

# Ethnobotany of Medicinal Plants commonly used by Eegun Tribe in Badagry Local Community of Lagos State, Nigeria

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## Research Article

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## ABSTRACT

Ethnobotanical studies are recognized as the most viable method of identifying and documenting new medicinal plants for pharmacological screenings. The objective of this study was to establish a regional profile of the Indigenous Knowledge System (IKS) for medicinal plants used in the treatment of various diseases in Badagry local community of Lagos State, Nigeria. An ethnobotanical survey was undertaken to collect information from herb merchants, traditional healers and other people from different walks of life in the study area during March and October 2020. Sixty (60) medicinal plant species that belong to 35 families were identified in the community. The highest number of plants were mentioned for infections (15) followed by infertility (10) while internal heat (2) had the least number of plants. Leaves were the highest mentioned plant parts followed by fruits, bark and roots while using the whole plant was the least mentioned. Some of the plants identified were mentioned for the treatment of more than one disease/ailment; *Allium* sp (6) had the highest number of diseases being used for. This was followed by *Carica papaya* (3), *Citrus medica* (3), *Aloe barbadensis* (2), *Jatropha gossypifolia* (2), *Morinda lucida* (2), *Mangifera indica* (2), *Persea americana* (2) and *Eugenia aromatica* (2). Decoctions and infusions were the most popular modes of preparation. This study allows for identification and documentation of many high valued medicinal plant species, indicating high potential for economic development through sustainable collection of these medicinal plants.

## INTRODUCTION

The use of medicinal plants constitutes an important part of traditional medicine which is a part of African heritage [1]. Though, modern or orthodox medicine has improved the lot of many people worldwide, it is noteworthy that in many cultures, modern medicine complements traditional practices as is obtainable in industrialized societies such as China and India [2]. In these societies, herbal remedies have become more popular in the treatment of minor ailments and also as means of personal health maintenance. The use of plants for medicines is by far the biggest use of plants in term of the number of species specifically targeted. Plants provide the predominant ingredients of medicines in most traditional systems and have been the source of inspiration for several major researches [3]. Ethnobotanical studies are recognized as the most viable method of identifying new medicinal plants or refocusing on those earlier reported for bioactive constituents [4]. The practice of ethnomedicine is common globally, and it is an acceptable form of medicine, even recognized and promoted by the World health Organization. It is an important vehicle for understanding indigenous societies and their relationships with nature [5].

The use of plant for treating diseases is as old as human species. All over the world, especially in African countries, the use of medicinal plants has significantly supported primary health care [6]. The acceptance of herbals usage in Africa cuts across all strata of the society, though their use is more common amongst indigent peoples and those others who though not indigent, but still belief in their traditional values [7]. In Africa, herbalists keep no records and information was usually passed on orally, from generation to generation. Since oral information can never be as accurate as was told to the recipient, a whole library of herbal information was being buried gradually with every person that dies [8]. Ethnobotany is based on the knowledge of plants by the local people and their usefulness as understood by the people of a particular ethnic group, since information concerning a particular plant varies from one ethnic group to another [9,10]. The use of traditional medicine in various therapies by the indigenous population of the world cannot be overemphasized; due to poverty, ignorance and unavailability of modern health facilities, most people especially rural people are forced to practice traditional medicines for their common day ailments, most of these people form the poorest link in the trade of medicinal plants [11]. A vast knowledge of how to use the plants against different illnesses may be expected to have accumulated in areas where the use of plants is still of great importance [12]. In the developed countries, 25% of the medical drugs are based on plants and their derivatives [13].

The continuous search for natural plant products for use as medicines is encouraged by ethnobotanical survey. Recognized ethnobotanical survey as one of the major approaches for selecting plants for pharmacological screening. Several workers have conducted ethnobotanical surveys among various tribes of the African continent and the rest part of the world [14-17]. This study therefore, aims at documenting medicinal plants used by eegun people in Badagry local government area of Lagos State, Nigeria.

