

## A Review of Selected Medicinal Plants with Potential Health Benefits in South-Eastern Nigeria

I. Elekwa<sup>\*</sup>, AE. Ugbogu, SC. Okereke and E. Okezie

Department of Biochemistry, Abia State University, Uturu. Abia State, Nigeria.

### ABSTRACT

Medicinal plants and plant-derived medicines are widely used in treatment of various diseases all over the world. Medicinal plants are of socio-economic importance to the rural population both as a source of raw material for health care remedies and also serve as a source of income. They are equally growing popular in modern societies as natural alternatives to synthetic drugs. Today, it is estimated that more than three quarters of the world population relies mainly on plants and plant extracts for better health care. Increase in population, inadequate supply of orthodox drugs, prohibitive cost of treatments, side and toxic effects of many synthetic drugs, resistance of some diseases to synthetic drugs have led to increased emphasis on the use of plant materials as main sources of medicine for a wide variety of human diseases. Most medicinal plants are used as hypolipidemic, anti-ulcerogenic, abortifacient, contraceptive, antihypertensive, treatment of skin diseases, wound healers, antimicrobial, anti-cancer and anti-diabetics etc. This review therefore highlights the health benefits of selected medicinal plants used mainly in South-Eastern Nigeria for treatment of various ailments.

**Keywords:** Diseases, Health benefits, Medicinal plants, Nigeria.

### INTRODUCTION

Medicinal plants are inexhaustible primary bio-resource of drugs for traditional systems of medicine, modern medicines, pharmaceuticals, folklore medicines and chemical entities (Ncube et al. 2008). In the past few decades, medicinal plants have been used as sources of medicine in virtually all cultures. The use of herbal remedies has expanded globally and is gaining popularity because it has continued to be used not only for primary health care of the poor in developing countries but also in countries where conventional medicine is predominant in the national health care system.

In the world, up to 80% of the population uses herbal medicine for primary health care and the global market for herbal medicines currently stand at over US \$ 60 billion annually and is growing steadily (Tilburt and Kaptchuk, 2008). In Nigeria today, therapy with medicinal plants is of great importance in conjunction with western medicine in the health care system.

The practice of traditional medicine using medicinal plants is as old as the origin of mankind. This type of health care is described as Herbalism. The growing sophistication in lifestyle among world populations makes it imperative to refer to herbal practice as alternative or complimentary medicine to appeal to a cross section of people

irrespective of their cultural affiliation. A herbalist is one who studies, collects, sells or administers plants and/or plant products for healing purposes (Morah, 2007). The name herbalist has been most loosely and erroneously used in Nigeria, especially in the media, to be synonymous with medicine man, witch doctor and sorcerer.

The bioactive ingredients that have the therapeutic activity in plants used in herbal practice are mostly unidentified and herbalists believe in the holistic nature of their treatment. Although a herbalist is free to practice any of these arts, it is wrong to take them to be synonymous with herbal healing.

Substances found in medicinal plants, containing the healing property is known as the phytochemicals. Phytochemicals are naturally occurring, non-nutritive biologically active chemical compounds in plants which act as a natural defence system for host plants and provide colour, aroma and flavour (Liu, 2003, Ugbogu et al. 2013). Basically phytochemicals are broadly classified into two main categories, namely, primary constituents and secondary metabolites. Primary constituents includes proteins, amino acids, common sugars and chlorophyll, whereas, secondary constituents include glycosides, alkaloids, phenolic compounds, flavonoids, saponins, essential oils, tannins and terpenoids. Majority of phytochemicals contain

important therapeutic activities and the plants thus find their medicinal importance due to presence of the respective phytochemical constituents (Zeb et al. 2014). For instance saponins have the ability to treat different disease conditions and serve as antimicrobial, antidiabetic, cytotoxic, antitumor, antioxidant, antiplasmodic and as antihelminthic. Plants also contain other compounds such as morphine, atropine, codeine, steroids, lactones and volatile oils, which possess medical values for the treatment of different diseases. In recent years, these active principles have been extracted and used in different forms such as infusions, syrups, concoctions, decoctions, infused oils, essential oils, ointments and creams.

The clinical success of quinine and quinidine isolated from the *Cinchona* tree bark and recently artemisinin from *Artemisia annuain* the treatment of malaria have rekindled interest in medicinal plants as potential sources of novel drugs (Igoli et al. 2005). Today artemisinin based combination therapy is recognized as drug of choice for treatment of malaria (WHO, 2006). Also, the numerous advantages of herbal medicine such as low-cost, affordability, ready availability, accessibility, acceptability and low toxicity are ready sources of medical power. However, the various disadvantages of the practices which include; lack of adequate scientific proof, imprecise diagnosis and dosage, unstandardized medicines and occultic practices can also be resolved.

