable for human habitation after the 2003 landslides (Zogning et al., 2007), is causing an exodus of the population into bigger neighbouring towns. There is fear that indigenous ethnobotanical knowledge is rapidly being lost in the region because of an increasing western lifestyle among the people. Other authors have reported the gradual disappearance of indigenous knowledge in other parts of the world. For example, among the Igede people of Nigeria (Igoli et al., 2005), Waluguru people in East Uluguru Mountains in Tanzania (Mahonge et al., 2006), Embu and Mbeere peoples of Kenya (Kareru et al.,

2007), in Sabu Wuse of Niger state, Nigeria (Ibrahim et al., 2007), and among the people of District Attock (Pungals) of Northern Pakistan (Ahmed et al., 2007).

Leaves (31%) were the most popular plant part used in the various herbal preparations, followed by the stem bark (16%) and whole plant for herbs (14%) while seeds (2%) and bulbs (3%) were the least used (Figure 2). Leaves are known to accumulate alkaloids, tannins and inulins which are active components of most herbal preparations (Okoegwale and Omefezi, 2001). Leaves have also been reported to be the most commonly used plant part in other parts of Africa (Mahonge et al., 2006). The main methods of preparation of remedies were decoctions, concoctions and infusions while the mode of administration was oral for internal infections and topical for skin diseases.

The study revealed that 133 plant species belonging to 59 families and 116 genera were identified as medicinal plants endemic in Aguambu (Table 2). The results further revealed that the Asteraceae (15 species) was the most commonly used plant family in the area of the study. Other important families were Lamiaceae (7 species), Rubiaceae (6 species), Zingiberaceae (5 species), Acanthaceae (3 species), Apocynaceae (3 species) and Mimosaceae (3 species). The plants were used to treat ailments ranging from common cold to complex pathological disorders relating to poor blood circulation, gastro-intestinal diseases, respiratory ailments, problems of the urinary system as well as infertility. Seventy-three diseases grouped into 17 major conditions were prevalent in the region (Table 3). The digestive system had the highest number of herbal plants used for its treatment (55), followed by urinary-genital system (49) and central nervous system (25) while only one plant was used for the management of diabetes. The high prevalence of digestive ailments may be due to the lack of portable water in the region resulting in high occurrence of water borne diseases.

Ternstroemia sp (162 citations) was a multipurpose medicinal plant used in the treatment of many disease conditions including anemia, stomach ulcers, vomiting, urinary tract infections, infertility and epilepsy. It was used either singly or in combination with other medicinal plants. According to Igoli et al. (2005), the joint use of multiple medicinal plants could be due to synergistic or additive effects of constituents. The other most utilized medicinal plants were *Albizia adianthifolia* (139 citations), *Agauria salicifolia* (124 citations) and *P. africana* (111 citations). These plants should be encouraged for propagation and

Table 2. Documentation of ethnomedicines, treatment and plant uses by the Aguambu and Bamumbu people.

N°	Species and Family Names	Local names	Parts used	Diseases treated/uses	Preparation and administration	Freq*
1	<i>Acanthus montanus</i> (Nees) Anders (Acanthaceae)	Nsumelab	Leaves	Inflammations Menstrual irregularities,	Fresh plant is used to scratch the leg Maceration of leaves is taken orally	13
2	<i>Adenia cissampeloides</i> Harms. (Passifloraceae)	Nlig-akom	Whole plant	Stomach cramps	Fried paste of liana is eaten.	6
3	<i>Aeollanthus cf. pubescens</i> Benth. (Lamiaceae)	Tabangha	Whole plant	Flatulence constipation	Infusion is taken orally.	24
4	<i>Aframomum aulacocarpus</i> K. Schum (Zingiberaceae)	Alunaghan	Rhizomes Fruits	Piles	Decoction is taken orally.	5
5	<i>Aframomum daniellii</i> (Hook.f.) K. Schum. (Zingiberaceae)	Madeum	Fruits Rhizomes.	Internal and External piles.	Decoction is taken orally and anal wash	25
6	<i>Aframomum melegueta</i> K. Schum. (Zingiberaceae)	Keshuteté	Seeds	Mouth thrush in babies	Juice extracted from seeds and leaves of <i>Conyza sumatrensis</i> used as mouth wash.	5
7	<i>Aframomum pruinosum</i> Gagn. (Zingiberaceae)	Keshunedieme	Seeds	Difficult respiration Cardiac palpitation	Maceration with <i>Cyathea maniana</i> is taken orally	4
8	<i>Agauria salicifolia</i> (Comm.) Hook.f. ex Oliv. (Ericaceae)	Achane	Leaves Bark	Swollen legs Sores. Sexually transmitted diseases	Apply pulverized leaves topically on scarifications or sores. Maceration is taken orally.	124
9	<i>Ageratum conyzoides</i> Linn. (Asteraceae)	Nviamu	Leafy twigs	Stomach aches Fire burns Night cry of babies Frontal headache	Juice is taken orally Leaf juice is mixed with <i>Aloe vera</i> gel applied topically. Leaf juice from leafy tops collected at night is taken orally. Leafy tops are used to scrub the fore head.	96
10	<i>Alangium chinense</i> (Lour.) Arms. (Alangiaceae)	Nphab	Bark	Worms	Decoction is taken orally.	13
11	<i>Albizia adianthifolia</i> (Schum.) W. F. Smith (Mimosaceae)	Nlèe-mebang	Bark	Manic behaviour	Concoction with <i>Vitex doniana</i> is taken orally and extract inhaled	138
12	<i>Albizia coriara</i> Welw. ex Oliv. (Mimosaceae)	Nlèe-kephe	Bark	Madness, Epilepsy Internal fungi	Mixture of pulverized bark and <i>Ternstroemia sp</i> is inhaled Decoction taken orally.	5
13	<i>Albizia lebeck</i> (L.) Benth. Mimosaceae	Nlame	Bark	Hernia, waist pain Secondary infertility.	Decoction with raphia palm wine is taken orally.	9
14	<i>Alchemilla cryptantha</i> Steud ex A. Rich.	Nchob	Whole plant	Dysmenorrhoea Lower abdominal pains	Decoction is taken orally.	17
15	<i>Allium cepa</i> Linn. (Liliaceae)	Anusi	Bulb	Epilepsy	Concoction with <i>Allium sativum</i> and <i>Nicotina tobaccum</i> is taken orally.	39

