



## ETHNO BOTANICAL SURVEY AND SUSTAINABLE USE OF MEDICINAL PLANT SPECIES FOR THE TREATMENT OF TROPICAL DISEASES, YEWA NORTH SOUTHWESTERN NIGERIA

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### Abstract:

This study was carried out to examine medicinal plant species that is used to treat tropical disease Yewa North southwestern Nigeria. The objective of the study was to investigate the indigenous use of plant species in the treatment of tropical diseases in the study area and provide a wider database on the use of forest plant parts especially leaves in indigenous healthcare. Data was collected using field surveys and conducting short interview traditional medicine homes for parts plant species that are used for the treatment of tropical diseases. Field trips were embarked upon for two months from May and June 2021 for medicinal plant species identification. In all, fifty-five (55) plant species were identified to be used in the treatment of tropical diseases such as malaria, typhoid fever, dysentery, blood pressure, cough and others. The family composition of plant species in the study area indicate that 27 families were identified, with Fabaceae having the highest number plant species of eight (8), this is followed by Apocynaceae with five (5) plant species. The life form of plant species showed that 32 of the plant species were trees, 14 were shrubs, 6 herbs and 3 climbers figure 2. The result of part of plant used revealed that leaves was the highest of 45%, this is followed by bark 19% and roots 17% and lowest is the used of whole Plant 3% figure 3

**Keywords:** Yewa North, Ethnobotanical survey, medicinal plants, Tropical diseases

### INTRODUCTION

Nigeria is endowed with a variety of plant and animal species, there are about 7,895 plant species identified in 338 families and 2,215 genera. Plants vary in size and complexity from small, nonvascular mosses, which depend on moisture to giant Sequoia trees. (Olapade, 2000). Plants are mainly autotrophs and serve economic and cultural roles for the growing human population. In addition, plants are essential in ecosystem stability. Medicinal plants constitute an effective source of both traditional and modern medicine. These plants have been shown to have genuine utility and about 80% of the rural population depends on them as primary health care (Sofowora, 2013). Plants have been used as sources of remedies for the treatment of many diseases since ancient times and people of all continents especially Africa have this old tradition. Despite the remarkable progress in synthetic organic medicinal products of the twentieth century, over 25% of prescribed medicines in industrialized countries are derived directly or indirectly from plants (Newman et al., 2011). However, plants used in traditional medicine are still understudied ((Sodipo, and Wannang, 2015). (WHO) has come to recognize the place of herbal medicines as a viable alternative in the treatment of tropical diseases. Since it mainly afflicts poor populations in the tropics, it attracts scant rewards for bio prospecting by big pharmaceutical companies for active molecules that could lead to new drugs. Whereas herbal antimalarial drug development based on traditional knowledge of plant use may hold more promise for developing countries' medicines (World Health Organization WHO, 2014). Hence the relevance of this study investigated the indigenous use of plant species in the treatment of tropical diseases in the tourism village. This will provide a wider database on the use of forest plant parts especially leaves in indigenous healthcare, as this will help the medicinal tourism influx to the study area

### MATERIALS AND METHOD

#### Study area

The study was conducted in Yewa North Local Government area of Ogun State. Yewa North local government is one of the twenty local government areas in Ogun State. It is located to the west of Ogun State bordering the Republic

of Benin. Its headquarters is Ayetoro and it has an area of 2,087km<sup>2</sup> and a population of 183,844 (NPC, 2006). It shares boundary with Abeokuta North, Yewa South, Imeko-Afon local government and Republic of Benin in the north-east, south, north-west and west respectively. The study area is also blessed with mineral deposits such as limestone, clay and kaolin which remain untapped until recently when attention in being drawn to them (OMICC, 2000). Five of the fourteen major communities in Yewa North Local Government Area have limestone deposits in commercial quality. The soils are well-drained, mature, red, stony and in the area is 26 °C. Soils are predominantly ferruginous tropical, typical of the variety gravelly in upper parts of the sequence. The texture of topsoil in the area is mainly sandy loam. The school compound is design to retain indigenous tree species and some exotic and ornamental where also planted making it ecofriendly (Isichei, 2005). The natural vegetation of the area is tropical rainforest characterized by emergent with multiple canopies and lianas. Some of the most commonly found trees in the area include *Melicia excelsa*, *Azeliabipindensis*, *Brachystegia Nigeria*, *Lovoatrichilodes*, *Terminalia ivorensis*, *Terminalia superba*, and *Triplochiton scleroxylon*. However, the natural vegetation of the area except for the areas devoted to farmland has now been reduced to secondary regrowth forest thickets and grassland (Keay, 1989). This study was conducted in the towns Komi- Oba, Imasai, Igbogila and Igua.

