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Full Length Research Paper

Ethnobotanical Studies of Professor Afolayan Wildlife Park, Ondo State, Nigeria

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Abstract

Ethnobotanical study of Professor Afolayan Wildlife Park was carried out to identify and document medicinal plants and their uses. Medicinal plants have been observed to be very effective in the treatment of ailments that defile orthodox medicine. Despite this, only few people are aware of the location and uses of most of the plants around them due to inadequate knowledge of their usefulness. In this study common plants used were classified based on their families, parts used and the medicinal uses. Some of the plant families were briefly discussed and the plants local names provided. According to field survey, 40 plants were identified consisting of 20 families. The commonly used plant parts are leaves, bark, seeds, fruits and the whole plant which are used to treat ailments like malaria, stomach aches and diarrhoea. This study shows the high medicinal potentials of Professor Afolayan Wildlife Park, therefore the need for sustainable use and conservation of the park for its multiple role is therefore encouraged.

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1. Introduction

Ethnobotany as defined by Balick and Cox (1996) is the study of how modern and indigenous people of a particular culture and region make use of indigenous plants. Ethnobotany is the scientific study of plants and agricultural customs of a people. Given their extensive range of knowledge of medicinal plants, indigenous people remain the ultimate resource for retrieving this information for the purpose of application particularly in modern medicine. Tropical rainforest is particularly endowed with plants possessing curative properties. This richly bio-diverse environment provides a veritable trove of flora containing compounds of medicinal value which indigenous people have utilized and benefitted from for centuries.

From the ancient period, man lives closely associated with nature and depended on it for their survival. "Many living groups of people, having diversified ethnic history of rituals and performance, who are more or less isolated from modern world and are closely associated with their ambient vegetation is the emporia of ethnobotanical research" (Pal and Jain, 1998). The surrounding environment directly and indirectly influences the human life and culture. Plants are the part of our environment. People use plants around them for many proposes like; food, shelter, dyes, cosmetics, clothing, medicine etc. from their surrounding vegetation. They gathered the knowledge from the environment, and pass them through generation to generation with or without written documents. But many have disappeared due to several reasons. Without proper documentation, these resourceful of information or knowledge may disappeared for ever.

A recent branch of botany, ethnobotany is a multidisciplinary subject which incorporates the culture or practice of ancient knowledge that deals with the interaction between peoples and plants. Ethnobotany has its roots in botany, the study of plants. Each human population classifies plants through their culture, develops attitudes and beliefs and learns the use of plants, while human behaviour has a direct impact on plant communities with which they interact; the plants themselves also impose limitations on humans. These mixtures of interactions are the focus of Ethnobotany" (Ford, 1994). In 1895, Dr. John Harshberger first used the term "Ethnobotany" in a lecture at Pennsylvania and defined it as the study of plants used by primitive and aboriginal people. In 1896, Harshberger published the term and suggested Ethnobotany to be a field, which elucidates the "cultural position of the tribes who used the plants for food, shelter or clothing" (Harshberger, 1896). Robbins (1916), first defined this term as a "Study and evaluation of the knowledge of all phases of plant life amongst primitive societies and effect of the vegetal environment upon the life" (Rao and Henry, 1996).

Research has been geared towards finding scientific evidence for the claims as to the therapeutic efficacy of African herbs by traditional healers. Most of the published and unpublished written ethnomedicinal data with valuable and complementary information are scattered in many documents, some of which are not easily available. An interdisciplinary systematization, which certainly helps to predict the most promising candidates for further laboratory or clinical investigations, appears as useful work (Hatil Hashim EL-Kamali, 2009). Many infectious diseases are known to be treated with herbal remedies throughout the history of mankind. The maximum therapeutic and minimum side effects of herbal remedies have been verified in numerous scientific investigations. Even today, plant materials continue to play

a major role in primary health care as therapeutic remedies in many developing countries. It has been reported that natural products (their derivatives and analogues) represent over 50% of all drugs in clinical use, in which natural products derived from higher plants represent about 25% of the total. The World Health Organization estimated that over 80% of the people in developing countries rely on traditional remedies such as herbs for their daily needs and about 855 traditional medicines include crude plant extracts (Biswas and Mukherjee, 2003). This means that about 3.5 to 4 billion of the global population rely on plants resources for drugs (Farnsworth, 1998). According to Sofowora (1982), about 60-85% of the population in every country of the developing world has to rely on traditional medicine.