Table 2. Cont.

16	<i>Allium sativum</i> Linn. (Liliaceae)	Nla'a	Bulb	Epilepsy	Concoction with <i>Nicotina tabaccum</i> and <i>Allium cepa</i> is taken orally.	3
17	<i>Aloe barbadense</i> Mill. (Liliaceae)	Nlamekeu	Leaves	Fire burns Constipation, stomachaches Gastritis Skin disorders. Genital itches	Mix gel with juice of <i>Ageratum conyzoides</i> and apply topically. Maceration is taken orally Mix gel with rubbing oil. Maceration in raphia palm wine is taken orally.	56
18	<i>Alstonia boonei</i> De Willd. (Apocynaceae)	Ntong	Bark	Amoebic dysentery and diarrhea	Decoction is taken orally.	11
19	<i>Aspilia africana</i> Linn. (Asteraceae)	Awagu	Leaves	Wounds Protracted menstruation	Apply leaf juice topically. Juice is taken orally.	44
20	<i>Basella alba</i> Linn. (Basellaceae)	Ntou	Whole plant	Infertility Difficult	Maceration is taken orally.	15
21	<i>Begonia schaeferi</i> Engl. (Begonaceae)	Alomawane	Leaves	Constipation Gastritis	Fresh leaves are chewed.	8
22	<i>Biophytum petersianum</i> Klotzsch. (Oxalidaceae)	Nagwe-ngwen	Whole plant	Epilepsy	Mixture of powder with salt and red oil is eaten periodically.	3
23	<i>Bridelia micrantha</i> (Hochst.) Baill. (Euphorbiaceae)	Ntsi	Bark	Cough Chest complaints	Concoction with bark of <i>Pittosporum mannii</i> is taken orally with pure honey.	1
24	<i>Bryophyllum pinnatum</i> (Lam.) Oken. (Crassulaceae)	Njunko	Leaves	Difficult respiration in babies.	Juice extracted from leaves and leaves of <i>Clerodendrum sp</i> is inhaled.	6
25	<i>Bulbophyllum sp</i> (Orchidaceae)	Nchubale	Whole plant	Internal inflammation Waist pain.	Yellow soup prepared from pulverized whole plant is taken orally. Concoction with <i>Gouania longipetala</i> is taken orally.	9
26	<i>Carapa grandifolia</i> Harms. (Meliaceae)	Kewen	Bark	Typhoid fever Rheumatism	Decoction is taken orally.	5
27	<i>Cassia tora</i> Linn. (Fabaceae)	Mbayanabea	Leaves	Boils or abscesses	Pulverized leaves with salt are applied topically.	9
28	<i>Caucalis melanantha</i> (Hochst.) Hiern. (Apiaceae)	Alamasi	Whole plant	Malaria, Stomachaches Gastritis	Infusion is taken orally.	1
29	<i>Celsia ledermannii</i> Schlechter (Scrophulariaceae)	Ntuako	Leaves	Whooping cough	Decoction is taken orally.	7
30	<i>Chytranthus gillettii</i> De Wildeman (Sapindaceae)	Taban ha	Bark	Fever	Decoction is taken orally.	2
31	<i>Cinchona ledgeriana</i> Moens. ex Trimen (Rubiaceae)	<i>Cinchona ledgeriana</i> Moens. ex Trimen (Rubiaceae)	Bark	Malaria	Decoction is taken orally.	29
32	<i>Clematis hirsuta</i> (D. C.) Hutch. (Ranunculaceae)	Asalasalala	Leaves	Epilepsy Headache	Leaf juice is inhaled.	5
33	<i>Clerodendrum sp</i> (Lamiaceae)	Kekang	Leaves	Stomach disorder	Maceration with leaves of <i>Physalis peruviana</i> is taken orally.	16

Table 2. Cont.

