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Ethnobotanical survey of plants used for skin diseases and related ailments in Akwa Ibom State, Nigeria

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Research

Abstract

Akwa Ibom State is situated in the Niger Delta region of Nigeria and is endowed with various plant species prominently employed in traditional medicine. The medicinal plants used to treat skin diseases and related ailments in Akwa Ibom are surveyed. An ethnobotanical survey was conducted to gather information through personal interviews with traditional medical practitioners, patients and community elders. 183 medicinal plant species representing 153 genera and 59 families, used in traditional Akwa Ibom medicine for the treatment of skin diseases and related ailments, were recorded from 930 households. The most treated ailment was skin spots followed by wounds and boils. The survey results provide information for traditional medical practitioners and medicinal plant researchers. These medicinal plants may serve as leads to drug discovery and may also be incorporated in the health care delivery system of Nigeria.

Introduction

Skin is the largest organ of the human body, as such plants showing dermatological properties and the ability to stop bleeding, and to heal wounds and burns are of great signficance to human health (Lewis & Elvin-Lewis 2003). Skin diseases occur all over the world, but are prevalent in tropical regions (Davis *et al.* 1980). Skin diseases occur in various forms (List of cutaneous conditions 2012), basically classified as non-contagious and contagious diseases. Contagious diseases are primarily categorized as bacterial, fungal, viral or parasitic diseases. Skin diseases such as scabies may be caused by mites, rash and itch could be caused by something such as stinging nettles, while diseases such as eczema may be hereditary (National Skin Centre, Singapore 1995).

Despite the plethora of antibiotics derived from fungi, microbial diseases are still on the rise in developing countries due to the relative unavailability of medicines and the emergence of wide spread drug resistance (Okeke *et al.* 2005). In developed countries, such as the United States (US), infectious diseases are commonly treated treated with drugs (Pinner *et al.* 1996). Thus, many phytochemical laboratories have long embarked on the search for antimicrobial compounds in higher plants (Hamburger & Hostettmann 1991). In spite of this, the search for compounds yielding antimicrobial activities, complementary to existing drugs, is considered a priority (Mitscher & Rao 1984).

There has been a shift in public preference towards greater acceptance of herbal medicines to treat infectious diseases. This is possibly due to the problems of over prescription and misuse of synthetic antibiotics (Cowan 1999). Many medicinal plants are readily accessible, contributing to their popularity. It is estimated that plant materials have provided models for 50% of the pharaceuticals used in modern Western medicine (Robbers *et al.* 1996).

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In Nigeria, skin diseases have been observed to be one of the most commonly treated diseases, affecting a majority of the population (Ajibesin *et al*. 2008, ASICUMPON 2005, Ekpendu *et al.* 2000, Etukudo 2003, Iwu 1986, NNMDA 2006a, b). In Akwa Ibom approximately 75% of people rely on traditional medicinal plants for health care (Ajibesin *et al.* 2008, Etukudo 2000, 2003, Petters *et al.* 1994). Various medicinal plants have been recorded in the state to treat mild and severe diseases (Ajibesin *et al.* 2008), and skin diseases were indicated as the most frequently occuring diseases. These observations stimulated a more elaborate survey on medicinal plants of the state used for various skin diseases and related ailments.

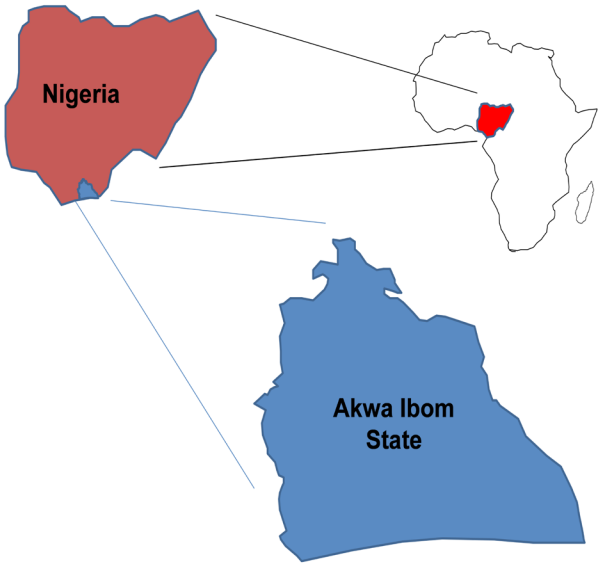
Study area

Ajibesin *et al.* (2008) provides the details of an earlier survey in Akwa Ibom. Briefly, this state is located within the south-eastern axis of Nigeria (Figure 1). It covers a total area of 8412 km^2, comprising the entire Qua Iboe River basin, and the western part of the lower Imo River basin (Petters *et al.* 1994). The State lies between latitudes 4° 32' and 5° 53' North and longitudes 7° 25' and 8° 25' East. The altitude of Akwa Ibom State lies between 45-70 m.

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

Akwa Ibom is comprised of 31 local government areas with a total population of about 4 million. The main ethnic groups in Akwa Ibom are the Ibibio, Eket, Annang, Oron, Andoni and Okobo, with the Ibibio being the largest (Udo 1983), and the fourth largest ethnic group in all of Nigeria (Talbot 1969). As a result, the Ibibio language forms a single linguistic unit within the state. Historically, the chief occupation in Akwa Ibom are agriculture, fishing, and salt production (Petters *et al.* 1994).

Figure 1. Map showing Akwa Ibom State, Nigeria.



Methods

Mode of information collection

Semi-structured interviews with the aid of a questionnaire were used to obtain data indcluding local names of plants, plant parts used in medicial preparation, therapeutic effects, diseases treated, method of preparation, method of administration, dosages, and duration of treatment. Interviews were conducted individually with traditional medical practitioners (TMPs), community elders and patients, bearing in mind age and gender differences.

The ethnobotanical survey was undertaken between August 2008 and July 2009. Akwa Ibom has approximately 1093 TMPs recognized by the National Association of Traditional Medicine Practitioners, Akwa Ibom branch (NATMP 2007). Out of this, 20 TMPs, representing 20 different households were selected in each local government area on the basis of their competence as recommended by the community head and the herbalist of the Faculty of Pharmacy, University of Uyo. Ten other households comprising community elders and patients were randomly selected bringing the total number of households surveyed in each local government area to 30. In total 930 households were surveyed in Akwa Ibom.

The interviews followed a guided field interview method (Martin 1995, Maundu 1995). The interviews were conducted during the day, on field trips to areas where medicinal plants are often collected, while survey questions were simultaneously asked and information recorded. Patients also participated in the field walk but restricted themselves to the plants growing in their vicinity, due to lack of sufficient energy to move far afield. The information obtained was noted while in the field and later cross-checked with the informants at evening meetings. Informed consent was obtained from every informant prior to the interview. Interviews with the TMPs were facilitated by the University of Uyo herbalist who also acted as the interpreter throughout the survey. The people interviewed were members of each of the different ethnic groups (Ibibio, Eket, Annang, Oron, Andoni, Okobo) making up the 31 local government areas of the State.

Medicinal plants mentioned 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 & Dalziel 1954, 1958, 1968, Keay *et al.* 1964, Stanfield & Lowe 1987) as well as by the use of other publications on medicinal plants (Ajibesin *et al.* 2008, Etukudo 2000, 2003, Iwu 1986, 1993). Aerial portions of plants were collected on a sustainable basis so as to preserve the plants. Where collection of roots was involved, new plants were cultivated to lessen the impact on local resources. The survey covered all 31 local government areas of the state.

Performance index of medicinal plants

A performance index was employed to analyze the data (Ajibesin *et al.* 2008). Several terms were neede to analze the data. The term 'specific flora' is defined as the list of plants used for treating a specific ailment, symptom or physiological effect. The term 'global floral' 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 'global floral' is 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 (P1) would be similar to the proportion of 'specific flora' to the 'global flora' (P2). To illustrate the selectivity of a plant for a specific disease, a comparison was drawn between the expected and observed values of the proportion of citations of a plant for a specific disease. The difference (D) between the two proportions was then used to define a performance index (Ip), which ranges between 0 and 3 according to the following arbitrary scale:

If P1 – P2 < 0, Ip = 0: the plants concerned are rejected, and deemed not important.
If 0 < P1 – P2 ≤ 1/3, Ip = 1: average performance.
If 1/3 < P1 – P2 ≤ 2/3, Ip = 2: high performance.
If P1 – P2 > 2/3, Ip = 3: very high performance.

Fidelity level

Fidelity level (FL) was also used to analyze the data. FL was calculated for the most frequently reported diseases as:
FL (%) = Np/N x 100
Where Np is the number of informants that reported a use of a plant species to treat a particular disease and, N is the number of informants that use the plant as a medicine to treat any given disease (Alexiades 1996). This method is useful in selecting medicinal plants for further study.

Results

Informants

Local names were provided in Ibibio language because it is the language commonly spoken by all the ethnic groups of Akwa Ibom. The ratio of males to females was 70:30, while the mean age was 60 years. A total of 930 households were surveyed in Akwa Ibom. From this survey, 59 families were garthered consisting of 153 genera and 183 plant species. A total of 152548 citations were recorded for 35 ailments.

Plants and their families

Information on the plants used in the treatment of skin diseases and related ailments in Akwa Ibom is given in Table 1. The six most important families in terms of their number of taxa were cited as Fabaceae (22), Euphorbiace-

Table 1. Medicinal plants used to treat skin diseases and related ailments in Akwa Ibom State, Nigeria. 1 x 1 = once a day; 2 x 1 = twice a day; 3 x 1 = three times a day; 4 x 1 = four times a day. Each dosage indicates one glass of decoction or infusion, unless otherwise indicated. Sources, listed under Plants Part Used, are related to the different local government areas of the State where the information was gathered; 1 = Abak, 2 = Eastern Obolo, 3 = Eket, 4 = Esit Eket, 5 = Essien Udim, 6 = Etim Ekpo, 7 = Etinan, 8 = Ibeno, 9 = Ibesikpo Asutan, 10 = Ibiono-Ibom, 11 = Ika, 12 = Ikono, 13 = Ikot Abasi,, 14 = Ikot Ekpene, 15 = Ini, 16 = Itu, 17 = Mbo, 18 = Mkpat-Enin, 19 = Nsit-Atai, 20 - Nsit-Ibom, 21 = Nsit-Ubium, 22 = Obot-Akara, 23 = Okobo, 24 = Onna, 25 = Oron, 26 = Orukanam, 27 = Udung-Uko, 28 = Ukanafun, 29 = Urua Offong, 30 = Uruan, 31 = Uyo.

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Acanthaceae						
Acanthus montanus (Nees) T. Anderson	KKA 115	**Mbara ekpe**	Leaves (2, 12, 14, 17, 22, 24, 26, 28, 30, 31)	Poultice	Abscess, Boils, Whitlow, Wound	External use; 1 x 1 until recovery.

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Acanthaceae con't						
Afrofittonia silvestris Lindau	KKA 2	**Mmeme**	Whole plant (1, 3, 4, 8-14, 17)	Crushed and the juice applied; Poultice	Skin spots, Whitlow	External use; 2 x 1 until recovery.
Justicia insularis T. Anderson	KKA 1	**Mmeme**	Whole plant (1, 2, 5, 8, 9, 16, 19, 20, 22, 24, 25, 28, 30)	Crushed and the juice applied; Poultice	Skin spots	External use; 2 x 1 until recovery.
Aiozoaceae						
Trianthema portulacastrum L.	KKA 117	**Ntia ntia ikon**	Leaves (1, 17, 18, 19, 21, 22, 29)	Decoction	Wound	External use; bathing until recovery.
Amaranthaceae						
Achyranthes aspera L.	KKA 5	**Udok mbiok**, **Udok mbiet**	Leaves (2, 3, 6, 8, 9, 10-16, 27)	Crushed and juice applied	Skin ulcer, scorpion sting	External use; 3 x 1 until recovery.
Alternanthera bettzickiana (Regel) G. Nicholson	KKA 119	**Nkpok isip essien**	Leaves (5, 12, 16, 24, 30)	Crushed and the juice applied	Skin spots, measles	External use; 1 x 1 for 7 days.
Cyathula prostrata (L.) Blume	KKA 118	**Nkibe ubuk**	Leaves (3, 4, 7, 8, 12, 15, 16, 26, 28)	Decoction	Skin spots, rashes, carbuncles, pimples	Internal use; 3 x 1 for 7 days.
Amaranthaceae						
Amaranthus caudatus L.	KKA 121	**Inyan afia**	Leaves (8, 9, 12, 15, 20-27)	Poultice; Juice applied	Boils, abscess, skin eruption; Eczema, snake bite	External use; 2 x 1 for 5 days.
Amaranthus spinosus L.	KKA 120	**Inyan afia nkukim**, **nyen nkukim**	Leaves (1-31)	Crushed and juice mixed with kaolin; Juice applied	Boils, abscess, skin eruption; Eczema, snake bite	External use; 2 x 1 for 5 days.
Amaryllidaceae						
Allium cepa L.	KKA 72	**Ayim**	Bulb (2-6, 9-14, 18, 20, 28)	Poultice	Scorpion sting	External use; 3 x 1 for 14 days
Allium sativum L.	KKA 71	**Etebe owoinu**	Clove (3-9, 12, 15, 17, 21, 22, 26, 28, 30, 31)	Poultice	Skin spots, burns, ulcer, scorpion sting	External use; 2 x 1 for 7-14 days
Crinum jagus (Thompson) Dandy	KKA 122	**Ayim ekpo**, **ekop-eyen**	Bulb (1-15, 22, 24, 25, 30, 31)	Poultice	Whitlow	External use; 1 x 1 for 7 days.

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Anacardiaceae						
Anacardium occidentale L.	KKA 8	Cashew	Leaves (1-20, 26, 27, 28, 30, 31)	Poultice	Ringworm, leprosy	External use; 3 x 1 until recovery
Lannea acida A. Rich.	KKA 125	**Ayara nsukakara**	Root bark (1, 3, 5, 6, 10, 11, 15, 25-30)	Decoction	Skin spots	Internal use; 2 x 1 for 7 days
Lannea nigritana Keay	KKA 124	**Odok eto**	Leaves (2, 7, 9, 10, 11, 16, 18, 22, 23, 25, 28, 30, 31)	Crushed and juice applied	Burns	External use; 3 x 1 for 5 days
Mangifera indica L.	KKA 123	Mango	Leaves (1-31)	Decoction	Skin spots	External use; bathing until recovery.
Annonaceae						
Anona senegalensis Pers.	KKA 126	**Sawa-sawa**	Leaves (7, 8, 9, 10, 12, 20, 21, 22, 24, 26)	Poultice	Abscess, sores, wound	External use; 1 x 1 for 5 days
Enantia chlorantha Oliv.	KKA 127	**Onio eto**	Leaves, stem bark (1, 3, 10, 15, 20, 26, 31)	Crushed and juice applied	Wound	External use; 3 x 1 for 3 days.
Monodora myristica (Gaertn.) Dunal	KKA 11	**Enwun**	Seeds (5, 21, 24, 25, 30)	Powder	Pediculosis, sore	External use; 5 g for 7 days
Uvaria chamae P. Beauv.	KKA 10	**Nkarika ekpo, ataama nkana**	Root (4, 8, 9, 14, 15, 18, 19, 30)	Crushed and applied	Snake bite	External use; 3 x 1 for 7 days
Apocynaceae						
Alstonia boonei De Wild.	KKA 13	**Ukpo**	Stem bark (1, 2, 12, 13, 18, 26, 27, 29)	Crushed and applied	Snake bite	External use; 3 x 1 until recovery
Calotropis procera (Aiton) W.T. Aiton	KKA 133	Flower **afo**	Leaves (1, 2, 5, 6, 11, 12, 13, 17, 18, 19, 22, 23)	Poultice	Smallpox, skin eruption	External use; 3 x 1 for 7 days
Funtumia elastica (Preuss) Stapf	KKA 128	**Eto okpo**	Leaves (6, 8, 13, 15, 16, 21, 24, 26, 27)	Crushed and juice applied	Snake bite, wound	External use; 3 x 1 for 7 days
Apocynaceae con't						
Rauwolfia vomitoria Afzel	KKA 12	**Ekiko**	Leaves (5, 7, 9, 16, 19, 24, 28, 30)	Crushed and applied	Ringworm, itch	External use; 2 x 1 for 5 days
Strophanthus hispidus DC.	KKA 129	**Ibok idan**	Root bark (4-20)	Crushed and applied	Snake bite, scorpion sting, cut, skin ulcer and sore	External use; 3 x 1 for 5 days

