



# **Ethnobotanical Inventory of Oguru-ama Town, Degema Local Government Area, Rivers State, Nigeria**

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

The main objective of this study was to show the different ways medicinal plants are used by the indigenous people of Oguru-ama town in Degema Local Government Area of Rivers State, Nigeria. Another objective was to document the medicinal plants used in this area and enumerate the need for conservation of these important plants.

One hundred structured questionnaires were administered, including oral interviews to herbal practitioners and users located at different parts of the community.

The results showed that a total of 41 plant species distributed into 38 genera and 28 families were recorded and classified according to their botanical, common, local, and family names. Also, plant parts used, mode of preparation, administration, and ailment cured were included.

The family with the highest number of species was the Poaceae, followed by the Rutaceae and Fabaceae families. The plant parts mostly used were leaves, followed by bark, fruit, seed, and root. The ethnobotanical uses of the plants include treatment of malaria, typhoid, cough, eczema, dysentery, catarrh, boil, wound, convulsion, etc.

Ethnobotanical knowledge is in the custody of traditional healers or native doctors and most of them

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die with this knowledge without passing it down. Also, herbs are not only useful in medicine but also in construction, arts and crafts work, cultivated as food crops, but their existence are being threatened due to deforestation, agricultural practices, and fire outbreak. Special attention should be given to the medicinal plants in this area through conservation because of their significant role in healthcare system, and environmental protection.

*Keywords: Ethnobotanical studies; Oguru-ama town; rivers state; medicinal plants; conservation; Nigeria.*

## 1. INTRODUCTION

The innate curiosity of man to examine all aspects of his environment by trial and error has led to his survival [1]. Research works on indigenous uses of plants all over the world have been documented [2-12].

For hundreds of years before the introduction of orthodox medicine, herbal or traditional medicine has been a major aspect of the socio-cultural heritage in Africa [13]. Ethno botanical information which emanates from ethno botanical and socio-economic surveys and literature reviews often represents the indigenous knowledge of local people.

Remedies made from plants play an important role in the health of many people. It has been part of traditional health care in most parts of the world for thousands of years and the interest in them keeps increasing as sources in the treatment of diseases [14]. The traditional healing system is known by many names, like folk medicine, herbal and traditional medicine; and tradomedicalism is a system of treating diseases by the employment of these agencies.

Herbal or traditional medicine has been a major aspect of the socio-cultural heritage in Africa for hundreds of years even before the advent of conventional medicine. It was once believed to be primitive and wrongly challenged by foreign religions dating back during the colonial ruling in Africa and subsequently by the conventional or orthodox medical practitioners. Plant-derived medicines have been part of traditional health care in most parts of the world for thousands of years and there is increasing interest in them as sources in the treatment of diseases. Most people in developing countries depend on herbalists for their medical care, coupled with the resistance of malarial parasites to orthodox medicines [15 –17].

Ethnobotany plays an important role in our Communities, States, Countries, and the world

as a whole. In recent centuries, industrialized cultures have relentlessly exploited and assimilated the indigenous cultures of the world. This has led to an unfathomable loss of our collective human heritage and so ethnobotany plays a great role such as finding out the knowledge of origin, evolution and migration of several ethnic communities.