34	<i>Commelina bengalensis</i> Linn. (Commelinaceae)	Awuwub	Whole plant	Difficult delivery	Juice extract is taken orally.	25
35	<i>Conyza sumatrensis</i> (Retz.) E. H. Walker (Asteraceae)	Kwakwang	Leafy twigs	Mouth thrush in newborn babies.	Leafy twigs and ground seeds of <i>Aframomum melegueta</i> are warmed on fire and juice is use as a mouth wash.	4
36	<i>Costus afer</i> Ker-Gawl. (Costaceae)	Aluako	Rhizomes	Measles Piles	Decoction is taken orally and as a purgative.	2
37	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore (Asteraceae)	Ajujuaphe	Flowers Leaves	Gastritis Hypertension	Leaf is chewed for gastritis. Infusion of flower heads is taken orally.	1
38	<i>Cyathea maniana</i> (Cyatheaceae)	Ntseu	Leaves	Filariasis Difficult respiration Low sperm count	Burnt powder of dry leaves is applied topically. Maceration with <i>Aframomum pruinosum</i> is taken orally. Burnt powder of middle portion is mixed with palm kernel oil and eaten.	1
39	<i>Dichrocephala integrifolia</i> (Linn. f.) O. ktze. (Asteraceae)	Mbache	Leafy tips	Poisoning	Paste from <i>Aframomum melegueta</i> , <i>Ageratum conyzoides</i> and <i>D. integrifolia</i> is eaten.	24
40	<i>Dissotis longisetosa</i> Gilg & Ledermann ex Engl. (Melastomataceae)	Nghebetawum	Rhizomes	Nerves and partial paralysis.	Concoction with barks of <i>Psychotria camptopus</i> is taken orally and part used as an anal wash.	2
41	<i>Drymaria cordata</i> (Linn.) Willd. (Caryophyllaceae)	Ntuadong	Whole plant	Soot throat Constipation	Juice extract mixed with salt is used for gargling Paste mixed with red oil and salt is eaten.	36
42	<i>Dyschoriste perrotteti</i> (Nees.) O. ktze. (Acanthaceae)	Ntoulosot	Leaves	Primary and secondary infertility.	Infusion is taken orally.	28
43	<i>Embelia rowlandii</i> Gilg. (Myrsinaceae)	Nphenyate	Fruits, leaves and roots.	All forms of worms. Gastritis Urinary tract infections.	Seeds are eaten on empty stomach. Decoction of roots is taken orally Infusion of leaf is taken orally.	34
44	<i>Emilia coccinea</i> (Sims.) G. Don (Asteraceae)	Takuteu	Whole plant	Dysmenorrhea Gastritis	Juice is taken orally. Concoction with <i>Oxalis corniculata</i> is taken orally.	21
45	<i>Entandrophragma angolense</i> (Welw.) C. DC. (Meliaceae)	Nphie	Bark	Lower abdominal pains Infertility	Concoction with barks of <i>Ternstroemia sp</i> is taken orally and also used as anal wash.	52
46	<i>Eremomastax speciosa</i> (Hochst.) Cufod. (Acanthaceae)	Nkwenakam	Leaves	Irregular menstruation Infertility	Infusion of three plants (<i>E. speciosa</i> , <i>Aloe vera</i> and <i>A. pruinosum</i>) is taken orally. Also used as anal wash.	33
47	<i>Eriospermum abyssinica</i> Bak. (Liliaceae)	Nlameghene	Bulbs	Impotence Side pain	Pulverized bulbs mixed with red oil are taken orally.	5
48	<i>Erythrina senegalensis</i> DC. (Fabaceae)		Bark	Yellow fever	Decoction is taken orally.	4
49	<i>Ficus asperifolia</i> Miq. (Moraceae)	Ntob	Fruits Bark	Primary and secondary infertility	Decoction is taken orally.	3

Table 2. Cont.