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Araceae						
Anchomanes difformis (Blume) Engl.	KKA 14	**Nkokot**	Bulb (13, 15, 20, 21, 22, 24, 28)	Crushed and sap applied	Wound	External use; 1 x 1 for 3 days
Caladium bicolor Vent	KKA 15	**Ikpon ekpo**, **udia edi**	Corm (1-31)	Poultice	Wound, sore, bruise, skin spots	External use; 2 x 1for 5 days
Colocasia esculenta (L.) Schott	KKA 131	**Ikpon ekpo**	Whole plant (1-9, 15-26)	Crushed and applied	Insect bite, sore	External use; 3 x 1 for 3 days
Pistia stratiotes L.	KKA 130	**Amana mmon**, **ike udo**	Whole plant (3, 6, 10, 17, 18, 26-29)	Powder	Wound, sore	External use; about 4 g for 5 days
Xanthosoma sagittifolium (L.) Schott	KKA 132	**Ikpon mbakara**	Leaves (1-31)	Crushed and juice applied	Smallpox, skin spots, fungal skin infection	External use; 3 x 1 for 3 days
Arecaceae						
Cocos nucifera L.	KKA 16	**Isip mbakara**, **isip eyop**	Root (1-31)	Crushed and sap applied	Skin spots, wound	External use; 3 x 1 for 5 days
Elaeis guineensis Jacq.	KKA 200	**Eyop**	Fruit pericarp (13, 15-20, 23, 25, 27, 29, 30)	Peeled and applied	Boils	External use; 2 x 1 for 3 days
Asparagaceae						
Dracaena arborea (Willd.) Link	KKA 4	**Okono**	Root bark (3, 5, 10, 15, 21-30)	Poultice	Boils, burns	External use; 3 x 1 for 7 days.
Sansevieria liberica Gérôme & Labroy	KKA 116	**Okono ekpe**	Leaves, stem bark, Root (4, 7, 9, 12, 13, 16, 17, 20)	Decoction, Poultice	Eczema, Snake bite	External use; bathing for 14 days; 2 x 1 for 5 days.
Asteraceae						
Ageratum conyzoides L.	KKA 137	**Otitidahadaha**	Whole plant (1-31)	Crushed in water and applied	Wound, skin ulcer, rashes	External use; 3 x 1 for 3 days
Aspilia africana (Pers.) C.D. Adams	KKA 35	**Edemeron**	Leaves (1-31)	Crushed and juice applied	Wound, itch, rashes	External use; 2 x 1 for 3 days
Bidens pilosa L.	KKA 134	**Ntafion ison**	Leaves (6, 7, 12, 14, 16, 24, 29)	Crushed and juice applied	Insect bite, wound	External use; 2 x 1 for 3 days
Chromolaena odorata (L.) R.M. King & H. Rob.	KKA 36	**Mbiet Awolowo**	Leaves (1-31)	Crushed and juice applied	Wound, rashes, scorpion sting, snake bite	External use; 3 x 1 for 7 days

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Asteraceae con't						
Crassocephalum biafrae (Oliv. & Hiern) S. Moore	KKA 138	**Mkpafit**	Leaves (3, 7, 9, 10, 18, 19, 27, 28, 29)	Powder	Wound	External use; about 3 g for 3 days
Crassocephalum crepidioides (Benth.) S. Moore	KKA 37	**Mkpafit**	Leaves (1, 4, 5, 10-15, 18, 19, 21-28)	Crushed and juice applied	Wound, boils, burns	External use; 2 x 1 for 5 days
Emilia coccinea (Sims) G. Don	KKA 136	**Utime nse**	Leaves (4, 6, 8-15, 17, 20-28)	Crushed and juice applied	Wound, measles, rashes	External use; 3 x 1 for 5 days
Emilia sonchifolia (L.) DC	KKA 135	**Utime nse**, **usio mmon**	Leaves (4, 6, 8-15, 22-27)	Crushed and juice applied	Wound, measles, rashes	External use; 3 x 1 for 5 days
Tridax procumbens L.	KKA 40	**Ayara utimense**	Leaves (1, 3, 4-15, 18, 26, 30, 31)	Decoction	Skin spots	Internal use; 3 x 1 for 7 days
Vernonia amygdalina Delile	KKA 38	**Etidod**	Leaves; Stem bark and root (1-31)	Crushed and applied	Skin spots; Small pox, chicken pox, measles	External use; 3 x 1 for 5 days; External use; 3 x 1 for 7 days
Vernonia conferta Benth.	KKA 39	**Okpon ikon**	Leaves (1-20, 25-30)	Crushed and applied	Itch	External use; 2 x 1 for 3 days
Bignoniaceae						
Kigelia africana (Lam.) Benth.	KKA 139	**Ntabinim**	Stem bark (5, 7, 19, 26, 30)	Powder	Wound, sore	External use; 3 x 1 for 7 days
Newbouldia laevis (P. Beauv.) Seem.	KKA 18	**Itumo**, **oboti**	Stem bark, root(1-20, 25-31	Decoction	Boils, Skin spots	Internal use; 3 x 1 for 5-7 days
Spathodea campanulata P. Beauv.	KKA 140	**Esenim**	Stem bark; Leaves (2, 3, 8, 13, 14, 17, 18, 20, 23, 24, 28)	Crushed in water and applied; Poultice	Skin eruption; Wound, burns, ulcer, bruise	External use; 2 x 1 for 3 days; External use; 3 x 1 for 7 days
Boraginaceae						
Heliotropium indicum L.	KKA 20	**Otukeyin eka**, **esin ono**	Leaves (2, 4, 6, 8-10, 12, 14, 17-19, 22, 23, 27, 31)	Decoction	Boils	Internal use; 2 x 1 until recovery
Brassicaceae						
Brassica oleracea L.	KKA 143	**Efere mbakara**	Leaves (1, 3, 6, 7, 10, 12, 16, 21, 23, 27, 29-31)	Poultice	Ringworm, skin ulcer	External use; 2 x 1 for 5 days

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Bromeliaceae						
Ananas comosus (L.) Merr.	KKA 144	**Eyop mbakara**	Fruit peel (3, 6, 7, 14, 15, 18, 22, 23)	Powder mixed with local oil	Rashes	External use; External use; 2 x 1 for 5 days 1 x 1 for 7 days
Burseraceae						
Commiphora africana (A. Rich.) Engl.	KKA 145	**Eto komfi itiat**	Stem bark (8, 10, 11, 16, 17, 18)	Decoction	Measles	Internal use; 3 x 1 for 14 days
Dacryodes edulis (G. Don) H.J. Lam	KKA 21	**Eben**	Leaves (1-31)	Decoction	Skin spots	External use; 2 x 1 for 5 days
Dacryodes klaineana (Pierre) H.J. Lam	KKA 22	**Eben ikot**	Leaves , root(1-12, 14, 15, 20-26)	Decoction	Skin spots	Internal use; 2 x 1 for 3 days
Cannabaceae						
Trema orientalis (L.) Blume	KKA 227	Charcoal tree	Whole plant (1, 4, 20, 22, 26, 30, 31)	Decoction	Skin spots	External use; bathing 3 x 1 for 5 days
Caricaceae						
Carica papaya L.	KKA 29	**Popo**	Leaves (1-31)	Crushed and applied	Skin spots	External use; 2 x 1 for 5 days
Clusiaceae						
Allanblackia floribunda Oliv.	KKA 151	**Udiaebion**, **ekporo-enin**	Leaves and root bark (2, 4, 7, 10, 13, 20-28)	Decoction	Skin spots	External use; bathing for 7 days
Symphonia globulifera L. f.	KKA 64	**Efiat ndua**	Leaves (1, 2, 10-19, 21-25)	Decoction	Skin spots	Internal use; 3 x 1 for 7 days
Combretaceae						
Anogeissus leiocarpus (DC) Guill. & Perr.	KKA 153	Axe-wood tree	Stem bark (1, 2, 4, 11, 15, 22, 27, 29)	Crushed in water and mixed with honey	Wound, skin ulcer	External use; 2 x 1 for 7 days
Combretum micranthum G. Don	KKA 32	**Asaka**	Leaves (1-31)	Infusion	Skin spots	Internal use; 2 x 1 until recovery
Combretum racemosum P. Beauv.	KKA 33	**Uyai asaka**	Leaves (1-15, 20-31)	Crushed and juice added to water	Skin spots	Internal use; 2 x 1 until recovery
Combretum zenkeri Engl. & Diels	KKA 152	**Ndia asaka**	Leaves (3, 4, 5, 10, 11, 14, 17, 20, 22, 27)	Poultice	Skin eruption, wart, mump	External use; 2 x 1 for 14 days

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Combretaceae con't						
Guaiera thompsonii Sprague & Hutch.	KKA 77	**Afia ikpok eto**	Stem bark (1, 7, 12, 13, 14, 21, 22, 27, 28, 29)	Crushed and sap applied	Fungal skin diseases	External use; 3 x 1 for 7 days
Terminalia ivoriensis A. Chev	KKA 154	**Nkot ebene**	Stem bark (6, 9, 11, 14, 19, 23, 27)	Crushed in water and applied	Wound, skin ulcer, impetigo, fungal skin disease	External use; 3 x 1 for 5-7 days
Terminalia superba Engl. & Diels	KKA 155	**Afia eto**, **eka ubok abasi**	Leaves (2, 3, 6, 9, 11, 14, 19, 23, 24)	Crushed and juice applied	Skin spots	External use; 3 x 1 for 5 days
Commelinaceae						
Commelina diffusa Burn. f.	KKA 156	**Ekpa ekpa ikpaha**	Whole plant (4, 6, 10, 11, 28)	Powder	Sore, burns	External use; 2 x 1 for 7 days
Convulvulaceae						
Ipomoea pileata Roxb.	KKA 44	**Mkpafiafian**	Leaves (1-10, 14, 15, 20, 21, 25-27, 29, 30, 31)	Crushed in water and applied	Skin spots	External use; 3 x 1 for 3 days
Ipomoea quamoclit L.	KKA 157	**Ediam ikanikot**	Leaves (1-10, 13, 14, 15, 20, 21, 29, 30, 31)	Poultice	Boils, wound	External use; 3 x 1 for 5 days
Costaceae						
Costus afer Ker. Gawl.	KKA 112	**Mbritem**	Stem, root (1-8, 10, 12, 20, 21, 23, 27, 31)	Crushed and sap applied	Wound	External use; 3 x 1 for 7 days
Crassulaceae						
Bryophyllum pinnatum (Lam.) Oken	KKA 158	**Ndodop afiaiyo**	Leaves (1-31)	Crushed and applied	Scorpion sting, insect bite, boils, bruise, skin ulcer, burns	External use; 3 x 1 for 7-14 days
Cucurbitaceae						
Citrullus colocynthis (L.) Schrad.	KKA 160	**Ikon**, **ikpan**	Seed (2, 3, 6, 7, 9, 13, 14, 20)	Crushed and applied	Abscess, Skin spots	External use; 3 x 1 for 5 days
Cucurbita maxima Duchesne	KKA 159	**Ikim**, **iko**	Leaves (3, 4, 7, 12, 13, 14, 20, 22, 26, 27)	Crushed and juice applied	Skin spots	External use; 3 x 1 for 3 days

Botanical Names	Specimen Number	Local Name	Plant Part Used (Sources)	Method of Preparation	Ailment Treated, Therapeutic Effect	Administration, Dosage and Duration of Treatment
Cucurbitaceae						
Momordica balsamina L.	KKA 161	**Mbiadon edon**	Whole plant (1-9, 13, 15, 17-20, 25)	Poultice	Boils	External use; 2 x 1 for 3 days
Momordica charantia L.	KKA 162	**Mbiadon edon**	Fruit (1-9, 13, 14, 17-22, 25, 28)	Poultice	Skin eruption, boils	External use; 2 x 1 for 7 days
Dioscoraceae						
Dioscorea dumetorum (Kunth) Pax	KKA 164	**Enem**, **edidia iwa**	Leaves (5-11, 14, 18, 20, 24, 27-29)	Decoction	Skin spots	External use; bathing for 3 days
Dioscorea rotundata Poir.	KKA 163	**Eko**, **etem**	Leaves (1-31)	Crushed in water and applied	Burns, Skin spots, yaws	External use; 3 x 1 for 7 days
Euphorbiaceae						
Acalypha fimbriata Schumach. & Thonn.	KKA 54	**Okokho nyin**	Leaves and twigs (1, 3-6, 17, 25, 29, 30)	Decoction	Skin spots, sore	External use; bathing until recovery
Acalypha hispida Burm. f.	KKA 168	**Okokho nyin**	Leaves (1, 2, 4, 6, 15, 24, 25, 30)	Decoction	Skin spots, sore	External use; bathing until recovery
Acalypha wilkesiana Müll. Arg.	KKA 167	**Okokho nyin**	Leaves (3-7, 10, 16, 18, 24, 25, 30, 31)	Decoction	Skin spots	External use; bathing until recovery
Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg.	KKA 46	**Mbom**	Leaves (1-31); Fruit (1-31)	Crushed in water and applied; Crushed and juice applied	Skin spots, skin ulcer, yaws; Skin spots, scorpion sting, snake bite	External use; 3 x 1 for 5-7 days; External use; 3 x 1 for 10-14 days
Alchornea laxiflora (Benth.) Pax & K. Hoffm.	KKA 47	**Nwariwa**	Leaves (10, 11, 12, 15, 17, 20, 23, 24, 25, 27)	Crushed in water and applied	Skin spots, skin ulcer, yaws	External use; 3 x 1 for 7 days
Euphorbia hirta L.	KKA 57	**Etinkene ekpo**	Leaves (1, 2, 3, 5, 7, 9, 10, 12, 17, 18, 21, 23, 24, 26-31)	Poultice	Snake bite, scorpion sting, insect bite	External use; 3 x 1 for 7-14 days
Jatropha curcas L.	KKA 58	**Ukim eyio**	Seeds (1, 2, 4-7, 9, 12, 14, 21, 30, 31)	Crushed to express oil	Skin spots	External use; 3 x 1 for 7 days
Jatropha gossypiifolia L.	KKA 169	**Eto oko obio nsit**	Leaves (1, 2, 4-8, 13, 24, 25)	Crushed and juice applied	Scabies, ringworm, eczema	External use; 3 x 1 for 7-10 days

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Euphorbiaceae con't						
Mallotus oppositifolius (Geiseler) Müll. Arg.	KKA 165	**Uman nwariwa**	Leaves (2, 3, 5, 11, 15, 16, 25, 26, 30, 31)	Decoction	Skin spots	Internal use; 3 x 1 for 5 days
Manihot esculenta Crantz	KKA 53	**Iwa**	Leaves (1-31)	Crushed and juice applied	Skin spots	External use; 2 x 1 for 5 days
Manniophyton fulvum Müll. Arg.	KKA 170	**Ekonikon**	Leaves and stem bark (2, 6, 8, 9, 14, 17, 22, 30)	Crushed in water and applied	Scabies, ring worm, eczema	External use; 2 x 1 for 7 days
Ricinus communis L.	KKA 49	**Eto kasto**, **eto adan ukebbe**	Leaves; Seed (1-31)	Crushed in water and applied; Crushed to express oil	Skin spots; Chickenpox, smallpox	External use; 3 x 1 for 3 days; External use; 3 x 1 until recovery
Fabaceae						
Abrus precatorius L.	KKA 89	**Nneminua**	Leaves (2, 4, 10, 11, 12, 14, 25, 28)	Crushed and juice applied	Skin spots	External use; 2 x 1 for 3 days
Acacia ataxacantha DC.	KKA 190	**Mbara okpok**	Leaves (7, 8, 11, 18, 23)	Crushed and juice applied	Burn, sore	External use; 2 x 1 for 7 days
Afzelia africana Sm.	KKA 147	**Eyin mbukpo**	Stem bark (4, 6, 9, 13, 14, 17, 19-21)	Crushed and sap applied	Wound, skin eruption, pimples, carbuncles; Leprosy	External use; 2 x 1 for 5 days; External use; 3 x 1 for 21 days
Afzelia bella Harms	KKA 148	**Enyin mbukpo**	Leaves, stem bark (4-6, 9, 13-15, 17, 19, 20-25)	Crushed and juice or sap applied	Impetigo, pimples, carbuncles	External use; 2 x 1 for 5-7 days
Albizia lebbeck (L.) Benth.	KKA 189	**Ubam**	Stem bark (1-4, 6, 7, 9, 10, 13, 17, 20, 23, 28)	Poultice	Eczema, insect bite	External use; 3 x 1 for 3-7 days
Baphia nitida Lodd.	KKA 87	**Afuo**	Leaves (1, 13-16, 20-27)	Crushed and applied	Wound, skin ulcer, boils	External use; 3 x 1 for 5 days
Cajanus cajan (L.) Huth	KKA 91	**Nkoti**	Seed (3-10, 13, 15, 20, 24)	Powder	Smallpox, measles, sore, skin ulcer, skin spots	External use; 2 x 1 for 7-10 days
Cassia alata L.	KKA 25	**Adaya okon**	Leaves (1-31)	Crushed and juice applied, powder	Ringworm, Skin spots	External use; 3 x 1 for 7 days