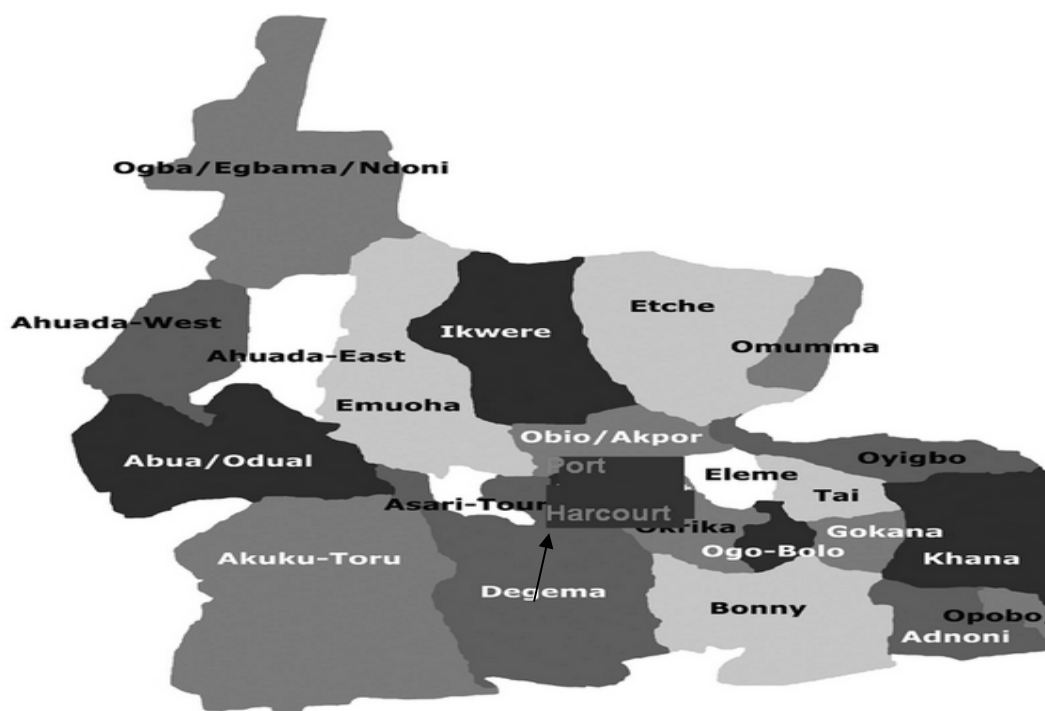
Several workers have documented medicinal plants from the Southeastern Nigeria, but the information is scanty compared to those from other parts of the country [18-26]. Moreover, to the best of the knowledge of the researcher, nothing has been documented from Oguru-ama town. This present study was undertaken to show the different ways medicinal plants are used by the indigenous people of Oguru-ama town in Degema Local Government Area of Rivers State, Niger Delta region, Nigeria. In addition, this study was carried out to document information on the plants employed in ethnomedicinal practices by these people in order to create awareness and develop interest for further research on these plants to identify and isolate the different active ingredients contained in them, especially as the search for more effective malaria drugs continues. The information contained in this work will highlight the contributions of some plants to the general healthcare of the people of Oguru-ama town.

## 2. MATERIALS AND METHODS

### 2.1 Study Area and Data Collection

Collection of data was carried out in the field between June, 2013 and July, 2014. Oguru-ama town in Degema Local Government Area of Rivers State is located in Southeastern Nigeria (06° 3' E, 05° 51', and 10 m altitude above sea level) in the humid forest zone of the Niger Delta region of Nigeria (Fig. 1).

Data was collected through the use of well structured questionnaire and personal interviews during field trips in the constituencies of the Degema region. The data in this study were



**Fig. 1. Map of Rivers State in Nigeria. arrow points to degema Local government area**

derived from the questionnaires administered and personal interviews conducted. The respondents were both men and women from ages 56-75 years, representing the age group with good knowledge of herbal remedies. Plant species collected were identified with the aid of Flora of West Tropical Africa [27-28]; Nigerian Trees [29]; Medicinal plants of Nigeria (South East) by [22] and voucher specimens were deposited in Ignatius Ajuru University of Education Herbarium. A total of 89 questionnaires were administered and a total of 41 plant species were identified in the study. All the plant specimens collected were pressed, dried, mounted on sheets and deposited in the temporary herbarium of the Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers State, Nigeria.

### **3. RESULTS AND DISCUSSION**

A total of forty-one (41) plant species distributed into thirty-eight (38) genera and twenty-nine (28) families were mostly used for ethnomedicine in the area. The local names, the botanical, common, local and family names, uses and parts of the plant used are enumerated below (Table 1). The commonest families were Poaceae, Rutaceae, and Fabaceae. The

Poaceae family is represented by four species, while the Rutaceae and Fabaceae families contain three (3) species each (Table 2). Of this forty-one species, sixteen (16) were trees, six (6) shrubs, and nineteen (19) herbs. The ethnobotanical uses of the plants include treatment of malaria, typhoid, cough, eczema, dysentery, catarrh, boil, wound, convulsion, etc.

#### **3.1 *Elaeis Guineensis* JACQ**

##### **Mode of preparation and dosage**

The uses of oil palm and its products are many and varied; the leaves are used for making brooms and for roofing materials; the bark of the frond is peeled and woven into basket. The main trunk can be split and used as supporting frames in buildings. A sap tapped from the female flower is drunk as palm wine, a rich source of yeast. Red palm oil can be extracted from the fibrous layer of the nuts of the fruit bunch, which is locally used in cooking, such as in soup, etc., and the clear oil from the kernel is used as pomade. The empty fruit bunch, shells from the kernel and fibres which are the remnants after oil extraction are used as fuel and also serve as manure to our plantation.