50	<i>Galium asparine</i> Linn.(Rubiaceae)	Njiekuba	Whole plant	Gonorrhoea Internal inflammation Obesity	Fresh juice is taken orally after every 4 hours for 7 days. Infusion is taken orally.	6
51	<i>Gambeya africana</i> (Bak.) Pierre. (Sapotaceae)	Nkhame	Bark	Diarrhea Dysentery	Decoction is taken orally.	3
52	<i>Gladiolus gregarus</i> Baker (Iridaceae)	Nlameghene	Bulb	Lower abdominal pains	Decoction is taken orally and also used as an anal wash.	19
53	<i>Gouania longipetala</i> Hemsl (Rhamnaceae)	Alamawaso`o	Leaves Sap	Malaria Waist pain	Infusion is taken orally. Concoction with <i>Bulbophyllum</i> sp is taken orally.	5
54	<i>Harungana madagascariensis</i> Lam. & Poir. (Hypericaceae)	Ntoune	Bark Leaves	Gastritis Sores	Decoction with salt is taken orally. Poultice with bark of <i>Agauria salicifolia</i> is applied on the sore.	6
55	<i>Helichrysum cymosum</i> Herb. (Linn.) Less. (Asteraceae)	Mba'a	Whole plant	Flatulence Weak bones	Whole plant is burnt and cold infusion of ashes taken orally.	7
56	<i>Helichrysum globosum</i> Sch. Bip. ex A. Rich (Asteraceae)	Mba'a	Whole plant	Osteomalakia (Rickets) Fractures	Plant is burnt to ashes and cold infusion taken orally.	4
57	<i>Hibiscus noldae</i> Bak. f. <i>Malvaceae</i>	Ndite-agong	Leafy tips	Diarrhea	Maceration is taken orally.	6
58	<i>Hoslundia opposita</i> Vahl. (Lamiaceae)	Ntetuh	Leaves	Epilepsy Madness	Infusion of fresh leaves is taken orally.	3
59	<i>Hypericum lanceolatum</i> Lam. (Hypericaceae)	Mekanaghene	Leaves	Nerves Fever.	Infusion of leaf powder is taken orally. NB: Toxic in large doses.	24
60	<i>Hypericum peptidifolium</i> A. Rich. (Hypericaceae)	Batasi	Whole plant	Nerves	Decoction of fresh plant is taken orally.	2
61	<i>Kalanchoe crenata</i> (Andr.) Haw. (Crassulaceae)	Njuko	Leaves	Ear ache with pus.	Warm leaves and seeds of <i>A. melegueta</i> on fire and use juice as ear drop.	6
62	<i>Kedrostia foetidissima</i> (Jacq.) Cogn. (Cucurbitaceae)	Ayabte	Whole plant	Stomach disorders Navel ache.	Fresh leaf juice is taken orally and used as an anal wash.	18
63	<i>Kigelia africana</i> (Lam.) Benth. (Bignoniaceae)	Ngong	BarkFruit Bark	Genital itches Impotence. Piles Spleen inflammation.	Decoction of bark is taken orally Decoction of fruit is taken orally Bark mixed with salt is eaten.	3
64	<i>Laportea aestuans</i> (Linn.) Chev. (Urticaceae)	Mejekephen	Leaves	Filariasis, Rheumatism Menopausal disorders.	Infusion sweetened with honey is taken hot.	15
65	<i>Laportea ovalifolia</i> (Schum.&Thonn.) Chev. (Urticaceae)	Nantuateneleune	Whole plant	Internal ulcers Diabetes Rheumatism	Infusion is taken orally. Pulverized whole plants are applied topically on scarifications.	11
66	<i>Laportea sp</i> (Urticaceae)	Mejekephe	Roots Leaves	Asthma Bronchitis Filariasis, Rheumatism	Pulverized roots is soaked in ethanol and taken orally. Infusion of leaves is taken orally.	16
67	<i>Leucas martinicensis</i> (Jacq.) Ait. f. (Lamiaceae)	Kepie	Leaves	Gastritis	Chew 3 leafy twigs twice daily.	2

Table 2. Cont.

