

Ethnobotanical survey of Akwa Ibom State of Nigeria

Kola' K. Ajibesin^{a,*}, Benjamin A. Ekpo^a, Danladi N. Bala^a,
Etienne E. Essien^b, Saburi A. Adesanya^c

^a Department of Pharmacognosy & Natural Medicine, Faculty of Pharmacy, University of Uyo, Akwa Ibom, Nigeria

^b Department of Pharmaceutical & Medicinal Chemistry, Faculty of Pharmacy, University of Uyo, Akwa Ibom, Nigeria

^c Department of Pharmacognosy, Faculty of Pharmacy, Obafemi Awolowo University, Ile-Ife, Nigeria

Received 30 July 2006; received in revised form 3 October 2007; accepted 10 October 2007

Available online 23 October 2007

Abstract

Ethnopharmacological relevance: The medicinal plants employed in the ethnomedicine of Akwa Ibom State of Nigeria are studied.

Aim of the study: The survey aims at identifying and documenting the plants used amongst the indigenes of Akwa Ibom State.

Materials and methods: Using ethnobotanical survey list, information is gathered through personal interviews with traditional medical practitioners, community elders and patients.

Results: A total of 114 medicinal plant species representing 102 genera and 54 families employed in the traditional medical practice of the people of Akwa Ibom State, Nigeria are recorded from 930 homes. Ailments such as skin diseases, malaria, gonorrhoea and haemorrhoids are mostly treated with the medicinal plants. Details pertaining to the preparation and administration of plant drugs are provided.

Conclusions: The survey provides a veritable source of information for traditional medical practitioners and medicinal plant researchers. These medicinal plants may be incorporated into the healthcare delivery system of the country.

© 2007 Elsevier Ireland Ltd. All rights reserved.

Keywords: Medicinal plants; Akwa Ibom State; Nigeria

1. Introduction

Ethnobotanical survey has been found to be one of the reliable approaches to drug discovery (Fabricant and Farnsworth, 2001). Ethnomedical information from this approach can be gathered either from plants used in organized traditional medical system such as Ayurveda, Unani and traditional Chinese medicine (Bannerman et al., 1975; Bannerman, 1979), or from herbalism, folklore and shamanism which concentrate on an apprenticeship system of information passed to the next generation through a traditional healer or herbalist (Rastogi and Dhawan, 1982). This system of medicine is widely practiced in South America and Africa.

The World Health Organization (WHO) Traditional Medical Programme (Farnsworth et al., 1985) has provided the evidence that ethnomedical information can lead to valuable drug discovery. A total of 122 compounds, 80% of which were used for the

same or related ethnomedical purposes, were derived from 94 species of plants.

Several active compounds have been discovered from plants on the basis of ethnobotanical information, and used directly as patented drugs. Maprouneacin isolated from *Maprounea africana* is used as an antidiabetic agent (Carney et al., 1999). Taxol obtained from *Taxus breviflora* is used as an antitumour drug (Samuelsson, 1992). Artemisinin, discovered from *Artemisia annua*, is used as a potent antimalarial compound against *Plasmodium* strains resistant to all known antimalarials (Klayman, 1993).

Some other plants have been reported to produce drugs that serve as leads for the next generation of drugs. For instance, the basic structural formula of verapamil, a synthetic drug used to treat hypertension, was derived from that of papaverine, a smooth muscle relaxant obtained from *Papaver somniferum*. Galegine, an active antihyperglycaemic agent, isolated from *Galega officinalis* L., the plant used ethnobotanically to treat diabetes, provided the lead for the synthesis of metformin and aroused interest in the synthesis of other biguanidine-type antidiabetic drugs (Fabricant and Farnsworth, 2001).

* Corresponding author. Tel.: +234 8038937431.

E-mail address: kay_ajib@yahoo.com (K.K. Ajibesin).

One of the major advantages of choosing plants as the starting point in drug development through ethnobotanical survey is that the active constituents of such plants which have undergone long-term use by man are likely to be safer than the active compounds isolated from plants with no history of ethnomedical use (Fabricant and Farnsworth, 2001).

In Akwa Ibom State, ethnomedicine is an integral part of the people's culture. In fact, about 75% of the people rely on traditional medicine for health care delivery (Petters et al., 1994; Etukudo, 2000, 2003). Various medicinal plants are used to treat mild and severe diseases. Some work has been done on the flora and ethnobotany of the State (Etukudo, 2000, 2003), but there is no detailed information on the plants. For instance, the sources of the medicinal plants as well as the method of preparation are not given. However, some articles have given reports on the antimicrobial (Odoemena and Essien, 1995), nutritional (Isong and Idiong, 1997), antimalarial (Okokon et al., 2005) and toxic effects (Ajibesin et al., 2002) of some of the plants endemic in the State.

2. Study area

Akwa Ibom State is located within the south-eastern axis of Nigeria, flanked by Cross-River, Abia and Rivers States on the sandy deltaic coastal plain of the Guinea Coast. The State is bounded on the southern margin by the Atlantic Ocean (Petters et al., 1994).

Akwa Ibom State covers a total land area of 8412 km², encompassing the entire Qua Iboe River basin, the western part of the lower Imo River basin. The State lies between latitudes 4°32' and 5°53' North and longitudes 7°25' and 8°25' East.

The State is characterized by three broad physical outlines. The first one is the marshy river-washed soils around the riverine areas. The second outline is the flat low-lying lands that constitute most of the State. The third physical feature is the extensive high ground with undulating hills which stand out in marked relief against the low-lying lands. The landscape of Akwa Ibom State bears altitudes of 45–70 m.

Akwa Ibom State is located within the forest zone of Nigeria, and has the tropical rainy climate. The forest vegetation is divided into three types: saline water swamp forest which comprises woodlands, fresh water swamp forest which consists of small trees, shrubs and grasses, and rainforest which mainly has tall trees. These types of vegetation serve as a replenishable source of ingredients for phytomedicine in the State (Petters et al., 1994).

Akwa Ibom State comprises 31 local government areas presently with a population of about 2,300,000. The State is composed mainly of the Ibibio, Eket, Annang, Oron, Andoni and Okobo ethnic groups, with the Ibibio forming the largest ethnic group in the State (Udo, 1984), and the fourth largest ethnic group in Nigeria (Talbot, 1969). Consequently, Ibibio language forms one linguistic unit of the state.

Traditionally, the chief occupations of the State are farming for the mainland indigenes, and fishing and salt production for the riverine indigenes (Petters et al., 1994).

3. Materials and methods

The pieces of information gathered on various data such as local names, plant part used, therapeutic effect, diseases treated, methods of preparation, methods of administration, doses and duration of treatment, were obtained, through personal interview, from traditional medical practitioners, community elders and patients. The ethnobotanical survey exercise was executed between August 2000 and December 2002.

Thirty homes in each of the local government area were visited resulting in the interview of 930 households (one interviewee per household). At least 20 homes visited were selected to comprise a traditional medical practitioner each, while the remaining 10 homes had either a community elder or a patient. The ratio of male to female was 60:40, while their mean age was 65 years. The people interviewed were members of all the different ethnic groups – Ibibio, Eket, Annang, Oron, Andoni, Okobo – comprising the 31 local government areas of the State.

In the interview, enquiries regarding what ailments were treated by what plant species were made. This appears to be a better approach to appropriate data collection than if enquiries were made as to what plants were used to treat what ailments. In this case, the informant usually found medicinal use for any plant indicated. Information was gathered according to the survey list of Sofowora (1993). In the process, plant specimens implicated were collected, and subsequently preserved and stored in the herbarium of the Department of Pharmacognosy and Natural Medicine, Faculty of Pharmacy, University of Uyo. The plants were identified by the use of the flora of Nigeria and West Africa (Hutchinson and Dalziel, 1954, 1958, 1968; Keay et al., 1964; Stanfield and Lowe, 1987) as well as by the use of other publications on medicinal plants (Iwu, 1986; Etukudo, 2000, 2003). All the local government areas comprising the State were covered, and are listed with their reference numbers: 1, Uyo; 2, Ibesikpo Asutan; 3, Nsit Ibom; 4, Nsit Atai; 5, Ikot Ekpene; 6, Essien Udim; 7, Obot Akara; 8, Abak; 9, Etim Ekpo; 10, Ukanafun; 11, Oruk Anam; 12, Ika; 13, Mkpato Enin; 14, Ikot Abasi; 15, Udung Uko; 16, Eastern Obolo; 17, Nsit Ubium; 18, Etinan; 19, Onna; 20, Eket; 21, Esit Eket; 22, Ibeno; 23, Ikono; 24, Ibiono; 25, Itu; 26, Uruan; 27, Okobo; 28, Oruko; 29, Mbo; 30, Oron; 31, Ini.

3.1. Performance index of medicinal plants

The performance index applied here was proposed by Betti (2002). To analyze the data, 'specific flora' is defined as the list of plants used for treating a specific ailment, symptom or physiological effect. The 'global flora' is defined as the total list of plants recorded to be used for all types of ailments in a specific place such as Akwa Ibom State. The relationship between the 'specific flora' and the 'global flora' can be inferred thus: if the use of a specific plant for a specific ailment is randomly selected, the proportion of the number of citations to the total number of citations (P_1) would be similar to the proportion of 'specific flora' to the 'global flora' (P_2). To illustrate the selectivity of a plant for a specific disease, a comparison is drawn between the expected and observed values of the proportion of citation of a plant for a specific disease. The difference (D) between

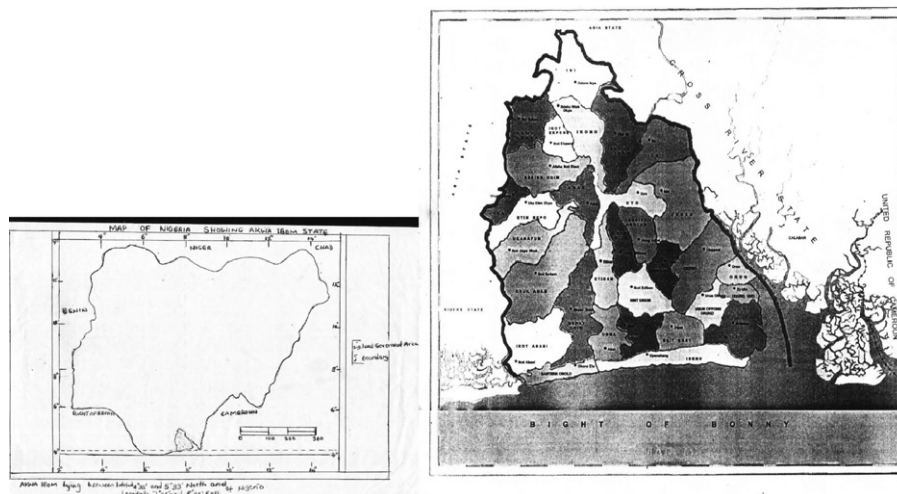


Fig. 1. Map of Akwa Ibom State in Nigeria.

the two proportions is then used to define a performance index (I_p), which ranges between 0 and 3 according to the following arbitrary scale:

- If $P_1 - P_2 < 0$, $I_p = 0$: the plants concerned are rejected, not significant.
- If $0 < P_1 - P_2 \leq 1/3$, $I_p = 1$: average performance.
- If $1/3 < P_1 - P_2 \leq 2/3$, $I_p = 2$: high performance.
- If $P_1 - P_2 > 2/3$, $I_p = 3$: very high performance.

To illustrate this, an instance is given regarding the performance index of a plant, *Dennettia tripetala*, used to treat rheumatism:

- C_1 = number of citations of *Dennettia tripetala* for treating rheumatism = 103.
- C_2 = number of citations of *Dennettia tripetala* in the global list (all ailments) = 145.
- C_3 = total number of citations of rheumatism = 632.
- C_4 = total number of citations for all ailments = 58,663.

P_1 (observed) and P_2 (theoretical) are calculated as follows:

- $P_1 = C_1/C_2 = 103/145 = 0.71$;
- $P_2 = C_3/C_4 = 632/58,663 = 0.01$;
- $D = P_1 - P_2 = 0.71 - 0.01 = 0.70$
- $P_1 - P_2 = 0.70 > 2/3$, thus $I_p = 3$, which signifies a very high performance.

The number of citations for each recorded plant species used for a specific ailment is indicated in Table 3.

4. Results

Information on the plants used in the ethnomedicine of Akwa Ibom State is given in Table 1. The plants are arranged in the alphabetical order of their families. Local names are provided

in Ibibio language because it is the language commonly spoken by all the ethnic groups of the State.

A total of 930 households in Akwa Ibom State were surveyed (Fig. 1). From this survey, 54 families were gathered comprising 102 genera and 114 plant species. A total of 58,663 citations were recorded for 58 ailments and other health problems.

4.1. Importance of ailments indicated

The importance of each ailment is evaluated based on the number of citations made by the informants. The 58 ailments recorded are indicated in Tables 2 and 3. Fig. 2 illustrates the relative importance of the specific ailments recorded. In this case, only the 10 most important ailments are indicated: skin disease (12.1% of the citations), malaria (7.1%), diabetes (7.1%), oral hygiene (5.1%), cough (5.1%), gonorrhoea (5%), haemorrhoids (4.8%), stomach ache (4.5%), hypertension (4.5%) and laxative (3.4%).

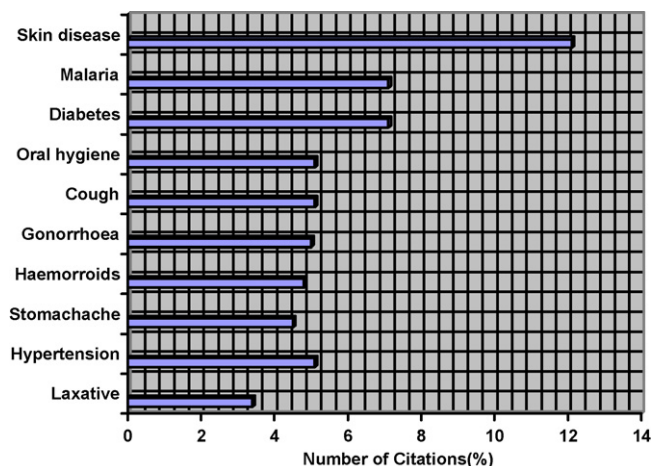


Fig. 2. Relative importance of diseases in terms of citations in the homes of Akwa Ibom State.