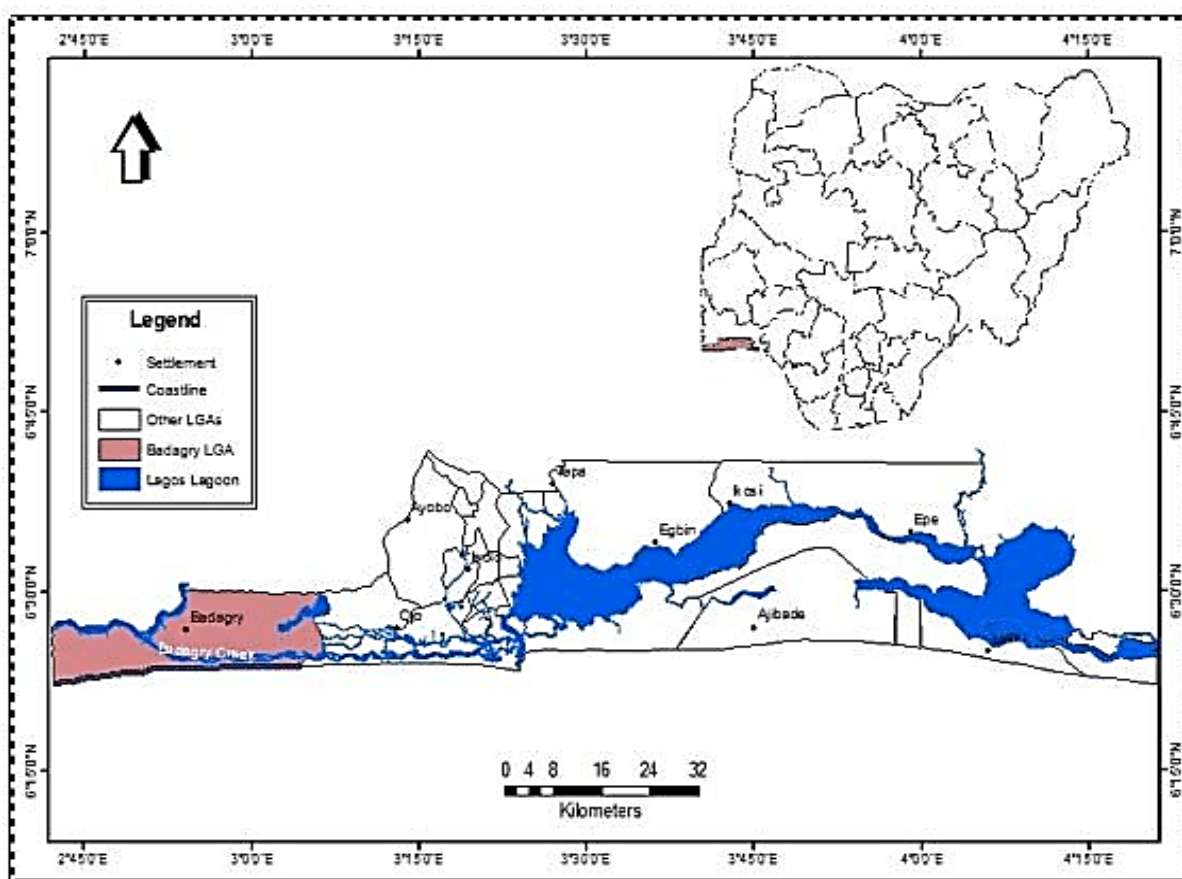
## MATERIALS AND METHODS

### Description of the study area

The survey was conducted in Badagry division of Lagos State. Badagry is a coastal town in Badagry Local Government Area (LGA) in Lagos State, Nigeria. It is located between the city of Lagos and Seme, the border town of Benin Republic. According to the 2006 census, the municipality had a total population of 237,731 and covered

442,993 km<sup>2</sup> area. The Badagry creek is located on latitude 2.42' and 3.2' E and between longitude 6.23' and 6.28' N, and forms part of the continuous lagoon that stretches from port Novo to Lagos. The climate is dominated by heavy rain season which last from April to October. The soil is lightly grey sandy type with vegetation over the low-lying plains and marshes near the lagoons and creeks. The vegetation is made up of woody plant, shrubs and oil palm trees in the sandy areas, while the marshy areas are covered by mangrove. The mean monthly temperature fluctuates around 30°C. The relative humidity is high throughout the year and may not be less than 70%-80% as shown in Figure 1.