68	<i>Lobelia columnaris</i> Hook. f. (Lobeliace)	Atetomacheb	Leaves	Poisoning Swollen legs	Pulverized leaves with seeds of <i>A melegueta</i> are mixed with red oil and eaten. Also applied topically on aching parts.	16
69	<i>Maesa lanceolata</i> Forsk. (Myrsinaceae)	Keshime	Bark	Hepatitis B	Concoction with leaves of <i>Pentas shimperana</i> and bark of <i>M. lanceolata</i> is taken orally	4
70	<i>Maschalocephalus dinklagei</i> Gilg. & Schum. (Raptaceae)	Ala ham	Rhizomes	Pelvic pain (Vers des femmes)	Prepare yellow soup with pulverized rhizomes and take orally.	3
71	<i>Microglossa angolensis</i> Oliv. & Heirn (Asteraceae)	Nghalem	Leaves	Cataract	Leaf juice is used as eye drop.	1
72	<i>Mimosa pudica</i> Linn (Mimosaceae)	Njinajeu	Roots	Epilepsy	Decoction is taken orally.	5
73	<i>Momordica foetida</i> Schum. (Cucurbitaceae)	Mbôghelenian	Leaves	Cough and Typhoid fever	Juice extract is taken orally.	43
74	<i>Mondia whitei</i> (Hook. f.) Skeel (Periplocaceae)	Nganghelou	Roots	Impotence	Roots are chewed	18
75	<i>Monodora tenuiflora</i> Benth. (Annonaceae)	Njijab-agong	Bark	Flatulence Stomachache	Decoction is taken orally.	3
76	<i>Mussaenda angolensis</i> Wernh (Rubiaceae)	Ntuabala	Leaves	Madness Epilepsy	Infusion is taken orally.	3
77	<i>Nelsonia canescens</i> (Lam.) Spreng. (Acanthaceae)	Ngwanjeu	Whole plant	Difficult delivery. Threatened abortions	Fresh juice is taken orally. Infusion with seeds of <i>A. pruinoseum</i> is taken orally.	5
78	<i>Nicotiana tabaccum</i> Linn. (Solanaceae)	Tabua	Leaves	Epilepsy	Concoction with bulbs of <i>Allium cepa</i> and gloves of <i>Allium sativum</i> is taken orally for 8 months.	2
79	<i>Olea capensis</i> Linn. (Oleaceae)	Eveng	Bark	Typhoid fever	Decoction taken orally.	22
80	<i>Oxalis corniculata</i> Linn. (Oxalidaceae)	Batasi	Whole plant Seeds	Appetizer Clean the eyes	Leaves are chewed. Small quantity are put inside each eye and covered, and then the clot is removed.	3
81	<i>Paullinia pinnata</i> Linn. (Sapindaceae).	Abiajou	Bark Leaves	Rheumatism Flatulence Dysentery	Infusion is taken orally. Pulverized leaves is added to pap and eaten	6
82	<i>Pentas shimperana</i> subsp. <i>occidentalis</i> (Hook.f.) Verde. (Rubiaceae)	Kamawong	Leaves	Hepatitis B Liver infections	Concoction with bark of <i>Maesa lanceolata</i> is taken orally.	4
83	<i>Piper guineense</i> Linn. (Piperaceae)	Kephob		Diarrhea	Prepare yellow soup with <i>P. shimperana</i> spp. <i>occidentalis</i> and take orally.	3
84	<i>Phyllanthus amarus</i> Schum. et Thonn. (Euphorbiaceae)	Non	Leaves	Swollen liver and urination of blood.	Infusion is taken orally.	21
85	<i>Phyllanthus muellerianus</i> (O. Ktze.) Excell. (Euphorbiaceae)	Nlune	Leaves Bark	Diarrhea, Yellow fever and prolonged illness.	Infusion is taken orally. Decoction is taken orally.	3

Table 2. Cont.

86	<i>Physalis angulata</i> Linn. (Solanaceae)	Nyatseu	Leaves	Stomach disorders Gastritis	Maceration is taken orally.	4
87	<i>Phytolacca dodecandra</i> L'Hérit (Phytolacaceae)	Nkobetambua	Leaves Roots	Poisoning Constipation Gastritis.	Maceration is taken orally. NB Can be deadly if taken in higher quantity. Infusion is taken orally.	29
88	<i>Pittosporum mannii</i> Hook.f. (Pittosporaceae)	Abidong	Bark	Chest pain and cough, amenorrhoea.	Infusion of equal parts of <i>P. mannii</i> and <i>B. micrantha</i> adding honey is taken orally.	37
89	<i>Plectranthus glandulosus</i> Hook. f. (Lamiaceae)	Apie	Leaves	Internal inflammation and lower abdominal.	Maceration taken orally. Associate treatment with anal wash using fruits decoction of <i>Solanum aculeastrum</i> .	5
90	<i>Polygonum nepalense</i> Meisn. (Polygonaceae)	Aphine	Whole plant	Foetal mal-position Juvenal pregnancy	Juice extract is taken orally. Decoction is taken orally.	43
91	<i>Polyscias fulva</i> J. R. & G. Forst. (Araliaceae)	Nfeum	Bark	Venereal infections	Decoction is taken orally.	18
92	<i>Prunus africana</i> (Hook. f.) K. Schum.(Rosaceae)	Nleh	Leaves	Venereal infections Kidney	Decoction with added small limes is taken orally.	111
93	<i>Psychotria camptopus</i> Verdc. (Rubiaceae)	Nchaing	Bark Bark	Prostrate disorders Nerves and partial paralysis.	Decoction is taken orally. Concoction with rhizomes of <i>Dissotis longisetosa</i> is taken orally.	6
94	<i>Pterorhachis zenkeri</i> Harms. (Meliaceae)	Ayilalou	Root	Impotence Loss of libido Low sperm count Mental capacity.	Infusion of 2.5 g of roots is taken orally or is chewed.	84
95	<i>Pycnanthus angolensis</i> (Welw.) Warb. (Myristicaceae)	Nsa'a	Bark	Bile & liver complaints Stomachache.	Decoction is taken orally.	24
96	<i>Rauwolfia vomitoria</i> Afzel. (Apocynaceae)	Nto-aniene	Bark Roots	Dysentery Diarrhea Venereal infections.	Decoction is taken orally. Decoction of roots is taken orally	89
97	<i>Renealmia congoensis</i> Afzel. (Zingiberaceae)	Keshumelik	Fruits	Stomachache in children	Decoction is taken orally and as an anal wash.	3
98	<i>Riccinodendrum heudelotii</i> (Baill.) Pierre ex Heckel (Euphorbiaceae)	Keseh	Bark	Anemia	Decoction is taken orally.	15
99	<i>Rubus fruticosus</i> Linn. (Rosaceae)	Kakab	Leaves	Diarrhea Dysentery	Infusion is taken orally.	16
100	<i>Rubus pinnatus</i> Willd. (Rosaceae)	Kakab	Leaves	Preparation for child birth.	Decoction is taken orally for at least six months.	3
101	<i>Rumex abyssinica</i> Jacq. (Polygonaceae)	Madongab	Roots	Anemia Constipation Kwashiorkor	Infusion or decoction is taken orally	5
102	<i>Rumex crispus</i> Linn. (Polygonaceae)	Ateuteulukô	Roots	Syphilis Gastritis	Decoction is taken orally. Pulverized root with salt and red oil is taken orally.	6
103	<i>Sanicula elata</i> Buch. Harm. (Apiaceae)	Nphe	Whole plant	Anti-poison	Decoction is taken orally	2
104	<i>Sansievera liberica</i> Ger. et Labr. (Agavaceae)	Nlamewa'a	Roots	Urinary tract infections Filariasis	Decoction is taken orally.	6
105	<i>Sapium ellipticum</i> Hochst. ex Krauss Pax (Euphorbiaceae)	Aseune	Bark	Diarrhea Dysentery Filariasis.	Bark is chewed twice daily. Decoction is taken orally.	21