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Fabaceae con't						
Cassia occidentalis L.	KKA 146	**Flower uduk-ikot**	Leaves (1-10, 16-20, 27, 29, 30)	Crushed and applied	Abscess, chickenpox	External use; 2 x 1 for 7 days
Cassia tora L.	KKA 26	**Mfan udukikot**	Leaves (1-31)	Crushed in water and applied	Skin spots, sore	External use; 3 x 1 for 5 days
Daniellia oliveri (Rolfe) Hutch. & Dalziel	KKA 23	**Enan-eto**	Root bark (1-11, 13, 16, 17, 23, 27-31)	Crushed and sap applied	Rashes	External use; 3 x 1 for 5 days
Detarium microcarpum Guill. & Perr.	KKA 150	Tallow tree	Root and leaves (2, 8, 15, 20, 22, 25, 28)	Powder	Wound, ulcer, cut	External use; 2 x 1 for 14 days
Distemonanthus benthamianus Baill.	KKA 27	**Eto-afia**	Root bark (3, 6, 7, 10, 11, 13, 18, 20, 22, 24, 25, 29-31)	Decoction	Skin spots	Internal use; 3 x 1 for 3 days
Glycine max (L.) Merr.	KKA 88	**Nkoti eto**	Seed (1-31)	Boiled in water to express oil	Measles	External use; 3 x 1 for 5 days
Lonchocarpus cyanescens (Schumach. & Thonn.) Benth.	KKA 93	**Awa**	Leaves; Root (1, 2, 3, 6, 10, 12, 14, 17, 18, 21, 24, 28, 30)	Crushed in water and applied; Poultice	Skin ulcer, skin spots; Boils, yaws, scabies, measles	External use; 2 x 1 for 7 days; External use; 2 x 1 for 3-7 days
Parkia biglobosa (Jacq.) R. Br. ex G. Don	KKA 188	**Ukon uyayak**	Stem bark (2, 3, 5, 7, 8, 10, 11, 14, 15, 20-26, 30)	Powder; Decoction	Ringworm; Wound, skin eruption, measles, chickenpox, athlete foot, fungal skin infection	External use; 3 x 1 for 7-10 days; External use; bathing until recovery
Pentaclethra macrophylla Benth	KKA 78	**Ukana**	Stem bark (1, 3, 4, 5, 8, 9, 10, 14, 15, 17, 22, 25, 28, 31)	Decoction or infusion	Skin spots	External use; 2 x 1 for 7 days
Pterocarpus erinaceus Poir.	KKA 201	**Ukpa**	Leaves, stem bark (2, 10, 12, 15, 16, 17, 20, 25, 29, 30)	Decoction	Skin spots	External use; 2 x 1 for 3 days
Pterocarpus santalinoides L'Hér. ex DC.	KKA 172	**Nkpa-inyan**	Leaves (4, 8, 9, 12, 17, 22, 29)	Decoction	Skin spots	External use; bathing for 14 days
Tamarindus indica L.	KKA 149	**Okukuk mbakara**	Root bark (1, 7, 8, 12, 14, 15, 18, 20, 21, 24, 26-29)	Decoction	Skin spots	External use; bathing for 3 days
Tetrapleura tetraptera (Schumach. & Thonn.) Taub.	KKA 79	**Uyayak**	Fruit (1-31)	Crushed to express oil	Skin spots	External use; 3 x 1 for 3 days

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Fabaceae con't						
Zornia latifolia Sm.	KKA 203	**Ubok etikoriko**	Leaves (13, 15, 18, 20, 23, 24, 27, 29, 31)	Powder, crushed and applied	Snake bite, scorpion sting	External use; 2 x 1 for 3-5 days
Gentianaceae						
Anthocleista djalonensis A. Chev.	KKA 73	**Ibu**	Stem bark (2, 8, 9-13, 17, 25, 27, 31)	Crushed and sap applied	Skin spots, sore, ulcer, wound	External use; 3 x 1 for 10-14 days
Hypericaceae						
Harungana madagascariensis (Lam.) ex Poir.	KKA 178	**Oton**	Leaves, stem, root (1-5, 8, 12, 17, 18, 23, 29-31)	Crushed in water and applied	Skin spots	External use; 3 x 1 for 7 days
Irvinginiaceae						
Irvingia gabonensis (Aubry-Lecomte ex O'Rorke) Baill.	KKA 179	**Uyo**	Fruit, stem bark (3, 6, 7, 10, 13, 18, 21, 26, 30)	Crushed and juice applied	Skin spots, burns, bruise	External use; 3 x 1 for 10 days
Lamiaceae						
Clerodendron splendens G. Don	KKA 228	**Mmon oyot adiaha ekiko**	Leaves (2, 11, 13, 19, 22, 25, 29, 31)	Crushed and applied	Skin spots	External use; 3 x 1 for 5 days
Ocimum gratissimum L.	KKA 69	**Nton**	Leaves (6, 8, 11, 12, 16, 17, 21, 24, 25, 28, 29)	Poultice	Snake bite	External use; 1 x 1 until recovery
Solenostemon monostachyus (P. Beauv.) Briq.	KKA 68	**Ntorikwot**	Leaves (1, 2, 5, 11, 14, 16, 20, 28)	Crushed and juice added to water	Measles	External use; 3 x 1 until recovery
Vitex doniana Sweet	KKA 229	**Nkokoro**	Root (1, 4, 6, 7, 10, 19, 21, 24, 26, 29)	Poultice	Leprosy	External use; 2 x 1 for 21 days
Lauraceae						
Cassytha filiformis L.	KKA 180	**Wuo ndun**	Stem (3, 4, 6, 7, 8, 12, 13)	Powder or crushed and sap applied	Snake bite, wound, sore, ulcer	External use; 3 x 1 for 7 days
Malvaceae						
Adansonia digitata L.	KKA 19	Baobab	Leaves (1, 2, 4, 6, 8, 9, 13, 16, 17, 25, 28, 30)	Crushed and juice applied	Scorpion sting, snake bite	External use; 3 x 1 for 7 days
Bombax buonopozense P. Beauv.	KKA 142	**Ukim**	Stem bark (3, 7, 10, 11, 13, 17, 19, 20, 22, 28, 29, 30, 31)	Crushed in water and applied	Ringworm, Skin spots, rashes	External use; 3 x 1 for 10 days

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Malvaceae con't						
Ceiba pentandra (L.) Gaertn.	KKA 141	**Ukim**	Stem bark (3, 7, 11, 13, 20, 28)	Decoction	Sore, skin ulcer	External use; bathing the site severally for 7 days
Cola acuminata (P. Beauv.) Schott & Endl.	KKA 109	**Ibon**	Cotyledon (1-31)	Powder	Sore	External use; 3 x 1 for 5 days
Corchorus olitorius L.	KKA 225	**Etinyon**	Root (1, 5, 7, 10, 13, 16, 18, 21, 27, 30)	Poultice	Abscess	External use; 3 x 1 for 3 days
Glyphaea brevis (Spreng.) Monach.	KKA 224	**Ndodiro**	Leaves (10, 12, 13, 16)	Poultice	Burns, wound	External use; 3 x 1 for 7 days
Gossypium hirsutum L.	KKA 74	**Eto-ofo**	Leaves; Kernel seed (1, 3-11, 13, 18, 19-26, 28)	Crushed and juice applied; Crushed to express oil	Sore, skin eruption, bruise, wound	External use; 3 x 1 for 3-5 days
Sida acuta Burm. f.	KKA 76	**Akana-anwan-indipeke-isoro**	Leaves (1-31)	Poultice	Whitlow, skin spots	External use; 1 x 1 for 7 days
Sterculia tragacantha Lindl.	KKA 223	**Udot eto**	Stem bark, seed (6, 12, 14, 17, 22, 26, 30, 31)	Crushed and sap applied (stem bark); crushed and applied (seed)	Boils, wound, skin ulcer	External use; 2 x 1 for 7-10 days
Triumfetta cordifolia Guill., Perr. & A. Rich.	KKA 226	**Nkibbe ubuk**	Leaves, stem, seed (1-15, 23, 28, 31)	Crushed and applied	Skin spots	External use; 2 x 1 for 3 days
Melastomataceae						
Heterotis rotundifolia (Sm.) Jacq.-Fél.	KKA 183	**Nyie ndan**	Whole plant (1, 4, 6, 7, 10, 11, 13, 14, 21, 24)	Decoction	Measles	External use; bathing until recovery
Meliaceae						
Azadirachta indica A. Juss.	KKA 184	**Ibok utoenyin**	Leaves, stem bark, root; Seed oil (1-31)	Crushed in water and applied; Crushed to express oil	Skin spots, scabies, eczema ringworm	External use; 3 x 1 for 7-10 days
Carapa procera DC.	KKA 185	**Mkpono ubom**	Seed (4, 7, 8, 12, 18, 22, 31)	Crushed to express oil	Sore, burns, yaws, skin eruption	External use; 3 x 1 for 3-5 days
Khaya grandifoliola A. Juss.	KKA 186	**Mahogany**	Stem bark (5, 6, 9, 10, 13, 15, 16, 21)	Decoction	Skin spots	External use; 3 x 1 for 5 days

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Moraceae						
Ficus carica L.	KKA 193	Fig, **ukimo**	Stem bark (1-25, 30, 31)	Powder	Wound	External use; 3 x 1 for 5 days
Ficus exasperata Vahl	KKA 191	**Ukuok**	Root (1-31)	Crushed and sap applied	Boils, ringworm	External use; 2 x 1 for 5 days
Ficus sycomorus L.	KKA 192	**Sikamo**, **okpo**	Root (1-20, 24, 28, 31)	Poultice	Snake bite	External use; 2 x 1 until recovery
Milicia excelsa (Welw.) C.C. Berg	KKA 194	**Ekwekwe, afriyo**	Root bark (3, 4, 7, 9, 11, 16, 17, 20, 23, 24, 30, 31)	Crushed in water and applied	Wound	External use; 3 x 1 for 7 days
Musaceae						
Musa acuminata x balbisiana Colla	KKA 83	**Ukom**, **mbrenyon**	Stem (1-31)	Crushed with Talinum triangulare leaves and sap applied	Measles, wound, insect bite	External use; frequently until recovery
Myristicaeae						
Pycnanthus angolensis (Welw.) Warb.	KKA 195	**Abakan**	Stem bark (2, 5, 6, 9, 12, 17, 27, 30, 31)	Decoction	Rashes	External use; bathing 3 x 1 for 3 days
Myrtaceae						
Eugenia uniflora L.	KKA 84	**Ntuen mbakara**	Leaves (2, 5, 11-15, 17, 21, 22, 25, 28-31)	Decoction	Skin spots	Internal use; 2 x 1 for 5 days
Nyctaginaceae						
Boerhavia erecta L.	KKA 197	**Okponkoron**	Root (1, 6, 7, 8, 9, 12, 15, 21, 23, 30, 31)	Crushed in water and applied	Boils, yaws, skin spots	External use; 2 x 1 for 7 days
Boerhavia repens L.	KKA 196	**Okponkoron**	Root (1, 6, 7, 8, 12, 15, 21, 23, 30, 31)	Crushed in water and applied	Boils, yaws, skin spots	External use; 2 x 1 for 7 days
Ochnaceae						
Lophira lanceolata Tiegh. ex Keay	KKA 198	**Anwanakak**	Root bark and leaves (4, 5, 8, 11, 12, 15, 18, 21, 30)	Decoction	Wound, fungal skin infection, chickenpox	External use; bathing 3 x 1 for 7-14 days
Phyllanthaceae						
Bridelia ferruginea Benth.	KKA 166	**Udia afua**	Stem bark (7, 9, 10, 14, 18, 20)	Crushed in water and applied	Wound, cut, bruise, fungal skin infection	External use; 3 x 1 for5- 7 days
Maesobotrya barteri (Baill.) Hutch.	KKA 50	**Nnyanyatet**	Root (1, 3, 4, 5, 7, 12, 14, 17, 20-24, 27, 30, 31)	Crushed and the sap applied	Skin spots	External use; 3 x 1 for 7 days

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Phyllanthaceae con't						
Maesobotrya dusenii (Pax) Pax	KKA 51	**Nnyanyatet**	Root (1, 3, 4-7, 9, 12, 14, 15, 17, 20-24, 27, 30, 31)	Crushed and the sap applied	Skin spots	External use; 3 x 1 for 7 days
Phyllanthus amarus Schumach. & Thonn.	KKA 48	**Oyomokiso**	Whole plant (1-31)	Decoction	Skin spots	Internal use; bathing until recovery; External use; 3 x 1 for 7 days
Uapaca togoensis Pax	KKA 171	**Obubit mkpenek**	Leaves and root (3, 4, 7, 20, 24, 27)	Crushed and applied	Boils	External use; 3 x 1 for 5 days
Piperaceae						
Piper guineense Schumach. & Thonn.	KKA 204	**Odusa**	Leaves (9, 12, 13, 16, 17, 20, 23, 25, 29, 31)	Poultice	Impetigo	External use; 2 x 1 for 7 days
Poaceae						
Andropogon gayanus Kunth	KKA 173	**Mbokko ekpo**	Leaves (1, 8, 13, 15, 19, 24, 26, 29)	Powder	Wound	External use; 2 x 1 for 5 days
Imperata cylindrica (L.) Raeusch.	KKA 174	**Ndan inwan**	Rhizome (3, 5, 8, 15, 20, 26, 28, 31)	Crushed and applied	Abscess, scorpion sting	External use; 1 x 1 for 7 days
Pennisetum polystachion (L.) Schult.	KKA 175	**Nwan-mbakara**	Shoot (1-5, 9, 10, 12, 13, 18, 23)	Powder	Wound	External use; 2 x 1 for 7 days
Pennisetum typhoides (Burm. f.) Stapf & C.E. Hubb.	KKA 176	**Nwan-mbakara**	Chaff (6, 9, 11, 13, 15, 21, 27)	Poultice	Whitlow	External use; 2 x 1 for 10 days
Rottboellia cochinchinensis (Lour.) Clayton	KKA 177	**Mbokko enan ikot**	Whole plant (4, 5, 7, 8, 15, 16, 21, 23, 25, 30, 31)	Decoction	Measles, wound	External use; bathing until recovery
Polygalaceae						
Carpolobia lutea G. Don	KKA 94	**Ikpafun**	Leaves (6, 8, 9, 12, 15, 17-23, 27, 28)	Decoction	Skin spots	Internal use; 2 x 1 for 5 days

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Portulacaceae						
Portulaca oleracea L.	KKA 207	**Uton ekpu**	Root; Whole plant (1-12, 15, 19, 20, 23, 27, 28, 30, 31)	Poultice; Decoction	Scald; Skin spots	External use; 3 x 1 for 7 days; External use; bathing 3 x 1 for 5 days
Rubiaceae						
Borreria verticillata (L.) G. Mey.	KKA 95	**Abia nkana**	Leaves (1-31)	Crushed and juice applied	Skin spots, eczema	External use; 3 x 1 for 7 days
Diodia sarmentosa Sw.	KKA 209	**Edem ikid**	Leaves (1-31)	Decoction	Skin spots	External use; bathing 3 x 1 for 3 days
Heinsia crinita (Afzel.) G. Taylor	KKA 97	**Atama**	Leaves, root (1-31)	Poultice	Abscess	External use; 2 x 1 for 5 days
Mitracarpus villosus (Sw.) DC.	KKA 208	**Uman abia ikana**	Whole plant (8, 13, 18, 21, 22, 24, 26, 29, 30, 31)	Crushed and applied	Ringworm, eczema, skin ulcer	External use; 3 x 1 for 5-7 days
Morinda longiflora G. Don	KKA 210	**Akpan ifia inam**	Leaves (3, 6, 12, 17, 24, 25, 28)	Crushed in water and applied	Scabies	External use; 3 x 1 for 3 days
Nauclea latifolia Sm.	KKA 96	**Mbom-mbon**	Leaves (4, 5, 8, 11, 13, 18, 22, 23, 26, 27, 29)	Crushed and applied	Rashes	External use; 3 x 1 for 7 days
Rutaceae						
Citrus aurantium L.	KKA 211	**Udahaya**, **ntom**	Fruit peel (16, 18, 25, 30)	Crushed to express oil	Skin spots	External use; frequently for 5 days
Citrus × *paradisi* Macfad.	KKA 212	Grape	Fruit peel (1, 7, 16, 18, 24, 28, 30)	Crushed to express oil	Skin spots	External use; frequently for 5 days
Citrus sinensis (L.) Osbeck	KKA 213	**Sokoro**	Fruit peel (1-8, 11-19, 22, 25, 28)	Crushed to express oil	Ringworm	External use; frequently for 5 days
Clausena anisata (Willd.) Hook. f. ex Benth.	KKA 102	**Mbiet ekpene**	Stem bark (1, 2, 7-9, 13, 15, 20, 21, 24, 29, 30)	Decoction	Measles	Internal use; 4 x 1 for 14 days
Fagara macrophylla Engl.	KKA 101	**Nkek**	Root bark (5, 6, 7, 13, 16, 20, 22 ,24-26, 30, 31)	Crushed and sap applied, poultice	Boils	External use; 3 x 1 for 3 days

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Salicaceae						
Homalium letestui Pellegr.	KKA 59	**Oton idim**	Leaves (3, 6, 7, 9, 10, 13, 15, 21, 22, 25, 29, 30)	Decoction or infusion	Skin spots	Internal use; 3 x 1 until recovery
Sapindaceae						
Blighia sapida K.D. Koenig	KKA 214	**Oto**	Leaves (5, 8, 18, 21, 24, 25, 28, 29, 30)	Powder	Wound, skin ulcer	External use; 2 x 1 for 10 days
Sapotaceae						
Butyrospermum paradoxum (C.F. Gaertn.) Hepper	KKA 215	**Ori**	Seed (1-31)	Crushed to express fat	Boils, athlete's foot	External use; 2 x 1 until recovery
Chrysophy-llum albidum G. Don	KKA 216	**Udara**	Seed (1-12, 15, 17, 20, 26, 29)	Crushed and applied	Skin spots	External use; 2 x 1 for 7 days
Smilacaceae						
Smilax anceps Willd.	KKA 222	**Odufat**, **obufat**	Leaves, twigs (1-7, 10, 18)	Decoction	Skin spots	External use; bathing 2 x 1 for 5-7 days
Solanaceae						
Capsicum annuum L.	KKA 218	**Ibe ntuen okpo**	Fruit (1-31)	Powder	Rashes, wound, skin ulcer	External use; 3 x 1 for 3-5 days
Datura metel L.	KKA 221	**Nnya ekpo**	Leaves (1-6, 9, 10, 16, 20, 28, 30)	Crushed and applied	Scorpion sting, insect bite	External use; 3 x 1 for 3-7 days
Nicotiana rustica L.	KKA 219	**Unwon**	Leaves (5, 15, 18, 21, 27)	Poultice	Wound, skin ulcer, skin cancer	External use; 3 x 1 for 7-14 days
Nicotiana tabacum L.	KKA 220	**Unwon**	Leaves (4, 5, 9, 11, 13, 21)	Poultice	Wound, skin ulcer, skin cancer	External use; 3 x 1 for 7-14 days
Solanum nigrum L.	KKA 217	**Ekime**	Leaves (9, 12, 16, 23, 28, 31)	Poultice	Shingles	External use; 2 x 1 for 7 days
Stemonuraceae						
Lasianthera africana P. Beauv.	KKA 67	**Editan**	Leaves (1-31)	Decoction	Skin spots, measles	Internal use; 3 x 1 for 3 days
Talinaceae						
Talinum triangulare (Jacq.) Willd.	KKA 206	**Mmon-mon ikon**	Leaves (1-20, 25, 28-31)	Crushed and juice applied,	Measles, skin eruption, burns	External use; 3 x 1 for 7-10 days

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Urticaceae						
Fleurya aestuans (L.) Gaudich. ex Miq.	KKA 110	**Ntan nkere**	Leaves (3, 7, 8, 10, 12, 16, 19, 22, 26-31)	Poultice	Skin spots	External use; 2 x 1 for 3 days
Vitaceae						
Cissus quadrangularis L.	KKA 111	**Oboro-uduk**	Leaves, stem, root (2, 3, 5, 6, 11, 13, 14, 17, 23)	Crushed and juice applied	Skin spots, whitlow	External use; 3 x 1 for 5-7 days
Xanthorrhoeaceae						
Aloe vera (L.) Burm. f.	KKA 181	**Ako kafid**	Leaves (1-31)	Crushed and juice applied	Burn, skin spots, pimples, carbuncles, eczema, scabies, itch	External use; 3 x 1 until recovery
Ximeniaceae						
Ximenia americana L.	KKA 199	Tallow nut	Root (1, 8, 9, 15, 20, 22, 25, 26, 27, 30, 31)	Crushed and sap applied	Skin ulcer, rashes, ringworm	External use; 2 x 1 for 5-7 days
Zingiberaceae						
Curcuma longa L.	KKA 230	**Adanunen**	Rhizome (2, 4, 7, 10, 11, 21, 23, 27, 31)	Crushed and applied	Bruise, cut, skin spots	External use; 3 x 1 for 3-7 days

ae (12), Asteraceae (11), Malvaceae (10), Combretaceae (7), and Rubiaceae (6) (see Figure 2).