Medicinal plants play vital roles in disease prevention and their promotion and use fit into all existing prevention strategies. However, conscious efforts need to be made to properly identify, recognise and position medicinal plants in the design and implementation of these strategies. This lecture reviews the already identified and well documented Nigerian medicinal plants, the benefits and limitations associated with their usage as they portend great promise for the treatment of several diseases.

Medicinal plants are known to contain substances which could be used for treatment purposes or used to produce drugs (Sofowara, 1999). Many of such plants are known to be used primitively to alleviate symptoms. The medicinal value of some plants lie in some chemical substances that produce definite physiological actions in the human body. Examples of these most important medicinal plants are discussed below.

#### ***Garcina kola* (Henkel)**

It is commonly called bitter kola and in Igbo as 'akilu'. This is a popular agricultural produce

available in large quantities in West Africa. It is found grown in the rain forests and served in almost all Nigerian homes as adjunct or supplement to the true kolanuts in ceremonies, occasions and complimentary visits. Bitter kola is used in the treatment of cough, diarrhoea, tuberculosis and other bacterial infections as it has very potent antibiotic features (Obute, 2005). It helps to detoxify the system and can be chewed immediately after eating any suspected bacteria contaminated food.

Bitter kola has an anti-poison property. The plant has a hypoglycaemic effect as it reduces plasma glucose level by aiding the beta cells of Islet of the Langerhans of pancreas perform its hypoglycaemic function. *Garcina kola* contains some bioactive compounds like terpenes and saponins which have also been noted to be effective in the treatment of inflamed or ulcerated tissues.

#### ***Gongronema latifolium* (Utazi)**

*Gongronema latifolium* is a climbing shrub with a broad, heart-shaped leaf and its leaves are bitter in taste. It is commonly called 'Utazi' and 'arokeke' in South Eastern and South Western parts of Nigeria respectively. It is a tropical rainforest plant primarily used as spice and vegetable in traditional folk medicine. It has been used traditionally in South Eastern part of Nigeria for the management of diseases such as diabetes and high blood pressure.

.Phytochemical analysis of the leaf extract of the plant shows the presence of essential oil, saponins, and alkaloids, minerals with calcium, phosphorous, magnesium, copper and potassium. *Gongronema latifolium* exhibits the following herbal actions:- Analgesic, anti-tumour, broad spectrum antimicrobial (antibacterial, antifungal, antiparasitic and antiviral), antipyretic, antioxidant, anti-inflammatory, antiulcer, anti-sickling, anti-asthmatic, mild expectorant, hypoglycaemic, hypolipidemic, hepatoprotective, digestive tonic and laxative properties. It stimulates the flow of bile and appetite for food and enhances the activities of the pancreas, regulates plasma glucose and promotes the detoxification actions of the liver (Alagwu et al. 2014).

In Southern part of Nigeria, especially among the people of Southeast and south-south, the leaves of these herb are used commonly for nutritional purposes, including spice and vegetable to garnish some special local delicacies, such as 'Isiewu', 'Nkwobi', 'Abacha/ugba' (African Salad), 'Ofe Nsala' (White Soup), unripe plantain porridge etc, because of its sharp-bitter and sweet taste. In many local 'joints', where people enjoy Isiewu, Nkwobi and African Salad with palm wine or

beer, the leaves are usually added to these delicacies to help prevent drunkenness or hangover.

The leaves are believed to neutralize the intoxicating properties of alcohol and its harmful effects on the liver. Medicinal uses as infusion or decoction of the whole plant (the leaves and stems) is used in the home treatment of digestive problems, such as loss of appetite, dyspepsia, colic and stomach ache, constipation, dysentery and intestinal worms. It lowers plasma glucose level and high blood pressure in diabetic and hypertensive patients respectively. It can also be employed in the cleansing of the womb and treating of abdominal pain after child birth. It prevents liver damage associated with alcoholism and viral hepatitis. It is also helpful in treating malaria, releases cough, wheezing and asthmatic attacks.

#### ***Vernonia amygdalina* (Bitter leaf)**

The leaves of *Vernonia amygdalina* are green with a characteristic odour and bitter taste. *Vernonia amygdalina* is a valuable medicinal plant that is widespread in West Africa. It is known as bitter leaf due to its characteristic bitter taste and flavour and can be used as an active anti-cancer, anti-bacterial, anti-malarial and anti-parasitic agent. This plant contains complex active components that are useful pharmacologically. In ethnomedicine, the roots and leaves are used to treat fever, hiccups, kidney problems and stomach discomfort. Many West African countries like Cameroon, Ghana and Nigeria use the stem and root as chewing sticks (Burkill, 1985). It is also documented that *V. amygdalina* has been traditionally used in blood clotting and has elicited a substantial reduction in the level of glucose in the blood at post-prandial time examination. Fasola et al. (2011) reported that *V. amygdalina* has hypoglycaemic activity. They observed a close dependent reduction in fasting blood sugar level in alloxan-induced diabetic rats after treatment with different concentrations of the aqueous leaf extracts. Yedjou et al. (2008) also demonstrated that *V. amygdalina* leaf extracts as a DNA-damaging of cancer agent in the management of breast cancer.