**Table 1. Summary of data on species used for ethnomedicine by the people of oguru-ama town**

S/N	Botanical name	Common name	Local name	Family name	Plant parts used	Ethnomedicinal uses
1.	<i>Elaeis guineensis</i> Jacq.	Oil palm	Eneme	Arecaceae	Fruits, seeds, frond, leaves	Convulsion, fibroids, food
2.	<i>Persea americana</i> Mill.	Avocado pear	Peer	Lauraceae	Leaves, seeds	Typhoid, high blood pressure, food
3.	<i>Sansevieria trifasciata</i> Prain	Mother-in-law's tongue	Angolo	Agavaceae	Leaves	Eye treatment
4.	<i>Cymbopogon citratus</i> (DC.) Stapf.	Lemon grass	Tea-in-yayi	Poaceae	Leaves, roots	Cough, malaria, typhoid, stimulates nervous system
5.	<i>Ipomoea batatas</i> (L.) Lam.	Potato	Oboribo	Convolvulaceae	Tubers, leaves	Edible, a rich source of vitamins and calcium
6.	<i>Ananas comosus</i> (L.) Merrill.	Pineapple	Nguoba	Bromeliaceae	Fruits	Hepatitis, asthma
7.	<i>Musa paradisiaca</i> L.	Plantain	Mbana	Musaceae	Bark, fruits	Barrenness, food
8.	<i>Cucumis sativus</i> L.	Cucumber	Cocomber	Cucurbitaceae	Fruits	Arthritis, pain
9.	<i>Citrus aurantifolia</i> (Christm.) Swingle	Lime	Olomini	Rutaceae	Fruits, leaves	Rheumatism, impotency in men
10.	<i>Bambusa vulgaris</i> L.	Bamboo	Abaji-okporo	Poaceae	Young shoots	Gonorrhea
11.	<i>Kalanchoe pinnata</i> (Lam.) Persoon	Life plant	Obu suadiri	Crassulaceae	Leaves, root	Cough, navel wounds of new born baby
12.	<i>Senna alata</i> (L.) Roxb.	Ringworm bush	Sokien-inyaya	Fabaceae	Leaves	Eczema, ringworm, dandruff
13.	<i>Manihot esculenta</i> Crantz.	Cassava	Mbraka	Euphorbiaceae	Tubers, leaves	Chronic otitis, cataract, food
14.	<i>Psidium guajava</i> L.	Guava	Gwova	Myrtaceae	Leaves, roots, branches	Diarrhea, dysentery, stops vomiting
15.	<i>Piper guineense</i> Schum. & Thonn.	Climbing black pepper	Oziza	Piperaceae	Leaves, seeds	Womb stabilization after childbirth
16.	<i>Milicia excelsa</i> (Welw.) C.C. Berg.	Iroko tree	Ijicar	Moraceae	Stem bark	Wound healing
17.	<i>Vernonia amygdalina</i> Del.	Bitter leaf	Pilama	Asteraceae	Leaves	Stomach ache, itching, ringworm, malaria, pile, diabetes, food
18.	<i>Prunus domestica</i> L.	Plum	Pulomu	Rosaceae	Leaves	Eczema, edible
19.	<i>Zingiber officinale</i> Rosc.	Ginger	Ginja	Zingiberaceae	Rhizome	Asthma, spice
20.	<i>Dacryodes edulis</i> (G.Don) Lam.	Native pear	Ibe	Burseraceae	Fruits, stems	Remedy for skin diseases
21.	<i>Azadirachta indica</i> A. Juss.	Neem tree	Dogoyaro	Meliaceae	Bark, leaves, twig	Malaria, toothache, pile

