ETHNOMEDICINE: A CASE STUDY NATIVE PLANT SPECIES USED FOR TREATMENT OF MALARIA AND TYPHOID FEVER EDO STATE NIGERIA

Abstract

This chapter examined the botanical survey of native plant species used for the treatment of malaria and Typhoid fever in two agro ecological zones in Edo state. The primary goal of the botanical survey is to identify and document native plant species that are traditionally used by local communities for the treatment of malaria and Typhoid fever. This information can be valuable in understanding the local knowledge and practices related to herbal medicine. Direct observation was used for field survey in collecting medicinal plant species. In the 20 villages around the state two well-known and heavily frequented traditional healing houses from each village were visited. The plants were recognized using their common names, and their scientific names were discovered and recorded. With the help of a book on the trees of Nigeria, herbs were identified and their uses were noted as the inventory of accessible herbs was kept. The result shown that all the parts of the plant species are utilized, leaves, barks, flowers, roots, seeds, fruits. In all leaves was widely used at of the one hundred and ten (110) plants recorded.

Keywords: Native species, botanical survey, treatment, malaria, typhoid fever, Edo state

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I. INTRODUCTION

1. **Overview of Ethnomedicine: Ethnomedicine is a** branch of medical anthropology that focuses on the traditional medical practices and knowledge of different cultures and indigenous communities. It recognizes the importance of cultural beliefs, social systems, and the environment in shaping health and healing practices. The field of ethnomedicine seeks to understand and document the diverse healing traditions found in different cultural groups around the world. This includes studying the use of medicinal plants, animal products, rituals, ceremonies, and other traditional healing techniques. Ethnomedicine acknowledges that traditional healing systems have evolved over generations and are deeply rooted in cultural heritage and local knowledge.The central premise of ethnomedicine is that health and illness are not solely biological phenomena but are influenced by cultural, social, and environmental factors. It recognizes that different cultures may have unique understandings of health and disease, as well as distinct methods of diagnosis, treatment, and prevention. Researchers in ethnomedicine often collaborate with traditional healers, local communities, and practitioners to gain insights into their healing practices. This involves conducting interviews, observations, and participatory research to understand the cultural context and the role of traditional medicine within a community. Ethnomedicine also explores the use of medicinal plants in traditional healing. Indigenous cultures have a rich knowledge of local flora and their therapeutic properties, which is often passed down through oral traditions. Ethnobotanists study the relationship between plants and people, identifying medicinal plants, documenting their traditional uses, and investigating their chemical constituents. Understanding ethnomedicine has practical implications for healthcare. It can inform the development of culturally sensitive and contextually appropriate healthcare interventions. By recognizing and incorporating traditional healing practices into mainstream healthcare systems, it promotes inclusivity and respects diverse cultural perspectives on health and well-being.Additionally, ethnomedicine contributes to the conservation of cultural knowledge and biodiversity. It highlights the importance of preserving traditional healing practices and the sustainable use of medicinal plants. By recognizing the value of traditional medicine, efforts can be made to protect indigenous knowledge systems and support the communities who hold this valuable knowledge.Overall, ethnomedicine provides a comprehensive understanding of traditional healing practices, cultural beliefs, and the interplay between humans, nature, and health. It offers insights into alternative approaches to healthcare, fosters cultural respect, and encourages collaboration between traditional and modern medical systems.

2. **Importance of Studying Native Plant Species in Ethnomedicine:** Studying native plant species in ethnomedicine is of significant importance for several reasons. Native plant species have been used for medicinal purposes by indigenous cultures for centuries. By studying these plants, we can document and preserve the traditional knowledge associated with their use. This knowledge is often passed down through generations and provides valuable insights into the cultural heritage and healing practices of communities.Native plant species have a wealth of chemical compounds that can potentially be used for developing new drugs and treatments. Many modern pharmaceuticals are derived from natural sources, and studying native plants can lead to the discovery of novel bioactive compounds with therapeutic properties. Traditional healers have long relied on these plants for their medicinal value, and scientific research

can validate their efficacy and safety.Native plant species offer sustainable healthcare solutions, particularly in regions with limited access to modern healthcare facilities. Traditional medicine based on native plants is often affordable, accessible, and culturally accepted by local communities. By studying these plants, we can identify effective remedies for various health conditions and promote their use as complementary or alternative treatments, especially in resource-constrained settings.Native plant species hold cultural significance and are deeply intertwined with the traditions, rituals, and belief systems of indigenous cultures. Studying these plants in the context of ethnomedicine allows for a more holistic and culturally sensitive approach to healthcare. It recognizes the importance of cultural diversity and promotes inclusivity by incorporating traditional healing practices into mainstream healthcare systems.