#### ***Carica papaya* (paw-paw)**

Papaya, botanical name *Carica papaya*, is a lozenge tropical fruit often seen in orange-red, yellow-green and yellow-orange hues, with a rich orange pulp. The fruit is not only delicious and healthy, but whole plant parts, fruits, roots, bark, peel, seeds and pulp are also known to have medicinal properties.

Papaya is a power house of nutrients and is available throughout the year. It is a rich source of three powerful non enzymic antioxidants, Vitamin C, Vitamin A and Vitamin E; the Minerals, Magnesium and Potassium; the B vitamin, Pantothenic acid and folate and fibre. In addition, it contains a digestive enzyme papain, aids in remedying causes of trauma, allergies and sport injuries. All the nutrients of papaya as a whole improve Cardiovascular system i.e. protect against heart diseases, heart attacks, strokes and prevent Colon Cancer. The fruit is an excellent source of beta Carotene that prevents damage caused by free radicals that may cause some forms of cancer by its trigger of the oncogenes. It is reported that it helps in the prevention of diabetic-heart disease. Papaya lowers high cholesterol levels as it is a good source of fibre (Yogiraj et al. 2014).

Papaya effectively treats and improves all types of digestive and abdominal disorders. It is a medicine for dyspepsia, hyperacidity, dysentery and constipation. It helps in the digestion of proteins as it is a rich source of proteolytic enzymes. Papain found in papaya acts as a meat tenderizer. This papain (digestive enzyme) is extracted, dried as powder and used as an aid in digestion. It is reported that papaya prevents premature aging. This may be attributed to poor digestion which impairs nutrients from being distributed evenly in our body. The fruit is regarded as a remedy for abdominal disorders. The skin of papaya works as a best medicine for wounds (Yogiraj et al. 2014).

The nutritional values of papaya help to prevent the oxidation of cholesterol. Papaya is rich in iron and calcium; a good source of Vitamin C (ascorbic acid). The extract of unripe *Carica papaya* contains terpenoids, alkaloids, flavonoids, carbohydrates, glycosides, saponins and steroids.

Pharmacological activities include

- ✓ Dengue fever: Papaya leaf juice helps increase in white blood cells and platelets, normalizes clotting and repairs the liver.
- ✓ Cancer cell growth inhibition: Recent research on papaya leaf tea extract has demonstrated cancer cell growth inhibition. It appears to boost the production of key signaling molecules called T helper 1-type Cytokines, which help regulate the immune system.
- ✓ Antimalarial and antiplasmodal activity: Papaya leaves are made into tea as a treatment for malaria. Antimalarial and antiplasmodal activity have been noted in some preparations

of the plant as they reduce the number of Schizonts, gametocytes and trophozoites produced by the plasmodium.

- ✓ Facilitate digestion: The leaves of the papaya contain chemical compounds like papain, a substance which kills microorganisms that often interfere with digestive function (Yogiraj et al. 2014).

### ***Ocimum gratissimum* (Scent leaf)**

Scent leaf is a perennial plant which is widely distributed in the tropics of Africa and Asia. It belongs to the family Labiatae and it is the most abundant of the genus *Ocimum*. In the Southern part of Nigeria, it is called 'Efirin nla' by the Yoruba speaking tribe. 'Nchanwu' in Igbo while the Northern part of Nigeria; it is called 'Daidoga' (Effraim et al. 2003).

The phytochemical evaluation of *Ocimum gratissimum* shows that it is rich in alkaloid, tannins, phytates, flavonoids and oligosaccharides (Ijeh et al. 2004). In the coastal area of Nigeria, the plant *Ocimum gratissimum* is used in the treatment of epilepsy, high fever and diarrhoea (Sofowara, 1993). This is a home grown shrub used mainly as spices for cooking delicacies due to its unique aromatic tastes.