Table 1
Medicinal plants of Akwa Ibom State

Family	Botanical name	Specimen number	Local name (Ibibio) ^a (sources)	Plant part used ^a (sources)	Method of preparation	Ailment treated, therapeutic effect	Administration, dosage and duration of the treatment
Acanthaceae	<i>Justicia insularis</i> T. Anders.	KKA 1	Mmeme (1, 4, 5, 7, 12)	Leaves (1, 4, 5, 7, 12)	Cooked as soup	Digestive, weaning agent, laxative	Internal use; 2 × 1
	<i>Afrofittonia silvertris</i> Lindau	KKA2	Mmeme (1–10, 22, 23, 30, 31)	Leaves (1–10, 22, 23, 30, 31)	Cooked as soup	Digestive, weaning agent, laxative	Internal use; 2 × 1
	<i>Eramomastax polysperma</i> (Benth.) Dandy	KKA3	Edem ididuot (5–7, 9, 15)	Leaves (5–7, 9, 15)	Crushed and the juice applied	Profuse bleeding	External use
Agavaceae	<i>Dracaena arborea</i> (Willd.) Link Enum. Hort.	KKA4	Okono (15, 21–28)	Roots	Crushed and macerated in illicit gin or soda water as infusion	Gonorrhoea	Internal use; 3 × 1 for 2 weeks
				Leaves (15, 21–28)	Squeezed to release juice	Boils, burns	External use
Amaranthaceae	<i>Achyranthes aspera</i> L.	KKA5	Udok mbiok, Udok mbiet (1, 2, 4, 6, 10, 12, 29)	Leaves (1, 2, 4, 6, 10, 12, 29)	Boiled in water to make decoction	Diarrhoea, dysentery, ulcer	Internal use; 3 × 1 for 7 days
Anacardiaceae	<i>Spondias mombin</i> L.	KKA6	Nsukakara (1–31)	Leaves	Squeezed in water and drunk	Dysentery	Internal use; 3 × 1 for 7 days.
				Root bark (1–31)	Powdered and mixed with lime for 10 min	Haemorrhoid	Internal use; 3 × 1 for 5 days
Anacardiaceae	<i>Mangifera indica</i> L.	KKA7	'Mango' (1–31)	Leaves (1–31)	Boiled in water as decoction	Hypertension	Internal use; 2 × 1 for 3 days.
	<i>Anacardium occidentale</i> L.	KKA8	'Cashew' (3, 15, 16, 18, 20, 22, 24)	Bark (3, 15, 16, 18, 20, 22, 24)	Boiled in water as decoction	Malaria	Internal use; 2 × 1 till recovery
Annonaceae	<i>Denntetia tripetala</i> Bak. f.	KKA9	Nkarika (11–13, 15, 16, 20)	Root bark (11–13, 15, 16, 20)	Crushed and macerated or boiled in water to make infusion or decoction	Bleeding, rheumatism	External use; bathing
	<i>Uvaria chamae</i> P. Beauv.	KKA10	Nkarika ikot (1–3, 7, 9, 13, 14, 16, 18)	Root (1–3, 7, 9, 13, 14, 16, 18)	Crushed and boiled in water or palm wine as decoction or macerated in soda water as infusion	Haemorrhoid, diarrhoea, jaundice, bleeding	Internal use; 2 × 1 till recovery
	<i>Monodora myristica</i> (Gaertn.) Dunal	KKA11	Enwun (5, 21, 24, 25, 30)	Seeds (5, 21, 24, 25, 30)	Powdered	Pediculosis	External use; about 5 g in 1 week
Apocynaceae	<i>Rauwolfia vomitoria</i> Afzel.	KKA12	Ekiko (1–31)	Root (1–31)	Boiled in water to make decoction	Mental illness	Internal use; 2 × 1
	<i>Alstonia boonei</i> De Wild.	KKA13	Ukpo (5, 21–23, 23, 29)	Roots, leaves (5, 21–23, 29)	Boiled in water as decoction	Malaria	Internal use; 3 × 1 for 4–6 days
Araceae	<i>Anchomanes difformis</i> (Bl.) Engl.	KKA14	Nkokot (2, 3, 11, 13, 15, 20, 22, 24–26)	Bulb (2, 3, 11, 13, 15, 20, 22, 24–26)	Crushed and the sap applied	Haemorrhoid	Internal use; 1 × 1 before meal for 3 days
				Wounds	External use		
Araceae	<i>Caladium bicolor</i> (Ait) Vent.	KKA15	Ikpon ekpo, udia edi (1–31)	Corn (1–31)	Pounded	Wounds, sores, bruises	External use
Arecaceae	<i>Cocos nucifera</i> L.	KKA16	Isiboyob, isip mbakara (1–31)	Liquid endosperm (1–31)	Fruit cracked to collect the liquid endosperm	Oral rehydration therapy	Internal use; drunk
Asclepiadaceae	<i>Gongronema latifolium</i> Benth.	KKA17	Utasi (1–31)	Leaves (1–31)	Boiled or macerated in water to make decoction or infusion. Cooked as soup	Diabetes	Internal use; 3 × 1; eaten
Bignoniaceae	<i>Newbouldia laevis</i> (P. Beauv.) Seemann ex Bureau	KKA18	Itumo, oboti (1, 2, 5, 9, 13, 14, 20, 28, 29, 31)	Stem bark	Boiled with sugarcane juice	Boil	Internal use; 3 × 1 for 5–7 days
				Leaves (1, 2, 5, 9, 13, 14, 20, 28, 29, 31)	Boiled in water as decoction	Dysmenorrhoea	Internal use
Bombacaceae	<i>Adansonia digitata</i> L.	KKA19	'Baobab' (3, 4, 7, 19, 25, 28, 30)	Leaves (3, 4, 7, 19, 25, 28, 30)	Boiled in water to make decoction	Malaria	Internal use; 3 × 1 till recovery
Boraginaceae	<i>Heliotropium indicum</i> L.	KKA20	Otukeyin, eka esin ono, edisimon (4, 6, 8, 9, 10, 17–19, 22, 23, 27)	Leaves (4, 6, 8–10, 17–19, 22, 23, 27)	Crushed or boiled to make decoction	Sore throat, boil	Internal use; 1–2 drops × 1, or drunk
Burseraceae	<i>Dacryodes edulis</i> (G. Don) H.J. Lam	KKA21	Eben (1–31)	Leaves	Crushed and the juice applied	Skin disease	External use
				Stem (1–31)	Chewed	Oral hygiene	Chewing stick
Burseraceae	<i>Dacryodes klaineana</i> (Pierre) H.J. Lam	KKA22	Eben ekpo (1–12, 20, 21, 23–25)	Root (10, 11, 12, 20, 21, 23–25)	Boiled in water to make decoction	Skin disease	Internal use; 2 × 1 for 3 days
Caesalpiniaceae	<i>Daniellia ogea</i> (Harrms) Rolfe ex Holl.	KKA23	Enan eto (7, 8, 15, 20, 22, 23, 26, 27, 29, 30, 31)	Root (7, 8, 15, 20, 22, 23, 26, 27, 29–31)	Boiled or macerated in water to make decoction or infusion	Malaria	Internal use; 4 × 1 for 7 days
	<i>Anthonotha macrophylla</i> P. Beauv.	KKA24	Nya (1, 3, 10–15, 21, 30)	Root bark (1, 3, 10–15, 21, 30)	Powdered and made into paste	Fracture	External use
	<i>Cassia alata</i> L.	KKA25	Ndaya okon (1–31)	Leaves (1–31)	Powdered Boiled in water to make decoction	Skin disease	External use Internal use; 2 × 1 for 5 days
	<i>Cassia tora</i> L.	KKA26	Ndaya okon (1–31)	Leaves (1–31)	Powdered Boiled in water to make decoction	Skin disease	External use Internal use; 2 × 1 for 5 days
	<i>Distemonanthus benthamianus</i> Baill.	KKA27	Eto-afia (4, 6, 9, 13, 17, 20, 26, 29)	Root bark (4, 6, 9, 13, 17, 20, 26, 29)	Boiled or macerated in water to make decoction or infusion	Chest pain, waist pain	Internal use; 3 × 1 for 3 days

Table 1 (Continued)

Family	Botanical name	Specimen number	Local name (Ibibio) ^a (sources)	Plant part used ^a (sources)	Method of preparation	Ailment treated, therapeutic effect	Administration, dosage and duration of the treatment
Capparidaceae	<i>Cleome viscosa</i> L.	KKA28	Ubionkoriko, minenyon ntokeyin (2, 5, 7–11, 18–20)	Leaves (2, 5, 7–11, 18–20)	Macerated in water to make infusion	Infertility	Internal use; 1 × 1 before breakfast
Caricaceae	<i>Carica papaya</i> L.	KKA29	Udia edi, popo, ukpod (1–31)	Leaves Seeds (1–31)	Crushed in water or mixed with <i>Ocimum gratissimum</i> leaf Grind with honey	Diabetes	Internal use; 2 × 1 Internal use; eaten
Celastraceae	<i>Hippocratea africana</i> (willd.) Loes ex Engl.	KKA30	Eban enan enan (1–3, 15, 16, 18, 20, 25)	Root (1–3, 15, 16, 18, 20, 25)	Boiled in palm wine, macerated in macerated in local gin or soda water	Malaria, jaundice, hepatitis	Internal use; 4 × 1 for 5 days
Combretaceae	<i>Combretodendrum macrocarpum</i> P. Beauv.	KKA31	Usin eto (2, 6, 7, 9, 13–15, 17)	Root (2, 6, 7, 9, 13–15, 17)	Boiled in water as decoction	Stomach ache, dysentery	Internal use; 3 × 1 for 2 days
	<i>Combretum micranthum</i> G.Don	KKA32	Asaka (1–20, 27, 29)	Root (1–20, 27, 29)	Macerated in water as infusion	Cancer	Internal use; 2 × 1
	<i>Combretum racemosum</i> P. Beauv.	KKA33	Asaka (1–15, 20, 24, 25, 28)	Leaves (1–15, 20, 24, 25, 28)	Juice squeezed in water	Skin disease, haemorrhoid	Internal use; 2 × 1 till recovery
Commelinaceae	<i>Palisota hirsuta</i> (Thunb.) K. Schum.	KKA34	Edo eboto, mbriyom (6, 7, 11, 14, 15, 17, 18, 20, 21, 22, 25, 27)	Leaves (6, 7, 11, 14, 15, 17, 18, 20–22, 25, 27)	Boiled in water as decoction	Gonorrhoea	Internal use; 3 × 1 for 2 weeks
Compositae	<i>Aspilia africana</i> Oliv. & Hiern	KKA35	Edemeron (1–31)	Leaves (1–31)	Crushed and the juice applied	Bleeding	External use
	<i>Eupatorium odoratum</i> L.	KKA36	Mbiet Awolowo, Okuokkoakpa (1–31)	Leaves (1–31)	Boiled or macerated in water to make decoction or infusion	Malaria	Internal use; 4 × 1 for 5 days
Compositae	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	KKA37	Mkpafit (10–15, 18, 21, 24, 26, 27)	Leaves (10–15, 18, 21, 24, 26, 27)	Boiled in water as decoction	Gonorrhoea	Internal use; 3 × 1 for 10 days
	<i>Vernonia amygdalina</i> Del.	KKA38	Etidod (1–31)	Leaves (1–31)	Crushed and the juice applied Boiled in water with <i>Ocimum gratissimum</i> leaves or cooked as soup	Boils, burns Diabetes	External use Internal use; 3 × 1; eaten
	<i>Vernonia conferta</i> Benth.	KKA39	Okpon ikon, Okpukko (1–31)	Leaves (1–31)	Crushed and rubbed Crushed in water	Itching conditions Laxative	Internal use
	<i>Tridax procumbens</i> L.	KKA40	Ayara utimense (1–31)	Leaves (1–31)	Boiled in water as decoction	Skin disease	Internal use; 3 × 1 for 7 days
	<i>Adenostemma mauritanium</i> DC.	KKA41	Ifuk ikot (1, 7, 8, 12, 13, 16, 17, 20, 21, 24, 26)	Leaves (1, 7, 8, 12, 13, 16, 17, 20, 21, 24, 26)	Powdered and macerated in water as infusion	Measles, chicken pox	Internal use; 3 × 1 for 2 weeks
	<i>Melanthera scandens</i> (Schum. & Thonn.) Roberty	KKA42	Ayara edemeron (3, 6, 9, 15, 24, 27, 31)	Leaves (3, 6, 9, 15, 24, 27, 31)	Crushed in water	Dysmenorrhoea	Internal use; 2 × 1 for 3 days
Connaraceae	<i>Cnestis ferruginea</i> DC.	KKA43	Utin ewa, utin ebua (10, 15, 16, 19–21, 23, 27, 29, 30)	Fruits (10, 15, 16, 19–21, 23, 27, 29, 30)	Crushed in water	Chest pain, ear pus	Internal use; 2 × 1 before meal for 3 days
Convolvulaceae	<i>Ipomoea involucreta</i> P. Beauv.	KKA44	Mkpafafian (1–30)	Root (1–30)	Boiled in water to make decoction	Mental illness	Internal use; 3 × 1 for 2 weeks
Cucurbitaceae	<i>Telfairia occidentalis</i> Hook. f.	KKA45	Nkon (1–31)	Leaves (1–31)	Cooked as soup, macerated in water to make infusion	Anaemia	Internal use; eaten, 3 × 1 till recovery
Euphorbiaceae	<i>Alchornea cordifolia</i> (Schum. & Thonn.) Muell. Arg.	KKA46	Mbom (1–31)	Leaves (1–31)	Crushed in water	Skin disease	External use
	<i>Alchornea laxiflora</i> (Benth.) Pax & K. Hoffm.	KKA47	Nwariwa (17, 20, 24, 25, 27)	Leaves (17, 20, 24, 25, 27)	Crushed in water	Skin disease	External use
	<i>Phyllanthus amarus</i> Schum. & Thonn.	KKA48	Oyomokiso, aman keeden (4, 6, 9, 13, 20, 24, 29)	Leaves (4, 6, 9, 13, 20, 24, 29)	Boiled in water as decoction	Malaria	Internal use; 4 × 1 for 5 days
	<i>Ricinus communis</i> L.	KKA49	Eto kasto, eto adan ukebbe (1–31)	Seeds (1–31)		Vermifuge, laxative	Internal use; chewing
	<i>Maesobotrya barteri</i> (Baill.) Hutch.	KKA50	Nnyanyatet (4, 7, 12, 20–24, 27, 30, 31)	Root (4, 7, 12, 20–24, 27, 30, 31)	Crushed fresh to liberate the juice	Skin disease	External use
	<i>Maesobotrya dusenii</i> (Pax) Hutch.	KKA51	Nnyanyatet (4, 7, 12, 20–24, 27, 30, 31)	Root	Crushed fresh to liberate the juice	Skin disease	External use
				Root, stem (4, 7, 12, 20–24, 27, 30, 31)	Chewed	Oral hygiene	Chewing stick
	<i>Microdesmis puberula</i> Hook. f. ex Planch	KKA52	Ntabit (3, 4, 6, 9, 12, 15, 16, 25)	Leaves	Cooked as soup	Ulcer	Internal use; eaten
				Root (3, 4, 6, 9, 12, 15, 16, 25)	Boiled in water to make decoction	Gonorrhoea	Internal use; 2 × 1 for 7 days
Euphorbiaceae	<i>Manihot esculenta</i> Crantz	KKA53	Iwa (1–31)	Leaves Stem (1–31)	Crushed to liberate sap Crushed to liberate sap	Skin disease Conjunctivitis	External use External use; applied to the eye, 2–3 drops × 1
	<i>Acalypha fimbriata</i> Schum. & Thonn.	KKA54	Okokho nyin (12, 14, 20, 23, 24, 27)	Whole plant (12, 14, 20, 23, 24, 27)	Boiled in water as decoction	Laxative	Internal use; 3 × 1 for 1 day