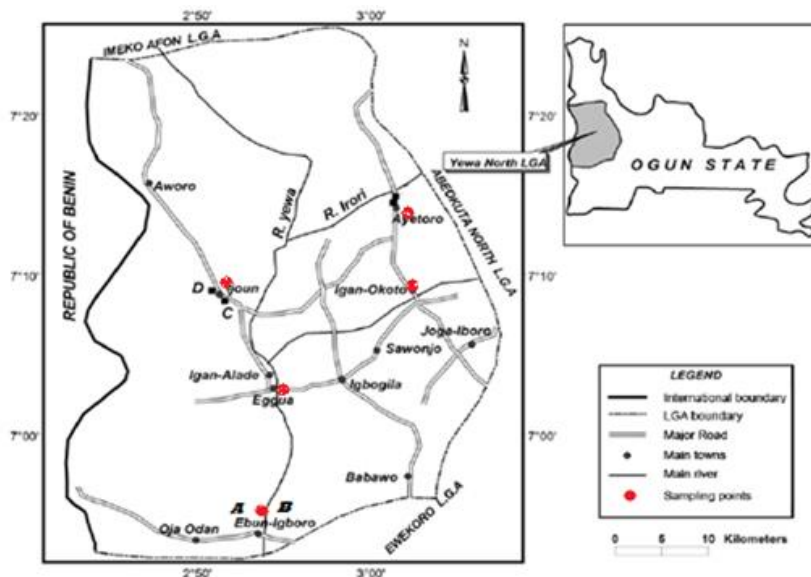


Figure 1, Map of the study area (Source: Adewole, **and Abiazem**, 2019)

## DATA COLLECTION

The study was carried out in five villages in Yewa North southwestern Nigeria. Data was collected using field surveys (Igbarase and Ogbole 2018). Field trips were embarked upon for two months from May and June 2021 for medicinal plant species identification. The plants collected were identified by their vernacular names and their scientific equivalent found and documented. Identification of herbs as well as their uses was done with the aid of a book of the Nigeria (Gbile and Soladoye, 2012) while the inventory of available herbs was recorded. The literature on medicinal plants was searched to back up the claims by the traditional practitioners. Also, parts of medicinal plants not readily identifiable were taken to the herbarium at the Department of Forestry and Wood technology, the Federal University of Technology Akure for proper identification. Plant parts mostly leaves were put in the press for proper preservation short interviews were used to collect Data on the parts of plant species used from five traditional homes from the villages selected.

## STATISTICAL ANALYSIS

Data obtained from the field survey were entered into Excel spreadsheet before both descriptive (tables, frequency, and graph). The computer PAST Model version 3 was used to analyze plant species diversity indices,

## RESULTS

The result showed that the study area is rich in plant species that is used for the treatment of tropical diseases. In all, total of fifty-nine (59) plant species were identify to be used to treat diseases such as malaria, typhoid fever, dysentery, blood pressure, cough and others Table 1. The family composition of plant species in the study area indicates that 27 families were identified, with Fabaceae having the highest number plant species of eight (8), this is followed by Apocynaceae with five (5) plant species figure 2. The life form of plant species showed that 32 of the plant species were trees, 14 were shrubs, 6 herbs and 3 climbers' figure 3. The result of part of plant used revealed that leaves was the highest of 45%, this is followed by bark 19% and roots 17% and lowest is the used of whole Plant 3% figure 4.