*Ocimum gratissimum* plants are of high importance to the health of individuals and the society at large. This plant has huge medicinal values that depend on certain active chemical substances which have physiological impact on the human body. Extensive research has shown that the nchanwu extract exhibit antifungal activities. Scent leaf can be used in the treatment of cough and catarrh when inhaled. It can be infused and used as a remedy for stomach disorder such as gastroenteritis. *Ocimum gratissimum* leaf can be used to treat stomach pain, diarrhoea, cholera, chronic dysentery and vomiting especially if blended. It can also act as a repellent to mosquitoes and other insects. The essential oil of scent leaf contains eugenol, which has antibacterial properties.

### ***Azadirachta indica* (Neem/Dogoyaro)**

For thousands of years, the beneficial properties of Neem (*Azadirachta indica*) have been recognized in the Indian tradition. Each part of the neem tree has some medicinal property.

More than 135 compounds have been isolated from different parts of neem and several reviews have also been published on the chemistry and structural diversity of these compounds. The compounds include;

Isoprenoids (like diterpenoids and triterpenoids containing protomeliacins, limonoids, azadirone and its derivatives, vilasinin type of compounds and (Secomeliacins such as nimbin, salanin and azadirachtin) and non-isoprenoids, which are proteins (amino acids) and carbohydrates, sulphurous compounds, polyphenolics such as flavonoids and their glycosides, dihydrochalcone, coumarin, tannins, and aliphatic compounds etc.

Various parts of the Neem tree have been therapeutically used as folk medicine to control leprosy, intestinal helminthiasis, respiratory disorders, and constipation. Its use for the treatment of rheumatism, chronic syphilitic sores and indolent ulcer has also been evident.

Biological activity of neem compounds includes

- ✓ Immunostimulant activity: The aqueous leaf extract of Neem bark and leaf also possesses anti-compliment and immunostimulant activity. Neem oil has been shown to possess activity by selectively activating the cell mediated mechanisms to elicit an enhanced response to subsequent mitogenic or antigenic challenge.
- ✓ Hypoglycaemic activity: Aqueous extract of Neem leaves significantly decreases plasma glucose level and prevents adrenaline as well as glucose induced hyperglycaemia. Recently, hypoglycaemic effect was observed with leaf extract and in seed oil, in normal as well as alloxan-induced diabetic wistar rats.
- ✓ Antiulcer effect: Neem leaf and bark aqueous extracts produce highly potent antacid secretion and antiulcer activity.
- ✓ Antifertility: Intra-vaginal application of Neem oil, prior to coitus, can prevent pregnancy. It could be a novel method of contraception.
- ✓ Antimalarial activity: Neem seed and leaf extracts are effective against both chloroquine resistant and sensitive strain malarial parasites.
- ✓ Antifungal activity: Extracts of Neem leaf, neem oil seed kernels are effective against certain fungi including *Trichophyton*, *Epidermophyton*, *Microspor*, *Trichosporon*, *Geotricum* and *Candida spp.*
- ✓ Antibacterial activity: Oil from the leaves, seed and bark possesses a wide spectrum of antibacterial actions against Gram-negative and Gram-positive microorganisms including

*Mycobacterium tuberculosis* and *Streptomycin* resistant strains. In vitro, it inhibits *Vibrio cholera*, *Klebsiella pneumoniae*, *Mycobacterium tuberculosis* and *M. pyogenes*. Antimicrobial effects of Neem extract have been demonstrated against *Streptococcus mutans* and *Streptococcus faecalis*.

- ✓ Antiviral activity: Aqueous leaf extract offers antiviral activity as seen in Vaccinia virus, Chikungunya and measles virus.
- ✓ Anticancer activity: Neem leaf aqueous extract effectively suppresses oral squamous cell carcinoma induced by 7, 12-dimethylbenzanthracene (DMBA), as revealed by induced incidence of neoplasm. Neem may exert its chemopreventive effect in the oral mucosa by modulation of glutathione and its metabolizing enzymes.
- ✓ Antioxidant activity: Antioxidants are molecules that inhibit the oxidation of other molecule. Oxidation is a chemical reaction involving the loss of electrons or an increase in oxidation state. Oxidation reactions can produce free radicals. In turn, these radicals can start chain reactions. When the chain reaction occurs in a cell, it can cause damage or death to the cell. Antioxidants terminate these chain reactions by removing free radical intermediates and inhibit other oxidation reactions. They do this by being oxidized themselves, so antioxidants are often reducing agents.
- ✓ Effects on central nervous system: Varying degrees of central nervous system (CNS) depressant activity in mice was observed with leaf the leaf extract. Fractions of acetone extract of leaf showed significant CNS depressant activity (Biswas et al. 2002)

#### ***Xanthoxylum macrophylla***

*Xanthoxylum macrophylla* (formerly *Fagara xanthoxyloides*) is a tree found in Africa, with its fruits used to produce a peculiar spice. The tree is popularly known in the West as the Yoruba chewing stick. In Yoruba, it is called Oriata, or Ata-Igbo, and in Igbo as Ukor. This plant is used as a vermifuge and for the relief of toothache.