In Nigeria, herbal plants constitute one of the many resources of the forest on which the health of the average rural populace depends on. Herbal medicine is the first line of treatment for 60% of children with high fever from malaria, while 85% of Nigerians use and consult traditional medicine for health care, social and psychological benefits. They serve as the repository of healing materials and are known to have minimum or no side effects (Gbile *et al*., 1986).

Many plants particularly the edible ones are mainly consumed for their nutritional values without much consideration given to their medicinal importance. This indeed has led to the destruction of these unique resources either knowingly or unknowingly. There are several varieties of these plants in the wild in the rural areas, but the gradual loss of flora genetic species deprives man of the opportunity to meet the future as well as catch up with present challenges of the use of plants for the enhancement of health of the individual. (Obute and Osuji, 2002).

Plants have been observed to be very effective in the treatment of ailments that defile orthodox medicine. Despite this, only few people know the location and uses of most of the plants around them due to inadequate knowledge of their usefulness. This study therefore, was initiated to document all medicinal plants found in the park, classify the plants based on their types, uses and provide their local names.

2. Materials and Methods

Professor Afolayan Wildlife Park (PAWP) is located in Akure, Ondo State, Nigeria. It lies between latitude 5°45′N and 7°52′N, and longitude 4°20′E and 6°5′E (Federal University of Technology, Akure Meteorological Station, 2004). It was formerly inhabited by people described as Obanla who used the place for farming before relocating. It falls in tropical rainforest belt of Nigeria with average annual rainfall of 1408.1mm during the rainy season between March and October. The relative humidity range is 80% to 100% during the rainy season and 50% to 70% during the harmattan period. The mean minimum temperature is 21ºC while the mean maximum temperature is 32ºC. The Park has an area of 8.89 hectares and it is divided into three locations namely open area, cocoa plantation area and rocky outcrop area.

Identification of medicinal plant species was carried out within the park. The Park was divided into six transects at intervals of 50 m along the breadth. Medicinal plant species in each transect were identified and recorded. Ethnobotanical information on each plant identified were obtained from local herb sellers around Federal University of Technology, Akure community, elderly men and traditional medicine practitioners. This was done through oral interview using a structured questionnaire. The major questions asked were how the medicinal plant

identified are used, part(s) of the plant used as medicine and the local name(s) of plants .

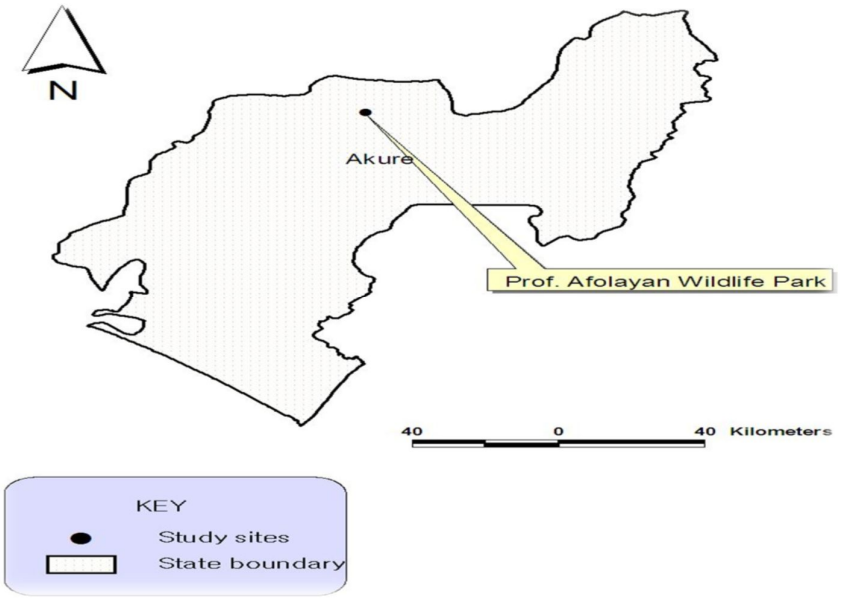


Fig. 1: **Location of Professor Afolayan Wildlife Park in Ondo State, Nigeria**
***Source**: Oguntuase and Agbelusi, 2013*

3. Results and Discussion

The plants that were identified as having medicinal uses were arranged using their scientific, families, local and common names, part(s) being used in the preparation of medicine and their medicinal uses (Table 1).