S/N	Botanical name	Common name	Local name	Family name	Plant parts used	Ethnomedicinal uses
22.	<i>Citrus sinensis</i> (L.) Osb.	Sweet orange	Eleinda	Rutaceae	Fruits, leaves	Ulcer, sores, tuberculosis, constipation
23.	<i>Talinum triangulare</i> (Jacquin.) Willdenow	Waterleaf	Segi-beleke	Portulacaceae	Leaves	Boil treatment, food
24.	<i>Aframomum melegueta</i> (Rosc.) K. Schum.	Alligator pepper	Fisani	Zingiberaceae	Leaves, seeds	Measles, sore throat
25.	<i>Gossypium barbadense</i> L.	Cotton	Skaka	Malvaceae	Leaves	Relieve menstrual pain
26.	<i>Cola acuminata</i> (P. Beauv.) Scott. And Endel.	Kola	Oji	Sterculiaceae	Seeds	Stimulant, cough, prevent sleep, diarrhea
27.	<i>Musa sapientum</i> L.	Banana	Poofi-mbana	Musaceae	Leaves, fruits	Eczema, food
28.	<i>Mangifera indica</i> L.	Mango	Ogboin	Anacardiaceae	Stem bark, leaves	Malaria, diarrhea, diabetes, edible
29.	<i>Carica papaya</i> L.	Pawpaw	Fi-fi-okuru	Caricaceae	Roots, fruits, leaves	Malaria, jaundice, conjunctivitis, edible
30.	<i>Chromolaena odorata</i> (L.) Robinson	Awolowo	Awolowo nyganya	Asteraceae	Stem, leaves	Wound healing, tooth ache, malaria, typhoid
31.	<i>Citrus paradisi</i> Macf.	Grape	Amgri eleinda	Rutaceae	Fruits	Constipation
32.	<i>Anacardium occidentale</i> L.	Cashew	Cashew	Anacardiaceae	Leaves, bark, twig	Malaria, diabetes, dysentery, mouth thrush, toothache, sore gum
33.	<i>Telfairia occidentalis</i> Hooker fil.	Fluted pumpkin	Ogu	Cucurbitaceae	Leaves, seeds	Refines blood, edible
34.	<i>Allium cepa</i> L.	Onions	Ayo	Alliaceae	Bulb	Unconsciousness, stress
35.	<i>Solanum lycopersicum</i> L.	Tomatoes	Tomatos	Solanaceae	Leaves	Ear ache
36.	<i>Costus lucausianus</i> Braun. & Schum.	Bush cane	Piri-ngwo	Costaceae	Stem	Measles, eye cataract
37.	<i>Saccharum officinarum</i> L.	Sugar cane	Ngwo	Poaceae	Stem	Sugar production, alcoholic drink
38.	<i>Zea mays</i> L.	Maize	Mbiaka	Poaceae	Seeds	Pap preparation, livestock feed
39.	<i>Baphia nitida</i> Lodd.	Camwood	Ibali	Fabaceae	Leaves, twig	Cough, boil
40.	<i>Cocos nucifera</i> L.	Coconut	Imbi	Arecaceae	Roots, fruits, leaves	Tooth decay, convulsion, stammering, skin diseases, edible
41.	<i>Pentaclethra macrophylla</i> Bentham	Oil bean tree	Ogboko	Fabaceae	Seeds	Stammering, skin diseases

It is medicinal, used for the treatment of convulsion in children by rubbing the kernel oil all over the patient body every time, for treatment of skin ailments and prevention of fibroids.

### **3.2 *Persea americana* Mill**

#### **Mode of preparation and dosage**

The fruit is edible and also medicinal. It is used to treat typhoid fever and high blood pressure. For the typhoid fever, take the dry leaves, washed them very well and boil in water. After boiling for some time, allow it to cool and take a full cup twice a day. For bringing down high blood pressure (HBP), the seed of avocado pear is grinded to powder form, then a little is added to pap (grounded *Zea mays* L. flour prepared with hot water) or tea and taken. It helps bring down HBP. It is also very nutritional.

### **3.3 *Sansevieria trifasciata* Prain**

#### **Mode of preparation and dosage**

It heals the eye, by cutting the leaves into pieces and putting them into a bottle, then placing the affected eye on the mouth of the bottle for sometime.

### **3.4 *Cymbopogon citratus* (DC.) Stapf**

#### **Mode of preparation and dosage**

It is used in the treatment of cough, malaria fever, typhoid, chest pain, and to stimulate the nervous system. For the cough, malaria fever, chest pain, the leaves of lemon grass are taken together with onion bulbs (*Allium cepa* L.), boiled, and honey added and taken thrice daily for three to four days; Or the leaves are well washed and cooked together with lemon fruits including Lipton tea and allowed to cool and taken twice a day. Some add little salt to it before drinking it. The fresh or dried roots are chewed to stimulate the nervous system.

### **3.5 *Ipomoea batatas* (L.) Lam.**

#### **Mode of preparation and dosage**

The tuber is edible and serves as food. They are boiled or fried in oil; the leaves are also used as spinach in soup. It is a rich source of vitamin A and calcium.

### **3.6 *Ananas comosus* (L.) Merrill**

#### **Mode of preparation and dosage**

The fruit is edible and medicinal. Ailments cured include Hepatitis and asthma. Slice unripe and unripe fruits into pieces and boil. Allow it to cool and take a cupful twice daily. It is effective for hepatitis condition. For the treatment of asthma, unripe pineapple and paw-paw fruits are sliced and boiled together. Then a cupful is taken twice daily.

### **3.7 *Musa paradisiaca* (L.)**

#### **Mode of preparation and dosage**

The fruit is edible and medicinal. It is roasted or boiled, sliced and fried with red palm oil or groundnut oil as plantain chips. When ripe, it is fried as 'dodo', it is also used to prepare a food called 'Onunu' commonly known as pounded yam. Ailment cured includes Barrenness. The bark of plantain and black pepper (*Piper guineense* Schum & Thonn.) are pounded and cooked with electric fish. A spoonful is taken in the morning and evening while the fish is licked and dried. This is done for seven days. On the seventh day, the fish is eaten.