Traditional healers throughout Nigeria have used species of the *Xanthoxylum* for the treatment of a wide range of disorders,

including toothache, urinary and veneral diseases, rheumatism and lumbago. Metabolites isolated from *Xanthoxylum* include; alkaloids, aliphatic and aromatic amides, sterols, carbohydrate residues etc. Some of the metabolites have shown cytotoxic, molluscidal, anticonvulsant, anti-sickling, anaesthetic, antibacterial, antihypertensive and anti-inflammatory properties (Adesina, 2005).

#### ***Moringa oleifera***

*Moringa oleifera* is a nutritional plant used as a constituent in food preparation owing to its active ingredients like essential amino acids, carotenoids found in its leaves and nutraceutical properties. Some nutritional assessment has been carried out in leaves and stems. An important factor that accounts for the medicinal uses of *Moringa oleifera* is its very wide range of vital antioxidants, antibiotics and nutrients including vitamins and minerals. Almost all parts of this plant can be used as source for nutrition with other useful values (Leone et al. 2015).

In traditional medicine, these leaves are used to treat several ailments including malaria, typhoid fever, parasitic diseases, arthritis, swellings, cuts, diseases of the skin, genito-urinary ailments, hypertension and diabetes. They are also used to elicit lactation and boost the immune system (to treat HIV/AIDS related symptoms) as well as cardiac stimulants and contraceptive remedy (Leone et al. 2015).

Barks are boiled in water and soaked in alcohol to obtain drinks and infusions that can be used to treat stomach ailments (ease stomach pain, ulcer and aiding digestion), poor vision, joint pain, diabetes, anemia and hypertension (Popoola and Obembe, 2013 ; Abe and Ohtani, 2013), toothache, haemorrhoids, uterine disorder.

Roots are soaked in water or alcohol and boiled with other herbs to obtained drinks and infusions as remedies for toothache, as antihelminthic and antiparalytic (Popoola and Obembe, 2013), drugs and as sex enhancers. Finally, flowers are used to produce aphrodisiac substances and to treat inflammations, muscle diseases, hysteria, tumours and enlargement of the spleen (Yabesh et al. 2014).

#### ***Psidium guajava***

The important constituents of guava are vitamins, tannins, phenolic compounds, flavonoids, essential oils, sesquiterpene, alcohols and triterpenoid acids (Barbalho et al. 2012). Leaves of the plant contain phenolic compounds, isoflavonoids, gallic acid, catechin, epicatechin, rutin, naringenin,

kaempferol having hepatoprotective, antioxidant, anti-inflammatory, antispasmodic, anticancer, antimicrobial, anti-hyperglycemic, analgesic actions (Barbalho et al. 2012). The leaf contains two important flavonoids; quercetin which is known for its spasmolytic, antioxidant, antimicrobial, anti-inflammatory actions and guajaverin, known for its antibacterial action. Its pulp contains ascorbic acid, carotenoids (lycopenes,  $\beta$ -carotene) possessing antioxidant, antihyperglycaemic, antineoplastic (Barbalho et al. 2012). The seed contains glycosides, carotenoids, phenolic compounds having antimicrobial actions (Ravi and Divyashree, 2014).

### General uses

Guava is proven for its antidiarrheal, antimicrobial, antiparasitic, antitussive, hepatoprotective, antioxidant, antigenotoxic, antimutagenic, antiallergic, anticancer and anti-hyperglycaemic effects (Gupta et al. 2011). It has been used in the treatment of diarrhoea, dysentery, menstrual disorders, vertigo, anorexia, digestive problems, gastric insufficiency, inflamed mucous membrane, laryngitis, skin problems, ulcers, vaginal discharge, cold, cough, cerebral ailments, nephritis, jaundice, diabetes, malaria and rheumatism to mention a few (Kumar et al. 2012).