**Figure 1.** Map of Badagry Local Government Area of Lagos State. **Note:** (·) Settlement; (—) Coastline; (□) Other LGAs; (■) Badagry LGA; (■) Lagos Lagoon.



### Ethnomedicinal data collection

Oral interview was used to collect information on the plants used for the treatment of various diseases and ailments in Badagry local community. The information was obtained from 300 people from all walks of life that gave their consent in granting the interviews in the study area. The age of the interviewees ranges from 18-71 years with 193 males and 107 females. The survey was conducted between March and October, 2020. Interviews were conducted in Yoruba (a local language) for easy communication with the local people. Preliminary interviews took place by appointment and a basic questionnaire was followed to gather information on plants that are used traditionally for the treatment of various diseases in the study area. Information gathered included plant parts used, methods of collection, storage, preparations, modes of administration as well as the dosage of the herbs.

### Consultation with traditional herbalists

One of the main sources of the information was through direct consultation with the traditional herbalists. The approach was to consult herbalists about the usage of specific plants or to obtain directly the traditional recipes for treating specific ailments. Information like names of plants used for particular ailment, parts of plants use, mode of preparation and administration and how the plant materials are gotten and harvesting time were obtained from the herbalists. The names were given in the Eegun and Yoruba local names.

**Enquiry from communities about the uses of plants growing near them:** Another mode was visiting villages and inquiring about the medicinal usage of plants growing in their locality. Some of the plants have been undergoing domestication because of their medicinal uses and to avoid unnecessary extinctions. Some plants were domesticated for easy access when they are urgently needed for emergencies.

### Consultation with herb merchants

Information about indigenous plants used in the study area was also obtained from the herb merchants. The markets visited were Badagry, Fibre and Ajara, markets in the study area. Some parts of these markets consisted of traditional medicines sections where components of traditional medicines are sold openly. The herb-sellers were interviewed on the medicinal plants used to treat various diseases in the study area. Some of the herb merchants sell both dry and fresh samples of the medicinal plants.

### Plants identification and authentication

Fresh samples of plant parts were purchased during the survey from the herb merchants; some were gotten directly from the wild through the assistance of the herbalists while others were gotten from the Botanical Garden of Lagos State University. The plants were identified by their local names in Yoruba and Eegun languages and were further identified and authenticated by Dr. O.K Oluwa and Dr. O.J Sharaibi (Plant Taxonomists in Botany Department).

### Data analysis

**Frequency Citation (FC) and Relative Frequency of Citation (RFC):** The Frequency of Citation (FC) is used to evaluate the most preferred used plant species and the RFC is calculated to determine the level of traditional knowledge about the use of medicinal plants in the study area.

$$FC = \frac{\text{Total number of times a particular plant species was mentioned}}{\text{Total number of times that all plant species were mentioned}}$$

$$RFC = \frac{FC}{N \times 100}$$

## RESULTS

### Demography of the respondents

The number of male respondents was 193 (64.4%) while the number female respondents were 107 (35.6%). Majority of the respondents were between 55 and 71 years old (38%) following by those aged 46–55 years (34%), while those aged below 25 year was the least category of the respondents (0.3%). Majority of the respondents

lacked formal education (50.6%), this was followed by those with primary (29.4%) and secondary (16.3 %) level while only 3.7% of the respondents acquired tertiary level of education. Most of the respondents in the study area are fishermen (30.6%) followed by herb sellers that constituted 29% of the respondents. This was followed by farmers (22.7%) while the herbalists constituted only 8.3% of the respondents as shown in Table 1.