Table 1 (Continued)

Family	Botanical name	Specimen number	Local name (Ibibio) ^a (sources)	Plant part used ^a (sources)	Method of preparation	Ailment treated, therapeutic effect	Administration, dosage and duration of the treatment
	<i>Croton zambesicus</i> Mull. Arg.	KKA55	Eto-oduma (4, 6, 7, 9, 11, 13, 16, 19, 24, 29)	Leaves (4, 6, 7, 9, 11, 13, 16, 19, 24, 29)	Boiled in water to make decoction	Diarrhoea, dysentery, malaria	Internal use; 2 × 1 for 3 days
	<i>Euphorbia heterophylla</i> L.	KKA56	Adia-kegarri (1, 2, 4, 7, 12, 15, 20, 22)	Leaves (1, 2, 4, 7, 12, 15, 20, 22)	Boiled or macerated in water to make decoction or infusion, or mixed with 'Garri' (cassava product)	Purgative	Internal use; 1 × 1 for 1 day; eaten
	<i>Euphorbia hirta</i> L.	KKA57	Etinkene ekpo (2, 3, 7, 8, 12, 17, 21, 23, 26, 29)	Whole plant (2, 3, 7, 8, 12, 17, 21, 23, 26, 29)	Boiled in water to make decoction	Asthma	Internal use; taken as frequently as possible
	<i>Jatropha curcas</i> L.	KKA58	Eto-oko obio nsit (1, 4–7, 9, 21, 30, 31)	Seeds	Crushed to express its oil	Skin disease, laxative	Internal use; 3 teaspoonfuls × 1
				Leaves (1, 4–7, 9, 21, 30, 31)	Crushed and mixed with olive oil	Convulsion	Internal use
Flacourtiaceae	<i>Homalium letestui</i> Pellegr.	KKA59	Oton idim (7, 9, 10, 15, 21, 22, 25, 29, 30)	Leaves	Boiled or macerated in water to make decoction or infusion	Skin disease	Internal use; 3 × 1 till cure
				Stem (7, 9, 10, 15, 21, 22, 25, 29, 30)	Chewed	Oral hygiene	Chewing stick
Gnetaceae	<i>Gnetum africanum</i> Welw.	KKA60	Afang (1–31)	Leaves (1–31)	Chewed or cooked as soup	Sore throat, diarrhoea, hypertension	Internal use; eaten
G ramineae	<i>Saccharum officinarum</i> L.	KKA61	Mboko (1–31)	Stem (1–31)	Boiled fresh with palm wine	Malaria	Internal use; 4 × 1 for 7 days
	<i>Cymbopogon citratus</i> (DC) Stapf	KKA62	Ebana, nyayaha (1–31)	Leaves (1–31)	Boiled in water to make decoction	Malaria	Internal use; 3 × 1 for 5 days
Guttiferae	<i>Garcinia cola</i> Heckel	KKA63	Efiad (1–31)	Seeds (1–31)	Chewed with <i>Aframomum melegueta</i>	Cough, chest pain	Internal use; eaten
	<i>Symphonia globulifera</i> L.	KKA64	Efiat ndua (1, 4, 6–8, 10, 11)	Leaves	Boiled in water as decoction	Skin disease	Internal use; 3 × 1 or 7 days
				Root bark (1, 4, 6–8, 10, 11)	Boiled in water as decoction	Cancer	Internal use
Humiraceae	<i>Sacoglottis gabonensis</i> (Baill.) Urb.	KKA65	Mkpaeto, edad (5, 6, 11, 13, 14, 20, 24, 25, 27)	Leaves (5, 6, 11, 13, 14, 20, 24, 25, 27)	Boiled in water to make decoction	Fracture	Internal use; 2 × 1 till recovery
Icacinaceae	<i>Icacina trichantha</i> Oliv.	KKA66	Okpokpo, efikison (5, 9, 15, 22, 25–27, 30, 31)	Leaves and seeds (5, 9, 15, 22, 25–27, 30, 31)	Crushed and macerated in local gin	Hypertension, asthma	Internal use; 2 × 1 for 5 days
Icacinaceae	<i>Lasianthera africana</i> P. Beauv.	KKA67	Editan (1–31)	Fruits	Macerated in water to make infusion	Asthma	Internal use; taken frequently until recovery
				Leaves (1–31)	Boiled in water to make decoction	Skin disease	3 × 1 for 3 days
Labiatae	<i>Solenostemon monostachyus</i> (P. Beauv.) Briq	KKA68	Ntorikwot (7, 9, 11, 12, 14, 15)	Leaves (7, 9, 11, 12, 14, 15)	Crushed in water	Malaria	Internal use; 3 × 1 for 3 days
	<i>Ocimum gratissimum</i> L.	KKA69	Nton (1–31)	Leaves (1–31)	Macerated in water to make infusion, or used as spice in soup	Haemorrhoid, stomach ache	Internal use; 3 × 1 for 5 days; eaten
Lauraceae	<i>Persea americana</i> Mill.	KKA70	Eben mbakara (12, 13, 15, 21, 22, 25, 27, 30, 31)	Seeds (12, 13, 15, 21, 22, 25, 27, 30, 31)	Powdered and mixed with pap	Hypertension	Internal use; eaten
Liliaceae	<i>Allium sativum</i> L.	KKA71	Etebe owoinu (1–31)	Clove (1–31)		Diabetes, hypertension, stomach ache, general debility	Internal use; eaten; 2 cloves × 1
	<i>Allium cepa</i> L.	KKA72	Ayim (1–31)	Bulb (1–31)	Crushed	Convulsion	External use; applied to the face
						Stomach upset, rheumatism, vermifuge	Internal use; eaten; 2 bulbs × 1
Loaganiaceae	<i>Anthocleista djalensis</i> A. Chev.	KKA73	Ibu (1–4, 6, 8, 9, 12, 15, 17, 20)	Root (1–4, 6, 8, 9, 12, 15, 17, 20)	Boiled in water to make decoction, or macerated in local gin to make infusion	Malaria, gonorrhoea	Internal use; 3 × 1 for 5 days
Malvaceae	<i>Gossypium hirsutum</i> L.	KKA74	Eto-oyo (1–31)	Leaves, root (1–31)	Boiled or macerated in water to make decoction or infusion	Gonorrhoea	Internal use; 2 × 1 for 5 days
	<i>Malvastrum coromandelianum</i> (L.) Garcke	KKA75	Udot akananwan, ofon akananwan (2, 4–6, 10, 12, 15, 20, 24, 25)	Leaves (2, 4–6, 10, 12, 15, 20, 24, 25)	Cooked as soup	Sore throat, Stomach ache	2 × 1 for 3 days Internal use; eaten
	<i>Sida acuta</i> Burm.f.	KKA76	Akana-awan-indipeke-isoro (1–31)	Root	Boiled or macerated in water to make decoction or infusion	Cholera	Internal use; 3 × 1 till recovery
				Leaves (1–31)	Crushed	Whitlow	External use
Meliaceae	<i>Guarea thompsonii</i> Sprague & Hutch.	KKA77	Afia ikpok eto (4–6, 9, 11, 15, 16, 20, 21)	Stem bark (4–6, 9, 11, 15, 16, 20, 21)	Boiled or macerated in water to make decoction or infusion	Waist pain	Internal use; 2 × 1 for 3 days

Table 1 (Continued)

Family	Botanical name	Specimen number	Local name (Ibibio) ^a (sources)	Plant part used ^a (sources)	Method of preparation	Ailment treated, therapeutic effect	Administration, dosage and duration of the treatment
Mimosaceae	<i>Pentaclethra macrophylla</i> Benth.	KKA78	Ukana (3, 4, 7, 10, 15–17, 20, 21, 25, 29, 31)	Root	Cooked as soup	Tooth ache	Chewed
				Seeds (3, 4, 7, 10, 15–17, 20, 21, 25, 29, 31)		Hypertension	Internal use; eaten
	<i>Tetrapleura tetraptera</i> (Schum. & Thonn.) Taub.	KKA79	Uyayak (1–31)	Fruit (1–31)	Boiled in water to express oil	Skin disease, conjunctivitis	External use
	<i>Cylicodiscus gabunensis</i> Harms	KKA80	Nyan (10, 11, 14, 16, 20, 25)	Leaves (10, 11, 14, 16, 20, 25)	Boiled in water as decoction	Malaria	Internal use; 3 × 1 for 7 days
Moraceae	<i>Artocarpus communis</i> J.R. & G. Forst	KKA81	Bereful, usungenyon (2, 3, 5, 7, 8, 14, 15, 26)	Stem and leaves (2, 3, 5, 7, 8, 14, 15, 26)	Powdered	Yellow fever	Incision
Musaceae	<i>Musa sapientum</i> L.	KKA82	Mboro (1–31)	Leaves (1–31)	Boiled in water to make decoction	Ulcer	Internal use; 3 × 1 for 2 days
	<i>Musa paradisiaca</i> L.	KKA83	Ukom, mbrenyon (1–31)	Stem (decayed) (1–31)	Crushed with <i>Talinum triangulare</i> leaves and mixed with local chalk to form a paste	Measles	External use
Myrtaceae	<i>Eugenia uniflora</i> L.	KKA84	Ntuen mbakara (5, 11–13, 22, 25, 29–31)	Leaves	Boiled in water to make decoction	Skin disease	Internal use; 2 × 1 for 5 days
				Stem (5, 11–13, 22, 25, 29–31)	Chewed	Oral hygiene	Chewing stick
Palmae	<i>Elaeis guineensis</i> Jacq.	KKA85	Eyop (15, 17–20, 25, 29)	Palm fruit pericarp (15, 17–20, 25, 29)	Peeled	Boil	External use
Panicaceae	<i>Setaria anceps</i> Stapf ex Massey	KKA86	Nkwono (1, 4, 7, 8, 10, 14, 15, 17, 21, 24, 26, 30)	Root and leaves (1, 4, 7, 8, 10, 14, 15, 17, 21, 24, 26, 30)	Boiled or macerated in water to make decoction or infusion	Fibroid	Internal use; 2 × 1 for 2 weeks
Papilionaceae	<i>Baphia nitida</i> Lodd.	KKA87	Afuo (1–31)	Root bark (1–31)	Boiled in water to make decoction or macerated in local gin	Gonorrhoea, haemorrhoid	Internal use; 3 × 1 for 7 days
	<i>Glycine max</i> L.	KKA88	Nkoti eto (1–31)	Beans (1–31)	Boiled in water to express the oil	Measles	External use; lotion
	<i>Abrus precatorius</i> L.	KKA89	Nneminua (4, 6, 8–10, 12, 25)	Leaves (4, 6, 8–10, 12, 25)	Crushed and the juice applied	Skin disease	External use
	<i>Pterocarpus mildbraedii</i> Harms	KKA90	Mkpa, Mkpafere (2, 3, 7, 11, 12, 15, 20, 22–24, 30)	Stem bark (2, 3, 7, 11, 12, 15, 20, 22–24, 30)	Crushed and the juice applied	Rheumatism	External use
	<i>Cajanus cajan</i> (L.) Millsp.	KKA91	Nkoti (3, 5, 7–10, 15, 20)	Seeds (3, 5, 7–10, 15, 20)	Ground and applied	Smallpox	External use
	<i>Milletia aboensis</i> (Hook. f.) Bak.	KKA92	Isari (14, 15, 17–19, 25)	Leaves	Boiled in water to make decoction	Mental illness	Internal use; 2 × 1 for 7 days
				Root bark (14, 15, 17–19, 25)	Boiled in water to make decoction	Galactagogue	Internal use; 1 × 1
Polygalaceae	<i>Lonchocarpus cyanescens</i> (Schum. & Thonn.) Benth.	KKA93	Awa (1, 3, 10, 12, 17, 24, 28, 30)	Root	Boiled in water to make decoction	Boil, yaw	Internal use; 2 × 1 for 3 days
				Leaves (1, 3, 10, 12, 17, 24, 28, 30)	Crushed and the juice applied	Rheumatism	
				Root (4, 7, 10, 15, 20, 24, 25, 29)	Boiled in water to make decoction	Aphrodisiac	Internal use; 1 × 1
Rubiaceae	<i>Borreria verticillata</i> (L.) G.F.W. Mey.	KKA95	Abia ikana (4, 6, 7, 9, 11–13, 16)	Leaves (4, 6, 7, 9, 11–13, 16)	Crushed to liberate the juice	Skin disease	External use
	<i>Nuclea latifolia</i> Sm.	KKA96	Mbom-mbon, mbon-ibon (5, 9, 12–14, 17, 23, 27)	Root (5, 9, 12–14, 17, 23, 27)	Boiled or macerated in water to make decoction or infusion	Malaria	Internal use; 3 × 1 for 5 days
	<i>Heinsia crinita</i> (Afzel.) G. Tayl.	KKA97	Atama (1–31)	Root	Crushed and made into a paste with local chalk	Abscess	External use
				Leaves (1–31)	Boiled in water to make decoction	Hypertension	Internal use; 2 × 1 for 3 days
	<i>Randia longiflora</i> Salisb.	KKA98	Okok edi (1–31)	Stem (1–31)	Chewed	Oral hygiene	Chewing stick
	<i>Randia acuminata</i> (G. Don) Benth.	KKA99	Okok edi (1–31)	Stem (1–31)	Chewed	Oral hygiene	Chewing stick
	<i>Ixora coccinea</i> L.	KKA100	'Ixora' (1–31)	Whole plant	Boiled in water to make decoction	Dysentery, ulcer, gonorrhoea	Internal use; 3 × 1 for 5 days
				Stem, root (1–31)	Chewed	Oral hygiene	Chewing stick
Rutaceae	<i>Fagara macrophylla</i> Engl.	KKA101	Nkek (5, 7, 20, 24–26, 30, 31)	Root bark	Boiled in water to make decoction	Gonorrhoea, haemorrhoid	Internal use; 2 × 1 for 7 days
				Root (5, 7, 20, 24–26, 30, 31)	Crushed	Boil	External use
					Chewed	Tooth ache	Chewing stick
	<i>Clausena anisata</i> (Willd.) Hook. f. ex Benth.	KKA102	Mbiet ekpene (1, 2, 7–9, 15, 21, 24, 29, 30)	Stem bark (1, 2, 7–9, 15, 21, 24, 29, 30)	Boiled in water to make decoction	Measles	Internal use; 4 × 1 for 2 weeks
	<i>Citrus aurantifolia</i> L.	KKA103	Mkpiri osokoro (1–31)	Fruit (1–31)	Juice squeezed out	Stomach ache	Internal use; drunk.
	<i>Citrus limon</i> L.	KKA104	'Lemon' (1–31)	Fruit (1–31)	Juice squeezed out	Cough	Juice squeezed out
Sapotaceae	<i>Chrysophyllum africanum</i> A. DC.	KKA105	Udara (1–31)	Leaves (1–31)	Boiled in water to make decoction	Dysmenorrhoea	Internal use; 1 × 1 for 3 days