Plant parts used, method of preparation and of administration

Leaves were the most frequently used plant parts (45%), followed by stem/stembark (15%) and root/root bark (13%), seeds (7%), whole plants (6%) and fruits (5%) (Table 2). Other plant parts were rarely mentioned.

Plant remedies were prepared mainly by crushing the whole plant or plant part/organ to obtain juice or oil (49%) followed by decoction (19%) and poultice (17%) (Table 3). External methods of administration, such as bathing or topical application were more common (89.5%) than internal methods (10.5%).

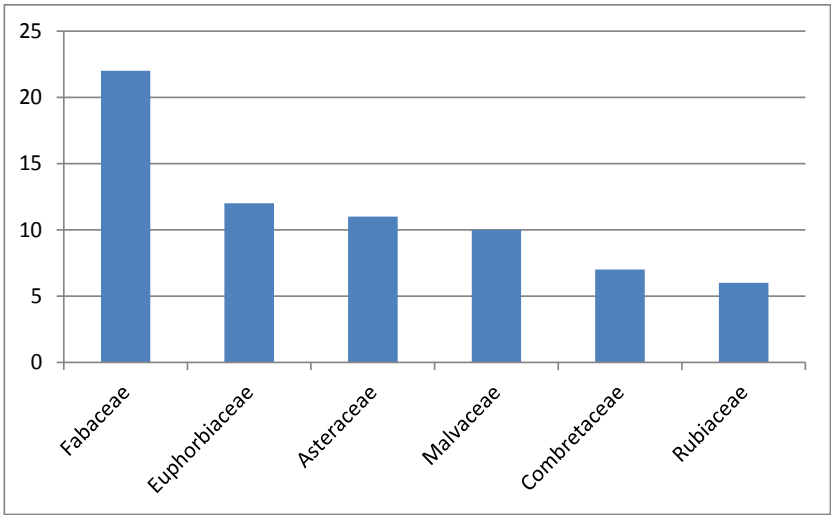

Figure 2. Frequency of plant families used as medicine for skin diseases and related ailments in Akwa Ibom State, Nigeria.

Table 2. Parts of plants used medicinally to treat skin diseases and other ailments in Akwa Ibom State, Nigeria.

Plant Parts Used	n	Percentage
Leaves	95	45%
Stem/stem bark	32	15%
Root/root bark	29	13%
Seeds	14	7%
Whole plant	13	6%
Fruits	10	5%
Leaves and root/root bark	4	2%
Bulb	3	1%
Rhizome	2	1%
Twigs	1	1%
Corm	1	1%
Clove	1	1%
Cotyledon	1	1%
Chaff	1	1%
Shoot	1	1%
Leaves and stem bark	1	1%
Leaves and twigs	1	1%
Stem bark and root	1	1%

Importance of ailments treated

183 medicinal plants were used to treat 35 different ailments (see Table 1 and Table 4). Skin spots (24.9%) and wound (10.3%) were among the most frequently mentioned ailments treated with medicinal plants (see Table 5 and Figure 3). Others were boils (5.9%) and measles (4.8%). The importance of each ailment was determined by the number of citations made by the informants.

Index of performance (Ip) of plant species

The 152,548 citations made by the indigenous people of Akwa Ibom for the medicinal plants collected in the study area are given in Table 5. Table 4 shows all the plant species collected with their performance index for specific ailment. For instance, *Ficus carica* L. (Moraceae) and *Milicia excelsa* (Welw.) C.C. Berg (Moraceae) are more frequently used than other medicinal plants used for wounds.

Fidelity level (FL)

Fidelity level is the percentage of informants claiming the use of a certain plant for the same purpose. Table 6 indicates the FL for all the medicinal plant species collected to treat various specific ailments.

Table 3. Methods of preparation of medicinal plants used to treat skin diseases and other ailments in Akwa Ibom State, Nigeria, ranked by usage levels.

Method	n	Percentage
Crushing	104	49%
Decoction	40	19%
Poultice	36	17%
Powder	18	9%
Infusion	3	1%
Peeling	1	1%
Boiling	1	1%

DISCUSSION

The family Fabaceae provides the highest number of species employed in the treatment of diseases, suggesting it to be the most important family in the traditional medicine of Akwa Ibom. The other important families in terms of number of taxa with medicinal uses were Euphorbiaceae, Asteraceae, Malvaceae, Combretaceae and Rubiaceae. A previous ethnobotanical survey on Akwa Ibom medicinal plants revealed that Euphorbiaceae was the most widely used family (Ajibesin *et al.* 2008). These families are commonly reported for their medicinal uses in other parts of the country, mentioned prominently in the flora and pharmacopoeia of the country (FMH 2008, NNMDA 2006a, 2006b, Nyananyo 2006, Olowokudejo *et al.* 2008). In two different ethnobotanical studies conducted with the people of Bajo Quimiriki, Junin, and the Andean people of Canta, Lima, both in Peru (De-la-Cruz *et al.* 2007, Luziatelli *et al.* 2010), Euphorbiaceae and Asteraceae families provided the largest number of medicinal plants used. Similarly, the two families were among the most important families observed to provide medicinal plant species for use by different tribes of Bangladesh (Hossan *et al.* 2010, Rahmatullah *et al.* 2010). These families, during taxonomic approaches, are usually targets for drug discovery because they are rich sources of secondary metabolites such as alkaloids, steroids and anthraquinones (Desmarchelier & Witting-Schaus 2000).

In many ethnobotanical studies, leaves and stems are the most commonly used plant parts (Bussmann & Sharon 2006, Hossan *et al.* 2010, Sanz-Biset *et al.* 2009, Tene *et al.* 2006), and this agrees with the findings of this study. The use of leaves is less destructive than the roots and whole plants which may threaten the survival and continuity of plants (Lulekal *et al.* 2008, Yin 2009).

The widespread methods of preparation of the herbal remedies observed in this study were crushing of the herb for direct application of the substance to the site of infection, decoction, poultice and powder. This result follows the general pattern of medicinal plant use in Africa (CJB

2012, IPNI 2012). Outside Africa, in Bangladesh, crushing of whole plant or plant part for its juice was also indicated by the **Kavirajes** as a common method of preparing herbal remedies for diverse ailments (Rahmatullah *et al.* 2010).

It is noteworthy in this study that most of the herbal preparations come as single components. This contradicts the use of multicomponent potions for other categories of diseases in most traditional medical practices of Nigeria (Sofowora 1993). This may be due to the fact that in Nigerian traditional medicine, skin diseases, except the exanthems of viral diseases, are generally regarded as ailments that rarely result in death. This makes the practice of using single component preparations against skin and related diseases prevalent in the country (Etukudo 2003, NNMDA 2006a, 2006b, Olowokudejo *et al.* 2008).

In the traditional medicine of other countries such as Ethiopia, Bangladesh and Peru, single plant parts were also observed as the remedy used for treatment of single or multiple ailments (Hossan *et al.* 2010, Luziatelli *et al.* 2010, Rahmatullah *et al.* 2010, Teklehaymanot & Giday 2007). The technique of purification which sometimes enhance the effectiveness of an herbal remedy is not yet known in the traditional medicine of Akwa Ibom and Nigeria as a whole. Thus, all the remedies are prepared in crude form, and without any attempt for standardization of dosage and quality control (IPNI 2012, Nanyingi *et al.* 2008).
The population of TMPs is distributed in the range of 30 to 40 in each of the local government areas of Akwa Ibom, giving a range of one TMP /1664 – 7739 persons (Table 7). The TMPs surveyed reported that diseases such as boils, ringworm and scabies are diagnosed by visual examination based on experience, while severe ailments such as the exanthems of chickenpox and smallpox are referred to modern medical practitioners for diagnosis. This supports the report of Sofowora (1993) who cited nine different methods of diagnosis in African traditional medicine. Most of the traditional medical practitioners in Akwa Ibom were observed to have clinics on their premises for in-patients and out-patients.

Relative importance of ailments

In this study, skin spots are the most important disease treated based on the number of citations for medicinal uses, followed by wound and boils. Skin spots were also among the most important dermatological diseases treated in Peru (Luziatelli *et al.* 2010).

Generally, skin diseases are observed to be among the commonly treated diseases ethnobotanical surveys. For instance, in other parts of Nigeria, skin diseases were reported to be one of the most important diseases treated (ASICUMPON 2005, Ekpendu *et al.* 2000, FMH 2008, Mann *et al.* 2003, NNMDA 2006a, 2006b). In other parts of the world such as Kenya, Fiji, Australia, India, Mexico, Haiti, Nicaragua, Peru, Saudi Arabia, Thailand, North America and West Africa, studies carried out on their indigenous people also revealed that skin diseases were amongst the most common diseases treated (Cox 1994). Since good skin is closely related to beauty (Lewis & Elvin-Lewis 2003), any skin disease is promptly treated with in Akwa Ibom.

In another study, undertaken to explore the traditional knowledge of animal illnesses and ethnoveterinary practices for treatment of illness in livestock conducted in three Nu ethnic villages in Gongshan, China, skin diseases were reported to be the most important disease for pigs (Shen *et al.* 2010).

The high performance index (Ip>0) of some plants in this study shows the frequency of their use for the ailment cited. It also underscores the importance of a plant to treat a specific ailment. For instance, *Butyrospermum paradoxum* (C.F. Gaertn.) **Hepper** was mentioned to treat boils and athlete's foot, but its high performance index recorded for boils (Ip = 3) suggests that it is regarded as a more important remedy for the treatment of boils than athlete's foot (Ip = 1).

In a similar manner, the medicinal plants that are commonly used by the local people have higher FL value than those that are less popular. On the other hand, medicinal plants that provide remedies for a single ailment have 100% FL, while those that are used as remedies of more than a single ailment have a lower FL value. For instance, *Mangifera indica* L. used only to treat skin spots gave 100% FL, while *Anogeissus leiocarpus* (DC.) Guill. & Perr. used to treat wound and skin ulcer gave 50% FL. High FL value could be taken as an indication of a good healing potential of a plant. There also seems to be a strong relationship between performance index and fidelity level of plants. The majority of the plants having Ip = 3 also have 100% FL.

Relative importance of medicinal plants

Through a literature review, the medicinal plants used by the indigenous people of Akwa Ibom were compared with those used in other parts of the world. This is important in order to validate the uses of medicinal plants reported by informants in this study.

The results of this review revealed the widespread use of these medicinal plants in the traditional medicine of other countries. It also provides confirmatory evidence of their uses in other parts of Nigeria. The information obtained from this review is given in Table 8. A total of 82 plants (43.6%) frequently employed (Ip > 0) by the indigenous people of Akwa Ibom are used in other parts of Nigeria and the rest of the world for similar and other ailments.

Table 4. Index of performance of medicinal plants used by indigenous peoples in Akwa Ibom State, Nigeria for skin diseases and related ailments.

Plant Species	Ailment														
	Abscess	Athlete's foot	Boils	Bruise	Burns	Carbuncles	Chicken pox	Cut	Eczema	Fungal skin infection	Impetigo	Insect bite	Itch	Leprosy	Measles
Abrus precatorius L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acacia ataxacantha DC.	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Acalypha fimbriata Schumach. & Thonn.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acalypha hispida Burm. f.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acalypha wilkesiana Müll. Arg.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acanthus montanus (Nees) T. Anderson	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Achyranthes aspera L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adansonia digitata L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adenostemma mauritianum DC.	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
Afrofittonia silvestris Lindau	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Afzelia africana Sm.	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Afzelia bella Harms	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0
Ageratum conyzoides L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Albizia lebbeck (L.) Benth.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0
Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alchornea laxiflora (Benth.) Pax & K. Hoffm.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allanblackia floribunda Oliv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allium cepa L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allium sativum L.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Aloe vera (L.) Burm. f.	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0
Alstonia boonei De Wild.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternanthera bettzickiana (Regel) G. Nicholson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Amaranthus caudatus L.	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Amaranthus spinosus L.	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Anacardium occidentale L.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Ananas comosus (L.) Merr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anchomanes difformis (Blume) Engl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Andropogon gayanus Kunth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anona senegalensis Pers.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anogeissus leiocarpus (DC.) Guill. & Perr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anthocleista djalonensis A. Chev.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspilia africana (Pers.) C.D. Adams	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Azadirachta indica A. Juss.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Plant Species con't	Ailments																				Total Number of Citations
	Mumps	Pediculosis	Pimples	Rashes	Ringworm	Scabies	Scald	Scorpion Stings	Shingles	Skin Cancer	Skin Eruption	Skin Spots	Skin Ulcer	Smallpox	Snakebite	Sore	Wart	Whitlow	Wound	Yaws	
A. precatorius	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	220
A. ataxacantha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	245
A. fimbriata	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	396
A. hispida	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	320
A. wilkesiana	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	325
A. montanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	930
A. aspera	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	685
A. digitata	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	650
A. mauritianum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	900
A. silvestris	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	585
A. africana	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1266
A. bella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1180
A. conyzoides	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2340
A. lebbeck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	810
A. cordifolia	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	2820
A. laxiflora	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	695
A. floribunda	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	398
A. cepa	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	410
A. sativum	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1310
A. vera	0	0	1	0	0	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0	6100
A. boonei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	230
A. bettzickiana	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	223
A. caudatus	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1125
A. spinosus	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3500
A. occidentale	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1466
A. comosus	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220
A. difformis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	290
A. gayanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	230
A. senegalensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	610
A. leiocarpus	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	400
A. djalonensis	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	1	0	970
A. africana	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1770
A. indica	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3155

Plant Species	Ailment														
	Abscess	Athlete's foot	Boils	Bruise	Burns	Carbuncles	Chicken pox	Cut	Eczema	Fungal skin infection	Impetigo	Insect bite	Itch	Leprosy	Measles
Baphia nitida Lodd.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Bidens pilosa L.	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Blighia sapida K.D. Koenig	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boerhavia erecta L.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Boerhavia repens L.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Bombax buonopozense P. Beauv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Borreria verticillata (L.) G. Mey.	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Brassica oleracea L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bridelia ferruginea Benth.	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0
Bryophyllum pinnatum (Lam.) Oken	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
Butyrospermum paradoxum (C.F. Gaertn.) Hepper	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
Cajanus cajan (L.) Huth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Caladium bicolor Vent.	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Calotropis procera (Aiton) W.T. Aiton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capsicum annuum L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carapa procera DC.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Carica papaya L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carpolobia lutea G. Don	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassia alata L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassia occidentalis L.	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Cassia tora L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassytha filiformis L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ceiba pentandra (L.) Gaertn.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromolaena odorata (L.) R.M. King & H. Rob.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chrysophyllum albidum G. Don	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cissus quadrangularis L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Citrullus colocynthis (L.) Schrad.	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Citrus aurantium L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Citrus × paradisi Macfad.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Citrus sinensis (L.) Osbeck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clausena anisata (Willd.) Hook. f. ex Benth.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Clerodendrum splendens G. Don	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocos nucifera L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cola acuminata (P. Beauv.) Schott & Endl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colocasia esculenta (L.) Schott	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0