Table 1: List of plants identified, their family name, local names and their uses

SCIENTIFIC NAME	FAMILY NAME	LOCAL NAME(S)	COMMON NAME(S)	PART(S) USED	MEDICINAL USES
Carica papaya	Caricaceae	Ibepe	Pawpaw	Leaves, seeds, fruits	Diabetes, malaria, syphilis
Sterculia tragacantha	Sterculiaceae	Alawefon	Star chest nut	Leaves, roots, bark	Fever, whitlow, malaria.
Albizia zygia	Leguminosae	Ayinreweere	Okuro, atanza, siris	Bark	Arthritis, sprain.
Psidium guajava	Myrtaceae	Gilofa	Guava	Leaves, stem, bark, fruits	Fever, diarrhea, stomach ache, laxative, malaria.
Chromolaena odorata	Compositae	Akintola, Awolowo	Siam weed	Leaves, stem	Dysentery, headache, malaria, fever, tooth ache, skin disease
Bambusa vulgaris	Poaceae	Oparun	Bamboo	Leaves	Gonorrhea

Musa sapientum	Musaceae	Ogede were	Banana	Leaves, fruits	Typhoid, malaria, jaundice.
Albizia ferrunginea	Leguminosae	Ayinre ogo	False thorn, Albizia	Roots, stem, leaves, bark	Constipation, dysentery.
Spondias mombin	Anacardaceae	Iyeye	Yellow mombin	Barks, leaves, fruits, root	Cough, sore throat, cold, measles
Gmelina arborea	Verbenaceae	Igi melina	Gmelina	Roots, leaves	Stomach disorder, cough.
Diospyros mespliforimis	Ebenaceae	Igi dudu	Ebony tree	Root, bark, stem	Diarrhoea, fertility regulation.
Afzelia Africana	Leguminosae	Apa-igbo	Pod mahogany	Root, leaves, stem, bark, seeds	Stomach disorder, gonorrhoea.
Chrysophyllum albidum	Sapotaceae	Agbalumo	African star apple	Bark, leaves	Fever, stomach ache.
Theobroma cacao	Sterculiaceae	Koko	Cocoa	Seeds, roots	Stimulants, tooth ache, blood tonic.
Cola acuminate	Sterculiaceae	Obi abata	Kolanut	Fruit	Stimulants, fever, malaria.
Antiaris Africana	Moraceae	Oriro	False iroko	Stem, bark, root,	Epilepsy, skin irritant, purgative.
Cocus nucifera	Palmae	Agbon	Coconut palm	Bark, root, fruit	Liver ailment, migraine, scabies, tooth ache, laxative
Ficus exasperate	Moraceae	Ewe-epin	Sand paper tree	Leaves, bark, root, seeds	Stomach disorder, scabies, gonorrhoea.
Dialum guineense	Leguminos ae	Awin	Black tamarind	Leaves, fruit, bark, stem, root	Fever, cough, tooth ache.
Melicia excels	Meliaceae	Iroko	Iroko tree	Root, bark	Rheumatism, malaria, abdominal pain.
Manihot esculenta	Euphorbiaceae	Ege	Cassava	Leaves, stem, bark	Ulcer, eye drop, toothache.
Pterocarpus osun	Leguminosae	Osun	Blood wood	Root, stem, bark	Asthma, bacterial and fungal skin infection
Hildegardia barteri	Sterculiaceae	Okurugbedu	Hidegardia	Bark	Epilepsy