Table 1 (Continued)

Family	Botanical name	Specimen number	Local name (Ibibio) ^a (sources)	Plant part used ^a (sources)	Method of preparation	Ailment treated, therapeutic effect	Administration, dosage and duration of the treatment
	<i>Synsepalum dulcificum</i> (Schum. & Thonn.) Daniell	KKA106	Mkpantun (2–5, 7, 10–12, 14, 15)	Root (2–5, 7, 10–12, 14, 15)	Macerated in local gin or soda water	Gonorrhoea	Internal use; 2 × 1 for 7 days
Solanaceae	<i>Solanum torvum</i> Sw.	KKA107	Nditot (5, 11, 13, 14, 17, 20, 21, 23, 30)	Fruit (5, 11, 13, 14, 17, 20, 21, 23, 30)	Crushed in warm water	Ulcer	Internal use; 2 × 1
	<i>Solanum melongena</i> L.	KKA108	Nya (1–31)	Fruit (1–31)	Cooked as soup	Diabetes	Internal use; eaten
Sterculiaceae	<i>Cola acuminata</i> (P. Beauv.) Schott & Endl.	KKA109	Ibon (1–31)	Cotyledons (1–31)	Powdered	Putrid sore	External use
Urticaceae	<i>Fleurya aestuans</i> (Linn.) Gaud. ex Miq.	KKA110	Ntan, nkere (3, 8, 12, 19, 22, 29–31)	Leaves (3, 8, 12, 19, 22, 29–31)	Crushed and made into a paste with local chalk	Skin disease	External use
Vitaceae	<i>Cissus quadrangularis</i> L.	KKA111	Oboro-uduk (2, 3, 6, 11, 14, 17)	Stems (2, 3, 6, 11, 14, 17)	Crushed fresh and juice applied	Skin disease	External use; 3 × 1 till cure
Zingiberaceae	<i>Costus afer</i> Ker. Gawl.	KKA112	Mbitem (1–6, 8, 10, 12, 20, 26–29)	Stem (1–6, 8, 10, 12, 20, 26–29)	Juice squeezed out	Wound	External use
	<i>Aframomum melegueta</i> K. Schum	KKA113	Ntuenibok (1–31)	Fruit (1–31)	Chewed, sometimes with <i>Garcinia cola</i>	Cough, chest pain	Internal use; eaten
	<i>Zingiber officinale</i> Roscoe	KKA114	'Ginger' (1–31)	Rhizome (1–31)	Chewed	Cough, catarrh, stomach ache	Internal use; eaten

1 × 1, once a day; 2 × 1, twice a day; 3 × 1, thrice a day; 4 × 1, four times a day (it means one glass of decoction or infusion, unless otherwise indicated).

^a Sources are related to the different local government areas of the State where the information was gathered.

4.2. Index of performance (Ip) of plant species

The 58,663 citations made by Akwa Ibom indigenes for the medicinal plants collected in the study area are shown in Table 2. Table 3 indicates all the plant species collected with their performance index for specific ailment. For instance, *Randia longiflora* and *Randia acuminata* are significantly more frequently used (Ip > 0) than other medicinal plants used for oral hygiene.

5. Discussion

In the survey, Euphorbiaceae provides the highest number of species employed in the treatment of diseases, underscoring its importance in the traditional medicine of the State.

Some species are called by the same local name and in most cases, treat the same disease. For instance, *Afrofittonia silvestris* and *Justicia insularis* are given the same local name 'Mmeme', and are used as digestives and as weaning agents. Also, *Maesobotrya dusenii* and *Maesobotrya barberi* are referred to as 'Nyanyatet', the root of which is used to treat skin disease.

Infusion and decoction are the methods most commonly employed for the preparation of the herbal medicine.

The collection of some plants should be made with experience. For instance, the leaf of *Abrus precatorius* is the main part used medicinally. A wrong collection of the fruits of the plant could result in fatal realities, as they are considered very toxic.

5.1. Relative importance of ailments

Skin disease is the most important ailment treated on the basis of number of citations for medicinal uses (Table 2). This is followed by malaria and diabetes. Indeed, given the tropical nature of Nigeria and the prevailing poor hygienic condition of many rural areas which promote the growth of microorganisms, as well as the inadequate drainage system, it is not surprising that skin disease and malaria rank as the two most important diseases recorded in Akwa Ibom State.

The plants used for treating skin diseases are applied either topically or are taken orally as decoction or infusion. In the survey of the Northern part of Nigeria as well as the south-eastern and south-western parts, skin disease and malaria were also among some of the most treated diseases (Ekpendu et al., 2000; Mann et al., 2003; ASICUMPON, 2005; NNMDA, 2006).

Common medicinal plants such as *Abrus precatorius*, *Tetrapleura tetraptera*, *Jatropha curcas*, *Alchornea cordifolia* and *Cassia alata* used for skin diseases in Akwa Ibom State are sold in the market by herb sellers for the same purpose. The roots of *Nauclea latifolia* and the leaves of *Adansonia digitata* used to treat malaria can also be found in the market. These plants are also sold by herb sellers in the countries such as Côte D'Ivoire, South Africa, Swaziland, Zimbabwe, Mozambique, Malawi and Zambia (Cunningham, 1993).

5.2. Relative importance of medicinal plants

The plants used by the Akwa Ibom State indigenes were compared with the plants employed in other parts of Africa, most especially in the following countries of West Africa where Nigeria belongs: Ghana, Senegal, Congo Brazzaville, Côte D'Ivoire, Gabon, Guinea, Gambia, Democratic Republic of Congo, Tanzania, Liberia and Sierra Leone. Comparison with the medicinal plants used in countries such as Cameroon, South Africa, Madagascar and Angola was also made. The information obtained from this survey is indicated in Table 4. A total of 80 plants frequently used (Ip > 0) by the indigenes of Akwa Ibom State are also used in other parts of Nigeria as well as in other African countries for similar and other ailments. Ten of such plants are used for similar and other ailments in at least four countries: *Anacardium occidentale* (four countries), *Alstonia boonei* (five countries), *Achyranthes aspera* (five countries), *Uvaria chamae* (four countries), *Heliotropium indicum* (five countries), *Spondias mombin* (four countries), *Vernonia amygdalina* (five countries), *Vernonia conferta* (five countries), *Rauwolfia*

Table 2
Citations of medicinal plants in the homes of Akwa Ibom State

Ailment	Botanical name of plant	Home
Abscess	<i>Heinsia crinita</i>	372
Anaemia	<i>Telfairia occidentalis</i>	384
Aphrodisiac	<i>Carpolobia lutea</i>	88
Asthma	<i>Euphorbia hirta</i>	160
Asthma	<i>Isacina trichantha</i>	105
Asthma	<i>Lasianthera africana</i>	545
Bleeding	<i>Aspilia africana</i>	640
Bleeding	<i>Eramomastax polysperma</i>	66
Bleeding	<i>Dennettia tripetala</i>	42
Bleeding	<i>Uvaria chamae</i>	90
Boil	<i>Dracaena arborea</i>	69
Boil	<i>Heliotropium indicum</i>	141
Boil	<i>Fagara macrophylla</i>	170
Boil	<i>Lonchocarpus cyanescens</i>	50
Boil	<i>Newbouldia laevis</i>	240
Boil	<i>Elaeis guineensis</i>	175
Boil	<i>Crassocephalum crepidioides</i>	119
Bruise	<i>Caladium bicolor</i>	275
Burns	<i>Crassocephalum crepidioides</i>	130
Burns	<i>Dracaena arborea</i>	87
Cancer	<i>Combretum micranthum</i>	550
Cancer	<i>Symphonia globulifera</i>	84
Catarrh	<i>Zingiber officinale</i>	710
Chestpain	<i>Aframomum melegueta</i>	455
Chestpain	<i>Cnestis ferruginea</i>	220
Chestpain	<i>Garcinia cola</i>	369
Chestpain	<i>Distemonanthus benthamianus</i>	155
Chickenpox	<i>Adenostemma mauritanium</i>	163
Cholera	<i>Sida acuta</i>	186
Conjunctivitis	<i>Tetrapleura tetraptera</i>	190
Conjunctivitis	<i>Manihot esculenta</i>	465
Convulsion	<i>Allium cepa</i>	87
Convulsion	<i>Jatropha curcas</i>	140
Cough	<i>Aframomum melegueta</i>	670
Cough	<i>Zingiber officinale</i>	750
Cough	<i>Garcinia cola</i>	837
Cough	<i>Citrus limon</i>	713
Diabetes	<i>Gongronema latifolium</i>	837
Diabetes	<i>Vernonia amygdalina</i>	900
Diabetes	<i>Allium sativum</i>	920
Diabetes	<i>Solanum melongena</i>	650
Diabetes	<i>Carica papaya</i>	850
Diarrhoea	<i>Uvaria chamae</i>	178
Diarrhoea	<i>Achyranthes aspera</i>	106
Diarrhoea	<i>Gnetum africanum</i>	744
Diarrhoea	<i>Croton zambesicus</i>	220
Digestive	<i>Justicia insularis</i>	58
Digestive	<i>Afrofittonia silvestris</i>	210
Dysentery	<i>Achyranthes aspera</i>	120
Dysentery	<i>Spondias mombin</i>	730
Dysentery	<i>Ixora coccinea</i>	264
Dysentery	<i>Croton zambesicus</i>	220
Dysentery	<i>Combretodendrum macrocarpum</i>	116
Dysmenorrhoea	<i>Chrysophyllum africanum</i>	760
Dysmenorrhoea	<i>Newbouldia laevis</i>	138
Dysmenorrhoea	<i>Melanthera scandens</i>	76
Earpus	<i>Cnestis ferruginea</i>	158
Fibroid	<i>Setaria anceps</i>	195
Fracture	<i>Sacoglottis gabonensis</i>	72
Fracture	<i>Anthonotha macrophylla</i>	110
Galactagogue	<i>Milletia aboensis</i>	132
General debility	<i>Allium sativum</i>	65
Gonorrhoea	<i>Dracaena arborea</i>	202

Table 2 (Continued)

Ailment	Botanical name of plant	Home
Gonorrhoea	<i>Palisota hirsuta</i>	202
Gonorrhoea	<i>Crassocephalum crepidioides</i>	274
Gonorrhoea	<i>Microdesmis puberula</i>	112
Gonorrhoea	<i>Anthocleista djalensis</i>	244
Gonorrhoea	<i>Gossypium hirsutum</i>	610
Gonorrhoea	<i>Baphia nitida</i>	712
Gonorrhoea	<i>Ixora coccinea</i>	250
Gonorrhoea	<i>Fagara macrophylla</i>	98
Gonorrhoea	<i>Synsepalum dulcificum</i>	215
Haemorrhoid	<i>Anchomanes difformis</i>	223
Haemorrhoid	<i>Spondias mombin</i>	420
Haemorrhoid	<i>Uvaria chamae</i>	110
Haemorrhoid	<i>Fagara macrophylla</i>	98
Haemorrhoid	<i>Baphia nitida</i>	815
Haemorrhoid	<i>Ocimum gratissimum</i>	800
Haemorrhoid	<i>Combretum racemosum</i>	344
Hepatitis	<i>Hippocratea africana</i>	98
Hypertension	<i>Mangifera indica</i>	580
Hypertension	<i>Isacina trichantha</i>	162
Hypertension	<i>Gnetum africanum</i>	147
Hypertension	<i>Persea americana</i>	234
Hypertension	<i>Allium sativum</i>	688
Hypertension	<i>Pentaclethra macrophylla</i>	84
Hypertension	<i>Heinsia crinita</i>	765
Infertility	<i>Cleome viscosa</i>	205
Itching condition	<i>Vernonia amygdalina</i>	118
Jaundice	<i>Hippocratea africana</i>	157
Jaundice	<i>Uvaria chamae</i>	143
Laxative	<i>Justicia insularis</i>	75
Laxative	<i>Afrofittonia silvestris</i>	293
Laxative	<i>Ricinus communis</i>	864
Laxative	<i>Vernonia conferta</i>	562
Laxative	<i>Acalypha fimbriata</i>	105
Laxative	<i>Jatropha curcas</i>	94
Malaria	<i>Anacardium occidentale</i>	562
Malaria	<i>Saccharum officinarum</i>	802
Malaria	<i>Cymbopogon citratus</i>	930
Malaria	<i>Alstonia boonei</i>	69
Malaria	<i>Adansonia digitata</i>	108
Malaria	<i>Daniellia ogea</i>	243
Malaria	<i>Hippocratea africana</i>	200
Malaria	<i>Eupatorium odoratum</i>	711
Malaria	<i>Croton zambesicus</i>	243
Malaria	<i>Phyllanthus amarus</i>	122
Malaria	<i>Solenostemon monostachyus</i>	54
Malaria	<i>Anthocleista djalensis</i>	300
Malaria	<i>Cylicodiscus gabunensis</i>	87
Malaria	<i>Nauclea latifolia</i>	194
Measles	<i>Musa paradisiaca</i>	684
Measles	<i>Adenostemma mauritanium</i>	105
Measles	<i>Clausena anisata</i>	247
Measles	<i>Glycine max</i>	722
Mental illness	<i>Rauwolfia vomitoria</i>	927
Mental illness	<i>Ipomoea involucreta</i>	192
Mental illness	<i>Milletia aboensis</i>	77
Oral hygiene	<i>Maesobotrya dusenii</i>	240
Oral hygiene	<i>Homalium letestui</i>	115
Oral hygiene	<i>Eugenia uniflora</i>	87
Oral hygiene	<i>Randia longiflora</i>	930
Oral hygiene	<i>Randia acuminata</i>	930
Oral hygiene	<i>Ixora coccinea</i>	145
Oral hygiene	<i>Dacryodes edulis</i>	524
Oral rehydration therapy	<i>Cocos nucifera</i>	582
Pediculosis	<i>Monodora myristica</i>	81
Purgative	<i>Euphorbia heterophylla</i>	156