**Table 1.** Showed the socioeconomic profile of the respondents in the study area.

Category	Characteristics	Frequency	Percent
Gender	Male	193	64.4
	Female	107	35.6
	Total	300	100
Age	<25	9	3
	26–35	27	9
	36–45	48	16
	46–55	102	34
	Above 55	114	38
	Total	300	100
Education level	None	152	50.6
	Primary	88	29.4
	Secondary	49	16.3
	Tertiary	11	3.7
	Total	300	100
Occupation	Crop farming	68	22.7
	Fishing	92	30.6
	Herb sellers	87	29
	Traditional herbalists	25	8.3
	Formal employed	8	2.7
	Business	20	6.7
	Total	300	100

**Ethnomedicinal information**

Sixty (60) plant species belonging to 35 botanical families were identified for the treatment of different diseases in the study area. *Allium sativum* (0.68) had the highest value for relative frequency of citations while *Vateria indica* (0.02) had the lowest frequency of citations. Some of the plants identified were mentioned for the treatment of more than one disease/ailment; *Allium sp* (6) had the highest number of diseases being used for. This was followed by *Carica papaya* (3), *Citrus medica* (3), *Aloe barbadensis* (2), *Jatropha gossypifolia* (2), *Morinda lucida* (2), *Mangifera indica* (2), *Persea americana* (2), *Eugenia aromatica* (2) while the remaining medicinal plants were mentioned for one disease each as shown in Tables 2-11.

**Table 2.** Plants used in the treatment of malaria and fever.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Nauclea latifolia Sm.</i>	Egbo egbeji	Rubiaceae	Root	Decoction
<i>Morinda lucida Benth.</i>	Egbo owuro	Asteraceae	Root	Decoction

<i>Gossypium spp Linn.</i>	Ewe owu	Malvaceae	Leaves	Decoction
<i>Cymbopogon citratus (DC) Stapf.</i>	Ewe tea	Poaceae	Leaves	Decoction
<i>Alpinia purpurata Vieilli.</i>	Ata ile pupa	Zingiberaceae	Rhizome	Decoction
<i>Azadirachta indica Linn.</i>	Dongoyaro	Meliaceae	Leaves	Decoction
<i>Carica papaya Linn.</i>	Ibepe	Caricaceae	Leaves	Decoction

**Table 3.** Plants used in treatment of infections.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Aloe barbadensis Mill.</i>	Eti erin	Asphodelaceae	Shoot	Cold maceration
<i>Panax ginseng C.A. Mey.</i>	Tamolabiya	Araliaceae	Root	Cold maceration
<i>Allium fistulosum Linn.</i>	Alubosa orisun omi	Amaryllidaceae	Shoot	Cold maceration
<i>Cucumis melo Linn.</i>	Elegede	Cucurbitaceae	Leaves	Cold maceration
<i>Senna podocarpa Guill.</i>	Asunwon	Fabaceae	Roots and leaves	Decoction
<i>Senna alata (L.) Roxb.</i>	Asunrun Oyinbo	Fabaceae	Root and leaves	Decoction
<i>Carica papaya Linn.</i>	Ibepe	Caricaceae	Unripe Fruits	Decoction
<i>Allium sativum Linn.</i>	Ayuu	Amaryllidaceae	Bulb	Eating Raw
<i>Allium ascalonicum Linn.</i>	Alubosa elewe	Amaryllidaceae	Root and leaves	Decoction
<i>Talinum triangulare (Jacq.) Wild.</i>	Gbure	Talinaceae	Leaves	Leaf Juice
<i>Ocimum basil Linn.</i>	Efinrin	Lamiaceae	Leaves	Infusion of the leaves is used for vaginal steaming
<i>Vernonia amygdalina Del.</i>	Ewuro	Asteraceae	Leaves	Fermented leaf juice
<i>Kigelia africana (Lam.) Benth.</i>	Ewe pandoro	Bignoniaceae	Leaves	Decoction
<i>Jatropha gossypifolia Linn.</i>	Lapalapa pupa	Euphorbiaceae	Leaves	Leaf juice