### **3.8 *Cucumis sativus* L.**

#### **Mode of preparation and dosage**

The fruit is edible and also medicinal. Ailment cured includes arthritis and pain. Wash three cucumber fruits thoroughly with salt and cut into two halves, then wash four carrots very well and squeeze both fruits into a bowl. Take a glassful of it, twice a day. It is nutritional and contains vitamin B and C.

### **3.9 *Citrus aurantifolia* (Christm.) Swingle**

#### **Mode of preparation and dosage**

The fruits and leaves are used for medicinal purpose. They are used to treat rheumatic pains, impotency in men and to remove hatred from people. For rheumatic pains, lime fruit, garlic (*Allium sativum*) and bark of dewild tree are boiled together, allow to cool, then a glass of it is taken thrice daily. It is also used for mouth odour. For impotency in men, ten to twelve lime fruits are sliced and put inside a bottle, local gin is added and a cupful of the mixture is taken

twice daily for a week. Seven leaves of the plant are boiled together with native palm kernel cream and bathed to remove hatred.

### **3.10 *Bambusa vulgaris* L.**

#### **Mode of preparation and dosage**

It is medicinal and serves as materials for building. It is used for the treatment of gonorrhoea. The young shoot is sliced and cooked with local gin together with tobacco leaf and native salt. A glassful is taken twice daily for three to four days.

### **3.11 *Kalanchoe pinnata* (Lam.) Persoon**

#### **Mode of preparation and dosage**

The plant is medicinal. The leaf is used in the treatment of cough and navel wounds of newly born baby. Juice is extracted and mildly flame-heated leaf is given to the baby and poured on the navel wound until it heals, and also used on swollen part of the body. The root is cooked and a cupful of the decoction is taken twice daily for treatment of cough.

### **3.12 *Senna alata* (L.) Roxb**

#### **Mode of preparation and dosage**

The leaf is medicinal. It is anti-fungal. It helps in the management of eczema, ringworm, dandruff and other rashes by extracting the leaf juice and using the extraction on the affected part.

### **3.13 *Manihot esculenta* Crantz**

#### **Mode of preparation and dosage**

The tuber serves as food. The tubers are processed into garri, tapioca and fufu, delicacies in Nigeria. The red variety is eaten by boiling or roasting. The peels are fed to goats and the stems are used for propagation. The decoction from leaves is used. For the treatment of chronic otitis media, the tuber is peeled and washed thoroughly, then it is scraped and the sap is squeezed out and applied to the affected eye. It is also used for the treatment of cataract.

### **3.14 *Psidium guajava* L.**

#### **Mode of preparation and dosage**

The fruit is edible and also medicinal. It is used in the treatment of diarrhoea and dysentery. 50 g of

the leaves and the bark of the root is boiled, allow to cool for some time and then a glassful of it is taken every 4 hours. Secondly, the fresh leaves are chewed for diarrhoea condition; the twig also stops vomiting by chewing and swallowing the sap.

### **3.15 *Piper guineense* Schum. & Thonn**

#### **Mode of preparation and dosage**

Leaves and seeds are medicinal. It is used to stabilize the womb after child-birth by boiling the leaves or seeds, together with the seeds of uda or African pepper (*Xylopiya aethiopica* (Dunal) A. Rich.), fish and other cooking items to prepare pepper soup for the nursing mother. Its leaves are also used as spinach in soup.

### **3.16 *Milicia excelsa* (Welw.) C.C. Berg**

#### **Mode of preparation and dosage**

The stem bark is medicinal. It is used to heal wounds. The bark of the plant is dried, grounded and applied on the wound.

### **3.17 *Vernonia amygdalina* Del**

#### **Mode of preparation and dosage**

Leaves are medicinal and used in cooking soup. It is used for the treatment of stomachache, itching conditions, ring worm, malaria, pile and diabetes. The leaf extract with a pinch of salt is used for stomachache. The extract is used to rub the body in itching condition and ringworm. The extract from bitter leaves and scent leaves (*Ocimum basilicum* L.) is mixed and taken orally or bitter leaf extract is mixed with crushed seeds of alligator pepper or grains of paradise (*Aframomum melegueta* (Rosc.) K. Schum.) and bitter kola (*Garcinia kola* Heckel.), properly mixed together with proper amount of water and taken twice daily. A cupful of the juice from leaves is taken twice daily for malaria. For pile, leaf is mixed with scent leaves and lime juice and half a cup is taken twice daily for 2 weeks. For diabetes, the leaves, scent leaves, garlic and lime fruits are mixed together, a little quantity of potash added, and a cupful is taken twice daily.