Table 1, Medicinal plant species recorded in the study

Local name	Scientific Name	Family	Parts Used	Uses
Ipin	<i>Ficus exasperata</i>	Moraceae	Leaves	Reduces high blood pressure
Isin	<i>Blighia sapida</i>	Sapindaceae	Fresh apex leaves	Malaria
Sapo	<i>Anthoceleista nobilis</i>	Loganiaceae	Roots	Dysentery
Dongoyaro	<i>Azadirachta indica</i>	Meliaceae	Leaves, bark and roots	Bio pesticides and malaria and typhoid
Oruwo	<i>Morinda lucida</i>	Rubiaceae	Leaves and bark	Malaria and typhoid fever
Irosun	<i>Baphia nitida</i>	Fabaceae	Leaves	Local powder prevents skin rashes in babies
Awin	<i>Dialium guineense</i>	Fabaceae	Leaves, bark, and fruits	Vitamins, anti hemorrhoidal, anti-vibrio, anti-hepatotoxic, anti-ulcer
Akoko	<i>Newbouldia laevis</i>	Bignoniaceae	Leaves	Dizziness and dysentery
Ibepe	<i>Carica papaya</i>	Caricaceae	Unripe fruits and leaves	Malaria, typhoid and ulcer
Obi edun	<i>Cola melleni</i>	Sterculiaceae	Leaves	Typhoid fever
Cashew	<i>Anacardium occidentale</i>	Anacardiaceae	Leaves and bark	Malaria and cough
Laali	<i>Lawsonia inermis</i>	Lythraceae	Leaves	Malaria, nail and foot painting to prevent cuts
Agbayun	<i>Snysepalum dulcificum</i>	Sapotaceae	Fruits	Bio sweetener
Ogurobe	<i>Entada africana</i>	Leguminosae	Leaves, barks, and seeds	Anti-inflammatory, antioxidant
Oro	<i>Irvingia gabonensis</i>	Irvingiaceae	Fruits and seeds	Vitamin C, diabetes, reduce cholesterol
Afon	<i>Treculia africana</i>	Moraceae	Leaves, barks, seeds and roots	Protein, reduce blood pressure. Asthma, sore throat treatment
Isin – igbo	<i>Blighia welwithii</i>	Sapindaceae	Leaves, and roots	Relieve kidney pain anti-purgative, used as aphrodisiac
Ira	<i>Bridelia ferruginea</i>	Phyllanthaceae	Bark	Typhoid fever
Awusa or Walnut	<i>Tetracarpidium conophorum</i>	Euphorbiaceae	Leaves, and fruits	Sources of vitamin B6, B7 and E, Low the risk of heart disease, reduce the risk diabetes, reduce the risk of cancer
Ekika	<i>Milletice coccineus</i>	Papilionideae	Leaves	Malaria
Opoto	<i>Ficus thoniigii</i>	Moraceae	Leaves	Increase blood level
Asunyin oyinbo	<i>Senna alata</i>	Fabaceae	Leaves	Diabetes, typhoid fever, skin diseases
Iyere	<i>Piper guinenses</i>	Piperaceae	Leaves	
Ayan	<i>Afezelia bipindens</i>	Fabaceae	Leaves	
Egbo awogba	<i>Petiveria alliacea</i>	Petiveriaceae		
Anbere koro	<i>Parinari spp</i>	Amaryllidaceae		
	<i>Asystasia gangetica</i>	Acanthaceae	Whole plant	Pile, astringent
	<i>Phaulopsis ciliata</i>	Acanthaceae	Whole plant	Ulcers, wounds, snake bite, diuretic, purgative
	<i>Celosia argentea</i>	Amaranthaceae	Leaves, roots, seeds	Diuretic, gonorrhea, diarrhea
	<i>Alternanthera sessilis</i>	Amaranthaceae	Leaves, whole plant	Antibacterial, astringent, headache
	<i>Annona senegalensis</i>	Annonaceae	Leaves, roots, fruits	Cancer, dysentery, cough, venereal diseases, toothache