Plant Species con't	Ailment																			Total Number of Citations
	Mumps	Pediculosis	Pimples	Rashes	Ringworm	Scabies	Scald	Scorpion Stings	Shingles	Skin Cancer	Skin Eruption	Skin Spots	Skin Ulcer	Smallpox	Snakebite	Sore	Wart	Whitlow	Wound	Yaws	
B. nitida	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	893
B. pilosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	360
B. sapida	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	455
B. erecta	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	895
B. repens	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	749
B. buonopozense	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	980
B. verticillata	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1448
B. oleracea	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	695
B. ferruginea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	413
B. pinnatum	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2703
B. paradoxum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1120
C. cajan	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	1263
C. bicolor	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	2755
C. procera	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	460
C. annuum	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2280
C. procera	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	620
C. papaya	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	928
C. lutea	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	408
C. alata	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1860
C. occidentalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	970
C. tora	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	1267
C. filiformis	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	0	610
C. pentandra	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	290
C. odorata	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	2840
C. albidum	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0		0	0	0	0	504
C. quadrangularis	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	529
C. colocynthis	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	344
C. aurantium	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	73
Citrus x paradisi	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	184
C. sinensis	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	585
C. anisata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	335
C. splendens	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	235
C. nucifera	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1750
C. acuminata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	930
C. esculenta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1070

Plant Species	Ailment														
	Abscess	Athlete's foot	Boils	Bruise	Burns	Carbuncles	Chicken pox	Cut	Eczema	Fungal skin infection	Impetigo	Insect bite	Itch	Leprosy	Measles
Combretum micranthum G. Don	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combretum racemosum P. Beauv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combretum zenkeri Engl. & Diels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Commelina diffusa Burm. f.	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Commiphora kerstingii Engl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Corchorus olitorius L.	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Costus afer Ker Gawl.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Crassocephalum biafrae (Oliv. & Hiern) S. Moore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crassocephalum crepidioides (Benth.) S. Moore	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Crinum jagus (Thompson) Dandy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cucurbita maxima Duchesne	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Curcuma longa L.	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0
Cyathula prostrata (L.) Blume	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Dacryodes edulis (G. Don) H.J. Lam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dacryodes klaineana (Pierre) H.J. Lam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daniellia oliveri (Rolfe) Hutch. & Dalziel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Datura metel L.	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Detarium microcarpum Guill. & Perr.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Diodia sarmentosa Sw.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dioscorea dumetorum (Kunth) Pax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dioscorea rotundata Poir.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Distemonanthus benthamianus Baill.	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Dracaena arborea (Willd.) Link	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
Elaeis guineensis Jacq.	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Emilia coccinea (Sims) G. Don	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Emilia sonchifolia (L.) DC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Enantia chlorantha Oliv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eugenia uniflora L.	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Euphorbia hirta L.	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Fagara macrophylla Engl.	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Ficus carica L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ficus exasperata Vahl	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Ficus sycomorus L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fleurya aestuans (L.) Gaudich. ex Miq.	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Funtumia elastica (Preuss) Stapf	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plant Species con't	Ailment																				Total Number of Citations
	Mumps	Pediculosis	Pimples	Rashes	Ringworm	Scabies	Scald	Scorpion Stings	Shingles	Skin Cancer	Skin Eruption	Skin Spots	Skin Ulcer	Smallpox	Snakebite	Sore	Wart	Whitlow	Wound	Yaws	
C. micranthum	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	894
C. racemosum	0	0	0	0		0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	750
C. zenkeri	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	720
C. diffusa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	225
C. kerstingii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158
C. olitorius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	190
C. afer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1160
C. biafrae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	250
C. crepidioides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1365
C. jagus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	580
C. maxima	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	318
C. longa	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	871
C. prostrata	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	780
D. edulis	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	927
D. klaineana	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	530
D. oliveri	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	615
D. metel	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	650
D. microcarpum	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	452
D. sarmentosa	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	928
D. dumetorum	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	395
D. rotundata	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2060
D. benthamianus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	405
D. arborea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	695
E. guineensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	330
E. coccinea	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1495
E. sonchifolia	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1180
E. chlorantha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	190
E. uniflora	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	435
E. hirta	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1300
F. macrophylla	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220
F. carica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	780
F. exasperata	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1650
F. sycomorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	610
F. aestuans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	365
F. elastica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	450

Plant Species	Ailment														
	Abscess	Athlete's foot	Boils	Bruise	Burns	Carbuncles	Chicken pox	Cut	Eczema	Fungal skin infection	Impetigo	Insect bite	Itch	Leprosy	Measles
Glycine max (L.) Merr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Glyphaea brevis (Spreng.) Monach.	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Gossypium hirsutum L.	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Guarea thompsonii Sprague & Hutch.	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Harungana madagascariensis Lam. ex Poir.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heinsia crinita (Afzel.) G. Taylor	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Heliotropium indicum L.	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Heterotis rotundifolia (Sm.) Jacq.-Fél.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Homalium letestui Pellegr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Imperata cylindrica (L.) Raeusch.	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ipomoea pileata Roxb.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ipomoea quamoclit L.	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Irvingia gabonensis (Aubry-Lecomte ex O'Rorke) Baill.	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Jatropha curcas L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jatropha gossypiifolia L.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Justicia insularis T. Anderson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Khaya grandifoliola A. Juss.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kigelia africana (Lam.) Benth.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lannea acida A. Rich.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lannea nigritana Keay	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Lasianthera africana P. Beauv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lonchocarpus cyanescens (Schumach. & Thonn.) Benth.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Lophira lanceolata Tiegh. ex Keay	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0
Maesobotrya barteri (Baill.) Hutch.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maesobotrya dusenii (Pax) Pax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mallotus oppositifolius (Geiseler) Müll. Arg.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mangifera indica L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manihot esculenta Crantz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manniophyton fulvum Müll. Arg.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Milicia excelsa (Welw.) C.C. Berg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mitracarpus villosus (Sw.) DC.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Momordica balsamina L.	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Momordica charantia L.	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Monodora myristica (Gaertn.) Dunal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Morinda longiflora G. Don	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plant Species con't	Ailment																			Total Number of Citations
	Mumps	Pediculosis	Pimples	Rashes	Ringworm	Scabies	Scald	Scorpion Stings	Shingles	Skin Cancer	Skin Eruption	Skin Spots	Skin Ulcer	Smallpox	Snakebite	Sore	Wart	Whitlow	Wound	Yaws	
G. max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	930
G. brevis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	185
G. hirsutum	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1715
G. thompsonii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	290
H. madagascariensis	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	403
H. crinita	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1763
H. indicum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	340
H. rotundifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	230
H. letestui	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	351
I. cylindrica	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	390
I. pileata	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	550
I. quamoclit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	945
I. gabonensis	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	465
J. curcas	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	342
J. gossypiifolia	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	700
J. insularis	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	378
K. grandifoliola	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	224
K. africana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	290
L. acida	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	345
L. nigritana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	390
L. africana	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1532
L. cyanescens	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1600
L. lanceolata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	590
M. barteri	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	480
M. dusenii	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	540
M. oppositifolius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	270
M. indica	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	925
M. esculenta	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	930
M. fulvum	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	565
M. excelsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	350
M. villosus	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	668
M. balsamina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	365
M. charantia	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1064
M. myristica	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	430
M. longiflora	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205

Plant Species	Ailment														
	Abscess	Athlete's foot	Boils	Bruise	Burns	Carbuncles	Chicken pox	Cut	Eczema	Fungal skin infection	Impetigo	Insect bite	Itch	Leprosy	Measles
Musa acuminata x balbisiana Colla	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
Nauclea latifolia Sm.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newbouldia laevis (P. Beauv.) Seem.	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Nicotiana rustica L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nicotiana tabacum L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ocimum gratissimum L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parkia biglobosa (Jacq.) R. Br. ex G. Don	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
Pennisetum polystachion (L.) Schult.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pennisetum typhoides (Burm. f.) Stapf & C.E. Hubb.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pentaclethra macrophylla Benth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phyllanthus amarus Schumach. & Thonn.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piper guineense Schumach. & Thonn.	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Pistia stratiotes L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portulaca oleracea L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pterocarpus erinaceus Poir.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pterocarpus santalinoides L'Hér. ex DC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pycnanthus angolensis (Welw.) Warb.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rauwolfia vomitoria Afzel	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Ricinus communis L.	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Rottboellia cochinchinensis (Lour.) Clayton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Sansevieria liberica Gérôme & Labroy	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Sida acuta Burm. f.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Smilax anceps Willd.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solanum nigrum L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solenostemon monostachyus (P. Beauv.) Briq.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Spathodea campanulata P. Beauv.	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Sterculia tragacantha Lindl.	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Strophanthus hispidus DC.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Symphonia globulifera L. f.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Talinum triangulare (Jacq.) Willd.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Tamarindus indica L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terminalia ivorensis A. Chev.	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0
Terminalia superba Engl. & Diels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tetrapleura tetraptera (Schumach. & Thonn.) Taub.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trema orientalis (L.) Blume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plant Species con't	Ailment																				Total Number of Citations
	Mumps	Pediculosis	Pimples	Rashes	Ringworm	Scabies	Scald	Scorpion Stings	Shingles	Skin Cancer	Skin Eruption	Skin Spots	Skin Ulcer	Smallpox	Snakebite	Sore	Wart	Whitlow	Wound	Yaws	
M. acuminata x balbisiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2163
N. latifolia	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	325
N. laevis	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1442
N. rustica	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	1	0	340
N. tabacum	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	1	0	427
O. gratissimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	315
P. biglobosa	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2668
P. polystachion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	290
P. typhoides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	200
P. macrophylla	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	395
P. amarus	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	930
P. guineense	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293
P. stratiotes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	520
P. oleracea	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	752
P. erinaceus	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	292
P. santalinoides	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	204
P. angolensis	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265
R. vomitoria	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	449
R. communis	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2396
R. cochinchinensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	565
S. liberica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	437
S. acuta	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1800
S. anceps	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	255
S. nigrum	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	175
S. monostachyus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	236
S. campanulata	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1085
S. tragacantha	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	515
S. hispidus	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	1650
S. globulifera	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	490
T. triangulare	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2075
T. indica	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	410
T. ivorensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	540
T. superba	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	248
T. tetraptera	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	910
T. orientalis	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	202

Plant Species	Ailment														
	Abscess	Athlete's foot	Boils	Bruise	Burns	Carbuncles	Chicken pox	Cut	Eczema	Fungal skin infection	Impetigo	Insect bite	Itch	Leprosy	Measles
Trianthema portulacastrum L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tridax procumbens L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triumfetta cordifolia Guill., Perr. & A. Rich.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uapaca togoensis Pax	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Uvaria chamae P. Beauv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vernonia amygdalina Delile	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Vernonia conferta Benth.	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Vitex doniana Sweet	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Xanthosoma sagittifolium (L.) Schott	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ximenia americana L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zornia latifolia Sm.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total number of citation	3350	615	9071	1250	4862	1780	3440	1171	3852	1890	903	2995	1990	1202	7325

Newbouldia laevis (P. Beauv.) Seem. (Bignoniaceae) is used by the indigenous people of Akwa Ibom to treat boils (Ip = 2) and skin spots (Ip = 1). The methanol extract and ten chemical constituents isolated from the root of *N. laevis* were reported to elicit varying antimicrobial activities against 21 microorganisms belonging to six Gram negative, 12 gram positive and three yeasts from *Candida* sp. (Kuete *et al.* 2007). Among the ten compounds isolated, only oleanolic acid was observed to show activity against all the tested pathogens. This result may indicate a basis for the use of *N. laevis* and some of its active principles in the treatment of skin disease. In another study, the leaves were reported to show antibacterial effects against some pathogens such as *Staphylococcus aureus* Rosenbach, *Escherichia coli* (Migula) Castellani and Chalmers, and *Bacillus subtilis* (Ehrenberg) Cohn. An alkaloid, newbouldine, was identified as the chemical constituent responsible for the activity (Adesanya *et al.* 1994).

Momordica charantia L. (Cucurbitaceae) is used against skin inflammation (Ip = 1). The leaves and aerial portions of the plant are used in Peruvian herbal medicine to treat all types of inflammation. The plant is also used to cure inflammation in Brazil (Raintree Nutrition 1996). In a study carried out to rationalize the use of *M. charantia* in ethnomedicine, Biswas *et al.* (1991) reported that the seed extract of the plant showed good analgesic and anti-inflammatory effects in mice and rats.

The skin and pulp of the plant were reported to clinically demonstrate broad spectrum antimicrobial activity against several bacteria such as *E. coli*, *Pseudomonas aeruginosa* (Schröter) Migula, and *Proteus vulgaris* Hauser (Saeed & Tariq 2005). The methanol extract of the leaves has also been reported to show broad spectrum antimicrobial activity against *E. coli*, *Staphylococcus* and *Streptobacillus* (Derrida 2003). Its active constituents were reported to be due to 5-a-stigmata-7, 25-dien-3-b-ol, elasterol and lanosterol (Derrida 2003), while its seeds' essential oil owes its antimicrobial effect to trans-nerolidol, apiole, cis-dihyddrocarveol and germacrene D (Braca *et al.* 2008).

Strophanthus hispidus DC. (Apocynaceae) is used by the people of Akwa Ibom to treat four ailments, cut (Ip = 1), snakebite (Ip = 1), scorpion sting (Ip = 1), sore (Ip = 1) and skin ulcer (Ip = 1). In West Africa, the decoction of the root or pulped root bark, stem bark or leaves are used externally to treat skin diseases and ulcer (Burkill 1985). Also, the leaf sap or decoction of the bark is taken against the effects of snakebite. In Ghana, the leaf and stem decoction is applied externally to sores. In this study, the root bark was cited for treating snakebite, sore and skin ulcer.

Plant Species con't	Ailment																				Total Number of Citations
	Mumps	Pediculosis	Pimples	Rashes	Ringworm	Scabies	Scald	Scorpion Stings	Shingles	Skin Cancer	Skin Eruption	Skin Spots	Skin Ulcer	Smallpox	Snakebite	Sore	Wart	Whitlow	Wound	Yaws	
T. portulacastrum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	205
T. procumbens	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	710
T. cordifolia	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	540
U. togoensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124
U. chamae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	220
V. amygdalina	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2690
V. conferta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	740
V. doniana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	292
X. sagittifolium	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2270
X. americana	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	840
Z. latifolia	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	420
Total number of citation	190	200	1750	6700	6622	2625	250	4220	175	317	4574	38005	6990	2410	5240	6075	230	2485	15675	2110	152548

Table 5. Ailments and citation of medicinal plants used in their treatment in the households of Akwa Ibom State, Nigeria.

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Abscess	9	2.2%	*Acanthus montanus* (Nees) T. Anderson	160
			Amaranthus caudatus L.	300
			Amaranthus spinosus L.	730
			Anona senegalensis Pers.	210
			Cassia occidentalis L.	460
			Citrullus colocynthis (L.) Schrad.	170
			Corchorus olitorius L.	190
			Heinsia crinita (Afzel.) G. Taylor	930
			Imperata cylindrica (L.) Raeusch.	200
Athlete's Foot	2	0.4%	*Butyrospermum paradoxum* (C.F. Gaertn.) Hepper	205
			Parkia biglobosa (Jacq.) R. Br. ex G. Don	410
Boils	21	5.9%	*A. montanus*	210
			A. caudatus	280
			A. spinosus	809
			Baphia nitida Lodd.	278
			Boerhavia erecta L.	310
			Boerhavia repens L.	244

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Boils con't	21	5.9%	*Bryophyllum pinnatum* (Lam.) Oken	850
			B. paradoxum	915
			Crassocephalum crepidioides (Benth.) S. Moore	465
			Dracaena arborea (Willd.) Link	390
			Elaeis guineensis Jacq.	330
			Fagara macrophylla Engl.	220
			Ficus exasperata Vahl	750
			Heliotropium indicum L.	340
			Ipomoea quamoclit L.	485
			Lonchocarpus cyanescens (Schumach. & Thonn.) Benth.	310
			Momordica balsamina L.	365
			Momordica charantia L.	504
			Newbouldia laevis (P. Beauv.) Seem.	702
			Sterculia tragacantha Lindl.	190
			Uapaca togoensis Pax	124
Bruise	7	0.8%	*Bridelia ferruginea* Benth.	89
			B. pinnatum	208
			Caladium bicolor Vent.	300
			Curcuma longa L.	200
			Gossypium hirsutum L.	255
			Irvingia gabonensis (Aubry-Lecomte ex O'Rorke) Baill.	90
			Spathodea campanulata P. Beauv.	108
Burns	14	3.2%	*Acacia ataxacantha* DC.	120
			Allium sativum L.	300
			Aloe vera (L.) Burm. f.	900
			B. pinnatum	520
			Carapa procera DC.	150
			Commelina diffusa Burm. f.	85
			C. crepidioides	400
			Dioscorea rotundata Poir.	600
			D. arborea	305
			Glyphaea brevis (Spreng.) Monach.	90
			I. gabonensis	150
			Lannea nigritana Keay	390
			S. campanulata	202
			Talinum triangulare (Jacq.) Willd.	650
Carbuncles	4	1.2%	*Afzelia africana* Sm.	300
			Afzelia bella Harms	380
			A. vera	910
			Cyathula prostrata (L.) Blume	190