Table 2. Cont.

106	<i>Satureja punctata</i> (Benth.) Briq. (Lamiaceae)	Apiegham	Leaves	Tiredness, Stomach bites Rheumatism. Typhoid fever	Infusion with <i>S. pseudosimensis</i> is taken orally. Infusion is taken orally.	3
107	<i>Satureja pseudosimensis</i> Brenan (Lamiaceae)	Apielig	Leaves	Tiredness, Stomach bites	Infusion with <i>S. punctata</i> is taken orally.	3
108	<i>Satureja robusta</i> Hook. f. (Lamiaceae)	Apieyite	Leaves	Dysmenorrhea	Infusion is taken orally.	8
109	<i>Smilax kraussiana</i> Meisn (Smilacaceae)	Ajeine	Rhizomes	Urinary tract infections Rheumatism	Decoction is taken orally.	4
110	<i>Senecio burtonii</i> Hook.f. (Asteraceae)	Tabuanambea	Roots	Whooping cough	Decoction is taken orally sweeten with honey.	2
111	<i>Solanum aculeastrum</i> Dannal. (Solanaceae)	Keshimpong	Fruits Bark	Cough Fungi infections Amenorrhoea Infertility.	Fruits are burnt and the pulverized charcoal is mixed with red oil and salt, and taken orally. Decoction of bark powder is taken orally and used as anal wash.	77
112	<i>Solanum terminale</i> (C.H.) Wright) Heine (Solanaceae)	Keshianiene	Leaves	Kwashiorkor	Maceration is used as a body wash and taken orally.	6
113	<i>Spathodea campanulata</i> P. Beauv. (Bignoniaceae)	Nkiete	Bark	Hernia Venereal diseases	Decoction is taken orally. Concoction with the roots of <i>Rauwolfia vomitoria</i> is taken orally.	51
114	<i>Spermococe princeae</i> K. schum. (Rubiaceae)	Nphekepang	Whole plant	Kidney diseases	Leaves warmed on fire are pulverized and mixed with salt and red oil, and taken orally.	13
115	<i>Spermococe saticola</i> K. Schum. (Rubiaceae)	Tekwentejo	Whole plant	Juvenal pregnancies	Juice extract with leaves of <i>Basella alba</i> mixed with white clay is taken orally.	36
116	<i>Spilanthes fillicaulis</i> (Schum et Thonn) C. D. Adams (Asteraceae)	Nghinko	Whole plant	Toothache	Decoction is used as mouth wash	19
117	<i>Stereospermum kunthianum</i> Cham (Bignoniaceae)	Berna	Bark	Venereal infections and painful urination.	Decoction is taken orally.	5
118	<i>Tabernaemontana verticosa</i> Hochst. ex A. DC. (Apocynaceae)	Ntondume	Bark	Madness and epilepsy	Pulverized bark is chewed or a decoction is taken orally.	2
119	<i>Taraxacum officinale</i> Linn.(Asteraceae)	Teuneteua	Whole plant	Incontinent bladder and kidney disorders	Infusion of whole plant is taken regularly as tea.	3
120	<i>Ternstroemia</i> sp. (Ternstroemiaceae)	Nkene	Bark	Anemia Stomach ache Vomiting Urinary tract infections Infertility Epilepsy	Decoction of bark adding native salt is taken orally. Decoction of bark is taken orally and as a purgative. Pulverized bark with bark of <i>Albizia coriara</i> and inhale.	162
121	<i>Trema orientalis</i> (Linn.) Blume (Ulmaceae)	Feung	Roots	Difficult respiration Asthma	Decoction is taken orally.	7
122	<i>Trifolium baccarina</i> Chiov. (Fabaceae)	Palenjem	Whole plant	Diarrhea	Fried paste is mixed with salt and taken orally	1

Table 2. Cont.