Table 2 (Continued)

Ailment	Botanical name of plant	Home
Putrid sore	<i>Cola acuminata</i>	395
Rheumatism	<i>Dennettia tripetala</i>	103
Rheumatism	<i>Allium cepa</i>	218
Rheumatism	<i>Pterocarpus mildbraedii</i>	174
Rheumatism	<i>Lonchocarpus cyanescens</i>	137
Skin disease	<i>Cissus quadrangularis</i>	82
Skin disease	<i>Dacryodes edulis</i>	520
Skin disease	<i>Dacryodes klaineana</i>	480
Skin disease	<i>Cassia alata</i>	930
Skin disease	<i>Cassia tora</i>	710
Skin disease	<i>Combretum racemosum</i>	323
Skin disease	<i>Tridax procumbens</i>	602
Skin disease	<i>Alchornea cordifolia</i>	822
Skin disease	<i>Alchornea laxiflora</i>	58
Skin disease	<i>Maesobotrya barberi</i>	154
Skin disease	<i>Maesobotrya duseonii</i>	173
Skin disease	<i>Manihot esculenta</i>	713
Skin disease	<i>Jatropha curcas</i>	121
Skin disease	<i>Homalium letestui</i>	177
Skin disease	<i>Symphonia globulifera</i>	75
Skin disease	<i>Lasianthera africana</i>	279
Skin disease	<i>Tetrapleura tetraptera</i>	498
Skin disease	<i>Eugenia uniflora</i>	105
Skin disease	<i>Abrus precatorius</i>	93
Skin disease	<i>Borreria verticillata</i>	108
Skin disease	<i>Fleurya aestuans</i>	103
Small pox	<i>Cajanus cajan</i>	156
Sores	<i>Caladium bicolor</i>	604
Sore throat	<i>Heliotropium indicum</i>	196
Sore throat	<i>Gnetum africanum</i>	232
Sore throat	<i>Gossypium hirsutum</i>	275
Stomach ache	<i>Ocimum gratissimum</i>	718
Stomach ache	<i>Allium sativum</i>	122
Stomach ache	<i>Malvastrum coromandelianum</i>	222
Stomach ache	<i>Citrus aurantifolia</i>	900
Stomach ache	<i>Zingiber officinale</i>	612
Stomach ache	<i>Combretodendrum macrocarpum</i>	93
Stomach upset	<i>Allium cepa</i>	175
Tooth ache	<i>Pentaclethra macrophylla</i>	156
Tooth ache	<i>Fagara macrophylla</i>	110
Ulcer	<i>Achyranthes aspera</i>	89
Ulcer	<i>Musa sapientum</i>	684
Ulcer	<i>Solanum torvum</i>	97
Ulcer	<i>Microdesmis puberula</i>	139
Ulcer	<i>Ixora coccinea</i>	121
Vermifuge	<i>Ricinus communis</i>	603
Vermifuge	<i>Allium cepa</i>	118
Waist pain	<i>Guarea thompsonii</i>	123
Waist pain	<i>Distemonanthus benthamianus</i>	177
Weaning agent	<i>Justica insularis</i>	52
Weaning agent	<i>Afrofittonia silvetris</i>	149
Whitlow	<i>Sida acuta</i>	472
Wound	<i>Anchomanes difformis</i>	356
Wound	<i>Caladium bicolor</i>	604
Wound	<i>Costus afer</i>	283
Yaw	<i>Lonchocarpus cyanescens</i>	89
Yellow fever	<i>Artocarpus communis</i>	215

vomitaria (four countries) and *Combretum racemosum* (four countries).

Some compounds of some of the plant species frequently used for specific ailments ($I_p > 0$) have been identified and reported in literature. Some of such plants are *Anacardium occidentale*,

Vernonia amygdalina, *Randia longiflora*, *Rauwolfia vomitoria*, *Alstonia boonei*, *Allium sativum*, *Spondias mombin*, *Fagara macrophylla*, *Uvaria chamae*, *Carpolobia lutea* and *Zingiber officinale*.

Anacardium occidentale (Anacardiaceae) finds its bark used by the indigenes of Akwa Ibom State to treat malaria ($I_p = 3$). The bark contains 9–21% tannins (Burkill, 1985), and cardol (Kerharo and Adam, 1974). The fruit and cashew nut shell yield oil which also contains cardol as well as anacardic acid (Burkill, 1985). The use of the oil to treat leprosy and ulcers in Gabon and Senegal has been ascribed to the presence of these compounds (Walker and Silans, 1961; Kerharo and Adam, 1962; Kerharo and Adam, 1974; Lewis and Elvin-Lewis, 1977).

Vernonia amygdalina (Compositae) is widely used against diabetes ($I_p = 3$) and itching condition ($I_p = 1$). Vernodalol and vernomygdin have been identified in the plant to treat cancer (Lewis and Elvin-Lewis). The leaves of *Vernonia amygdalina* have been reported to lower blood sugar level in diabetic rabbit and rat (Akah and Okafor, 1992; Nwanjo, 2005). The leaves are not toxic but can produce purgative effect if consumed in large quantity (Iwu, 1993). *Vernonia amygdalina* has also been reported to be cardiotoxic and hypotensive (Ayensu, 1978). Recently, sesquiterpene lactones, vernolide and vernodalol identified from the leaves of *Vernonia amygdalina* have been reported to show antimicrobial activities (Erasto et al., 2006).

Randia longiflora (Rubiaceae) is commonly used for oral hygiene ($I_p = 3$). Three constituents, ursolic acid, randiflorin, a pentacyclic triterpene lactone and randilongin, a rho-coumaric acid ester have been isolated from the leaves and twigs of the plant (Talapatra et al., 1989). The triterpenes isolated may be part of the saponins that account for the frothing nature of the plant when chewed for oral hygiene.

Rauwolfia vomitoria (Apocynaceae) is frequently used for mental illness ($I_p = 3$). At least 30 alkaloids have been identified in the plant (Trease and Evans, 1989), of which reserpine has been found in the root to show sedative and hypotensive properties, and ajmalicine which exerts activity on sympathetic nervous system (Oliver, 1960; Willaman and Li, 1970; Bouquet and Debray, 1974; Kerharo and Adam, 1974). The sedative property ascribed to reserpine explains its use for mental illness.

Alstonia boonei (Apocynaceae) was recorded for use against malaria ($I_p = 3$). It is reported to be inferior to Cinchona bark but it elicits no after-effects (Oliver, 1960). The bark contains two indole alkaloids, echitamine and echitamidine which exert a paralyzing effect on the motor nerves, as well as amyryl and lupeol (Goodson, 1932; Oliver, 1960; Irvine, 1961; Bouquet and Debray, 1974; Kerharo and Adam, 1974). Echitamine is also reported as the antimalarial constituent of the plant (Iwu, 1986).

Allium sativum (Liliaceae) was mentioned for four ailments, diabetes ($I_p = 2$), hypertension ($I_p = 2$), stomach ache ($I_p = 1$) and general debility ($I_p = 1$). Farnsworth and Segelman (1971) listed garlic (*Allium sativum*) as one of the plants showing hypoglycaemic activity. 2-Propenyldisulphide and 3,5-allylcysteine sulphoxide isolated from the plant have been reported as the antidiabetic constituents of the plant (Akah et al., 2002). Also, allicin has been isolated from garlic as a powerful bactericidal and antitumour agent (Weisberger and Pansky, 1957; Lewis and

Table 3

Index of performance of medicinal plants used by the indigenes of Akwa Ibom State

Botanical name	Abscess	Anemia	Aphrodisiac	Asthma	Bleeding	Boil	Bruise	Burns	Cancer	Catarrh	Chest pain	Chickenpox	Cholera	Conjunctivitis	Convulsion	Cough	Diabetes	Diarrhoea	Digestive
<i>Abrus precatorius</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Acalypha fimbriata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Achyranthes aspera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Adansonia digitata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Adenostemma mauritanium</i>	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
<i>Aframomum melegueta</i>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0
<i>Afrofitonia silvestris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Alchornea cordifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Alchornea laxiflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Allium cepa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
<i>Allium sativum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
<i>Alstonia boonei</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anacardium occidentale</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anchomanes difformis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anthocleista djalonenis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anthoanatha macrophylla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artocarpus communis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aspilia africana</i>	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Baphia nitida</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Borreria verticillata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cajanus cajan</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Caladium bicolor</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Carica papaya</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Carpolobia lutea</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cassia alata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cassia tora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysophyllum africanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cissus quadrangularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Citrus aurantifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Citrus limon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
<i>Clausena anisata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cleome viscosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestis ferruginea</i>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
<i>Cocos nucifera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cola acuminata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Combretodendrum macrocarpum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Combretum micranthum</i>	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
<i>Combretum racemosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Costus afer</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Crassocephalum crepidioides</i>	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Croton zambesicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Cylicodiscus gabunensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cymbopogon citratus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dacryodes edulis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dacryodes klaineana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Daniellia ogea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dennettia tripetala</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Distemonanthus benthamianus</i>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
<i>Dracaena arborea</i>	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Elaeis guineensis</i>	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eramomastax polysperma</i>	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eugenia uniflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eupatorium odoratum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euphorbia heterophylla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euphorbia hirta</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Fagara macrophylla</i>	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Fleurya aestuans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3 (Continued)

Botanical name	Abscess	Aneamia	Aphrodisiac	Asthma	Bleeding	Boil	Bruise	Burns	Cancer	Catarrh	Chest pain	Chickenpox	Cholera	Conjunctivitis	Convulsion	Cough	Diabetes	Diarrhoea	Digestive
<i>Garcinia cola</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0
<i>Glycine max</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gnetum africanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
<i>Gongronema latifolium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Gossypium hirsutum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Guarea thompsonii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Heinsia crinita</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Heliotropium indicum</i>	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hippocratea africana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Homalium letestui</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Icacina trichantha</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ipomoea involucrata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ixora coccinea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Jatropha curcas</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
<i>Justicia insularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Lasianthera Africana</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lonchocarpus cyanescens</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Maesobotrya barberi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Maesobotrya dusenii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Malvastrum coromandelianum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mangifera indica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Manihot esculenta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
<i>Melanthera scandens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microdesmis puberula</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Milletia aboensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Monodora myristica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Musa paradisiaca</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Musa sapientum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Newbouldia laevis</i>	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nauclea latifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ocimum gratissimum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Palisota hirsute</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pentaclethra macrophylla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Persea americana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phyllanthus amarus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pterocarpus mildbraedii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Randia acuminata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Randia longiflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rauwolfia vomitoria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ricinus communis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Saccharum officinarum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sacoglottis gabonensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Setaria anceps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sida acuta</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Solanum melongena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Solanum torvum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Solenostemon monostachyus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Spondias mombin</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Symphonia globulifera</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
<i>Synsepalum dulcificum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Telfairia occidentalis</i>	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tetrapleura tetraaptera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Tridax procumbens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Uvaria chamae</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Vernonia amygdalina</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Vernonia conferta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Zingiber officinale</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
Total no. of citation	372	384	88	810	838	964	275	217	634	710	1199	163	186	655	227	2970	4157	1248	268

<i>Abrus precatorius</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Acalypha fimbriata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Achyranthes aspera</i>	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Adansonia digitata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
<i>Adenostemma mauritianum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
<i>Aframomum melegueta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Afrofittonia silvestris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
<i>Alchornea cordifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Alchornea laxiflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Allium cepa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Allium sativum</i>	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
<i>Alstonia boonei</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
<i>Anacardium occidentale</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
<i>Anchomanes difformis</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Anthocleista djalonensis</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0
<i>Anthonotha macrophylla</i>	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artocarpus communis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aspilia africana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Baphia nitida</i>	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
<i>Borreria verticillata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cajanus cajan</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Caladium bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Carica papaya</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Carpolobia lutea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cassia alata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cassia tora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysophyllum africanum</i>	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cissus quadrangularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Citrus aurantifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Citrus limon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Clausena anisata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
<i>Cleome viscosa</i>	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
<i>Cnestis ferruginea</i>	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cocos nucifera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
<i>Cola acuminata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Combretodendrum macrocarpum</i>	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Combretum micranthum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Combretum racemosum</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
<i>Costus afer</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Crassocephalum crepidioides</i>	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Croton zambesicus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Cylicodiscus gabunensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Cymbopogon citrates</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Dacryodes edulis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
<i>Dacryodes klaineana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Daniellia ogea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Dennettia tripetala</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Distemonanthus benthamianus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dracaena arborea</i>	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Elaeis guineensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eramomastax polysperma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eugenia uniflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
<i>Eupatorium odoratum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Euphorbia heterophylla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euphorbia hirta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Fagara macrophylla</i>	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

Table 3 (Continued)