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Chickenpox	6	2.3%	*Adenostemma mauritianum* DC.	900
			C. occidentalis	510
			Lophira lanceolata Tiegh. ex Keay	180
			P. biglobosa	380
			Ricinus communis L.	890
			Vernonia amygdalina Delile	580
Cut	5	0.8%	*B. ferruginea*	84
			Costus afer Ker Gawl.	340
			C. longa	415
			Detarium microcarpum Guill. & Perr.	102
			Strophanthus hispidus DC.	230
Eczema	10	2.5%	*Albizia lebbeck* (L.) Benth.	420
			A. vera	920
			A. caudatus	190
			A. spinosus	502
			Azadirachta indica A. Juss.	620
			Borreria verticillata (L.) G. Mey.	530
			Jatropha gossypiifolia L.	140
			Manniophyton fulvum Müll. Arg.	105
			Mitracarpus villosus (Sw.) DC.	188
			Sansevieria liberica Gérôme & Labroy	237
Fungal Skin Infection	6	1.2%	*B. ferruginea*	150
			Guarea thompsonii Sprague & Hutch.	290
			L. lanceolata	210
			P. biglobosa	420
			Terminalia ivorensis A. Chev.	200
			Xanthosoma sagittifolium (L.) Schott	620
Impetigo	3	0.6%	*A. bella*	420
			Piper guineense Schumach. & Thonn.	293
			T. ivorensis	190
Insect Bite	7	2.0%	*A. lebbeck*	390
			Bidens pilosa L.	185
			B. pinnatum	330
			Colocasia esculenta (L.) Schott	580
			Datura metel L.	310
			Euphorbia hirta L.	500
			Musa acuminata x *balbisiana* Colla	700
Itch	4	1.3%	*A. vera*	630
			Aspilia africana (Pers.) C.D. Adams	420
			Rauwolfia vomitoria Afzel	209
			Vernonia conferta Benth.	740

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Leprosy	3	0.8%	*Afzelia africana*	186
			Anacardium occidentale L.	724
			Vitex doniana Sweet	292
Measles	17	4.8%	*Alternanthera bettzickiana* (Regel) G. Nicholson	120
			Cajanus cajan (L.) Huth	300
			Clausena anisata (Willd.) Hook. f. ex Benth.	510
			Commiphora kerstingii Engl.	158
			Emilia coccinea (Sims) G. Don	510
			Emilia sonchifolia (L.) DC.	420
			Glycine max (L.) Merr.	930
			H. crinita	408
			Heterotis rotundifolia (Sm.) Jacq.-Fél.	230
			Lasianthera africana P. Beauv.	607
			L. cyanescens	225
			M. paradisiaca	918
			P. biglobosa	218
			Rottboellia cochinchinensis (Lour.) Clayton	305
			Solenostemon monostachyus (P. Beauv.) Briq.	236
			T. triangulare	725
			V. amygdalina	680
Mumps	1	0.1%	*Combretum paniculatum* Vent.	190
Pediculosis	1	0.1%	*Monodora myristica* (Gaertn.) Dunal	200
Pimples	4	1.1%	*Afzelia africana*	270
			A. bella	380
			A. vera	910
			C. prostrata	190
Rashes	14	4.4%	*Ageratum conyzoides* L.	930
			Ananas comosus (L.) Merr.	220
			Aspilia africana	420
			Bombax buonopozense P. Beauv.	350
			Capsicum annuum L.	930
			Chromolaena odorata (L.) R.M. King & H. Rob.	930
			C. prostrata	200
			Daniellia oliveri (Rolfe) Hutch. & Dalziel	615
			E. coccinea	460
			E. sonchifolia	350
			H. crinita	425
			Nauclea latifolia Sm.	325
			Pycnanthus angolensis (Welw.) Warb.	265
			Ximenia americana L.	280
Ringworm	13	4.3%	*A. occidentale*	742

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Ringworm con't	13	4.3%	*A. indica*	910
			B. buonopozense	280
			Brassica oleracea L.	405
			Cassia alata L.	930
			Citrus sinensis (L.) Osbeck	585
			F. exasperata	900
			J. gossypiifolia	300
			M. fulvum	240
			M. villosus	290
			P. biglobosa	500
			R. vomitoria	240
			X. americana	300
Scabies	7	1.7%	*A. vera*	900
			A. indica	730
			J. gossypiifolia	260
			L. cyanescens	310
			M. fulvum	220
			Morinda longiflora G. Don	205
Scald	1	0.2%	*Portulaca oleracea* L.	250
Scorpion Sting	12	2.8%	*Achyranthes aspera* L.	310
			Adansonia digitata L.	325
			Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg.	445
			Allium cepa L.	410
			A. sativum	330
			B. pinnatum	345
			C. odorata	530
			D. metel	340
			E. hirta	380
			I. cylindrica	190
			S. hispidus	425
			Zornia latifolia Sm.	190
Shingles	1	0.1%	*Solanum nigrum* L.	175
Skin Cancer	2	0.2%	*Nicotiana rustica* L.	172
			Nicotiana tabacum L.	172
Skin Eruption	11	3.0%	*Afzelia africana*	270
			A. caudatus	200
			A. spinosus	809
			Calotropis procera (Aiton) W.T. Aiton	320
			Carapa procera	200
			C. paniculatum	300
			G. hirsutum	480

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Skin Eruption con't	11	3.0%	*M. charantia*	560
			P. biglobosa	420
			S. campanulata	315
			T. triangulare	700
Skin Spots	74	24.9%	*Abrus precatorius* L.	220
			Acalypha fimbriata Schumach. & Thonn.	206
			Acalypha hispida Burm. f.	200
			Acalypha wilkesiana Müll. Arg.	325
			Afrofittonia silvestris Lindau	315
			A. cordifolia	925
			Alchornea laxiflora (Benth.) Pax & K. Hoffm.	310
			Allanblackia floribunda Oliv.	398
			A. sativum	400
			A. vera	930
			A. bettzickiana	103
			Anthocleista djalonensis A. Chev.	310
			A. indica	895
			B. erecta	310
			B. repens	280
			B. buonopozense	350
			B. verticillata	918
			C. cajan	353
			C. bicolor	905
			Carica papaya L.	928
			Carpolobia lutea G. Don	408
			C. alata	930
			Cassia tora L.	887
			Chrysophyllum albidum G. Don	504
			Cissus quadrangularis L.	264
			C. colocynthis	174
			Citrus aurantium L.	73
			Citrus × paradisi Macfad.	184
			Clerodendrum splendens G. Don	235
			Cocos nucifera L.	930
			Combretum micranthum G. Don	894
			Combretum racemosum P. Beauv.	750
			Cucurbita maxima Duchesne	318
			C. longa	256
			C. prostrata	200
			Dacryodes edulis (G. Don) H.J. Lam	927
			Dacryodes klaineana (Pierre) H.J. Lam	530

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Skin spots con't	74	24.9%	*Diodia sarmentosa* Sw.	928
			Dioscorea dumetorum (Kunth) Pax	395
			D. rotundata	810
			Distemonanthus benthamianus Baill.	405
			Eugenia uniflora L.	435
			Fleurya aestuans (L.) Gaudich. ex Miq.	365
			Harungana madagascariensis Lam. ex Poir.	403
			Homalium letestui Pellegr.	351
			I. gabonensis	225
			Jatropha curcas L.	342
			Justicia insularis T. Anderson	378
			Khaya grandifoliola A. Juss.	224
			Lannea acida A. Rich.	345
			Lasianthera africana	925
			L. cyanescens	300
			Maesobotrya barteri (Baill.) Hutch.	480
			Maesobotrya dusenii (Pax) Pax	540
			Mangifera indica L.	925
			Manihot esculenta Crantz	930
			N. laevis	740
			Pentaclethra macrophylla Benth	395
			Phyllanthus amarus Schumach. & Thonn.	930
			P. oleracea	502
			Pterocarpus erinaceus Poir.	292
			Pterocarpus santalinoides L'Hér. ex DC.	204
			R. communis	706
			Sida acuta Burm. f.	890
			Smilax anceps Willd.	255
			Symphonia globulifera L. f.	490
			Tamarindus indica L.	410
			Terminalia superba Engl. & Diels	248
			Tetrapleura tetraptera (Schumach. & Thonn.) Taub.	910
			Trema orientalis (L.) Blume	202
			Tridax procumbens L.	710
			Triumfetta cordifolia Guill., Perr. & A. Rich.	540
			V. amygdalina	930
			X. sagittifolium	900
Skin Ulcer	25	4.6%	*A. aspera*	375
			A. conyzoides	650
			A. cordifolia	580
			A. laxiflora	170

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Skin Ulcer con't	25	4.6%	*A. sativum*	280
			Anogeissus leiocarpus (DC.) Guill. & Perr.	200
			A. djalonensis	220
			B. nitida	295
			Blighia sapida K.D. Koenig	210
			B. oleracea	290
			B. pinnatum	450
			C. cajan	180
			C. annuum	620
			Cassytha filiformis L.	190
			Ceiba pentandra (L.) Gaertn.	120
			D. microcarpum	160
			Ipomoea pileata Roxb.	550
			L. cyanescens	250
			M. villosus	190
			N. rustica	95
			N. tabacum	125
			S. campanulata	160
			S. tragacantha	130
			S. hispidus	240
			X. americana	260
Smallpox	5	1.6%	*C. cajan*	220
			Calotropis procera	140
			R. communis	800
			V. amygdalina	500
			X. sagittifolium	750
Snakebite	15	3.4%	*A. digitata*	325
			A. cordifolia	450
			A. caudatus	155
			A. spinosus	650
			Alstonia boonei De Wild.	230
			C. filiformis	200
			C. odorata	560
			E. hirta	420
			Ficus sycomorus L.	610
			Funtumia elastica (Preuss) Stapf	250
			Ocimum gratissimum L.	315
			S. liberica	200
			S. hispidus	420
			Uvaria chamae P. Beauv.	220
			Z. latifolia	230

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Sore	20	4.0%	*A. ataxacantha*	125
			A. fimbriata	190
			A. hispida	120
			A. senegalensis	200
			A. djalonensis	220
			C. cajan	210
			C. bicolor	775
			Carapa procera	150
			C. tora	380
			C. filiformis	110
			C. pentandra	170
			Cola acuminata (P. Beauv.) Schott & Endl.	930
			C. esculenta	490
			C. diffusa	140
			C. afer	410
			G. hirsutum	490
			Kigelia africana (Lam.) Benth.	145
			M. myristica	230
			Pistia stratiotes L.	260
			S. hispidus	330
Wart	1	0.2%	*C. paniculatum*	230
Whitlow	6	1.6%	*A. montanus*	260
			A silvestris	270
			C. quadrangularis	265
			Crinum jagus (Thompson) Dandy	580
			Pennisetum typhoides (Burm. f.) Stapf & C.E. Hubb.	200
			S. acuta	910
Wound	45	10.3%	*A. montanus*	300
			Afzelia africana	240
			A. conyzoides	760
			Anchomanes difformis (Blume) Engl.	290
			Andropogon gayanus Kunth	230
			A. leiocarpus	200
			A. senegalensis	200
			A. djalonensis	220
			Aspilia africana	930
			B. nitida	320
			B. pilosa	175
			B. sapida	245
			B. ferruginea	90
			C. bicolor	775

Ailment	Number of Taxa	Percent Citation	Botanical Name of Plant	Household
Wound con't	45	10.3%	*C. annuum*	730
			C. filiformis	110
			C. odorata	820
			C. nucifera	820
			C. afer	410
			Crassocephalum biafrae (Oliv. & Hiern) S. Moore	250
			C. crepidioides	500
			D. microcarpum	190
			E. coccinea	525
			E. sonchifolia	410
			Enantia chlorantha Oliv.	190
			Ficus carica L.	780
			F. elastica	200
			G. brevis	95
			G. hirsutum	490
			I. quamoclit	460
			Kigelia africana	145
			L. lanceolata	200
			Mallotus oppositifolius (Geiseler) Müll. Arg.	270
			Milicia excelsa (Welw.) C.C. Berg	350
			M. paradisiaca	545
			N. rustica	100
			N. tabacum	130
			P. biglobosa	320
			Pennisetum polystachion (L.) Schult.	290
			P. stratiotes	260
			R. cochinchinensis	260
			S. campanulata	300
			S. tragacantha	195
			T. ivorensis	150
			Trianthema portulacastrum L.	205
Yaws	7	1.4%	*A. cordifolia*	420
			A. laxiflora	215
			B. erecta	275
			B. repens	225
			Carapa procera	120
			D. rotundata	650
			L. cyanescens	205

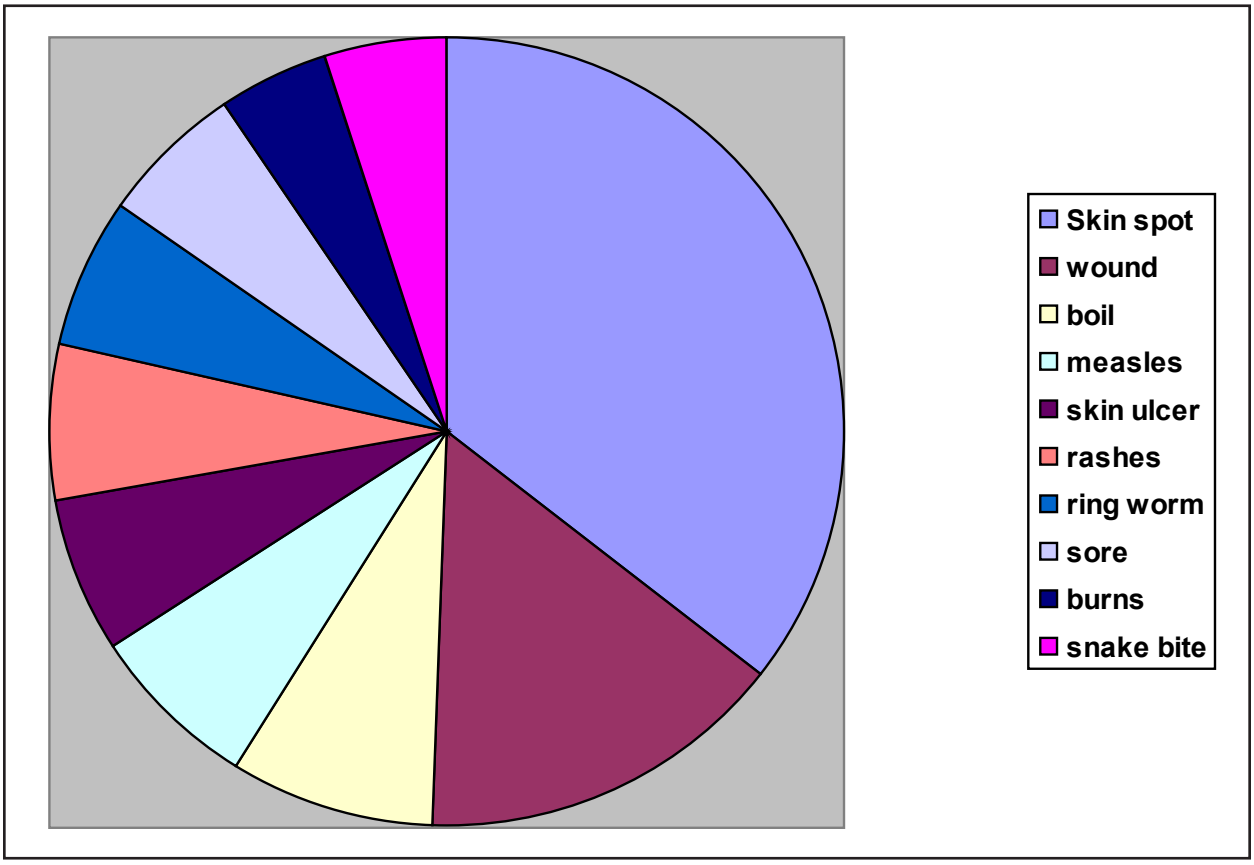

Figure 3. Relative importance of diseases in terms of citations in the households of Akwa Ibom State, Nigeria. Skin spot 24.9%; wound 10.3%; boils 5.9%; measles 4.8%; skin ulcer 4.6%; rash 4.4%; ringworm 4.3%; sore 4.0%; burns 3.2%; snakebite 3.4%.

The extracts of the leaves and root of the plant were observed to show in vitro inhibition of *S. aureus*, *E. coli* and *P. aeruginosa* (Ebana *et al.* 1993).

The leaves of *S. hispidus* were evaluated against the venom of saw-scaled viper *Echis carinatus* Schneider 1801, and their extract was found to show a dose-related delay of the venom induced blood clotting, thereby inhibiting the effect of the bite (Houghton & Skari 1994).

Cassia alata L. (Fabaceae) is commonly used to treat ringworm (Ip = 2) and skin spots (Ip = 1). The plant is well known all over the tropics to treat ringworm. It is also the most popular herb for the treatment of ringworm in Nigeria. *Cassia tora* L. (Fabaceae) was also reported to be endemic in all the tropical regions of the world, and used as a popular remedy for ringworm and skin spots (Lewis & Elvin-Lewis 2003). Though the leaf of *C. alata* is the plant part that is often used, the flower has been identified as the most effective part for the treatment of ringworm (Ogunti *et al.* 1991). The antimicrobial property of the plant has been attributed to the presence of the anthraquinones such as rhein and emodin (Phongpaichit *et al.* 2004).