**Table 1: Nigerian plants used for medicinal purposes**

S.NO	Botanical name	Common/vernacular Name	Medicinal use	Parts use	References
1	<i>Acanthus montanus</i>	Agameebu (igbo), Edule imemein (Ijaw)	Leaves are used for treatment of boil on the finger, also used in treatment of cough.	Leaves	Obute, 2005
2	<i>Acanthus spp</i>	Inyinyi ogwu (Igbo)	The decoction of the leaves is used to treat boils and chesty coughs.	Leaves	Kutama et al. 2015
3	<i>Fromomum melagueta</i>	Ose oji	Used as food spice to boost metabolism, calm indigestion, heartburn, intestinal infection, antihelminthic, Purgative, increase breast milk and boost fertility.	Seeds	Obute, 2005
4	<i>Agave sisalana</i>	Udo-akpa (Igbo)	Sap is used in the preparation of a lotion for the treatment of local inflammatory conditions.	sap	"
5	<i>Ageratum conyzoides</i>	Agadi nwanyi isi awo (Igbo), imi esu (Yoruba).	Decoction of plant is a remedy for abdominal pains. Leaf juice is used for dressing wounds, ulcers and other skin diseases.	Leaves	Obute, 2005
6	<i>Alchornea cordifolia</i>	Ubu (Igbo), Ipa (Yoruba), Mbom (Efik)	Used as a remedy for cough. Leaves used to relieve drunkenness. Leaf decoction used to treat toothache and ulcers. Pulped root taken for gonorrhoea.	Leaves.	Kutama et al. 2015
7	<i>Allium sativum</i>	Garlic, Aayu (Yoruba), Ayo (Igbo), Tafarnuuwa(Hausa).	In combination with ginger and uziza, it helps to cleanse the blood. It is used in the treatment of hypertension. The powder is rubbed as counter irritant for the skin and ulcer.	Bulb	Kutama et al. 2015
8	<i>Alstonia boonei</i>	Stool wood, Eghu (Igbo), Awun (Yoruba), Ukpo (Efik).	The bark and leaves are used for malaria, asthma and pains. The root-bark is chewed frequently to induce maturity and development of breast.	Leaves and bark	Obute, 2005
9	<i>Amaranthus spinosus</i>	Lnine ogwu (Igbo), Ruku'bu (Hausa), Tete kekere (Yoruba).	Used as tonic for hot/discomforting stomach. Roots used for treatment of STDs. The leaves are used as poultice for boils.	Leaves and roots	Kutama et al. 2015
10	<i>Anarcadium occidentale</i>	Cashew	The bark and leaves are used as diuretic.	Bark and leaves	Obute, 2005
11	<i>Anchomanes difformis</i>	Aroids, Akasi-Okanamgba (Igbo).	Used for re-conditioning of the health in elderly people.		Kutama et al. 2015
12	<i>Asclepias lineolata</i>	Okazi (Igbo).	Used for treatment of measles in children.	Whole plant.	"
13	<i>Azadirachta indica</i>	Neem/Dogoyaro	Extracts of roots and bark are anti-fungal, anti-bacterial, antihelminthes, leaf decoction and infusion for chicken pox, small pox and malaria. Twig chewed for toothache.	Bark, leaves and roots	Nwachukwu et al. 2010