Botanical name	Dysentery	Dysmenorrhoea	Ear pus	Fibroid	Fracture	Galactagogue	General debility	Gonorrhoea	Haemorrhoid	Hepatitis	Hypertension	Infertility	Itching condition	Jaundice	Laxative	Malaria	Measles	Mental illness	Oral hygiene	Oral rehydration therapy
<i>Fleurya aestuans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Garcinia cola</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Glycine max</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
<i>Gnetum africanum</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Gongronema latifolium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gossypium hirsutum</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Guarea thompsonii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Heinsia crinita</i>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
<i>Heliotropium indicum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hippocratea africana</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	0
<i>Homalium letestui</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
<i>Icacina trichantha</i>	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
<i>Ipomoea involucrata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Ixora coccinea</i>	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
<i>Jatropha curcas</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Justicia insularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
<i>Lasianthera Africana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lonchocarpus cyanescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Maesobotrya barteri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Maesobotrya dusenii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
<i>Malvastrum coromandelianum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mangifera indica</i>	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
<i>Manihot esculenta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Melanthera scandens</i>	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microdesmis puberula</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Milletia aboensis</i>	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0
<i>Monodora myristica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Musa paradisiaca</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
<i>Musa sapientum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Newbouldia laevis</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nauclea latifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Ocimum gratissimum</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
<i>Palisota hirsute</i>	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pentaclethra macrophylla</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Persea americana</i>	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
<i>Phyllanthus amarus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Pterocarpus milderbraedii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Randia acuminata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
<i>Randia longiflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
<i>Rauwolfia vomitoria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Ricinus communis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
<i>Saccharum officinarum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Sacoglottis gabonensis</i>	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Setaria anceps</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sida acuta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Solanum melongena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Solanum torvum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Solenostemon monostachyus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<i>Spondias mombin</i>	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Symphonia globulifera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Synsepalum dulcificum</i>	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
<i>Telfairia occidentalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tetrapleura tetraptera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tridax procumbens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Uvaria chamae</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
<i>Vernonia amygdalina</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
<i>Vernonia conferta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
<i>Zingiber officinale</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total no. of citation	1450	974	158	195	182	132	65	2925	2810	98	2660	205	118	300	1993	4194	1758	1196	2971	582

<i>Abrus precatorius</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	93
<i>Acalypha fimbriata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105
<i>Achyranthes aspera</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	315
<i>Adansonia digitata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108
<i>Adenostemma mauritianum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	268
<i>Aframomum melegueta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,125
<i>Afrofittonia silvestris</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	652
<i>Alchornea cordifolia</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	822
<i>Alchornea laxiflora</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	58
<i>Allium cepa</i>	0	0	2	0	0	0	0	0	1	0	0	1	0	0	0	0	0	598
<i>Allium sativum</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1,795
<i>Alstonia boonei</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
<i>Anacardium occidentale</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131
<i>Anchomanes difformis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	579
<i>Anthocleista djalensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	544
<i>Anthothis macrophylla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110
<i>Artocarpus communis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215
<i>Aspilia africana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	640
<i>Baphia nitida</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,527
<i>Borreria verticillata</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	108
<i>Cajanus cajan</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	156
<i>Caladium bicolor</i>	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	1,483
<i>Carica papaya</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	850
<i>Carpolobia lutea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88
<i>Cassia alata</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	930
<i>Cassia tora</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	710
<i>Chrysophyllum africanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	760
<i>Cissus quadrangularis</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	82
<i>Citrus aurantifolia</i>	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	900
<i>Citrus limon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	713
<i>Clausena anisata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	247
<i>Cleome viscosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205
<i>Cnestis ferruginea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	378
<i>Cocos nucifera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	582
<i>Cola acuminata</i>	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	395
<i>Combretodendrum macrocarpum</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	209
<i>Combretum micranthum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	550
<i>Combretum racemosum</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	667
<i>Costus afer</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	283
<i>Crassocephalum crepidioides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	523
<i>Croton zambesicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	683
<i>Cylicodiscus gabunensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87
<i>Cymbopogon citrates</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	930
<i>Dacryodes edulis</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1,044
<i>Dacryodes klaineana</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	480
<i>Daniellia ogea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243
<i>Dennettia tripetala</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145
<i>Distemonanthus benthamianus</i>	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	332
<i>Dracaena arborea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	358
<i>Elaeis guineensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175
<i>Eramomastax polysperma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66
<i>Eugenia uniflora</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	192
<i>Eupatorium odoratum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	711
<i>Euphorbia heterophylla</i>	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156
<i>Euphorbia hirta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160
<i>Fagara macrophylla</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	476
<i>Fleurya aestuans</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	103
<i>Garcinia cola</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,206
<i>Glycine max</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,22

Table 3 (Continued)

Botanical name	Pediculosis	Purgative	Rheumatism	Skin disease	Smallpox	Sores	Sore throat	Stomach ache	Stomach upset	Tooth ache	Ulcer	Vermifuge	Waist pain	Weaning agent	Whitlow	Wound	Yaw	Yellow fever	Total no. of citations
<i>Gnetum africanum</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1,123
<i>Gongronema latifolium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	837
<i>Gossypium hirsutum</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	885
<i>Guarea thompsonii</i>	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	
<i>Heinsia crinita</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,137
<i>Heliotropium indicum</i>	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	337
<i>Hippocratea africana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	455
<i>Homalium letestui</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	292
<i>Icacina trichantha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	267
<i>Ipomoea involucrate</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,92
<i>Ixora coccinea</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	780
<i>Jatropha curcas</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	355
<i>Justicia insularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	185
<i>Lasianthera Africana</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	824
<i>Lonchocarpus cyanescens</i>	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	276
<i>Maesobotrya barteri</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154
<i>Maesobotrya dusenii</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	413
<i>Malvastrum coromandelianum</i>	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	222
<i>Mangifera indica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	580
<i>Manihot esculenta</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,178
<i>Melanthera scandens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76
<i>Microdesmis puberula</i>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	251
<i>Milletia aboensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209
<i>Monodora myristica</i>	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Musa paradisiacal</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	684
<i>Musa sapientum</i>	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	684
<i>Newbouldia laevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	378
<i>Nauclea latifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	194
<i>Ocimum gratissimum</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1,518
<i>Palisota hirsute</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	208
<i>Pentaclethra macrophylla</i>	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	240
<i>Persea Americana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	234
<i>Phyllanthus amarus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	122
<i>Pterocarpus mildbraedii</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	174
<i>Randia acuminata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	930
<i>Randia longiflora</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	930
<i>Rauwolfia vomitoria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	927
<i>Ricinus communis</i>	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1,467
<i>Saccharum officinarum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	802
<i>Sacoglottis gabonensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
<i>Setaria anceps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,95
<i>Sida acuta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	658
<i>Solanum melongena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,50
<i>Solanum torvum</i>	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	97
<i>Solenostemon monostachyus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
<i>Spondias mombin</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,150
<i>Symphonia globulifera</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
<i>Synsepalum dulcificum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215
<i>Telfairia occidentalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	384
<i>Tetrapleura tetraptera</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	688
<i>Tridax procumbens</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	602
<i>Uvaria chamae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	521
<i>Vernonia amygdalina</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,018
<i>Vernonia conferta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	562
<i>Zingiber officinale</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2,072
Total no. of citation	81	156	632	7126	156	999	703	2667	175	266	1130	721	300	201	472	1243	89	215	58,663

Table 4
Use of medicinal plants outside Akwa Ibom State

Plant species	Ailments	Country (source)
<i>Abrus precatorius</i>	Conjunctivitis, malaria, laxative, cough, insomnia	Nig (1, 3, 4)
<i>Acalypha fimbriata</i>	Skin rashes, emetic	Nig (1)
<i>Achyranthes aspera</i>	Expectorant, astringent, diuretic, fever, arthritis Diarrhoea, dysentery Haemorrhoids Cold Itch, headache	Nig (18, 4, 48) Gab (13), Gha (47) CD (21) SA (26) DRC (27)
<i>Adansonia digitata</i>	Malaria, diarrhoea, scorpion sting, snake bite Tooth ache	Nig (3, 4, 38) Tan (23)
<i>Alchornea cordifolia</i>	Ringworm, dysentery, skin disease, snakebite, muscle pain, malaria Tooth ache Respiratory and urinary ailments Leprosy, skin infections, venereal disease	Nig (1, 24, 4, 38) DRC (14), Cam (15) Gha (45) W/A (17)
<i>Allium cepa</i>	Diabetes, tetanus, haemorrhoids, carminative, scorpion sting, impotence, hypertension	Nig (1, 38, 4)
<i>Allium sativum</i>	Skin disease, ulcer, hypertension, pneumonia, respiratory problem, anthelmintic, diabetes, asthma	Nig (1, 38, 4)
<i>Alstonia boonei</i>	Malaria Intestinal helminthiasis, snakebite, lactation failure Jaundice, sores, fracture Skin trouble	Nig (18), Gha (19) Cam (15), Lib (22) CD (21, 20) Sen (8, 11)
<i>Anacardium occidentale</i>	Malaria, asthma, diabetes, arthritis, dysentery, tooth ache Yaw Urethral discharge Leprosy, ulcer	Nig (3, 4, 1), Sen (10, 11) Gha (6) Con (12) Gab (13)
<i>Anchomanes difformis</i>	Psychosis, convulsion Purgative, oedema, difficult childbirth, jaundice Lactogen	Nig (24) CD (21) Gab (13), Sen (11)
<i>Anthocleista djalonensis</i>	Stomach ache, skin disease, infertility, malaria	Nig (3, 1)
<i>Aspilia africana</i>	Bleeding, headache, skin disease, eye problem Tuberculosis	Nig (2, 18, 1), Gha (5) Tan (23)
<i>Baphia nitida</i>	Skin disease, fever, laxative Dysentery, venereal disease, ringworm	Nig (1) W/A (17)
<i>Borreria verticillata</i>	Skin disease Leprosy, febrifuge	Nig (16), Gam (16) Sen (16)
<i>Caladium bicolor</i>	Pain, oedema, boil, abscess, ulcer, sedative	Gab (12)
<i>Carica papaya</i>	Malaria, arthritis, diabetes, syphilis, gonorrhoea Headache, rabies Purgative, hernia, venereal disease, abortifacient, enema, pile Dysentery, blennorrhoea Anthelmintic, syphilis Tooth ache	Nig (3, 2, 4) Sen (10, 11, 7) CD (20), Gha (5) Gab (13), Con (12) E/A (26) Cam (15)
<i>Carpolobia lutea</i>	Arthritis Evacuant, fever, headache, leprosy, snakebite, venereal disease, wounds Aphrodisiac	Nig (45) W/A (17) Gab (13)
<i>Cassia alata</i>	Skin disease, laxative, asthma, gonorrhoea	Nig (3, 1, 4)
<i>Cissus quadrangularis</i>	Scabies	DRC (14)
<i>Citrus aurantifolia</i>	Hepatitis, arthritis, rheumatism, malaria, stomach ache, gonorrhoea Dysentery, fever, headache, ophthalmia, oral infection, vomiting	Nig (38, 3, 4) W/A (17)
<i>Citrus limon</i>	Scabies	Cam (15)
<i>Clausena anisata</i>	Evacuant, headache, respiratory ailment, tooth ache, pesticides	Ken, S/A, W/A (17)
<i>Cnestis ferruginea</i>	Laxative, skin disease, tooth cleaning agent, tooth ache	Nig (2, 18, 25), Gha (6), S/L (17)

Table 4 (Continued)

Plant species	Ailments	Country (source)
	Bronchitis, abortifacient, purgative	DRC (43), Con (12)
	Eye trouble	Sen (7)
<i>Cocos nucifera</i>	Laxative, scabies, tooth ache	Nig (3)
<i>Cola acuminata</i>	Hypertension, male infertility	Nig (38)
	Stimulant, appetite depressant	W/A (17)
<i>Combretum micranthum</i>	Prophylaxis against illness	Nig (2), W/A (42)
	Syphilis, fever, female sterility	Sen (9, 42, 8)
<i>Combretum racemosum</i>	Roundworm, tooth ache	Gam (35)
	Internal parasites	Sen (7,11)
	Vermifuge	CD (32)
	Dysentery, haemorrhoids, cough, tuberculosis	Con (12)
<i>Costus afer</i>	Laxative, arthritis	Nig (3)
	Cough, scabies	Cam (15)
<i>Crassocephalum crepidioides</i>	Stomach upset	Con (12)
	Epilepsy	Tan (23)
<i>Cylicodiscus gabunensis</i>	Malaria	Cam (15)
<i>Cymbopogon citrates</i>	Malaria, diarrhoea	Nig (3, 1, 4, 16)
<i>Dacryodes edulis</i>	Parasitic skin disease	Nig (29)
	Wound	Gab (13)
	Anaemia, mouthwash, dysentery, leprosy	Con (12), Cam (36)
<i>Dracaena arborea</i>	Abdominal pain	Nig (1)
	Abscess	Cam (15)
	Skin eruption, tooth ache, catarrh	DRC (14)
<i>Elaeis guineensis</i>	Vermifuge	Nig (4)
	Lumbago, malaria, scabies, hernia, headache	Cam (15)
<i>Eugenia uniflora</i>	Malaria	Nig (39)
<i>Eupatorium odoratum</i>	Wounds, diabetes, malaria, skin rashes	Nig (24, 1, 4)
<i>Euphorbia hirta</i>	Asthma	Nig (16)
	Laxative, sore, boils	Gha (16)
<i>Fagara macrophyla</i>	Diarrhoea, dysentery	Ang (16)
<i>Garcinia cola</i>	Conjunctivitis	Lib (16)
	Gonorrhoea, inflammation, tooth ache, cancer	Nig (3, 1, 17)
	Venereal disease, arthritis, cough	Nig (3, 4)
	Lumbago	Cam (15)
	Oral hygiene	CD, Gha (44)
<i>Glycine max</i>	Dysentery, tooth ache, aphrodisiac, tumour, respiratory ailments	W/A (17)
	Laxative	Nig (4)
<i>Gnetum africanum</i>	Colic	S/L (17)
	Laxative	Gha (6)
<i>Gossypium hirsutum</i>	Dysentery, emmenagogue	Nig (4)
<i>Guarea thompsonii</i>	Gonorrhoea, abscess	Cam (15)
<i>Heinsia crinita</i>	Hernia, neck injury	Nig (38)
<i>Heliotropium indicum</i>	Fever, cancer, convulsion	Nig (1), CDR (34)
	Dermatoses	Sen (11), Tan (23)
	Gonorrhoea	Gam (35), CD (21, 20)
<i>Hippocratea africana</i>	Skin infection	Nig (25)
	Oedemas	Sen (9, 11)
<i>Ipomoea involucrate</i>	Asthma, fever, rheumatism	Nig (18, 1)
	Jaundice	CD (21)
	Oedema, eye infection, dysmenorrhoea, headache	Con (12)
<i>Ixora coccinea</i>	Gonorrhoea	Nig (3)
<i>Jatropha curcas</i>	Skin disease, oral thrush, gonorrhoea, epilepsy	Nig (1, 3, 24, 4)