**Table 4.** Plants used in the treatment of diabetes.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Aristolochia repens Linn.</i>	Akogun	Aristolochiaceae	Root	Decoction
<i>Eugenia aromatica Linn.</i>	Kanafuru	Myrtaceae	Seed	Decoction
<i>Piper guineense Linn.</i>	Iyere	Piperaceae	Seed	Decoction
<i>Allium sativum Linn.</i>	Ayuu	Amaryllidaceae	Bulb	Chewing raw
<i>Terminalia avicennioides Guill. &amp;Perr.</i>	Idi	Combretaceae	Stem/bark	Decoction

<i>Gongronema latifolium</i> Benth.	Madumaro	Apocynaceae	Root	Decoction
<i>Morinda lucida</i> Benth.	Ejinrin wewe	Rubiaceae	Leaves	Juice

**Table 5.** Plants used for anaemia.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Sorghum bicolor</i> (L.). Moench.	Poroporo okababa	Poaceae	Fruit	Decoction
<i>Mangifera indica</i> Linn.	Mungoro	Anacardiaceae	Stem/bark	Decoction
<i>Khaya ivorensis</i> A.Chev.	Oganwo	Meliaceae	Stem/bark	Decoction
<i>Staudia stipitate</i> Warb.	Amuje	Myristicaceae	Stem/bark	Decoction

**Table 6.** Plants used for the treatment of convulsion.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Allium ascalonicum</i> Linn.	Alubosa elewe	Amaryllidaceae	Shoot	Decoction
<i>Croton lobatus</i> Linn.	Eeru	Euphorbiaceae	Seed	Decoction
<i>Tetrapleura tetraptera</i> Schum &Thonn.	Aidan	Fabaceae	Fruit	Decoction
<i>Crinum jagus</i> (J.Thomps.)Dandy	Ogede odo	Amaryllidaceae	Shoot	Decoction

**Table 7.** Plants used for treatment of high blood pressure.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Garcinia kola</i> Heckel.	Orogbo	Clusiaceae	fruit	Maceration in lime juice
<i>Zingiber officinale</i> Roscoe.	Atale	Zingiberaceae	rhizome	Maceration in lime juice
<i>Allium sativum</i> Linn.	Ayuu	Amaryllidaceae	bulb	Maceration in lime juice
<i>Citrus medica</i> Linn.	Oronbo wewe	Rutaceae	fruit	Squeezing to extract juice
<i>Eugenia aromatica</i> Linn.	Kanafuru	Myrtaceae	seed	Grind and mix with hot pap
<i>Moringa oleifera</i> Linn.	Ewe Igbale	Moringaceae	Leaves and seeds	Fresh leaves and seeds are chewed raw
<i>Sphenocentrum jollyanum</i> Pierre.	Akerejupon	Menispermaceae	Leaves and roots	Decoction
<i>Persea americana</i> Linn.	Avocado	Lauraceae	Fruit	Decoction

**Table 8.** Plants used for infertility.

Plants used	Yoruba name	Family	Parts used	Preparation mode
<i>Newbouldia laevis</i> Linn.	Ewe-akoko	Bignoniaceae	Bark	Decoction
<i>Heliotropium Indicum</i> Linn.	Ogbe ori akuko	Boraginaceae	Whole plant	Decoction
<i>Corchorus olitorius</i> Linn.	Ewedu	Malvaceae	Leaves	Leaves cooked into soup
<i>Anthocleista djalolensis</i> A.Chev	Sapo	Longaniaceae	Bark	Decoction
<i>Capsicum annum</i> Linn.	Ata wewe	Solanaceae	Fruit	Decoction
<i>Cassia fistula</i> Linn.	Asunwon	Fabaceae	Leaves	Decoction
<i>Chasmanthera dependens</i> Hochst.	Agba-ato	Menispermaceae	Leaves	Infusion
<i>Cissampelos Sowariensis</i> P.Beauv.ex DC.	Jokojee	Menispermaceae	Leaves	Decoction
<i>Persea americana</i> Linn.	Pia-oyinbo	Lauraceae	Fruit	Eating raw
<i>Stephania abyssinica</i> (Quart.-Dill. & A.Rich.) Walp.	Gbajedi	Menispermaceae	Leaves	Infusion of the leaf powder