Ficus capensis	Moraceae	Opoto	African mustard tree	Leaves, stem, root, fruits	Dysentery, leprosy, infertility, malaria
Bombax buonopozense	Bombaceae	Eso	Red silk cotton tree	Bark, leaves, fruits,	Stomach ache, blood tonic
Anthocleista djalonensis	Loganiaceae	Shapo	Cabbage tree	Bark, leaves, root	Skin infection, purgative.
Ceiba pentandra	Bombaceae	Araba	Silk cotton tree	Leaves, bark	Diabetes, fever, gonorrhoea, asthma
Buchlozia coriacea	Sterculiaceae	Obi-abata	Wonderful cola	Fruit, bark	Respiratory disorder, ulcer, fibroid, chest pain
Alstonia boonei	Apocynaceae	Ahun	Pattern wood	Root, bark, leaves	Breast development, antidote, malaria, yellow fever.
Sida acuta	Malvaceae	Esoketu	Hornbean-leaf sida	Leaves, root	Malaria, intestinal worm, ulcer
Cissampelos owariensis	Menispermaceae	Ewe jokoje	Lung wort	Roots, whole plant	Lung diseases, skin diseases, blood tonic.
Costus afer	Zingiberaceae	Ireke omode	Ginger lily	Stem, leaves, fruit	Coughs, diabetes, cuts
Funtumia elastic	Apocynaceae	Ire	Wild rubber	Stem	Piles, impotence
Leucena leucocephala	Leguminosae		Lead tree	Leaves, seeds, root	Blood tonic
Hibiscus surattensis	Malvaceae	Emo		Whole plant, leaves	Stomach ache, mystic uses.
Newbouldia laevis	Bignoniaceae	Akoko	Fertility tree	Bark, leaves, root	Roundworm, malaria, infertility
Terminalia superba	Combretaceae	Afara	White afara	Root, bark	Laxative.
Crescentia cujete	Bignoniaceae	Igi sogba	Calabash tree	Fruits	Receptacle for herbal medicine.
Mangifera indica	Anacardaceae	Mangoro	Mango tree	Leaves, root, stem, bark	Malaria, insanity, high blood pressure
Gliricida sepium	Fabaceae	Agunmaniye	Quick stick	Leaves, bark	Malaria

Source: Field Survey, 2018.

The study documented a total of 40 species of medicinal plants belonging to 24 families (Table 1). The dominant families

were Leguminosae (15.0%) and Sterculiaceae (12.5%). The least dominant families include Caricaceae, Meliaceae, Loganiaceae, Poaceae and Verbenaceae with 2.5% each (Figure 1).