	<i>Monodora myristica</i>	Annonaceae	Seeds	Constipation, arthritis, anaemia, Headache
	<i>Uvaria chamae</i>	Annonaceae	Leaves, roots	Astringent, Typhoid fever, diabetes, Haemorrhoids
	<i>Rauvolfia vomitoria</i>	Apocynaceae	Root, bark, leaf sap	Convulsion, jaundice, measles, herpes, internal disorder,s
	<i>Cocos nucifera</i>	Arecaceae	Bark, nuts, root	Dysentery, diabetes, migraine, toothache, liver ailment, laxative
	<i>Calotropis procera</i>	Asclepiadaceae	Leaves, roots, latex, bark	Diabetes, diarrhoea, dysentery, cough, elephantiasis, leprosy, ringworm,
	<i>Bombax buonopozense</i>	Bombacaceae	Stem-bark, leaves	Skin infections, stomachache, Blood Tonic
	<i>Byrsocarpus coccineus</i>	Connaraceae	Leaves, roots	Pile, dysentery, gonorrhea, tumours,jaundice, cancer, haemorrhoids
	<i>Alchornea cordifolia</i>	Euphorbiaceae	Leaves, stem, bark	Typhoid Fever, diabetes, antimicrobial, Haemorrhoids
	<i>Bridelia ferruginea</i>	Euphorbiaceae	Leaves, stem-bark, roots	Diabetes, anti-cancer, haemorrhoids
	<i>Albizia ferruginea</i>	Fabaceae	Root, stem bark	Dysentery, constipation
	<i>Abrus precatorius</i>	Fabaceae	Leaves, seeds, roots	Diabetes, cough, convulsion, rheumatism, conjunctivitis
	<i>Pterocarpus osun</i>	Fabaceae (Papilionioideae)	Stem, roots, leaves	Purgative, diabetes, anthelmintics, menstrual disorder
	<i>Garcinia kola</i>	Guttiferae	Fruits, roots, stem-bark	Anti-cancer, dysentery, diabetes, toothache, cough
	<i>Solenostemon monostachyus</i>	Lamiaceae	Leaves	Convulsion, stomachache
	<i>Anthocleista djalensis</i>	Loganiaceae	Leaves, stem-bark	Eczema, diabetes, antipyretic, purgative, abdominal pain
	<i>Antiaris toxicaria</i> Lesch	Moraceae	Root, stem bark	Purgative, skin diseases, epilepsy
	<i>Microdesmis puberula</i>	Pandaceae	Leaves, bark, seeds	Dysentery, impotence, Diarrhoea, wound
	<i>Ceratotheca sesamoides</i>	Pedaliaceae	Seeds	Relieve pains after circumcisions
	<i>Bambusa vulgaris</i>	Poaceae	Leaves, young shoots	Haemorrhoids, gonorrhea, anthelmintics
	<i>Nauclea latifolia</i>	Rubiaceae	Leaves	Typhoid fever
	<i>Sida acuta</i>	Malvaceae	Leaves	Malaria
	<i>Trema orientalis</i>	Ulmaceae	Leaves	Malaria, Typhoid fever
Soup sap	<i>Anona muricata</i>	Annonaceae	Fruits and leaves	Arthritis pain, rheumatism neuralgia, weight loss