Curcuma longa L. (Zingiberaceae) was mentioned for three ailments, bruise (Ip = 1), cuts (Ip = 2) and skin spots (Ip = 1). The plant is used in South Asia to treat cuts, burns and bruises (Turmeric 2012). The aqueous extract and the oil fraction of *C. longa* were reported to suppress the growth of bacteria such as *Staphylococcus*, and *Streptococcus* (Bhavani & Sreenivasa 1979). The extracts and oil of *C. longa* also possess antifungal activity against fungi such as *Aspergillus flavus* Link, *Aspergillus parasiticus* Speare, and *Fusarium moniliforme* J. Sheld. (Misra & Sahu 1977, Wuthi-Udomler *et al.* 2000). Curcumin, the main chemical constituent of the plant, has also been reported to show antibacterial and antifungal activities (Bhavani & Sreenivasa 1979, Wuthi-Udomler *et al.* 2000).

Bidens pilosa L. (Asteraceae) is frequently used to treat insect bite (Ip = 2) and wound (Ip = 2). In Uganda, the sap from the leaves of the plant was reported to expedite clotting of blood in fresh wounds (Burkill 1985). It is also used in African, Indian and Bahamam traditional medicine to treat wounds (Taylor 2005). Previous studies have shown that the plant contains compounds such as phenylheptatriyne, linolic acid and linoleic acid which show potent antimicrobial effect against *Staphylococcus*, *Bacillus*,

Table 6. Fidelity level of medicinal plants used to treat skin diseases and related ailments in Akwa Ibom State, Nigeria.

Species	Therapeutic Uses	Fidelity Level %
Abrus precatorius L.	Skin spots	100
Acacia ataxacantha DC.	Burns, sore	51
Acalypha fimbriata Schumach. & Thonn.	Skin spots, sore	52
Acalypha hispida Burm. f.	Skin spots, sore	63
Acalypha wilkesiana Müll. Arg.	Skin spots	100
Acanthus montanus (Nees) T. Anderson	Abscess, boils, sore, wound	32
Achyranthes aspera L.	Scorpion sting, skin ulcer	55
Adansonia digitata L.	Scorpion sting, snakebite	50
Adenostemma mauritianum DC.	Chicken pox	100
Afrofittonia silvestris Lindau	Skin spots, whitlow	52
Afzelia africana Sm.	Carbuncle, leprosy, pimples, skin eruption, wound	24
Afzelia bella Harms	Carbuncle, impetigo	53
Ageratum conyzoides L.	Rashes, skin ulcer, wound	40
Albizia lebbeck (L.) Benth.	Eczema, insect bite	52
Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg.	Skin spots, skin ulcer, snakebite, yaws	33
Alchornea laxiflora (Benth.) Pax & K. Hoffm.	Skin spots, skin ulcer, yaws	45
Allanblackia floribunda Oliv.	Skin spots	100
Allium cepa L.	Scorpion sting	100
Allium sativum L.	Burns, skin spots, scorpion sting, skin ulcer	31
Aloe vera (L.) Burm. f.	Burns, carbuncle, eczema, skin spots, itch, pimples, scabies	15
Alstonia boonei De Wild.	Snakebite	100
Alternanthera bettzickiana (Regel) G. Nicholson	Skin spots, measles	54
Amaranthus caudatus L.	Abscess, boils, eczema, skin eruption, snakebite	27
Amaranthus spinosus L.	Abscess, boils, eczema, skin eruption, snakebite	23
Anacardium occidentale L.	Leprosy, ringworm	51
Ananas comosus (L.) Merr.	Rashes	100
Anchomanes difformis (Blume) Engl.	Wound	100
Andropogon gayanus Kunth	Wound	100
Anona senegalensis Pers.	Abscess, sore, wound	34
Anogeissus leiocarpus (DC.) Guill. & Perr.	Skin ulcer, wound	50
Anthocleista djalonensis A. Chev.	Skin spots, skin ulcer, sore, wound	32
Aspilia africana (Pers.) C.D. Adams	Itch, rashes, wound	53
Azadirachta indica A. Juss.	Eczema, ringworm, skin spots, scabies	29
Baphia nitida Lodd.	Boils, skin ulcer, wound	36
Bidens pilosa L.	Insect bite, wound	51
Blighia sapida K.D. Koenig	Skin ulcer, wound	54
Boerhavia erecta L.	Boils, skin spots, yaws	35
Boerhavia repens L.	Boils, skin spots, yaws	37

Species	Therapeutic Uses	Fidelity Level %
Bombax buonopozense P. Beauv.	Rashes, ringworm, skin spots	36
Borreria verticillata (L.) G. Mey.	Eczema, skin spots	63
Brassica oleracea L.	Ringworm, skin ulcer	58
Bridelia ferruginea Benth.	Bruise, cut, fungal skin infection, wound	36
Bryophyllum pinnatum (Lam.) Oken	Boils, bruise, burns, insect bite, scorpion sting, skin ulcer	32
Butyrospermum paradoxum (C.F. Gaertn.) Hepper	Athlete's foot, boils	82
Cajanus cajan (L.) Huth	Measles, skin spots, skin ulcer, smallpox, sore	28
Caladium bicolor Vent.	Bruise, skin spots, sore, wound	33
Calotropis procera (Aiton) W.T. Aiton	Skin eruption, smallpox	67
Capsicum annuum L.	Rashes, skin ulcer, wound	41
Carapa procera DC.	Skin eruption, sore, yaws	32
Carica papaya L.	Skin spots	100
Carpolobia lutea G. Don	Skin spots	100
Cassia alata L.	Ringworm, skin spots	50
Cassia occidentalis L.	Abscess, chickenpox	51
Cassia tora L.	Skin spots, sore	70
Cassytha filiformis L.	Skin ulcer, snakebite, sore, wound	33
Ceiba pentandra (L.) Gaertn.	Skin ulcer, sore	59
Chromolaena odorata (L.) R.M. King & H. Rob.	Rashes, scorpion sting, snakebite, wound	33
Chrysophyllum albidum G. Don	Skin spots	100
Cissus quadrangularis L.	Skin spots, whitlow	50
Citrullus colocynthis (L.) Schrad.	Abscess, skin spots	51
Citrus aurantium L.	Skin spots	100
Citrus × *paradisi* Macfad.	Skin spots	100
Citrus sinensis (L.) Osbeck	Ringworm	100
Clausena anisata (Willd.) Hook. f. ex Benth.	Measles	100
Clerodendrum splendens G. Don	Skin spots	100
Cocos nucifera L.	Skin spots, wound	53
Cola acuminata (P. Beauv.) Schott & Endl.	Sore	100
Colocasia esculenta (L.) Schott	Insect bite, sore	54
Combretum micranthum G. Don	Skin spots	100
Combretum racemosum P. Beauv.	Skin spots	100
Combretum zenkeri Engl. & Diels	Mumps, skin eruption, warts	42
Commelina diffusa Burm. f.	Burns, sore	62
Commiphora kerstingii Engl.	Measles	100
Corchorus olitorius L.	Abscess	100
Costus afer Ker Gawl.	Cut, sore, wound	35
Crassocephalum biafrae (Oliv. & Hiern) S. Moore	Wound	100

Species	Therapeutic Uses	Fidelity Level %
Crassocephalum crepidioides (Benth.) S. Moore	Boils, burns, wound	37
Crinum jagus (Thompson) Dandy	Whitlow	100
Cucurbita maxima Duchesne	Skin spots	100
Curcuma longa L.	Bruise, cut, skin spots	48
Cyathula prostrata (L.) Blume	Carbuncle, pimples, rashes, Skin spots	26
Dacryodes edulis (G. Don) H.J. Lam	Skin spots	100
Dacryodes klaineana (Pierre) H.J. Lam	Skin spots	100
Daniellia oliveri (Rolfe) Hutch. & Dalziel	Rashes	100
Datura stramonium L.	Insect bite, scorpion sting	52
Detarium microcarpum Guill. & Perr.	Cut, skin ulcer, wound	42
Diodia sarmentosa Sw.	Skin spots	100
Dioscorea dumetorum (Kunth) Pax	Skin spots	100
Dioscorea rotundata Poir.	Burns, Skin spots, yaws	39
Distemonanthus benthamianus Baill.	Skin spots	100
Dracaena arborea (Willd.) Link	Boils, burns	56
Elaeis guineensis Jacq.	Boils	100
Emilia coccinea (Sims) G. Don	Measles, rashes, wound	35
Emilia sonchifolia (L.) DC.	Measles, rashes, wound	36
Enantia chlorantha Oliv.	Wound	100
Eugenia uniflora L.	Skin spots	100
Euphorbia hirta L.	Insect bite, scorpion sting, snakebite	38
Fagara macrophylla Engl	Boils	100
Ficus carica L.	Wound	100
Ficus exasperata Vahl	Boils, ringworm	55
Ficus sycomorus L.	Snakebite	100
Fleurya aestuans (L.) Gaudich. ex Miq.	Skin spots	100
Funtumia elastica (Preuss) Stapf	Snakebite, wound	56
Glycine max (L.) Merr.	measles	100
Glyphaea brevis (Spreng.) Monach.	Burns, wound	51
Gossypium hirsutum L.	Bruise, skin eruption, sore, wound	27
Guarea thompsonii Sprague & Hutch.	Fungal skin infection	100
Harungana madagascariensis Lam. ex Poir.	Skin spots	100
Heinsia crinita (Afzel.) G. Taylor	Abscess, measles, rashes	53
Heliotropium indicum L.	Boils	100
Heterotis rotundifolia (Sm.) Jacq.-Fél.	Measles	100
Homalium letestui Pellegr.	Skin spots	100
Imperata cylindrica (L.) Raeusch.	Abscess, scorpion sting	51
Ipomoea pileata Roxb.	Skin ulcer	100
Ipomoea quamoclit L.	Boils, wound	51
Irvingia gabonensis (Aubry-Lecomte ex O'Rorke) Baill.	Bruise, burns, Skin spots	48

Species	Therapeutic Uses	Fidelity Level %
Jatropha curcas L.	Skin spots	100
Jatropha gossypiifolia L.	Eczema, ringworm, scabies	43
Justicia insularis T. Anderson	Skin spots	100
Khaya grandifoliola A. Juss.	Skin spots	100
Kigelia africana (Lam.) Benth.	Sore, wound	50
Lannea acida A. Rich.	Skin spots	100
Lannea nigritana Keay	Bruise	100
Lasianthera africana P. Beauv.	Measles, skin spots	60
Lonchocarpus cyanescens (Schumach. & Thonn.) Benth.	Boils, measles, scabies, skin spots, skin ulcer, yaws	19
Lophira lanceolata Tiegh. ex Keay	Chickenpox, fungal skin infection, wound	36
Maesobotrya barteri (Baill.) Hutch.	Skin spots	100
Maesobotrya dusenii (Pax) Pax	Skin spots	100
Mallotus oppositifolius (Geiseler) Müll. Arg.	Wound	100
Mangifera indica L.	Skin spots	100
Manihot esculenta Crantz	Skin spots	100
Manniophyton fulvum Müll. Arg.	Eczema, ringworm, scabies	42
Milicia excelsa (Welw.) C.C. Berg	Wound	100
Mitracarpus villosus (Sw.) DC.	Eczema, ringworm, skin ulcer	43
Momordica balsamina L.	Boils	100
Momordica charantia L.	Boils, skin eruption	53
Monodora myristica (Gaertn.) Dunal	Pediculosis, sore	53
Morinda longiflora G. Don	Scabies	100
Musa acuminata x balbisiana Colla	Insect bite, measles, wound	42
Nauclea latifolia Sm.	rashes	100
Newbouldia laevis (P. Beauv.) Seem.	Boils, skin spots	51
Nicotiana rustica L.	Skin cancer, skin ulcer, wound	47
Nicotiana tabacum L.	Skin cancer, skin ulcer, wound	40
Ocimum gratissimum L.	Snakebite	100
Parkia biglobosa (Jacq.) R. Br. ex G. Don	Athlete's foot, chickenpox, fungal skin infection, measles, ringworm, skin eruption, wound	19
Pennisetum polystachion (L.) Schult.	Wound	100
Pennisetum typhoides (Burm. f.) Stapf & C.E. Hubb.	Whitlow	100
Pentaclethra macrophylla Benth	Skin spot	100
Phyllanthus amarus Schumach. & Thonn.	Skin spot	100
Piper guineense Schumach. & Thonn.	Impetigo	100
Pistia stratiotes L.	Sore, wound	50
Portulaca oleracea L.	Scald, skin spot	67
Pterocarpus erinaceus Poir.	Skin spot	100
Pterocarpus santalinoides L'Hér. ex DC.	Skin spot	100

Species	Therapeutic Uses	Fidelity Level %
Pycnanthus angolensis (Welw.) Warb.	Rashes	100
Rauwolfia vomitoria Afzel	Itch, ringworm	
Ricinus communis L.	Chickenpox, smallpox, skin spots	37
Rottboellia cochinchinensis (Lour.) Clayton	Measles, wound	54
Sansevieria liberica Gérôme & Labroy	Eczema, snakebite	54
Sida acuta Burm. f.	Skin spot, whitlow	51
Smilax anceps Willd.	Skin spot	100
Solanum nigrum L.	Shingles	100
Solenostemon monostachyus (P. Beauv.) Briq.	Measles	100
Spathodea campanulata P. Beauv.	Bruise, burns, skin eruption, skin ulcer, wound	29
Sterculia tragacantha Lindl.	Boils, skin ulcer, wound	38
Strophanthus hispidus DC.	Cut, scorpion sting, skin ulcer, snakebite, sore	26
Symphonia globulifera L. f.	Skin spots	100
Talinum triangulare (Jacq.) Willd.	Burns, measles, skin eruption	35
Tamarindus indica L.	Skin spots	100
Terminalia ivorensis A. Chev.	Fungal skin infection, impetigo, wound	37
Terminalia superba Engl. & Diels	Skin spots	100
Tetrapleura tetraptera (Schumach. & Thonn.) Taub.	Skin spots	100
Trema orientalis (L.) Blume	Skin spots	100
Trianthema portulacastrum L.	Wound	100
Tridax procumbens L.	Skin spots	100
Triumfetta cordifolia Guill., Perr. & A. Rich.	Skin spots	100
Uapaca togoensis Pax	Boils	100
Uvaria chamae P. Beauv.	Snakebite	100
Vernonia amygdalina Delile	Chickenpox, measles, smallpox, skin spots	35
Vernonia conferta Benth.	Itch	100
Vitex doniana Sweet	Leprosy	100
Xanthosoma sagittifolium (L.) Schott	Fungal skin infection, smallpox, Skin spots	40
Ximenia americana L.	Rashes, ringworm, skin ulcer	36
Zornia latifolia Sm.	scorpion stings, snakebite	55

Pseudomonas and *Candida* species (Geissberger and Sequin 1991). This may rationalize the use of this plant to treat wounds in traditional medicine (Mvere 2004).

Calotropis procera (Aiton) W.T. Aiton (Asclepiadaceae) is widely used for the treatment of smallpox (Ip = 1) and skin inflammation (Ip = 3). Different parts of the plant such as leaves, stem, flowers and bark or its exudates are used in Bangladesh to treat smallpox (Rahmatullah *et al.* 2010). The aerial parts and root of the plant have been reported to be commonly used in the traditional medicines of Saudi Arabia and India to treat different types of inflammations (Al-Yahya *et al.* 1990, Quisumbing 1978). The latex of the root of the plant has been evaluated for anti-inflammatory property in different models of inflammation such as carrageenin – induced vascular permeability and formalin – induced rat paw models. The root latex was found to be effective to a significant level against acute inflammation response (Kumar & Basu 1994, Sangraula *et al.* 2002). A similar study also reported that the chloroform fraction of the root showed significant dose related anti-inflammatory activity in rats using carrageenin – induced

Table 7. Number of traditional medical practitioners (TMPs) interviewed from different local government areas of Akwa Ibom State, Nigeria.

Reference Number	Local Government Area	Population	Number of TMPs	Ratio of TMP to people
1	Abak	139,080	30	1:4636
2	Eastern Obolo	60,543	33	1:1834
3	Eket	172,557	37	1:4663
4	Esit Eket	63,701	32	1:1990
5	Essien Udim	192,668	35	1:5504
6	Etim ekpo	105,418	31	1:3400
7	Etinan	169,284	40	1:4232
8	Ibeno	75,380	32	1:2355
9	Ibesikpo Asutan	137,101	34	1:4032
10	Ibiono-Ibom	189,640	38	1:4990
11	Ika	72,939	37	1:1971
12	Ikono	131,904	30	1:4396
13	Ikot Abasi	132,023	35	1:3772
14	Ikot Ekpene	143,077	36	1:3974
15	Ini	99,196	31	1:3199
16	Itu	127,033	34	1:3736
17	Mbo	104,012	38	1:2737
18	Mkpat-Enin	178,036	39	1:4565
19	Nsit-Atai	74,595	34	1:2193
20	Nsit-Ibom	108,611	36	1:3016
21	Nsit-Ubium	128,231	40	1:3205
22	Obot-Akara	148,281	40	1:3707
23	Okobo	104,057	38	1:2738
24	Onna	123,373	40	1:3084
25	Oron	87,461	33	1:2650
26	Orukanam	172,654	35	1:4932
27	Udung-Uko	53,278	32	1:1664
28	Ukanafun	127,033	36	1:3528
29	Urua Offong	71,159	31	1:2295
30	Uruan	118,300	36	1:3286
31	Uyo	309,573	40	1:7739

pedal oedema, cotton pellet granuloma and formaldehyde – induced arthritis (Basu & Chaudhuri 1991). However, the plant is considered poisonous due to the presence of cardenolide, and calotropin, a very active cardiac glycoside (Grieve 2010).