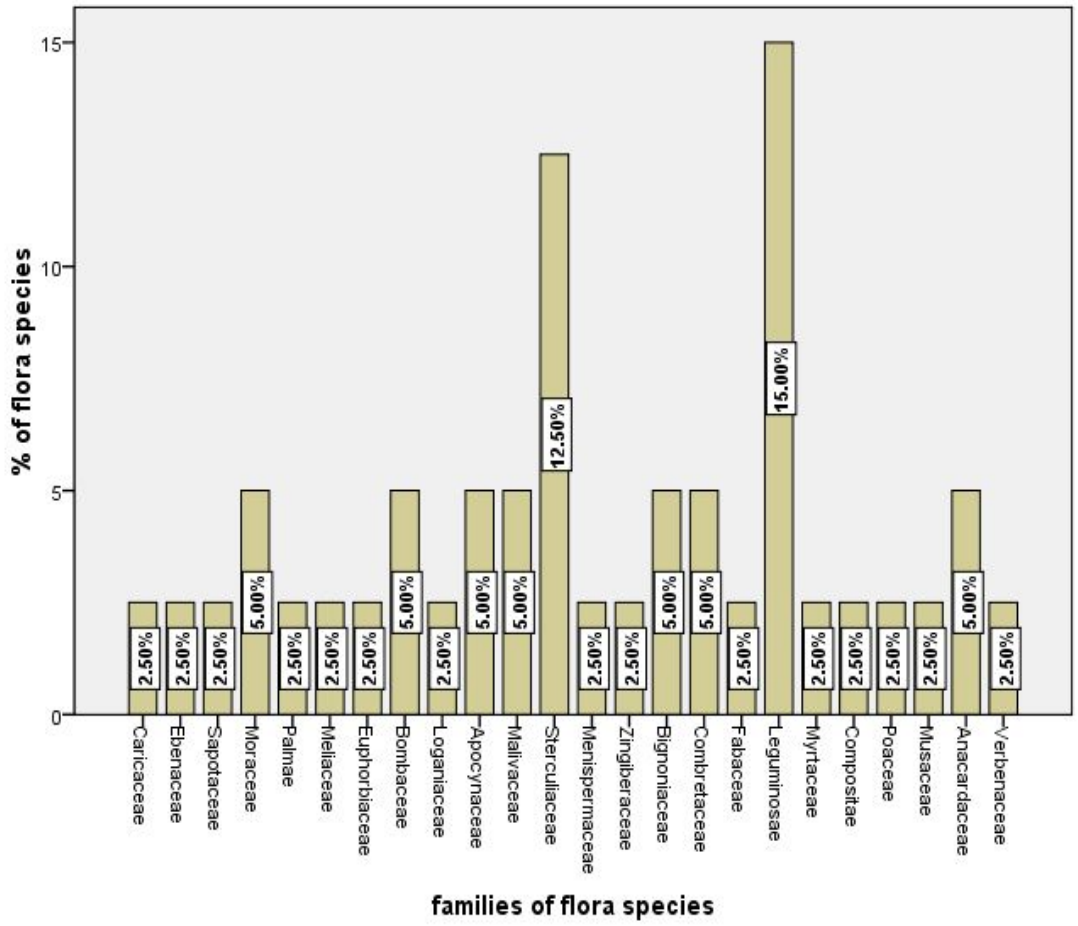
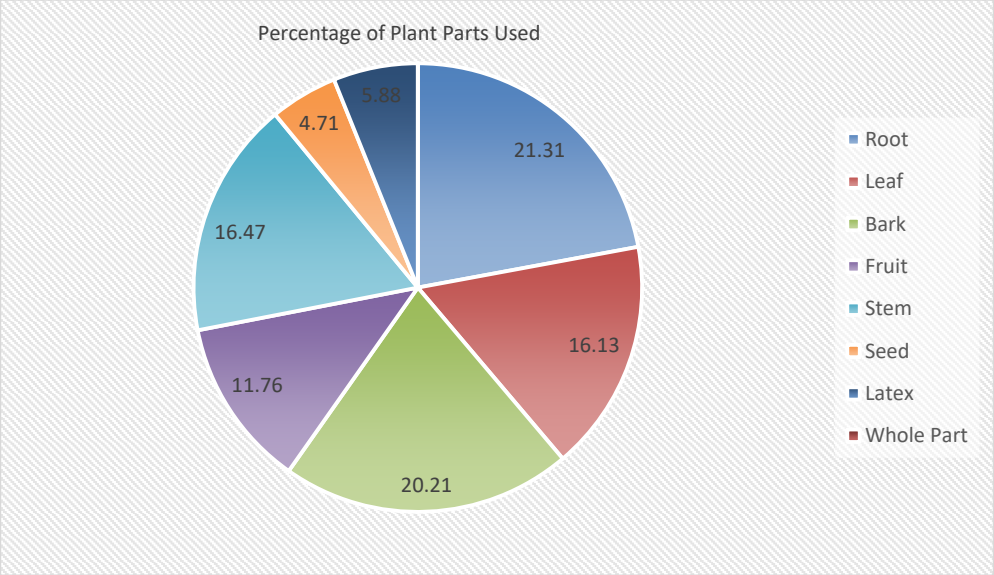


Figure 1: Bar chart showing the families of identified flora species in Professor Afolayan Wildlife.

All the plant species identified in the Park are known to be used as medicinal for a wide variety of purposes by the communities around the Park. Fifty-eight (58) different medicinal indications were recorded to cure or alleviate common ailments or alleviate different illnesses and pains (Table 1). The highest number of species (13) that represented 32.5% of total species were used to cure malaria, with 7 species reported to cure fever, 6 species reported to cure tooth ache while 4 species each are used to cure cough, stomach ache, stomach disorders and also used as blood tonic and laxative. The results from the survey of the Park show that most of the plants identified have multiple uses and only very few plants had just a use for curing ailments.

Figure 2: Pie Chart showing the percentage of plant parts used for medicinal purposes



The study revealed that among plants identified as having medicinal uses in the study area 82.50% were trees, 10.00% herbs and 7.50% shrubs.