### **3.18 *Prunus domestica* L.**

#### **Mode of preparation and dosage**

The fruit is edible and also medicinal. It is used for the treatment of eczema. The leaves are

burnt to ashes, mix in a little quantity of water, and rubbed on the affected parts.

### **3.19 *Zingiber officinale* Rosc**

#### **Mode of preparation and dosage**

It is medicinal and also used as spices to prepare food. It is used in the treatment of asthma. Ginger, bitter cola and garlic are cut into pieces and put inside pure honey and allowed to ferment for some time. One cupful is taken twice a day.

### **3.20 *Dacryodes edulis* (G. Don) Lam.**

#### **Mode of preparation and dosage**

The fruit is edible and also medicinal. The fruit is eaten as a remedy for heat condition. Resin from the stem is used to treat skin parasitic infection.

### **3.21 *Azadirachta indica* A. Jussieu**

#### **Mode of preparation and dosage**

The plant is medicinal. This plant is used for the treatment of malaria, toothache and pile. The bark of neem tree and pawpaw leaves (*Carica papaya* L.) are boiled together in water for some time and a cupful of the filtrate is taken twice daily or leaves are squeezed with the aid of water and a cupful is taken twice a day. The twigs are chewed to relief tooth ache. For pile, the seed is usually burnt, grounded, and the powder is mixed with sugar. A full tablespoon is taken twice daily. A glass of water is latter drank to dilute the mixture, which is very effective for pile.

### **3.22 *Citrus sinensis* (L.) Osb.**

#### **Mode of preparation and dosage**

The fruit is edible and also medicinal. This plant is used to control ulcer sores and it is helpful for tuberculosis patient. The extract from sweet orange leaves are used to control ulcer sores. It also helps to reduce constipation in the stomach.

### **3.23 *Talinum triangulare* (Jacquin) Willdenow**

#### **Mode of preparation and dosage**

The plant is medicinal. It is used to treat boil. The leaves are washed and squeezed, the extract is mixed with potash, and applied to the affected

part, and then lime juice is used to wash the boil every morning until it disappears. It is also used in cooking. It is very nutritional.

### **3.24 *Aframomum melegueta* (Rosc.) K. Schum**

#### **Mode of preparation and dosage**

The fruit and leaves are medicinal. This plant is used to treat measles and sore throat. The leaves of bamboo tree (*Bambusa vulgaris* Schrad. ex Wendel) and leaves of alligator pepper are washed thoroughly and cooked; a glassful of the decoction is taken thrice daily. For sore throat, the seeds are chewed in the initial time and robb is applied outside the affected part, but if the sore is well developed, the pus should be squeezed out, and then the seeds chewed to heal the wound.

### **3.25 *Gossypium barbadense* L.**

#### **Mode of preparation and dosage**

The leaf is medicinal. This plant is used to relieve menstrual pain. The leaves are grounded with black pepper and boiled with water; a cupful is taken thrice daily.

### **3.26 *Cola acuminata* (P. Beauv.) Scott. & Endel**

#### **Mode of preparation and dosage**

The fruit is edible and medicinal. It is chewed by many people as a stimulant. It helps to reduce cough and also used to prevent sleep. Also, it is used for the treatment of diarrhea.

### **3.27 *Musa sapientum* L.**

#### **Mode of preparation and dosage**

It serves as fruit and is also medicinal. It is used for the treatment of eczema. The dry leaves are burnt to ashes and mix in water; it is rubbed on the affected parts.

### **3.28 *Mangifera indica* L.**

#### **Mode of preparation and dosage**

It serves as fruit and is also medicinal. This plant is used for the treatment of malaria, diarrhea and diabetes. A decoction of the stem bark and



leaves, along with the bark of *Alstonia boonei* De Wild., fallen leaves of *Carica papaya*, *Azardirachta indica* and *Morinda lucida* L. are boiled and drank thrice daily for three to four days against malaria or the leaves and stem bark of *Mangifera indica*, along with the leaves of *Carica papaya*, *Azardirachta indica* and *Psidium guajava* L. are boiled together and a cupful of the decoction is taken twice daily for three to four days.

The powder of young leaves is used for the treatment of diarrhea and diabetes. The smoke from the burning leaves is inhaled for hiccup and sore throat. The ash from the leaf is used to treat burns.

### **3.29 *Carica papaya* L.**

#### **Mode of preparation and dosage**

it serves as fruit and is also medicinal. It is used for the treatment of malaria and jaundice in children. Roots are soaked in local gin or sprite (coca-cola drink) and half a cup taken thrice daily, or leaves of *Carica papaya*, *Psidium guajava*, *Mangifera indica*, *Azardirachta indica*, *Cymbopogon citratus* are boiled together and allowed to cool; a cupful is taken thrice daily. For malaria, unripe pawpaw fruits are soaked in water for 3 hours, a teaspoonful is taken thrice daily for jaundice. Fifteen (15) seeds of ripe pawpaw fruit are chewed twice daily for 3 days. Sap from the leaf is used to cure conjunctivitis.