123	<i>Urginea altissima</i> (Linn.) Bak. (Liliaceae)	Nlang	Bulb	Fibroids Ovarian cysts Amnions	Pulverized bulbs are boiled; pure honey is added and taken orally.	2
124	<i>Usnea fernandiae</i> P.A. Duvign (Parmeliaceae)	Nshutakume	Whole plant	Urinary tract infections	Maceration is taken orally.	3
125	<i>Vepris louisii</i> Gilb. (Rutaceae)	Ketii	Bark	Worms	Decoction is taken orally after consuming some thing sweet.	18
126	<i>Vernonia auriculifera</i> Hiern. (Asteraceae)	Meka-nko	Leaves	Cataract	Leaf juice is used as an eye drop.	1
127	<i>Vernonia calvoana</i> Hook. f (Asteraceae)	Ntumekang	Leaves	Navel- aches Constipation	Leave juice is taken orally and a maceration taken as an anal wash.	2
128	<i>Vernonia guineensis</i> Benth. (Asteraceae)	Ayuabem	Rhizomes	Gastritis, Urinary infections Male sterility	Infusions sweeten with honey is taken orally. Maceration with 5 limes is taken orally. Fermentation in sour milk is taken orally.	28
129	<i>Vernonia kotschyana</i> Sch. Bip. ex Walp. (Asteraceae)	Meka-ntoune	Leaves Roots	Gastritis and Internal ulcers	Maceration is taken orally. Decoction is taken orally.	7
130	<i>Vitex doniana</i> Sweet (Verbenaceae)	Ngume	Stem bark	Manic behaviour	Concoction with bark of <i>Albizia adianthifolia</i> is taken orally. Inhale vapour from warm bark.	9
131	<i>Voacanga bracteata</i> Stapf. (Apocynaceae)	Nto-tetam	Bark	Epilepsy Mental disorders.	Pulverized bark mixed with red oil and salt, and taken orally.	31
132	<i>Zanthoxylum lemairei</i> De Wild. (Rutaceae)	Ndune	Bark	Rheumatism Chest pain.	Decoction is taken orally.	8
133	<i>Zanthoxylum tessmannii</i> Harms. (Rutaceae)	Ndune	Bark	Coughs Chest complaints Fatigue.	Decoction is taken orally sweetened with honey.	69

* Frequency of citation of plant.

conservation to prevent them from over exploitation and subsequent scarcity.

In this rural community child birth is of great importance and gynecological problems are treated with a variety of plants. These include *Eremomastax speciosa* and *Acanthus montanus* for irregular menstruation, *Agauria salicifolia* for chronic venereal infections, *Alchemilla cryptantha* and *Entandrophragma angolense* for dysmenorrhea and lower abdominal pains, *Ficus asperifolia*, *Kigelia africana*, *Smilax krausiana* and *Ternstroemia* sp for primary and secondary infertilities while *Mondia whitei* and *Pterorhachis zenkeri* were used to treat impotence, loss of libido, low sperm count and sexual weakness in men. Many of the plants are new in Cameroonian literature of medicinal plants used in the treatment of diseases of the reproductive system. Some have been reported to be used in the treatment of other diseases, for example, *Erythrina senegalensis* for the treatment of fractures and

Mondia whitei for the treatment of diarrhea (Adjanohoun et al., 1996). Other recurrent diseases like malaria, typhoid fever, viral hepatitis B and yellow fever were managed using a variety of plant species including *Carapa grandifolia*, *Chytranthus gillettii*, *Cinchona ledgeriana*, *Maesa lanceolata*, *Olea capensi*, *Erythrina senegalensis* and *Pentas schimperana subsp. occidentalis*.

Many of the plant species in the study have been reported as medicinal plants elsewhere in Africa although they are often used for treatment of ailments different from those in this study (Adjanohoun et al., 1988; Iwu, 1993; Okoli et al., 2007 and Oliver -Bever, 1984). The uses of some of the remedies have been confirmed by recent pharmacological studies. For example, the family Ternstroemiaceae has been shown to be characterized by a wide number of compounds like saponins, tannins, caffeine and fixed oils (Evans, 1996) . This explains the wide utilization of *Ternstroemia* sp. in the region of study

Table 3. Diseases and herbs used to manage them.