This shows that Prof. Afolayan Wildlife Park is a forest ecosystem made up of tall trees, short trees and few grasses.

The study also revealed that the commonly used flora part for medicine is the root (Figure 3) with 21.31% (Figure 2). Others include bark (20.21), stem (16.47%), leaf (16.13%), fruit (11.76%), latex (5.88%), seed (4.71%) and whole plant (3.53%). The roots have the highest major plant parts used because it is believed by the communities that roots contain high concentration of active ingredients for the preparation of medicinal purpose. This assertion is supported by the studies conducted by Hunde et al., (2006); Yineger and Yewhalaw, 2007; Teklehaymanot and Giday, 2007 in which roots were reported as the most widely used plant parts

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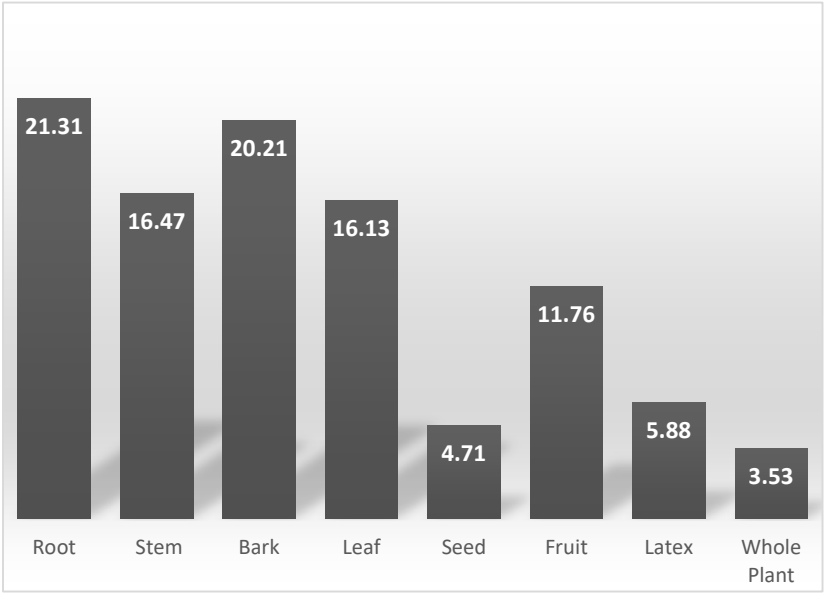

Figure 3: Plant Parts used for Medicinal Purposes

Observation from the ethnomedicinal survey showed that the plants were used for different ailments in different localities. It was equally discovered that the medicinal plants have other uses as some could be used as vegetables, fruits, trees, ornamentals etc. The different uses can be explained by the fact that, a single plant can serve many purposes or perform different functions.

While collecting ethnobotanical information, it was observed that traditional medicine has wide acceptability among the local community in the study area. Indeed, majority of the people use these plants as curative for one ailment or another and this establishes the efficacy and safety of plant materials used in ethno-medicine. Water was used as the extraction medium. Traditional healers could not explain why in many cases two or more plants or plant parts are used jointly. In some cases, local herb sellers were unable to state the use of some species identified as they explained that they were not practitioners but were only involved in the sales of these plant species.

4. Conclusion

Ethnomedicinal studies are very important in order to understand the social, cultural and economic factors influencing ideas and actions concerning health and illness and also to get information on types of diseases and health problems.

The study reveals that Professor Afolayan Wildlife Park is a home endowed with flora species that can serve as a research niche for students and taxonomist. It can also serve as an outdoor recreation for tourists and potential visitors. However, the use of plant parts by the communities around the Park must be controlled as this could have serious consequences on the sustainability of the Park

Some of the medicinal plants identified so far should serve as guide to the Government, health care workers, Agricultural extension experts and even modern medicinal experts in formulating an integrative health system that could serve the common goal of maintaining, enhancing and sustaining good health care system. So, all hands must be on deck to properly harness these God given medicinal plants for the betterment of the society at large. Finally, there should also be synergy between the traditional medicine practitioners and the orthodox medicine experts towards achieving a holistic health care delivery particularly in Nigeria.

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