**Table 9.** Plants used in the treatment of other various ailments.

Plants used	Common name	Family	Parts used	Ailment	Preparation mode
<i>Abrus precatorius</i> Linn.	Oju Ologbo	Fabaceae	Leaves	Eye problems	Leaves are chewed raw
<i>Carica papaya</i> Linn.	Ibepe	Caricaceae	Leaves	Internal heat	Decoction
<i>Anacardium occidentale</i> Linn.	Cashew	Anacardiaceae	Leaves	Internal heat	Decoction
<i>Aloe barbadensis</i> Mill.	Eti erin	Asphodelaceae	Leaves	Cataract	Squeezing to extract the gel
<i>Mangifera indica</i> Linn.	Mango	Anacardiaceae	Leaves	Baby rashes	Decoction and use for bath
<i>Lawsonia inermis</i> Linn.	Ewe laali	Lythraceae	Leaves	Fever	Decoction
<i>Jatropha gossypifolia</i> Linn.	Ewe lapalapa pupa	Euphorbiaceae	Leaves	Fever	Decoction
<i>Citrus medica</i> Linn.	Oronbo wewe	Rutaceae	Fruit	catarrh	Squeeze to extract juice
<i>Curcuma longa</i> Linn.	Tumeric	Zingiberaceae	Rhizome	Post childbirth care	Grind and mix in very hot water
<i>Piper nigrum</i> Linn.	Ata ijosi	Piperaceae	Fruit	Post childbirth care	Grind and mix in very hot water
<i>Dalbergiella welwitschia</i> (Baker) Baker.f	Afoso	Fabaceae	Leaves	Menstrual disorder	Squeeze to extract juice



<i>Annona senegalensis</i> Pers.	Ewe abo	Annonaceae	Leaves	Premature ejaculation	Soak in lime water for two days
<i>Sida acuta</i> Burm.f.	Osokotu	Malvaceae	Leaves	Safe delivery during childbirth	Squeeze juice into water
<i>Dysphania ambrosioides</i> Linn.	Ewe imi ile	Amaranthaceae	Leaves	Eczema	Squeeze leaf and apply directly
<i>Amaranthus viridis</i> Linn.	Gayindogble	Amaranthaceae	Leaves	Malaria	Cooked with pap water
<i>Alternanthera repens</i> Linn.	Dagun oro	Amaranthaceae	Leaves	Oligospermia	Squeeze leaves with water
<i>Vateria indica</i> Linn.	Asushemadokwe	Dipterocarpaceae	Leaves	Peptic ulcer	Squeeze leaves to extract juice
<i>Citrus medica</i> Linn.	Oronbo wewe	Rutaceae	Fruit	Cough	The juice is squeezed out and taken orally

**Table 10.** Botanical families with number of plant species.

S/N	Family	Plant species
1	Amaranthaceae	3
2	Amaryllidaceae	5
3	Anacardiaceae	2
4	Annonaceae	1
5	Apocynaceae	1
6	Araliaceae	1
7	Aristolochiaceae	2
8	Asphodelaceae	2
9	Asteraceae	2
10	Bignoniaceae	2
11	Boraginaceae	1
12	Caricaceae	3
13	Clusiaceae	1
14	Combretaceae	1
15	Cucurbitaceae	1
16	Dipterocarpaceae	1
17	Euphorbiaceae	3
18	Fabaceae	6
19	Lamiaceae	1
20	Lauraceae	2
21	Longaniaceae	1
22	Lythraceae	1
23	Malvaceae	3
24	Meliaceae	2

25	Menispermaceae	4
26	Moringaceae	1
27	Myristicaceae	1
28	Myrtaceae	3
29	Piperaceae	2
30	Poaceae	2
31	Rubiaceae	2
32	Rutaceae	3
33	Solanaceae	1
34	Talinaceae	1
35	Zingiberaceae	3