Ailment	Plant used (numbers as in Table 2)
Digestive system	2, 3, 4, 5, 6, 9, 10, 12, 13, 17, 18, 19, 21, 25, 33, 36, 37, 39, 41, 43, 51, 54, 55, 56, 57, 62, 63, 65, 67, 68, 69, 75, 79, 81, 82, 83, 85, 86, 87, 89, 95, 96, 97, 98, 101, 103, 105, 106, 112, 120, 122, 125, 127, 128, 129
Urinary- genital system	1, 8, 12, 13, 14, 17, 19, 20, 25, 34, 38, 42, 43, 44, 45, 46, 47, 49, 50, 52, 53, 63, 68, 70, 74, 77, 84, 88, 89, 90, 91, 92, 94, 96, 100, 102, 104, 108, 109, 111, 113, 114, 115, 117, 119, 120, 132, 124, 128
Central nervous system	9, 11, 12, 15, 16, 22, 25, 26, 32, 40, 53, 58, 59, 60, 61, 66, 72, 76, 78, 93, 94, 118, 120, 130, 131
Cardiovascular system	7, 37, 120
Respiratory system	7, 24, 29, 38, 66, 88, 110, 111, 121, 132, 133
Sores /ulcers	19, 54
Skin diseases	9, 17, 27, 38, 54
Ear	24, 61
Female sterility/gynaecology	1, 14, 20, 34, 42, 45, 46, 49, 70, 77, 90, 100, 108, 111, 115, 120, 123
Male sterility /sexual dysfunction	38, 47, 63, 74, 94, 128
Eye	71, 80, 126
Dental/mouth	6, 35, 116,
Malaria/ Typhoid fever/ yellow fever	26, 28, 30, 31, 53, 79, 85, 106
Fractures/bones	55, 56
Inflammation/abscesses	1, 8, 13, 25, 89
Diabetes	65

Also, the use of *Usnea fernandiae* as an antibiotic could be due to the presence of usnic acid that has a potent antimicrobial activity (Engel et al., 2007). From these reports, it is apparent that some of the plant parts used and purpose of use cut across other cultures not only in Cameroon but other parts of the world with similar cultural and socio-economic backgrounds.

Fifty-seven of the plants are new in the literature of Cameroon medicinal plants. These are *Adenia cissampeloides*, *Aeollanthus cf. pubescens*, *Aframomum aulacocarpus*, *Aframomum daniellii*, *Albizia coriara*, *Alchemilla cryptantha*, *Bulbophyllum sp.*, *Carapa grandifolia*, *Cassia tora*, *Celsia ledermannii*, *Chytranthus gillettii*, *Cyathea maniana*, *Dissotis longisetosa*, *Embelia rowlandii*, *Entandrophragma angolense*, *Galium asparine*, *Gambeya africana*, *Gladiolus gregarus*, *Helichrysum cymosum*, *Helichrysum globosum*, *Hypericum lanceolatum*, *Hypericum peptidifolium*, *Kedrostia foetidissima*, *Laportea sp.*, *Lobelia columnaris*, *Maschalocephalus dinklagei*, *Monodora tenuiflora*, *Mussaenda angolensis*, *Nelsonia canescens*, *Olea capensis*, *Pentas shimperana subsp. Occidentalis*, *Pittosporum mannii*, *Polygonum nepalense*, *Psychotria camptopus*, *Pterorhachis zenkeri*, *Rubus fruticosus*, *Rubus pinnatus*, *Rumex crispus*, *Sanicula elata*, *Satureja punctata*, *Satureja pseudosimensis*, *Satureja robusta*, *Senecio burtonii*, *Solanum aculeastrum*, *Solanum terminale*, *Spermacoce princeae*, *Spermacoce saticola*, *Tabernaemontana verticosa*, *Ternstroemia sp.*, *Trifolium baccarina*, *Usnea fernandiae*, *Vepris louisii*, *Vernonia auriculifera*, *Vernonia calvoana*, *Verno-*

nia kotschyana, *Voacanga bracteata* and *Zanthoxylum lemairei*. There is need to carry out extended ethnobotanical research in the region in order to document and identify potential new plants for chemical screening and domestication.

Conclusion

This research has shown that the Lebialem region is still rich and diversified in medicinal plant species. The elderly people in the area of study are the custodians of indigenous knowledge on medicinal plants. The younger generation is moving away and those who are still in the villages are not interested in the practice of traditional medicine. In Aguambu alone, 133 plants were used in the management of many diseases afflicting the population. Fifty-five of them are used to treat ailments of the digestive system, 49 for the urinary- genital system, 25 for the nervous system, 11 for the respiratory system and 3 for the cardiovascular system. Fifty-seven of the plants are new in the medicinal plant pharmacopoeia of Cameroon. The population has to be educated on propagation and conservation of herbal plants especially the multi-purpose plants *Ternstroemia sp.*, *Prunus africana* and *Agauria salicifolia*.

ACKNOWLEDGEMENT

The authors appreciate the collaboration of the traditional

medical practitioners and other villagers of Aguambu during this study as well as the Botanists of the Cameroon National Herbarium for the identification of the plant specimens.

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