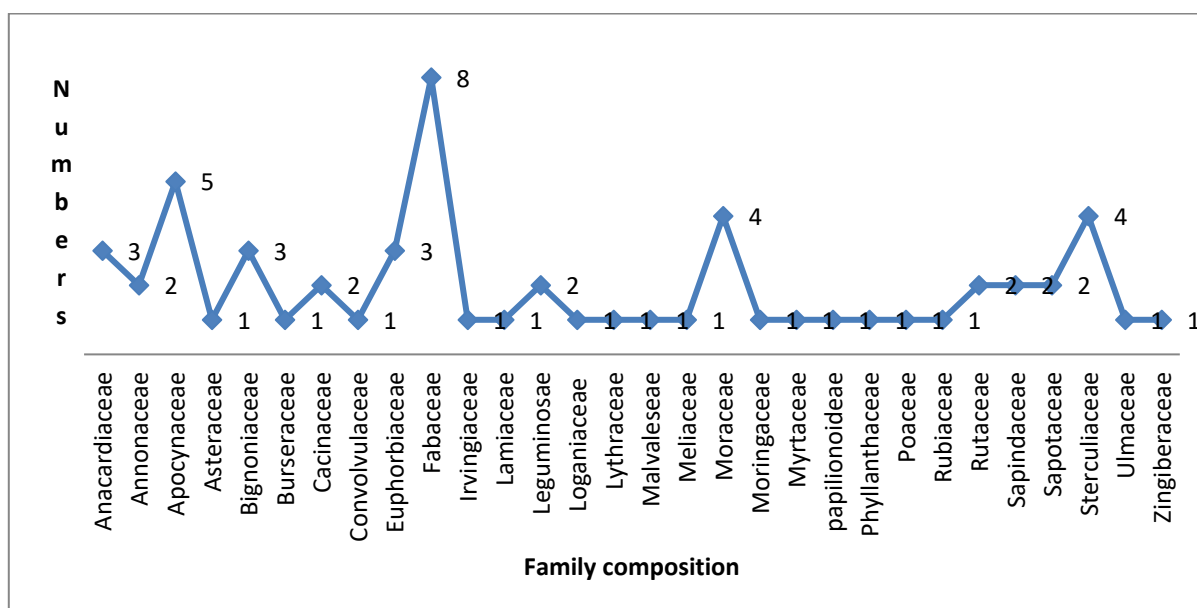


Figure 2, Family composition of plant species in the study area

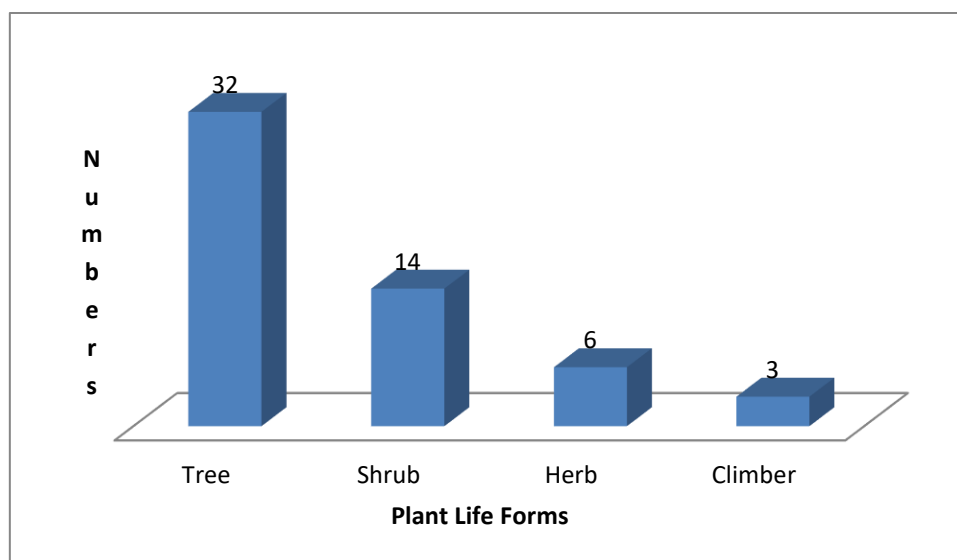


Figure 3, Plant life forms of plant species in the study area

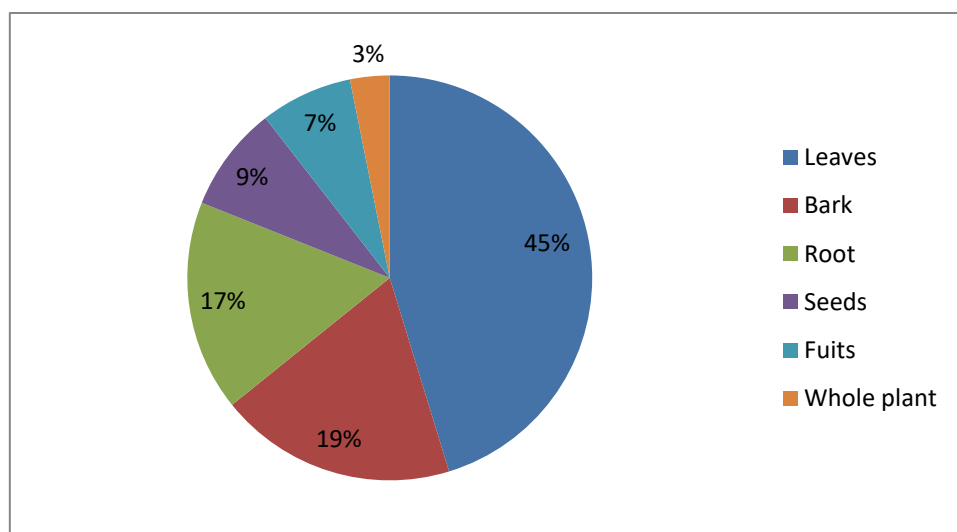


Figure 4, Part of plant species used in the study area

## DISCUSSION

This long age practice of herbal medicinal prescription by traditional healers has advantages of easily accessible, affordability and the only therapy that exists before the advent of orthodox medicine (Sofowora, 1993) Many of the plants mentioned have histories of their proven effectiveness against several ailments. Numbers of herbal practitioners believed that herbs are the basis of medicine and its use in treatment of diseases should be advocated (Adewole and Abiaziem, 2019). In all, a total of fifty-nine (59) plant species belonging to 27 family were identified to be used to treat common diseases such as malaria, typhoid fever, dysentery, blood pressure, cough and others. These findings are similar to those used to treat malaria and typhoid fever (Agbovie et. al., 2002). It is also consistent with the work of several researchers who carried similar ethnobotanical surveys in Nigeria. Aguoru and Ogaba, (2010) reported that *Bambusa vulgaris*, *Mangifera indica*, *Ananas comosus*, *Carica papaya*, *Ocimum gratissimum*, *Azadirachta indica*, *Psidium guajava*, *Citrus aurantifolia*, and *Moringa oleifera* were used in the treatment of typhoid amongst the Idoma people of Benue state. Halimat et al., 2017 also reported that *Mangifera indica*, *Alstonia boonei*, *Ananas comosus*, *Carica papaya*, *Ocimum gratissimum*, *Azadirachta indica*, *Psidium guajava*, *Sarcocephalus latifolius*, *Citrus aurantifolia*, *Citrus paradisi*, and *Zingiber officinale* were used in the treatment of typhoid in Minna, Niger State, Okosodo and Sarada 2021 who reported same plant species were used to treat malaria, typhoid fever and cough in Omo forest reserve south western Nigeria.