Many native plant species used in ethnomedicine are at risk of extinction due to habitat loss, overharvesting, and climate change. By studying and documenting their medicinal uses, we raise awareness about the value of these plants and the need for their conservation. This promotes sustainable harvesting practices, habitat preservation, and the protection of biodiversity.

Ethnomedicine encourages dialogue and collaboration between traditional healers, local communities, and modern healthcare practitioners. By studying native plant species, researchers can bridge the gap between traditional and modern medicine, fostering mutual respect and understanding. This collaboration can lead to the development of integrative healthcare approaches that incorporate the strengths of both traditional and modern systems.Cultural Identity and Empowerment: Native plant species used in ethnomedicine are often deeply intertwined with the cultural identity and traditions of indigenous communities. By studying and recognizing the value of these plants, we empower these communities to preserve their cultural heritage and maintain a sense of identity. It also promotes self-reliance and autonomy in healthcare, allowing communities to maintain control over their own healing practices. Native plant species have adapted to specific local environments and often possess unique properties that make them effective for treating ailments prevalent in those areas. By studying these plants, we can gain insights into the interplay between local ecology and human health. This knowledge can help us better understand the relationships between the natural environment, traditional healing practices, and the well-being of communities.Alternative and Complementary Healthcare Options: In many regions, particularly in rural or underserved areas, traditional medicine based on native plant species is the primary or only healthcare option available. By studying these plants, we can identify alternative and complementary treatments for various health conditions. This expands the range of available healthcare options, particularly for individuals who may not have access to or prefer not to rely solely on modern Western medicine.Ethnopharmacological Research: The study of native plant species in ethnomedicine contributes to the field of ethnopharmacology, which explores the relationship between traditional medicinal practices and the pharmacological properties of plants. Ethnopharmacological research helps uncover the mechanisms of action of traditional remedies, validate their effectiveness, and discover new potential therapeutic compounds. This research can have broader implications for drug development, pharmacology, and healthcare innovation. Sustainability and Conservation: Studying native plant species in ethnomedicine promotes the sustainable use and conservation of biodiversity. By understanding the traditional harvesting methods,

cultural practices, and ecological roles of these plants, we can develop guidelines for their sustainable utilization. This ensures the long-term availability of medicinal plants while preserving natural habitats and biodiversity Ethnomedicine recognizes and respects the diversity of healing practices and cultural beliefs. By studying native plant species and incorporating traditional healing knowledge into healthcare systems, we promote health equity and social justice. This helps address health disparities and ensures that marginalized communities have access to healthcare that aligns with their cultural values and practices. Studying native plant species in ethnomedicine holds immense importance for preserving cultural heritage, empowering communities, promoting sustainable healthcare, discovering new therapeutic compounds, adapting to local environments, expanding healthcare options, contributing to scientific knowledge, conserving biodiversity, and fostering health equity and social justice.Studying native plant species in ethnomedicine is crucial for preserving traditional knowledge, discovering new medicinal compounds, promoting sustainable healthcare solutions, respecting cultural diversity, conserving biodiversity, and fostering collaboration between different healthcare systems. It has the potential to contribute to the development of more inclusive, effective, and culturally relevant approaches to healthcare.

II. SIGNIFICANCE OF MALARIA AND TYPHOID FEVER IN EDO STATE, NIGERIA

Malaria and typhoid fever are both significant public health issues in Edo State, Nigeria. Key points highlighting their significance:

Malaria and typhoid fever are highly prevalent in Edo State, contributing to a substantial burden of disease. Both diseases are endemic in the region, with a high number of reported cases annually. The prevalence of malaria is particularly significant due to the presence of Anopheles mosquitoes, which are carriers of the malaria parasite. Typhoid fever is also a common bacterial infection in the region. Malaria and typhoid fever can have severe health consequences if left untreated or mismanaged. Malaria, caused by the Plasmodium parasite, can lead to high fever, fatigue, anemia, organ failure, and even death, especially among vulnerable populations such as young children and pregnant women. Typhoid fever, caused by the Salmonella typhi bacterium, presents with symptoms like high fever, headache, abdominal pain, and can result in complications such as intestinal perforation or bloodstream infection.