Table 4 (Continued)

Plant species	Ailments	Country (source)
<i>Justicia insularis</i>	Tooth ache Diarrhoea	Cam (15) DRC (41)
<i>Lasianthera africana</i>	Chewing sponge	Gha (17)
<i>Lonchocarpus cyanescens</i>	Skin disease, yaw, arthritis, snakebite Insecticide	Nig (1, 3, 4) WA (17)
<i>Mangifera indica</i>	Diarrhoea, dysentery, laxative, malaria, venereal disease, arthritis, migraine, skin disease	Nig (18,3,1,24,4), Sen (9–11), CD (21, 20, 32), Con (12)
<i>Manihot esculenta</i>	Arthritis, gonorrhoea, burns, ulcer Lumbago	Nig (3, 4) Cam (15)
<i>Melanthera scandens</i>	Eye trouble, chicken pox, purgative Cuts, wounds	CD (20, 21, 32) E/A (26)
<i>Microdesmis puberula</i>	Malaria, cough, sexual dysfunction	Cam (15)
<i>Monodora myristica</i>	Haemorrhoids, stomach ache, febrile pain, eye trouble, sores Migraine	CD (21), Con (12) Gab (30, 13)
<i>Musa paradisiacal</i>	Measles, hypertension, aphrodisiac, diarrhoea Tooth ache Intestinal helminthiasis	Nig (1, 4) S/A (17) Cam (15)
<i>Newbouldia laevis</i>	Skin disease, conjunctivitis, migraine, cough, dysentery, diarrhoea, breast cancer Rheumatism, oedema Snakebite, leprosy	Nig (1, 18, 4), Con (12), CD (32), Gha (31) Sen (7, 11) Gui (33)
<i>Nauclea latiflora</i>	Malaria, dysmenorrhoea, tooth ache, vermifuge	Nig (3, 24, 38)
<i>Ocimum gratissimum</i>	Diarrhoea, pile, abdominal discomfort, diabetes, convulsion Cough	Nig (38, 4) Cam (15)
<i>Palisota hirsuta</i>	Dysentery, stomach ache Skin disease, cough, oedema	Nig (2) CD, Gha (21, 20, 5)
<i>Persea Americana</i>	Wounds, urethral discharge Hypertension, insomnia, aphrodisiac, heart tonic	Gab (30, 13) Nig (1, 38)
<i>Phyllanthus amarus</i>	Malaria Pile, hypertension, diabetes, kidney stone, fever	DRC (14) Nig (1, 4)
<i>Randia acuminata</i>	Oral hygiene	Cam (44)
<i>Rauwolfia vomitoria</i>	Mental illness, convulsion, jaundice Epilepsy, sedative Aphrodisiac Headache	Nig (3, 46), Gha (47), Con (12) CD (32) Gha (6) Cam (15)
<i>Ricinus communis</i>	Skin disease, cancer, stomach trouble, laxative Tooth ache	Nig (1, 4, 3) S/A (17)
<i>Saccharum officinarum</i>	Jaundice Vermifuge	Nig (4), Cam (15) DRC (14)
<i>Sida acuta</i>	Malaria, labour, stomach ache, catarrh, venereal disease, whitlow, breast cancer Headache	Nig (1, 24, 3, 4) Cam (15)
<i>Spondias mombin</i>	Gonorrhoea, aphrodisiac, fibroid, fever, diarrhoea, cough, sore throat Stomach trouble Tooth ache Dysentery	Nig (1, 2, 4), CD (21) Gui (28) Con (12) Sen (9)
<i>Solanum melongena</i>	Diabetes, tonic, laxative, sedative	Nig (38, 4)
<i>Solanum torvum</i>	Malaria	Cam (15)
<i>Solenostemon monostachys</i>	Measles, dizziness	Nig (1)
<i>Synsepalum dulcificum</i>	Sweetener, diabetes	W/A (17)
<i>Tetrapleura tetraptera</i>	Convulsion, arthritis. Venereal disease, lumbago	Nig (3), Cam (15)

Table 4 (Continued)

Plant species	Ailments	Country (source)
<i>Tridax procumbens</i>	Fever, typhoid, eye problem Bleeding	Nig (4) Mad (37)
<i>Uvaria chamae</i>	Amenorrhoea Abdominal pain Jaundice Purgative, fever	Sen (9) Gha (6) CD (21) S/L (29, 19)
<i>Vernonia amygdalina</i>	Oral hygiene, itch, parasitic infection, ringworm Fever, laxative, cough, abortifacient Diuretic, skin infection, evacuant Malaria Female sterility, impotence Schistosomiasis	Nig (1, 18, 4, 3, 29) Gha (5, 6), Gui (28) W/A (17) Cam (15) Sen (10, 11) S/A (26)
<i>Vernonia conferta</i>	Lactation, jaundice, wound Laxative Cough, intestinal and urinogenital ailments, vermifuge Diarrhoea, constipation Sores	Cam (15), CD (20) S/L (29, 19) Con (12) Gha (6) Gab (30, 13)
<i>Zingiber officinale</i>	Body pain, stomach trouble, hypertension, nausea, fever, pneumonia, liver disease	Nig (1, 38, 4)

Nig, Nigeria; Gha, Ghana; Sen, Senegal; Con, Congo Brazzaville; Gab, Gabon; CD, Côte D'Ivoire; Lib, Liberia; Tan, Tanzania; DRC, Democratic Republic of Congo; S/L, Sierra Leone; Gui, Guinea; Gam, Gambia; Cam, Cameroon; Ken, Kenya; Mad, Madagascar; Ang, Angola; W/A, West Africa; E/A, East Africa; S/A, South Africa. 1, Nigeria Natural Medicine Development Agency (NNMDA) (2006); 2, Ainslie (1937); 3, Iwu (1986); 4, Mann et al. (2003); 5, Irvine (1930); 6, Irvine (1961); 7, Kerharo and Adam (1962); 8, Kerharo and Adam (1963); 9, Kerharo and Adam (1964a); 10, Kerharo and Adam (1964b); 11, Kerharo and Adam (1974); 12, Bouquet (1969); 13, Walker and Silans (1961); 14, Chifundera (2001); 15, Betti (2004); 16, Sofowora (1993); 17, Lewis and Elvin-Lewis (1977); 18, Oliver (1960); 19, Taylor-Smith (1966); 20, Kerharo and Bouquet (1950); 21, Bouquet and Debray (1974); 22, Voorhoeve (1965); 23, Haerdi et al. (1964); 24, Ekpendu et al. (2000); 25, Malcolm and Sofowora (1969); 26, Watt and Breyer-Brandwijk (1962); 27, Hauman (1951); 28, Pobéguin (1912); 29, Dalziel (1937); 30, Walker (1953); 31, Hartwell (1968); 32, Adjanohoun and Aké Assi (1972); 33, Schnell (1950); 34, Taton (1971); 35, Williams (1907); 36, Ayuk et al. (1999); 37, Debray et al. (1971); 38, ASICUMPON (2005); 39, Adebajo (1988); 40, Kamdem et al. (1986); 41, Tona et al. (1999); 42, Aubréville (1950); 43, Troupin (1952); 44, Cunningham (1993); 45, Iwu and Anyanwu (1982); 46, Adegoke et al. (1968); 47, Ayensu (1978); 48, Iwu (1993).

Elvin-Lewis, 1977). The use of garlic for stomach ache may be attributed to the bactericidal effect of allicin.

Spondias mombin (Anacardiaceae) is frequently used for dysentery (Ip=2) and haemorrhoids (Ip=1). The presence of tannins in the plant (Bouquet and Debray, 1974; Gill, 1992) explains its use against dysentery and haemorrhoids. In fact, Bruneton (1999) reported that most plant species used to treat diarrhoea, dysentery and similar ailments contain tannins, the compounds of which are already known to have antidiarrhoea and antiseptic properties. Thus, tannins in some plants such as *Anacardium occidentale*, *Psidium guajava* and *Mangifera indica* have been found effective against dysentery, diarrhoea and haemorrhoids (Burkill, 1985; Anonyme, 1990, 1993). Elligatannins showing antiviral properties have also been identified in the plant (Corthout et al., 1991).

Fagara macrophylla (Rutaceae) was recorded for use against gonorrhoea (Ip=1), haemorrhoids (Ip=1), boil (Ip=2) and tooth ache (Ip=1). This plant and other *Fagara* species are widely used as chewing sticks to treat tooth ache (Lewis and Elvin-Lewis, 1977). The root contains an alkaloid, artarine which shows bactericidal activity (Irvine, 1961). This may explain its action as tooth ache remedy. This compound may also show anti-sickle cell property (Sofowora and Isaac, 1971). A compound, 8-methoxydihydroneitidine also isolated from *Fagara macrophylla* is reported as anticancer agent (Lewis and Elvin-Lewis, 1977).

Uvaria chamae (Annonaceae) is used for four ailments, diarrhoea (Ip=1), jaundice (Ip=1), haemorrhoids (Ip=1) and bleeding (Ip=1). The properties of the plant have been found to be astringent and styptic which explain its use for diarrhoea and haemorrhoids (Burkill, 1985). The detection of tannins in this plant (Kerharo and Adam, 1974) lends further credence to these uses. However, traces of alkaloids have been found in the root of the plant (Taylor-Smith, 1966; Adegoke et al., 1968; Kerharo and Adam, 1974).

Carpolobia lutea (Polygalaceae) was frequently cited as aphrodisiac (Ip=3). Three triterpene saponins have been identified from the plant but found to show anticancer property (Mitaine-Offer et al., 2002).

Zingiber officinale (zingiberaceae) was mentioned for the treatment of cough (Ip=1), catarrh (Ip=1) and stomach ache (Ip=1). Ginger (*Zingiber officinale*) contains volatile oil the principal constituents of which are β -phellandrene, cineole, bisabolone, zingiberene and zingiberol (Trease and Evans, 1989). The pungent, stimulant and carminative properties of ginger are attributed to gingerol, an oleoresin from which zingerone and shogaol have been isolated (Claus et al., 1971). This clearly explains the use of ginger for the foregoing ailments. However, ginger is also reported as beneficial in the treatment of rheumatism and muscular disorder (Srivastava and Mustafa, 1992).

The survey has shown the various medicinal plants employed in the traditional medical practice of Akwa Ibom State of

Nigeria. Such practice has contributed vastly to the healthcare delivery system of the State. This is so because over 70% of Nigerians rely on traditional medicine for health care delivery and, in particular, the medicinal plants highlighted in this survey, most especially the ones where uses are peculiar to the State, may constitute additional source of drugs for the nation. In fact, it can lead to a source of absolutely new drugs. However, the standardization of the method of preparation and mode of administration to ensure precise dosage is recommended.

With the current interest shown by the government in incorporating traditional and Western medical practice into the healthcare delivery system, this survey provides a veritable source of information for practitioners of traditional medicine as well as medicinal plant researchers.

Acknowledgements

The authors acknowledge the contributions of the herbalists in the State, particularly Chief Monday Udo Inyang of Ikono, Chief Udo Akpan Ekoon of Etinan and Chief E.E. Uko of Obio Etoi, the village head of Uyo. The contributions of Mr. Etefia, a staff in the department who evinced a profound knowledge in local medicinal plants, and Mr. Okon Abia-Williams, an herbalist in the department are also appreciated.