14	<i>Baphia nitida</i>	Majibi (Hausa), Abosi(Igbo), Ubara (Efik), Otau (Benin).	Decoction of the leaves is taken as a tonic and also in the treatment of fever. Leaf juice is applied to sore eyes as drop and for constipation.	Leaves and roots.	Nwachukwu et al. 2010
15	<i>Caladium bicolor</i>	Wild cocoyam, Ede Ohia, Ede mmuo (Igbo), Lefunlosun (Yoruba).	Extract of fresh leaves can be applied to the eyes for the cure of convulsion and also on the body for skin discoloration.	Leaves	"
16	<i>Carica papaya</i>	Pawpaw	Antimalarial, diuretics	Bark and leaves	Nwachukwu et al. 2010
17	<i>Corchorus olitorius</i>	Ahilara (Igbo)	Leaf water extract is for fever, irregular menstrual flow. It also serves as a purgative.	Leaves	Obute, 2005
18	<i>Chromolaena odorata</i> .	Awolowo weed	Used for indigestion, stomach upset, skin diseases, burns, infections, haemostatic-arrests and bleeding.	Leaves	Obute, 2005
19	<i>Colocasia esculentum</i>	Cocoyam, Ede akasi ite (Igbo), Gwaza (Hausa), lyokho (Efik), koko (Yoruba).	Eating of the plant instead of cereals as carbohydrates source leads to a marked reduction in dental cases.	Tubers	"
20	<i>Crinum gigantum</i>	Albasa (Igbo), Isumeri(Yoruba).	It is used as an emetic and for the treatment of tuberculosis.	Bulbs	"
21	<i>Curcubita pepo</i>	Anyu, Anyi (Igbo)	It is used for treatment of UTI, Rheumatism, BPH, Nourisher/Energizer, gout, enhances milk flow in new mothers, in postpartum swelling. It is also used as an aphrodisiac.	Fruits, Leaves and Seeds	Ikeyi and Omeh, 2014
22	<i>Dialium guineense</i>	Awin (Yoruba), Lcheku (Igbo), Akin (Ijaw).	Infusion of leaves and fruits are used to treat fever. It is also used for treatment of diarrhoea.	Whole plant	"
23	<i>Dracaena mannii</i>	Olokoro moudu, Alakramodu (Igbo)	It is used to stop bleeding after birth.	Leaves	"
24	<i>Eclipta prostrate</i>	Agbirigba ozara (Igbo), Abikolo (Yoruba).	Cream made from this plant is used to treat swellings and skin diseases. Juice from plant is used as a remedy for fever. Leaves used in the treatment of liver problems.	Whole plant.	"
25	<i>Elaeis guineensis</i>	Nkwu (Igbo)	Oil from this plant is an antidote for poisons, venoms, stings, bites and healing wounds. Oil from kernel is an anticonvulsant, for skin infections, irritations and blemishes. It is a diuretic, antioxidant and laxative.	Fruits and Seeds	Obute, 2005
26	<i>Emilia sonchifolia</i>	Nti ele (Igbo).	The juice is instilled in the eyes for the treatment of conjunctivitis.	Leaves, whole plants.	Obute, 2005
27	<i>Garcinia kola</i>	Aku-ilu (Igbo)	For the treatment of bronchitis, cough, catarrh, throat infections and asthma	Seeds	Obute, 2005
28	<i>Gongronema latifolium</i>	Swallow apple, Utazi(Igbo), Aunje-Adiye (Yoruba).	It is used for the treatment of diabetes. The leaves are used to relieve stomach ache.	Leaves	Nwachukwu et al. 2010
29	<i>Ipomoea Mauritania</i>	Mgba n' ala (Igbo), Atewogba Yoruba).	It is used for the treatment of asthma. The root stalk mixed with palm wine is given to nursing mothers to increase secretion and flow of breast milk.	Roots	Aiyelaja and Bello, 2006
30	<i>Irvingia gabonensis</i>	Ugbono (Igbo), ogwi (Benin), oro (Yoruba).	Its leaves are used for stomach problems. The bark of the tree is used for treatment of skin diseases. Tender leaves are squeezed and drunk as worm expeller.	Leaves, bark and Seeds.	"
31	<i>Magnifera indica</i>	Mango, Mangoro (Igbo), Mano (Efik), Mangwaro (Hausa).	The stem is used as blood booster and antibiotic. The leaves are used for the treatment of malaria. The Seeds are used also as worm expeller. Its fruit is a good source of vitamin C.	Leaves, Stem, Bark, fruit.	Bhat et al. 1998
32	<i>Monodora myristica</i>	Calabash Nutmeg, Ehuru (Igbo), Abo Lakoshe (Yoruba).	The root is chewed to relieve toothaches.	Seeds and roots.	Aiyelaja and Bello, 2006
33	<i>Newbouldia laevis</i>	Ogilisi (igbo), Akoko (Yoruba), Aduruku (Hausa).	It is used to stop vaginal bleeding in threatened abortion. The leaves and roots are boiled together and administered for fever and convulsion. The stem and bark are used for treating skin infection.	Leaves, bark and roots.	Obute, 2005