Malaria and typhoid fever impose a significant economic burden on individuals, families, and the healthcare system in Edo State. The cost of treatment, loss of productivity due to illness, and expenses related to hospitalization and healthcare services place a strain on limited resources. These diseases can lead to decreased workforce productivity, affecting the economic development of the region. Malaria and typhoid fever disproportionately affect vulnerable populations, such as young children, pregnant women, and individuals with weakened immune systems. Children under five years of age are particularly susceptible to severe malaria infections, which can result in long-term health effects and developmental issues. Pregnant women with malaria face an increased risk of adverse outcomes, including maternal anemia, low birth weight, and neonatal mortality. Typhoid fever can also pose significant risks to vulnerable populations, including pregnant women and individuals with compromised immune systems. Malaria and typhoid fever pose challenges to the healthcare

system in Edo State. Limited access to healthcare facilities, inadequate diagnostic tools, and lack of awareness and preventive measures contribute to the persistence of these diseases. The effective management and control of malaria and typhoid fever require a well-functioning healthcare system with access to diagnostic tools, appropriate treatment, and preventive interventions such as vector control measures and vaccination campaigns. Addressing the burden of malaria and typhoid fever in Edo State requires comprehensive public health interventions. These may include widespread distribution of insecticide-treated bed nets, indoor residual spraying to control mosquito populations, improved access to accurate diagnostics and effective medications, hygiene education and sanitation improvements to prevent typhoid transmission, and vaccination campaigns for typhoid fever prevention. Malaria and typhoid fever have a significant impact on the health, economy, and well-being of individuals and communities in Edo State, Nigeria. Efforts to control and manage these diseases through prevention, improved healthcare services, and public health interventions are crucial for reducing their burden and improving overall health outcomes in the region.

1. **Geographical Location and Climate:** Edo State is located in southern Nigeria, within the Niger Delta region. It is situated between latitude 6°07'N and 7°45'N and longitude 5°01'E and 6°34'E. Here are some key points about the geographical location and climate of Edo State:Geographical Location: Edo State is bordered by four other Nigerian states. It is bordered by Ondo State to the west, Delta State to the east and south, Kogi State to the northeast, and Anambra State to the north.Topography: The topography of Edo State is predominantly low-lying. The state is characterized by undulating plains and river valleys. The major rivers in the state include the Benin River, Orhionmwon River, Ikpoba River, and Ovia River.Vegetation: Edo State is known for its lush vegetation. It falls within the tropical rainforest zone, and as a result, the state is covered by dense rainforest vegetation. The forests are home to a variety of plant and animal species.Climate: Edo State has a tropical rainforest climate. The climate is characterized by high temperatures, high humidity, and abundant rainfall throughout the year. The average annual rainfall in the state ranges from about 2,000 to 2,500 millimeters (79 to 98 inches). The rainy season typically begins in April and lasts until October, with peak rainfall occurring between June and September. The dry season, with reduced rainfall, occurs from November to March.Temperature: Edo State experiences relatively high temperatures throughout the year. The average annual temperature ranges from about 26°C (79°F) to 32°C (90°F). The hottest months are typically between February and April, while the coolest months are between November and January.Climate Variability: The climate of Edo State is influenced by various factors, including the proximity to the Atlantic Ocean and the presence of the Niger River and its tributaries. These factors contribute to the moderation of temperatures and the availability of moisture in the region. The geographical location and climate of Edo State, with its tropical rainforest vegetation and high rainfall, contribute to the fertility of the soil, making it suitable for agriculture. The climate also supports the diverse ecosystem found in the region, including the rich biodiversity of plant and animal species.

Figure 1: Map of Edo State Nigeria

III. METHOD OF DATA COLLECTION

The research study on Ethnobotanical survey of native plant species for treatment of malaria and typhoid fever was carried in the two agro ecologicals of Edo state for 12 months in 2022.

Direct observation was used for field survey in collecting medicinal plant species (Okosodo and Sarada, 20221). In the 20 villages around the state two well-known and heavily frequented traditional healing houses from each village were visited. The plants were recognized using their common names, and their scientific names were discovered and recorded. With the help of a book on the trees of Nigeria (Soladoye,etal 2012), herbs were identified and their uses were noted as the inventory of accessible herbs was kept. To support the claims made by the traditional healers, the literature on medicinal plants was researched. Additionally, piece medicinal herbs that were difficult to identify were transferred to the herbarium at the Federal University of Technology Akure's Department of Forestry and Wood Technology for accurate determination. For appropriate conservation, plant pieces, usually leaves, were placed in the press.