### **3.30 *Chromolaena odorata* (L.) King and Robinson**

#### **Mode of preparation and dosage**

The plant is medicinal. It is used for the treatment of wounds, tooth ache, malaria, and typhoid. The leaves are squeezed and the juice is applied on the fresh wound which helps in blood clotting. The leaf is chewed and this helps to relieve the pain and also cure toothache. It is done for 3 days. The leaves and stem are boiled together and a cupful is taken three to four days for malaria and typhoid.

### **3.31 *Citrus paradisi* Macf.**

#### **Mode of preparation and dosage**

It serves as fruit and is also medicinal. It is used for the treatment of stomach constipation. The fruits are peeled and the juice drank twice daily.

### **3.32 *Anacardium occidentale* L.**

#### **Mode of preparation and dosage**

The fruit is medicinal and also edible. This plant is used for the treatment of malaria, diabetes, dysentery, mouth thrush, toothache, and sore gums.

The twig is used as chewing stick for mouth thrush, toothache, and sore gum. Decoction of the bark is a remedy for malaria fever, by drinking ½ a glass thrice daily. The bark and leaves are boiled, and a glass is taken twice daily for dysentery.

### **3.33 *Telfairia occidentalis* Hooker fil.**

#### **Mode of preparation and dosage**

Leaf is edible and medicinal. It refines the blood fast. Leaves are of high nutritive value as vegetable for soup and other local dishes. Leaves are washed and the juice squeezed out, mixed with milk and taken as a blood tonic. The boiled seeds are eaten as delicacy and source of oil.

### **3.34 *Allium cepa* L.**

#### **Mode of preparation and dosage**

The plant is medicinal and nutritional. It is used for the treatment of unconscious persons and stress. The bulb is cut, rubbed on the eyes and nose of unconscious person to revive him or her. Combination of onions and garlic reduce stress.

### **3.35 *Solanum lycopersicum* L.**

#### **Mode of preparation and dosage**

It is medicinal and nutritional. This plant is used to cure ear ache. The leaves are squeezed and juice from it is dropped into the affected ear twice daily.

### **3.36 *Costus lucausianus* Braun & Schum**

#### **Mode of preparation and dosage**

The plant is Medicinal. It is used for the treatment of measles and eye (cataract) defect. The bark of the stem is peeled off, pounded and filtered. A child infected with measles is bathed with the filtrate and half a glass of the filtrate is given to

the child twice daily. For the eye (cataract), little part of the stem is deeped inside hot ashes for 5 to 10 minutes, then put in a leaf, and is pressed directly unto the person's eye in order for the filtrate to penetrate the eye.

### **3.37 *Saccharum officinarum* L.**

#### **Mode of preparation and dosage**

It is edible and also medicinal. It is effective in the production of sugar, provide energy to the body and also used in the production of alcoholic drink.

### **3.38 *Zea mays* L.**

#### **Mode of preparation and dosage**

it is nutritional. The seeds are used for the production of akamu (pap) and for some live stock feed. It is used in some industry for the production of flours for domestic animals and man consumption.

### **3.39 *Baphia nitida* Lodd.**

#### **Mode of preparation and dosage**

It is medicinal. This plant is used for the treatment of cough and boil. The fresh stems are chewed and the juice is swallowed. It is done regularly until the cough disappears. For boil, the leaves are grounded and are then placed on the affected part.

### **3.40 *Cocos nucifera* L.**

#### **Mode of preparation and dosage**

It is used to cure tooth decay and convulsion. The roots are washed thoroughly, boiled, and allowed to cool for some time. It is filtered and the filtrate is gagged in the mouth for sometime. The endospermous part of the fruit is used. It is rubbed regularly. It is also used as pomade that is rich in vitamin E. The leaves are also used for making brooms; the remnants that is, endocarp and mesocarp, are sources of fuel.

### **3.41 *Pentaclethra macrophylla* Bentham**

#### **Mode of preparation and dosage**

it is edible and medicinal. It is used for the treatment of stammering and skin diseases. The

unripe seeds are cooked half done and eaten twice daily. The oil extracted from the seed relieves pain, work well on acne as well as other skin conditions like ringworm, keratoses, scars, and fungal infections.