34	<i>Ocimum gratissimum</i>	Nchu-anwu (Igbo), efirin wewe (Yoruba), ihiri (Benin).	The leaves are used to treat stomach problems and skin diseases. Also, are used for respiratory disorders.	Leaves.	Nwachukwu et al. 2010
35	<i>Persea Americana</i>	Avacado pear, pia (Yoruba), Ube oyibo (Igbo).	Boiled fresh leaves and fruit are given for hypertension and insomnia. The seed is used to reduce fluid secretion and powdered seed infused tea are used as heart tonic.	Fruits and leaves.	Aiyelaja and Bello, 2006
36	<i>Piper nigrum</i>	Uziza (Igbo)	It is used to stabilize womb after childbirth. Constipation and indigestion.	Leaves and seeds	Obute, 2005
37	<i>Psidium guajava</i>		The leaves and barks are used for the treatment of malaria.	Leaves and barks.	Nwachukwu et al. 2010
38	<i>Ricinus communis</i>	Ogili isi (Igbo), Cika (Hausa)	The decoction of the leaves and oil from fruit used as a laxative. Oil from seeds is taken to induce labour.	Leaf, stem and root or whole Plant.	Obute, 2005
39	<i>Sansevieria liberica</i>	Leopard lily, Ebube Agu (Igbo), Moda (Hausa), Abala (Yoruba).	Leaves' juice is used for treatment of ear ache, gonorrhoea, pile, Asthma and Eczema. Roots are used for the treatment of high blood pressure and used as antidote for snake bite.	Leaves and roots	"
40	<i>Synedrella nodiflora</i>	Ogwu afo (Igbo), Aluganbi (Yoruba), Ogbugho (Urhobo).	The leaf juice is used to stop bleeding in wounds or cuts. It is also used to treat cardiac troubles and stomach upsets. The decoction of the whole plant is used to treat leprosy.	Leaves or whole Plants.	"
41	<i>Telferia occidentalis</i>	Ububo (Igbo), Ipa (Yoruba), Ubong (Efik).	The leaves are washed and taken with milk as a blood tonic.	Leaves.	Obute, 2005
42	<i>Tetracarpidium conophorum</i>	Africa walnut, Ukpa (Igbo), Asala (Yoruba).	The seeds used in the treatment of fibroid. They are also chewed to improve sperm count in men. Its leaves juice can be used to improve fertility in women and also to regulate menstrual flow.	Seeds and leaves	Aiyelaja and Bello, 2006
43	<i>Thevetia nerifolia</i>	Exile tree, Ode iye (Igbo), Olomiojo (Yoruba).	The bark is a powerful febrifuge. The kernel is chewed for purgative effect. The decoction of the bark is used for cardiac disorder.	Leaves, stem, Bark and kernel	Aiyelaja and Bello, 2006
44	<i>Vernonia amygdalina</i>	Onugbo, Olugbo (Igbo)	Squeezed aqueous leaves extracts are used to treat malaria and pile. It is also used as a purgative, anti-diabetes and antifungal agent. Root extract is used to treat diarrhoea.	Leaves and Roots	Obute, 2005
45	<i>Uvaria chamae</i>	Mmimiohia (Igbo), Eruju (Yoruba).	The roots and leaves are used for the treatment of malaria. The root is used in treatment of abnormal menstrual cases. The Root has a purgative and febrifugal property.	Leaves and roots	Bhat et al. 1985
46	<i>Xylopi aethiopica</i>	Ethiopian pepper Seed, Uda (Igbo), Sesdo (Yoruba), Kimba (Hausa), Aghako (Edo).	The fruit is valued for its carminative effects and as a cough remedy. It also promotes lactation and treatment of infertility in women.	Fruits	Ikeyi and Omeh, 2014

## DISCUSSION

The efficacy and inestimable value of medicinal plants in health has proven global recognition. Medicinal plants form part of the natural ecosystems, their exploitation despite how sustainable, will inevitably have some effect on the biodiversity of these systems resulting in changes or even loss of some species with vital curative ingredients. Therefore, non-destructive harvesting, setting aside and cultivation of botanical gardens, proper management among other good

measures for these health impacting and tremendous used plants should be adopted (Emereonye, 2007).

A number of these plants have been studied. Some exist in the wild form, while others are domesticated. These indigenous plants have been the earliest companion of man providing food, shelter and serving humanity in curing different diseases and healing of injuries (Jaleel et al. 2009).

The basic active ingredients used for treating various ailments are accumulated in the



different parts of plants such as leaves, roots, barks, seeds (Timothy et al. 2012), sometimes the fruits and the extraction of these active ingredients require different methods such as infusion, decoction, chewing of the plant parts such as the seed, fruits or even the leaves. The different methods of preparation depend on the part of the plant by which these active ingredients are found as they help in ameliorating of diseases.

The present review has shown a comprehensive and accurate list of some selected medicinal plants grown in South-Eastern Nigeria which could be found elsewhere within the globe that have identified folk medical uses. The curative attributes of these plants are owed greatly to their secondary metabolites which affect biosynthetic processes and influence regulatory patterns in living organisms. Ugochukwu et al. (2003) has demonstrated the reducing serum liver enzymes when elevated consequent upon decoction of *Gongronema latifolium*. This implies biochemically that the plant has hepatoprotective properties.

Molecularly, human system is properly integrated and the molecular basis of these natural products attacks enzymes, ion channels or proteins which facilitates the elicitation of these pharmacological properties of these medicinal plants. Most of these listed medicinal plants have anti cancer, hypoglycaemic, hypolipidemic properties among others as seen in *Vernonia amygdalina* and other plants. Yedjou et al. (2008) has shown DNA- damaging of anti-cancer agent employed in the treatment and management of breast cancer. In cancerous cells, DNA replication is continuous and the extract of these plant uncouple nucleotides biosynthesis.

#### Conclusion

The cost of orthodox health care system is exorbitant, especially when compared with the merger income of majority of the Nigerian population and many African countries. Therefore it has become imperative, that alternative health care system, which must be cheaper and as well effective has to be put in place. There is a dearth of information on the most plants used in traditional medical practices. Hence the need to investigate these plants, to verify the bioactive components they contain, with a view to advising effectively on the doses required to avoid acute and chronic toxicity. Tropical Africa especially the rain forest belt is blessed with rich biodiversity both in fauna and flora.

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