**Table 11.** Relative Frequency of Citation (RFC) of some of the medicinal plants used in the study area.

S/N	Plant species	Relative frequency of citation
1	<i>Allium sativum</i>	0.68
2	<i>Carica papaya</i>	0.53
3	<i>Citrus medica</i>	0.5
4	<i>Aloe barbadensis</i>	0.4
5	<i>Jatropha gossypifolia</i>	0.34
6	<i>Morinda lucida</i>	0.34
7	<i>Mangifera indica</i>	0.32
8	<i>Persea americana</i>	0.28
9	<i>Eugenia aromatica</i>	0.25
10	<i>Vateria indica</i>	0.2

Family Fabaceae (6) had the highest number of plant species followed by family Amaryllidaceae (5), Menispermaceae (4) while other families like Araliaceae, Solanaceae, Lythraceae, Apocynaceae etc had one of plant species each mentioned in the study area. The list of plants used for specific ailments, their local names, parts used and modes of preparations.

## DISCUSSION

The number of plants mentioned for the treatment of diseases that infections had the highest number of plants followed by infertility and malaria while internal heat had the least number of plants mention. The respondents in the study area possess rich ethno medicinal knowledge which allowed the identification of medicinal plants used for various diseases in the community. However, this knowledge needs to be documented for proper transfer from one generation to another, to prevent knowledge loss when the person dies as shown in Figures 2 and 3.

Figure 2. Frequency of medicinal plants used for diseases in the study area.

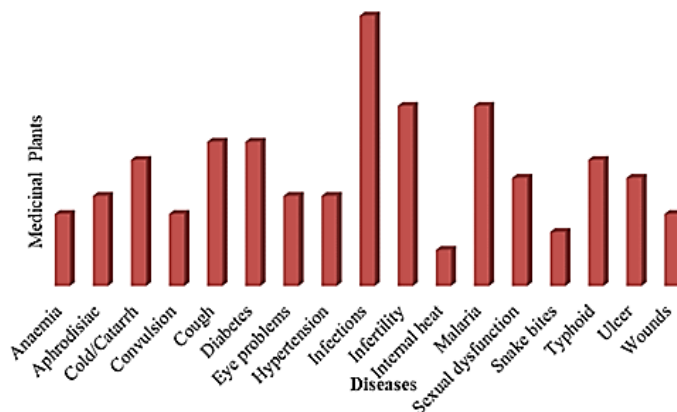
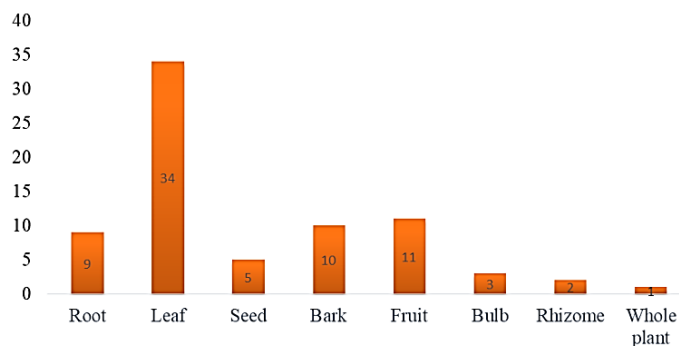


Figure 3. Frequency of plant parts used in the study area.



### CONCLUSION

The respondents in the study area possess rich ethnomedicinal knowledge which allowed the identification of medicinal plants used for various diseases in the community. However, this knowledge needs to be documented for proper transfer from one generation to another, to prevent knowledge loss when the person dies.

Badagry, the study area was discovered to be rich in plants biodiversity with therapeutic potentials for human’s diseases. However, there is the need to conserve the medicinal plants from extinction due to over exploitation. As many of the residents depend on the medicinal plants for their primary health care. Hence, government should regulate the excessive harvesting of medicinal plants. Also, cultivation of medicinal plants should be encouraged through the establishment of herbal gardens.

### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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