This study affirmed that herbal medicines have great potentials to cure different kinds of tropical neglected diseases. The study also revealed that there was high diversity of medicinal plants and traditional knowledge about the use, preparation and applications of these medicinal plants. Traditional Systems of (WHO) reported that plants are usually the major component of traditional medicine (Global Initiative for (World Health Organization, 2003). During the field survey we observed the barks, roots and leaves of these plants were collected by some people who used it for medicinal purposes. The leaves of these plants were used singularly or in combination with other herbal materials in the fresh or dried forms which are either in the combination of other herbal roots, flowers, and gum of other plant species (Adekule, 2008). The Simpson diversity of medicinal plant species was very high judging of the land mass of the study area, offers large possibilities for their rational use due to lack management plan (Samardžić, 2014).

## CONCLUSION AND RECOMMENDATION

Ethno survey of medicinal plant will effectively provide insight to many African herbs that can treat different ailments most especially, tropical neglected diseases. Health and wellness tourism has grown throughout the world and includes the consumption of much traditional medicine. Owing to its medicinal history, Nigeria and India has significant potential for promoting traditional medicine as a consumer product for local consumption, as an export product, and as a tourism resource.

This medicinal resource is one of the most important elements of the south west intangible heritagescape that is worthy of additional consideration by tourism developers.

Based on this research study the school should facilitate the establishment of functional herbal gardens that will enhance research medical tourism, a sense of familiarity with local biodiversity and its conservation, especially herbal plants.

The traditional use of herbal health remedies will provide significant nutritional, economic, and ecological benefits for rural communities through tourism.

Environmental and management problems are imminent such as deforestation barking of trees, defoliation of plant leaves, and overexploitation, hence efforts should be made to educate the residents on the sustainable harvest.

Efforts management plans should be set up to train local residents on the need to cultivate most of these plants around their homes.

The ethno botanical experts should work hard to carry out research on medicinal plant species extract that save will the world from strange diseases such as covid 19.

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