Enantia chlorantha Oliv. (Annonaceae) is frequently used to treat wounds (Ip = 3). Atata *et al.* (2003) reported that the ethanol extract of the stem bark showed significant antimicrobial effect against *P. aeruginosa*, *S. aureus* and *Candida albicans* (C.P Robin) Berkhout. Earlier, Moody *et al.* (1995) had reported that Palmitin chloride 1 and jatrorrhizine chloride 2 were the major chemical constituents responsible for the antimicrobial activity of the plant.

Combretum micranthum G. Don (Combretaceae) is indicated for the treatment of skin spots (Ip = 3). The antimicrobial property of the plant was found to be due to tannins, flavones and alkaloids (Burkill 1985). The plant was observed to be more potent when comparing its antimicrobial effect with that of its co-generic species, *Combretum racemosum* P. Beauv. (Combretaceae) which is similarly used for skin diseases in Akwa Ibom (Ajibesin *et al.* 2002).

Table 8. Use of medicinal plants for skin diseases and related ailments within and outside Nigeria. Country/Area reference abbreviations: Afr, Africa; Ame, America; Ban, Bangladesh; Bra, Brazil; Cam, Cameroon; CD, Côte d'ivoire; Chey, Cheyennes; Chi, China; Con, Congo; Cub, Cuba; DRC, Democratic Republic of Congo; E/A, East Africa; Ethio, Ethiopia; Gab, Gabon; Gam, Gambia; Ger, Germany; Gha, Ghana; Gui, Guinea; Ind, India; Indo, Indonesia; Jam, Jamaica; Jap, Japan; KSA, Kingdom of Saudi Arabia; Lib, Liberia; Mad, Madagascar; Mal, Malaya; Mau, Mauritius, Mex, Mexico; Moz, Mozambique; Nic, Nicaragua; Nig, Nigeria; Rus, Russia; S/A, South Africa; S/E Asia, Southeast Asia; S/L, Sierra Leone; Sen, Senagal; Sri, Sri Lanka; Tan, Tanzania; Trop/Asia, Tropical Asia; Turk, Turkey; US, United States of America; W/A, West Africa; Zam, Zambia. Source citations: (1), Lewis & Elvin-Lewis 2003; (2), Martinez *et al.* 1996; (3), Burkill 1985; (4), Quisumbing 1951; (5), Bouquet 1969; (6), Getahun 1975; (7), Haerdi *et al.* 1964; (8), Walker & Silans 1961; (9), Agbovie *et al.* 2002; (10), Kerharo & Adam 1974; (11), Dalziel 1937; (12), Irvine 1930; (13), Chifundera 2001; (14), Kerharo & Adam 1962; (15), Irvine 1961; (16), Kerharo & Bouquet 1950; (17), Betti 2004; (18), Irvine 1952; (19), Aubréville 1950; (20), Kerharo & Adam 1963; (21), Pobéguin 1912; (22), Walker 1953; (23), Bouquet & Debray 1974; (24), Chevalier & Laffitte 1937; (25), Watt & Breyer-Brandwijk 1962; (26), Bandeira *et al.* 1999; (27), Kerharo 1967; (28), Kokwaro 1993; (29), Emeruwa 1982; (30), Milliken *et al.* 1992; (31), Oliver 1960; (32), Rukangira 2001; (33), Chopra *et al.* 1956; (34), Kerharo & Adam 1964; (35), Sastri 1952; (36), Burkill 1935 a, b; (37), Tuzlaci & Aymaz 2001; (38), Schnell 1950; (39), Schindler 1939); (40), Rajakaruna *et al.* 2002; (41), Mann *et al.* 2003; (42), Hauman 1951; (43), Iwu 1986; (44), ASICUMPON 2005; (45), NNMDA 2006a; (46), NNMDA 2006b; (47), Ekpendu *et al.* 2000, (48), Boudreau & Beland 2006; (49), Raintree Nutrition 1996; (50), Grindlay & Reynadds 1986; (51), Galal & Gawad 1965; (52), Quisumbing 1978; (53), Al-Yahya *et al.* 1991; (54), Rahmatullah *et al.* 2010; (56), Taylor 2005.

Plant Species	Ailments	Country/Area (Source)
Acalypha hispida Burm. f.	Wounds, ulcer, abscesses	Ger (39)
Acalypha wilkesiana Müll. Arg.	Skin diseases	Nig (41; 45; 46)
Acanthus montanus (Nees) T. Anderson	Abscesses	Con (5)
Achyranthes aspera L.	Wounds, boils, abscesses, leprosy, scabies, scorpion stings and bites.	Gab (8), E/A (25; 1), Ind (1), DRC (42)
Adansonia digitata L.	Sores, small pox, measles, skin infections	CD (19; 10; 11), Nig (43, 44)
Ageratum conyzoides L.	Wounds, burns, sores	S/E Asia (3; 4)
	Chronic ulcer, craw-craw	Con (5), Ethio (6)
	Itch, snakebite, styptic	Tan (7), Gab (8)
	Skin ulcer	Gha (9), Nig (45)
Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg.	Stomachache, wounds, yaws, ringworm, whitlow, skin diseases, leprosy	DRC (13), Gha (9), Nig (41, 45, 47), W/A (1)
Allium cepa L.	Skin diseases	W/A (1), Egy (51)
Allium sativum L.	Skin disease, sores, carbuncle	Chey (1), Nig (44, 45, 46)
Aloe vera (L.) Burm. f.	Sun burns, cuts, burns, wound, skin diseases	Cub (2), Chi, Jap, S/A, US, Rus, Jam, Ind (50), Nig (41; 44; 45; 46)
Alstonia boonei De Wild.	Snake bite, skin trouble, sores	Cam (18), Sen (18), CD (23)
Amaranthus spinosus L.	Leprosy, sores	CD (23; 16)
Anacardium occidentale L.	Ulcer, epilepsy, leprosy	Gab (8), CD (14; 10)
	Yaws	Gha (15)
Ananas comosus (L.) Merr.	Leprosy, burns, wounds	Gui (21), Con (5), Gab (8; 22)
Anchomanes difformis (Blume) Engl.	Abscesses	CD (16)
Anogeissus leiocarpus (DC.) Guill. & Perr.	Wounds, ulcers, sores	CD (16)
Anona senegalensis Pers.	Skin eruptions, leprosy	Sen (11) Mali (24)
Aspilia africana (Pers.) C.D. Adams	Wounds, craw craw	S/L, Lib (11), Nig (41; 44; 45; 46)
Azadicrachta indica A. Juss.	Skin diseases	Ind (1)

Plant Species	Ailments	Country/Area (Source)
Azadicrachta indica A. Juss. con't	Ringworm, boils	Gha (9)
Baphia nitida Lodd.	Yaws	Gha (9)
Bidens pilosa L.	Burns, cuts, snake bites	CD (16), Mex (49)
	Small pox, skin inflammation	Tan (7), CD (23; 16)
	Bee sting	S/A (26), Moz (26)
	Fungal infection, insect bite, wound	Peru, Bra, Afr, Uga (55), (3)
Blighia sapida K.D. Koenig	Skin diseases, yaws	Gha (9)
Borreria verticillata (L.) G. Mey.	Leprosy, skin diseases	Sen (27), E/A (28)
Bryopyllum pinnatum (Lam.) Oken	Abscesses, ulcers, burns, wounds, boils, bites	W/A, Ind (11; 33)
	Dermal diseases, itch, eczema, sores, swelling	Gha (15), Gab (8), Con (5)
Butyrospermum paradoxum (C.F. Gaertn.) Hepper	Cosmetic	W/A (32), Nig (45)
Caladium bicolor Vent.	Boils, abscesses, skin disease	Con (5)
Calotropis procera (Aiton) W.T. Aiton	Inflammation, wound	Ind (52), Gam, W/A (11)
	Snake bite, smallpox	Sen (33), KSA (53), Ban (54)
Carapa procera DC.	Insect bites, yaws, Sinusitis	Tropics (1), Gha (9)
Carica papaya L.	Yaws, boils, warts	Gha (18)
	Corns, burns, wounds	E/A (26; 29; 4), Ame (30)
	Skin diseases	S/L (36), CD (23; 16; 31)
Cassia alata L.	Ringworm, parasitic skin	W/A, Ind (12) Nig (41; 44; 45; 46)
Cassia tora L.	Ringworm, skin diseases	Pantropic (1) W/A, Ind (1)
Cassia occidentalis L.	Eczema (seeds)	Tropics (1)
Ceiba pentandra (L.) Gaertn.	Sores, furuncles, leprosy	CD (23), Con (5)
	Whitlow, cosmetic	W/A (32)
Chromolaena odorata (L.) R.M. King & H. Rob.	Wounds, cuts, styptic	Gha (9), Sri (40)
Cissus quandrangulais L.	Scabies	DRC (14)
Citrullus colocynthis (L.) Schrad.	Sting, snake bite	Ind (8)
Citrus aurantium L.	Swellings, abscesses	Chey (1)
Clerodendron splendens G. Don	Snake bite	Indo, Mal (1)
Cocos nucifera L.	Cosmetic	W/A. (1)
Colocasia esculenta (L.) Schott	Snake bite, boils	Gab (22; 8; 26)
Combretum micranthum G. Don	Leprosy, sores, abscesses	CD (10) (34), W/A (11)
Combretum racemosum P. Beauv.	Wounds	Con (5)
Crinum jagus (Thompson) Dandy	Panacea for all ailments	DRC (13)
Cucurbita maxima Duchesne	Boils, carbuncles, skin lotion	Gha (11; 15), Mad (32)
Curcuma longa L.	Skin Infections	Mau (2), Ind (1; 33)
	Wounds, bruises, bites	Trop/Asia (1), W/A (11), Mad (32)
Cyathula prostrata (L.) Blume	Leprosy, scabies, sores	Con (5), Gui (11), CD (23)
Dacryodes edulis (G. Don) H. J. Lam	Parasitic skin disease, leprosy	Con (5), Nig (11)
Dracaena arborea (Willd.) Link	Abscesses, cutaneous eruptions	Cam (17), DRC (13)

Plant Species	Ailments	Country/Area (Source)
Elaeis guineensis Jacq.	Wound, scabies	Gha (9), Cam (17)
Emilia coccinea (Sims) G. Don	Sores, ulcers, craw-craw, abscesses, leprosy, yaws, ringworm	Gab (23; 8), Con (5)
Emilia sonchifolia (L.) DC.	Cuts, wounds, sores	Ind (35) Indo (36)
Enantia chlorantha Oliv.	Sores, ulcers, wounds	W/A (12), Con (5)
Fagara macrophylla Engl	Withlow	Gha (9)
Ficus carica L.	Eczema	Turk (37)
Funtumia elastica (Preuss) stapf	Snake bite, wound	Cam (17)
Guiera senegalensis J.F. Gmel.	Leprosy, wounds, sores, ulcers, skin infection, skin swelling	Gui (19), Sen (10)
Heliotropium indicum L.	Eczema, impetigo, sore	Sen (10), Gha (12)
	Stings, pimples, ulcers, scabies	Zam (7)
Jatropha curcas L.	Measles, styptic, wounds, Leprosy, skin disease	W/A (1; 11) Gha (9)
Kigelia africana (Lam.) Benth.	Leprosy, snakebite, wound	Sen (10), CD (16)
	Sores, boils	Cam (11), E/ A (8)
Lannea nigritana Keay	Skin trouble, sore, abscess, skin inflammation	CD (23; 16), Sen (10)
Lannea acida A. Rich.	Skin infection	Sen (20; 10)
Mallotus oppositifolius (Geiseler) Müll. Arg.	Wounds, cut, whitlow, styptic, measles	Gha (9)
Manihot esculenta Crantz	Wounds, snakebite, skin rash	Gha, (9), Mau (32)
Momordica balsamina L.	Yaws, swelling	Sen (35; 10)
Momordica charantia L.	Psoriasis, scabies	Ind, Jap (25)
	Cutaneous parasites	Sen (10)
	Snake bite, burns, ulcers	Mal (36)
	Measles, inflammation	Peru, Bra (48)
	Skin complaints	Nic (49)
Musa acuminata x balbisiana Colla	Wound	Gha (9)
Newbouldia laevis (P. Beauv.) Seem.	Wounds, ulcer, abscesses	Sen (14)
	Leprosy, snake bite	E/A (11; 25), Gui (38), Gha (18)
Nicotiana tabacum L.	Wound	Gha (9)
Ocimum gratissimum L.	Snake bite	Gha (9)
Portulaca oleracea L.	Dermatitis, whitlow	Gha (9)
Rauwolfia vomitoria Afzel	Parasitic skin diseases, leprosy	Gha (11), W/A (1)
	Chicken pox, eczema, ringworm	CD (10), Con (5)
Ricinus communis L.	Dermatitis	Gha (9), Nig (41; 43; 44)
Sida acuta Burm. f.	Boils, withlow	Sri (40), Nig (41; 43)
Spathodea campanulata P. Beauv.	Skin Infection, herpes, fungal infections, wounds	CD (16), Gab (8)
Strophanthus hispidus DC.	Sores, skin eruptions	CD (23), Sen (14; 10)
	Ulcers, skin diseases	Gui (21), Con (5), Gha (9)
Terminalia ivorensis A. Chev.	Sores, ulcers	CD (23; 16), Gha (11; 9)
Trema orientalis (L.) Blume	Abscesses, cutaneous eruptions	Cam (13)

Plant Species	Ailments	Country/Area (Source)
Uvaria chamae P. Beauv.	Sores, wounds	Sen (3)
Vernonia amygdalina Delile	Skin diseases, cuts, ringworm	Gha (9) W/A (1)
	Itch	Nig (43; 45; 46)
Vernonia conferta Benth.	Wounds, cuts, yaws	Con (5), Cam (17)
	Abscesses, skin complaints, sores	Gab (22; 8), CD (23)
Vitex doniana Sweet	Wrinkles, body lotion	W/A (32)
Ximenia americana L.	Skin diseases	Mad (32)

Ageratum conyzoides L. (Asteraceae) is used against skin ulcer (Ip = 1), rash (Ip = 2) and wound (Ip = 1). In validating the ethnobotanical use of *A. conyzoides* for wound healing, the methanolic extract of the plant was reported to show fewer inflammatory cells and more fibrosis than the control in wounds induced on the skin of Wistar rats (Oladejo *et al.* 2003). Furthermore, the methanolic extract and fractions of the plant exhibited significant antimicrobial activity against *Helicobacter pylori* (Marshall) Goodwin (Ndip *et al.* 2009) and wound isolates such as *S. aureus*, *E. coli*, *Proteus* sp. and *Shigellia* sp. (Almagboul *et al.* 1985, Chaz *et al.* 2006). In a previous study, Durodola (1977) reported that burn wounds in rabbits treated with *A. conyzoides* fraction healed in 7 days compared to the control that healed in 14 days. The essential oil of the plant contains several monoterpenes including sabinene, cineole and limonene, as well as numerous sesquiterpenes such as β-caryophyllene, cardinene and sesquiphellandrene (Okunade 2002) which may be responsible for the observed antibacterial and antifungal activities of the oil (Pattnaik *et al.* 1996, Rao 1976).

Aloe vera (L.) Burm. f. (Xanthorrhoeaceae) is commonly used for seven ailments, burns (Ip = 1), skin spots (Ip = 1), pimples (Ip = 1), carbuncles (Ip = 1), eczema (Ip = 1), scabies (Ip = 1) and itch (Ip = 1). The plant is used internally and externally by humans. The gel contained in the leaves is used to treat a large number of ailments such that the people of Nigeria refer to it as a remedy for general diseases. *A. vera* is used in Chinese Traditional Medicine to treat cuts, burns, and as a laxative among other ailments (Tan & Vanitha 2004). The gel yields aloins and barbaloins (CIREP 2007). However, the gel or juice containing aloin has been banned as a laxative by Food and Drug Administration in USA, ruling it as a class III ingredient (FDA 2002). Some of its medicinal effects may also be due to the presence of polysaccharides, mannans and lectins (Boudreau & Beland 2006, Eshun & He 2004). A study showed that *A. vera* promoted the healing of first and second degree burns (Maenthaisong *et al.* 2007), while another study reported that the plant stimulated surface wound recovery due its polyuronic acids (Pugh *et al.* 2001). The plant extracts were reported to exhibit antimicrobial effects, including inhibition of the growth of fungi that cause tinea (Sumbul *et al.* 2004).

Allium cepa L. (Amaryllidaceae) is used for scorpion sting (Ip = 3). In an attempt to validate the plant use in ethnomedicine, Uawonggul *et al.* (2005) reported that the leaf extract showed weak suppression of scorpion venom of *Heterometrus laoticus* Couzjin. The plant has been reported to contain chemical constituents such as kaempferol, β-sitosterol, ferrulic acid, myritic acid and prostaglandins (Prakash *et al.* 2007).

Conclusions

This research has highlighted various medicinal plants used as remedies for skin diseases and related ailments in the traditional medicine of Akwa Ibom State of Nigeria, some of which have had their effects validated scientifically, and their compounds established.

The knowledge of efficacy of these plants can boost the healthcare system of the state and the country. The medicinal plants with established compounds can serve as leads to the development of potent antibiotics, while those medicinal plants that are unique to the state can lead to a source of new drugs.

Given the ongoing interest by the government in co-recognising both traditional and Western medical practices with a goal of enchancing the healthcare delivery system, this survey provides an interesting source of information for mutual benefits that may arise from integration of both traditional and modern medicine.

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