The results of this study showed the usefulness of traditional healing methods in the treatment of various ailments by the indigenous people of Oguru-ama community in Degema Local Government Area of Rivers State, Nigeria. In this study, 41 plant families were identified. They are useful as food and for medicinal purposes. These findings are comparable to [30]. Majority of the plants used by this people have been documented as medicinal plants in other parts of Nigeria [31-32]. The survey showed that Poaceae, Fabaceae, and Rutaceae were the plant families mostly used in this area (Table 2). These plant families are among the most common plant families seen in Nigeria [33-34]. The plant parts mostly used were leaves, followed by bark, fruit, seed and root. The ethnobotanical uses of the plants included treatment of malaria, typhoid, cough, eczema, dysentery, catarrh, boil, wound, convulsion, etc. Various diseases such as malaria, stomach ache, earache, cough; swollen leg, convulsion, eye ailment, etc can be treated using traditional herbal medicines, as shown in this study, which conforms to findings by [19-26]. This showed the importance of traditional medicine practices in our everyday life [35-37]. Information from questionnaire and interviews conducted showed that the indigenous people of Oguru-ama town depend on traditional medicine for their health care needs. The ages of the correspondents for this study were within 56-75 years. This indicated that traditional knowledge of medicinal plants lie with the elderly members of the community, who pass on the knowledge to the younger generation when they are about to join their forefathers, hence the need to document the knowledge. Most of the herbal preparations were used in the treatment of malaria fever, indicating the prevalence of this disease in the region. Plants used are mostly in combination and are usually prepared as decoctions. Such plants include *Mangifera indica*, *Cymbopogon citratus*, *Carica papaya*, *Vernonia amygdalina*, *Azadirachta indica*, *Chromolaena odorata*, and *Anacardium occidentale*.

It was discovered that earache problem is mostly treated with the use of leaves and root infusion of plants such as *Costus lucausianus*, *Sansevieria trifasciata*, *Solanum lycopersicum*.

**Table 2. Summary of the different plant families, the number of genera and species studied**

S/No	Families	No. of genera	No. of species
1	Arecaceae	2	2
2	Lauraceae	1	1
3	Agavaceae	1	1
4	Poaceae	4	4
5	Convolvulaceae	1	1
6	Bromeliaceae	1	1
7	Musaceae	1	2
8	Cucurbitaceae	2	2
9	Rutaceae	1	3
10	Crassulaceae	1	1
11	Fabaceae	3	3
12	Euphorbiaceae	1	1
13	Myrtaceae	1	1
14	Piperaceae	1	1
15	Moraceae	1	1
16	Asteraceae	2	2
17	Rosaceae	1	1
18	Zingiberaceae	2	2
19	Burseraceae	1	1
20	Meliaceae	1	1
21	Portulacaceae	1	1
22	Malvaceae	1	1
23	Sterculaceae	1	1
24	Anacardiaceae	2	2
25	Caricaceae	1	1
26	Alliaceae	1	1
27	Solanaceae	1	1
28	Costaceae	1	1
	Total	38	41

The study also revealed plants for the treatment of typhoid fever such as *Persea americana*, *Cymbopogon citratus* and *Chromolaena odorata*. Also, from the results, the twig of *Azadirachta indica* is used for the treatment of toothache, including *Anacardium occidentale*, *Cocos nucifera*, *Chromolaena odorata*.

*Bambusa vulgaris* is used for the treatment of gonorrhoea which is a bacterial infection (sexual transmitted disease) but does not occur frequently in the study area.

Some of the information gathered from the Oguru-ama respondents agreed with those from other Southeastern Nigeria, showing common use of these plants such as *Elaeis guineensis* kernel extract in the treatment of convulsion in children [18,38].

From this study, it was observed that the harvesting and use of these plants especially those in the wild are uncontrolled. This is already posing serious threats to many of the species.

Thus, the cultivation of these plants for drug production locally will not only reduce scarcity in the future but help in their conservation. This will also reduce the time and money put in by traditional herbal practitioners to locate these herbs in the wild.

#### 4. CONCLUSION

This study revealed that ethnobotanical knowledge is in the hands of elders, traditional healers or native doctors. Herbs are not only useful in medicine but also useful in building construction, arts, crafts work, and also cultivated as food crops. However, these plants are endangered due to over exploitation and in the course of building construction and farming practices.

There is an urgent need to study these medicinal plants which are often neglected but are cheap alternative health care resources. If these plants are not protected in the environment urgently, it might be too late to save what is left as a result

of the onslaught on nonrenewable resources. Planned cultivation of plants by rural farmers should be encouraged as this may be a fast way of initiating short term conservation programmes while awaiting the long term programmes which might be delayed. This study has highlighted the ethnobotanical uses of the listed plants and their contributions to the healthcare of the people of Oguru-ama community.

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## COMPETING INTERESTS

Author has declared that no competing interests exist.

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