References

- Adebajo, A.C., 1988. Some pharmacognostical investigation of the leaves of *Eugenia uniflora* L. Masters of Science Thesis. Obafemi Awolowo University, Ile-Ife, Nigeria, pp. 1–15.
- Adegoke, E.A., Akinsanya, A., Naqvi, S.H.Z., 1968. Studies of Nigerian medicinal plants. 1. A preliminary survey of plants alkaloids. Journal of West African Science Association 13, 13–33.
- Adjanohoun, E., Aké Assi, L., 1972. Plantes Pharmaceutiques de Côte D'Ivoire. Abidjan, Ivory Coast, pp. 20–97.
- Ainslie, J.R., 1937. A List of Plants Used in Medicine in Nigeria. Imperial Forestry Institute Oxford University, UK, pp. 1–37.
- Ajibesin, K.K., Bala, D.N., Ekpo, B.A.J., Adesanya, S.A., 2002. Toxicity of some implicated poisons in Nigerian ethnomedicine to rats. Nigerian Journal of Natural Products and Medicines 6, 7–9.
- Akah, P.A., Okoli, C.O., Nwafor, S.V., 2002. Phytotherapy in the management of diabetes mellitus. Journal of Natural Remedies 2, 1–10.
- Akah, P.A., Okafor, C.L., 1992. Blood sugar lowering effect of *Vernonia amygdalina* Del, in an experimental rabbit model. Phytotherapy Research 6, 171–173.
- Anonyme, 1990. Fiche espece sur *Psidium guajava* L. Revue de médecines et Pharmacopée Africaines 4, 65–75.
- Anonyme, 1993. Fiche espece sur *Mangifera indica* L. Revue de médecines et Pharmacopée Africaines 6, 119–124.
- Aubréville, A., 1950. Flore Forestière Soudano-guinéenne, A.O.F.-Cameroun-A.E.F., Paris Société d'Éditions Géographiques Maritimes et Coloniales, p. 114.
- Ayensu, E.S., 1978. Medicinal Plants of West Africa. Reference Publications, Algonac, pp. 1–330.
- Ayuk, E.T., Duguma, B., Franzel, S., Kengué, J., Mollet, M., Tiki-Manga, T., Zekeng, P., 1999. Uses, management and economic potential of *Dacryodes edulis* (Burseraceae) in the humid lowlands of Cameroon. Economic Botany 53, 292–301.
- Bannerman, R.H.O., Cummins, A., Djukanovic, V., Koko, U., 1975. Indigenous system of medicine: medicine in India. In: Djukanovic, V., Mach, E.P. (Eds.), Alternative Approaches to Meeting Basic Health Needs in Developing Countries. WHO, Geneva, pp. 84–91.
- Bannerman, R.H.O., 1979. Acupuncture: the WHO View. World Health Magazine, pp. 24–29.
- Betti, J.L., 2004. An ethnobotanical study of medicinal plants among the Baka Pygmies in the Dja Biosphere Reserve, Cameroon. African Study Monographs 25, 1–27.
- Betti, J.L., 2002. Usages populaires des plantes galactogènes dans l'arrondissement de Mintom au sud de la Reserve de biosphère du Dja (Cameroon). Soma 2, 35–46.
- Bouquet, A., 1969. Féticheurs et médecines traditionnelles du Congo (Brazzaville). Mémoire, O.R.S.T.O.M., pp. 36–100.
- Bouquet, A., Debray, M., 1974. Plantes médicinales de la Côte D'Ivoire. Trav. Doc. O.R.S.T.O.M., pp. 13–76.
- Bruneton, J., 1999. Pharmacognosy, Phytochemistry, Medicinal Plants, 2nd ed. Lavoisier Publishing, France, pp. 1–1119.
- Burkill, H.M., 1985. The Useful Plants of West Tropical Africa, vol. 1, 2nd ed. Royal Botanic Gardens, Kew, UK, Family A–D, pp. 1–960.
- Carney, J.R., Krenisky, J.M., Williamson, R.T., Luo, J., Carlson, T.J., Hsu, V.L., Moswa, J.L., 1999. Maprouneacin, a new daphnane diterpenoid with potent antihyperglycemic activity from *Maprounea africana*. Journal of Natural Products 62, 345–347.
- Chifundera, K., 2001. Contribution to the Inventory of Medicinal Plants from the Bushi Area, South Kivu Province, Democratic Republic of Congo. Fitoterapia 72, 351–368.
- Claus, E.P., Varro, E.T., Brady, L.R., 1971. Pharmacognosy. Henry Kimpton, London, pp. 213–214.
- Corthout, J., Pieters, L.A., Claeys, M., Vanden-Berge, D.A., Vlietinck, A.J., 1991. Antiviral ellagitannins from *Spondias mombin*. Phytochemistry 30, 1129–1130.
- Cunningham, A.B., 1993. African medicinal plants: setting priorities, the interface between conservation and primary healthcare. People and Plants Working Paper, UNESCO, pp. 1–50.
- Dalziel, J.M., 1937. Flora of West Tropical Africa. Crown Agents for Overseas Government, pp. 1–296.
- Debray, M., Jacquemin, H., Razafindramboa, R., 1971. Contribution à l'inventaire des plantes médicinales de Madagascar. Travaux Documentes. O.R.S.T.O.M., No. 8, Paris, p. 18.
- Ekpendu, T.O.E., Anyogo, P., Ityough, D., Akpa, F., 2000. Nigerian ethnomedicine and medicinal plant flora: the Benue experience. Part 3. Nigerian Journal of Natural Products and Medicines 4, 13–22.
- Erasto, P., Grierson, D.S., Afolayan, A.J., 2006. Bioactive sesquiterpene lactones from the leaves of *V. amygdalina*. Journal of Ethnopharmacology 106, 117–120.
- Etukudo, I., 2000. Forests: Our Divine Treasure. Dorand Publishers, Nigeria, pp. 156–180.
- Etukudo, I., 2003. Ethnobotany: Conventional and Traditional Uses of Plants. The Verdict Press, Nigeria, pp. 83–134.
- Fabricant, D.S., Farnsworth, N.R., 2001. The value of plants used in traditional medicine for drug discovery. Environmental Health Perspectives (Supplement) 109, 69–75.
- Farnsworth, N.R., Segelman, A.B., 1971. Hypoglycemic plants. Tile Till 57, 52–55.
- Farnsworth, N.R., Akerele, O., Bingel, A.S., Soejarto, D.D., Guo, Z., 1985. Medicinal plants in therapy. Bulletin WHO 63, 965–981.
- Gill, L.S., 1992. Ethnomedicinal Uses of Plants in Nigeria. University of Benin Press, Benin City, Nigeria, pp. 1–276.
- Goodson, A., 1932. Echitamine in *Alstonia* barks. Journal of Chemical Society, 2626–2630.
- Haerdi, F., Kerharo, F.J., Adam, J.G., 1964. Afrikanische Heilpflanzen: plantes médicinales africaines, Basel, pp. 87–186.
- Hartwell, J.L., 1968. Plants used against cancer. A survey. Lloydia 31, 71–170.
- Hauman, L., 1951. Fam. 24, Amaranthaceae. In: Boutique, R. (Ed.), Flore du Congo-Belge et du Ruanda-Urundi, Spermatophytes 2. I.E.A.C., Brussels, pp. 53–55.
- Hutchinson, J., Dalziel, J.M., 1954. Flora of West Tropical Africa, vol. I. Crown Agents for Overseas Government and Administration, London, pp. 17–295.
- Hutchinson, J., Dalziel, J.M., 1958. Flora of West Tropical Africa, vol. I. Crown Agents for Overseas Government and Administration, London, pp. 299–763.

- Hutchinson, J., Dalziel, J.M., 1968. Flora of West Tropical Africa, vol. III. Crown Agents for Overseas Government and Administration, London, pp. 1–276.
- Irvine, F.R., 1930. Woody Plants of Ghana. Oxford University Press, London, pp. 42–431.
- Irvine, F.R., 1961. Woody Plants of Ghana. Oxford University Press, London, pp. 1–868.
- Isong, E.U., Idiong, U.I., 1997. Comparative studies on the nutritional and toxic composition of three varieties of *Lasianthera africana*. Plant Foods for Human Nutrition 51, 79–84.
- Iwu, M.M., Anyanwu, B.N., 1982. Phytotherapeutic profile of Nigerian herbs 1: anti-inflammatory and anti-arthritis agents. Journal of Ethnopharmacology 6, 263–274.
- Iwu, M.M., 1986. African Ethnomedicine. UPS, Nsukka, Nigeria, pp. 34–78.
- Iwu, M.M., 1993. Handbook of African Medicinal Plants. CRC Press, Boca Raton, pp. 1–435.
- Kamdem, L., Messi, H.M., Ndong, N.A., Mbi, C., Njikam, A.P., Elogo, S., 1986. Ethnobotanical investigations carried out in Mouloundou (Eastern Province) and Zoetele (Southern Province). Revue des Sciences et de la Technologie (Health Science Serie) 3, 59–68.
- Keay, R.W.J., Onochie, C.F.A., Stanfield, D.P., 1964. Nigerian Trees, vols. I–II. Federal Department of Forest Research, Ibadan, Nigeria, pp. 14–334.
- Kerharo, J., Adam, J.G., 1962. Premier inventaire des plantes médicinales et toxiques de la Casamance (Senegal). Annales Pharmaceutiques Françaises 20, 76–841.
- Kerharo, J., Adam, J.G., 1963. Deuxieme inventaire des plantes médicinales et toxiques de la Casamance (Senegal). Annales Pharmaceutiques Françaises 21, 773–792.
- Kerharo, J., Adam, J.G., 1964a. Plantes médicinales et toxiques des Peul et des Toucouleur du Senegal. Journal d'Agriculture des tropiques et de Botanique appliquée 11, 384–599.
- Kerharo, J., Adam, J.G., 1964b. In: Haerdi, F., Kerharo, F.J., Adam, J.G. (Eds.), Les plantes médicinales et toxiques et magiques des Niominka et des Socé des Iles du Saloum (Senegal). Afrikanisches Heilpflanzen: Plantes Médicinales Africaines, Basel, pp. 292–325.
- Kerharo, J., Adam, J.G., 1974. La Pharmacopée Sénégalaise traditionnelles. Plantes médicinales et toxiques. Vigot Frères, Paris, pp. 119–353.
- Kerharo, J., Bouquet, A., 1950. Plantes médicinales et toxiques de la Côte D'Ivoire—Haute-Volta. Vigot Frères, Paris, pp. 168–240.
- Klayman, D.L., 1993. Artemisia annua: from weed to respectable antimalarial plant. In: Kinghorn, A.D., Belandrin, M.F. (Eds.), Human Medicinal Agents from Plants. American Chemical Society, pp. 242–255.
- Lewis, W.H., Elvin-Lewis, M.P., 1977. Medical Botany. John Wiley and Sons, New York, pp. 1–515.
- Malcolm, S.A., Sofowora, E.A., 1969. Antimicrobial activity of selected Nigerian folk remedies and their constituent plants. Lloydia 32, 512–517.
- Mann, A., Gbate, M., Umar, A.N., 2003. Medicinal and Economic Plants of Nupeland. Jude Evans Books and Publications, Nigeria, pp. 1–276.
- Mitaine-Offer, A., Miyamoto, T., Khan, I.K., Delaude, C., Lacaille-Dubois, M., 2002. Three new triterpene saponins from two species of *Carpolobia*. Journal of Natural Products 65, 553–557.
- Nigerian Natural Medicine Development Agency (NNMDA), 2006. Medicinal Plants of Nigeria: South-West Nigeria, vol. 1. NNMDA, Lagos, Nigeria, pp. 1–117.
- Nwanjo, H.U., 2005. Efficacy of aqueous leaf extract of *Vernonia amygdalina* on plasma lipoprotein and oxidative status in diabetic rat models. Nigerian Journal of Physiological Sciences 20, 39–42.
- Odoemena, C.S., Essien, J.P., 1995. Antibacterial activity of the root extract of *Telfairia occidentalis*. West African Journal of Biological and Applied Chemistry 40, 29–32.
- Okokon, J.E., Ofodum, K.C., Ajibesin, K.K., Bala, D., Gamaniel, K.S., 2005. Pharmacological screening and evaluation of antiplasmodial activity of *Croton zambesicus* against *Plasmodium berghei berghei* infection in mice. Indian Journal of Pharmacology 37, 243–246.
- Oliver, B., 1960. Medicinal Plants in Nigeria. Nigerian College of Arts, Science and Technology, pp. 1–138.
- Petters, S.W., Iwok, E.R., Uya, O.E., 1994. Akwa Ibom State: The land of Promise—A Compendium. Gabumo Press, Nigeria, pp. 19–244.
- Pobéguin, H., 1912. Plantes médicinales de la Guinée. Paris, pp. 14, 65.
- Rastogi, R.P., Dhawan, B.N., 1982. Research on medicinal plants at the Central Drug Research Institute, Lucknow (India). Indian Journal of Medicinal Research (Supplement) 76, 27–45.
- Samuelsson, G., 1992. Sesquiterpenes and diterpenes with pharmacological and biological activities. Acta Pharmaceutica Fennica 101, 33–34.
- Schnell, R., 1950. Manuels Quest-africains. I. La forêt dense. Introduction à l'étude botanique de la région forestière d'Afrique occidentale, Paris, p. 248.
- Sofowora, E.A., Isaac, W.A., 1971. Reverse of sickling and crenation of erythrocytes by root extract of *Fagara zanthoxyloides*. Lloydia 34, 383–385.
- Sofowora, A., 1993. Medicinal Plants and Traditional Medicine in Africa. Spectrum Books Ltd., Ibadan, Nigeria, pp. 1–289.
- Srivastava, K.C., Mustafa, T., 1992. Ginger (*Zingiber officinale*) in rheumatism and musculoskeletal disorders. Medical Hypotheses 39, 342–348.
- Stanfield, D.P., Lowe, J., 1987. The Flora of Nigerian Grasses, 2nd ed. Ibadan University Press, Ibadan, Nigeria, pp. 203–267.
- Talapatra, S.K., Sarkar, A.C., Chakrabarti, S., Talapatra, B., 1989. Randiflorin, a new pentacyclic triterpene lactone and Randilongin, a new rho-coumaric acid ester from *Randia longiflora* Lamk: molecular conformation of Randiflorin. Journal of Indian Chemical Society 66, 694–698.
- Talbot, P.A., 1969. The Peoples of Southern Nigeria, vol. IV. Frank Cass and Co. Ltd., London, p. 10.
- Taton, A., 1971. Boraginaceae. In: Bamps, P. (Ed.), Flore du Congo, Rwanda et du Burundi, Spermatophytes, I.N.É.A.C., Brussels, pp. 29–30.
- Taylor-Smith, R., 1966. Investigations on plants of West Africa. III. Phytochemical studies of some plants of Sierra Leone. Bulletin de l'Institut Français d'Afrique Noire A 28, 538–541.
- The Association for Scientific Identification, Conservation, Utilization of Medicinal Plants of Nigeria, Their Uses (ASICUMPON), 2005. Checklist of Medicinal Plants of Nigeria and Their Uses. Jamoe and Trinity-Biz Publishers, Enugu, Nigeria, pp. 1–135.
- Tona, L., Kambu, K., Mesia, k., Cimanga, K., Aspers, S., De Bruyne, T., Pieters, L., Totte, J., 1999. Biological screening of traditional preparations from some medicinal plants used as anti-diarrhoeal in Kinshasa, Congo. Phytomedicine 6, 59–66.
- Trease, G.E., Evans, W.C., 1989. Pharmacognosy, 13th ed. Bailliere Tindall, p. 618.
- Troupin, G., 1952. Fam. 49, Connaraceae. In: Boutique, R. (Ed.), Flore du Congo-Belge et du Ruanda-Urundi, Spermatophytes 3. I.N.É.A.C., Brussels, pp. 118–120.
- Udo, E.A., 1984. Who Are The Ibibio? FEP Publishers, Nigeria, p. 107.
- Voorhoeve, A.G., 1965. Liberian High Forest Trees. Wageningen, p. 59.
- Walker, A.R., 1953. Usages pharmaceutiques des plantes spontanées du Gabon. I, vol. 5. Bulletin Institut d'Etudes Centrafricain n.s, pp. 19–40.
- Walker, A.R., Silans, R., 1961. Les plantes utiles du Gabon. Paul Lechevalier, Paris, pp. 19–132.
- Watt, J.M., Breyer-Brandwijk, M.G., 1962. The medicinal and poisonous plants of Southern and Eastern Africa, 2nd ed. Livingstone, pp. 13–296.
- Weisberger, A.S., Pansky, J., 1957. Tumour-inhibiting effects derived from an active principle of garlic (*Allium sativum*). Science 126, 1112–1114.
- Willaman, J.J., Li, H.-L., 1970. Alkaloids bearing plants and their contained alkaloids. Lloydia 33, 1.
- Williams, F.N., 1907. Florula Gambica. Une contribution à la flore de la colonie britannique. Bulletin de l'Herbier Boissier Serie 2, 7, pp. 81–96, 373.