IV. RESULTS

One hundred and ten 110 was recorded as plants used for treatment of malaria and typhoid fever. The result also indicates that leaves, barks, roots, flowers and fruits are used

Table 1: Checklist of Medicinal Plant Species in the Study Area

Name of Plant Species	Family	Part used	Medicinal uses
Acanthospermus hispidum	Lauraceae	Leaves	Malaria, Typhoid and yellow fever
Adenia cissampeloides	Lauraceae	leaves, bark ,root	Appetizer, general weakness, jaundice
Adenia venenata	Passifloraceae	leaves and bark	Malaria, jaundice, anthelmintics,
Aframomum melegueta	Zingiberaceae	seeds, leaves	Measles, small pox and typhoid fever
Afzelia africana	Leguminosae	Leaves	Malaria
Ageratum conyzoides	Asteraceae	Leaves	Malaria
Albizia ferruginea	Leguminosae	leaves and bark	Malaria and Typhoid fever
Alchornea cordifolia	Euphorbiaceae	Leaves	Malaria and Typhoid fever
Alstonia boonei	Apocynaceae	leaves and bark	Malaria and Typhoid fever
Anacardium occidentale	Anacardiaceae	leaves and bark	Malaria and Typhoid fever
Ananas comosus	Anacardiaceae	Leaves, bark ,fruits	malaria
Annona muricata	Annonaceae	Leaves fruit	Anemia, dysentery
Annona sanegalensis	Annonaceae	Leaves, bark ,fruits	Typhoid fever, cough,
Anthocleista djalonensis	Gentiaceae	Barks	Purgative malaria and typhoid fever
Anthocleista vogelli	Loganiaceae	Barks and Leaves	Vomiting, antidote for snake bite
Anthonotha macrophylla	Leguminosae	leaves, bark, roots	Appetizer, jaundice ,malaria
Asparagus africana	Liliaceae	whole plant	antimicrobial, kidney diseases
Aspilia africana	Asteraceae	Leaves	Malaria and Typhoid fever
Bambusa vulgaris	Bambusaseae	Leaves	Malaria
Bauhinia simplicifolia	Fabaceae	eaves, fruits	Antimicrobials, malaria typhoid fever
Blighia sapida	Sapindaceae	Leaves, fruits, bark	Malaria
Bridelia ferruginea	Euphorbiaceae	Leaves, bark, roots	mouth wash, Malaria, Typhoid fever
Burkea africana	Fabaceae	Bark, twigs	Headache
Cajanus cajan	Fabaceae	Leaves, seeds	mouth wash,

			Malaria, Typhoid fever
Canna indica	Cannaceae	Leaves	Asthma, malaria
Capsicum frutescens	Solanaceae	Laves, Fruits	Malaria
Carica papaya	Caricaceae	Leaves, seeds, fruits	Malaria, Typhoid fever and gonorrhea
Cassia sieberiana	Asteraceae	Leaves	Malaria
Ceasalpinia bonduc	Ceasalpiniaceae	Leaves, flowers root	Dysentery, malaria, typhoid fever
Ceiba pentandra	Bombacaceae	Leaves, roots	stomach disorders, malaria, Typhoid fever
Celosia argenta	Amaranthaceae	Leaves, Tubers	Malaria, anemia, poison antidote
Chorchoruso litorus	Bixaceae	Leaves, roots	Malaria, Typhoid fever and kidney diseases
Chromolaena odorata	Leguminosae	Leaves	Malaria
Chrysophyllum albidum	Sapotaceae	Leaves, bark, seeds	Malaria, Typhoid fever
Cinnamomum zeyianiam	Lauraceae	Leaves, bark, oil	Nausea, typhoid fever, vomiting,
Citrus aurantifolia	Rutaceae	Leaves, Fruits, roots	Malaria, typhoid fever jaundice
Citrus limon	Rutaceae	Leaves, fruits roots	Malaria, Colds, cough
Citrus medica	Rutaceae	Leaves, fruits, roots	Malaria and Typhoid fever
Clappertonia facifolia	Malvaceae	Leaves, barks	Dysentery, malaria, typhoid fever
Cochlospermum tinctorium	Bixaceae	Leaves	Malaria
Cola latertia	Sterculiceae	Leaves	Malaria
Combretum reticulatum	Combretaceae	Leaves	Malaria
Curcuma longa	Zingiberaceae	Tubers, roots	Malaria, Typhoid fever
Cymbopogon citratus	Poaceae	Leaves	Malaria
Daucus carota	Apiacea	Leaves	Malaria
Diospyros mespiliformis	Ebeneceae	Leaves	Malaria, Typhoid fever
Emilia sonchifolia	Asteraceae	Leaves	Malaria
Euphorbia hirta	Euphorbiaceae	Leaves	Malaria, jaundice
Ficus elegans	Moraceae	Leaves	Malaria, stomach disorders
Ficus exasperate	Moraceae	Leaves	Malaria, Blood tonic

Funtumia africana	Apocynaceae	Leaves, roots stem,	Malaria, constipation
Garcinia kola	Clusiaceae	Leaves, Fruits, roots	Malaria, cough, asthma
Gongronema latifolia	Asclepiadaceae	Leaves, barks	Malaria, Typhoid fever,
Gossypium barbadens	Malvaceae	Leaves, roots	Malaria
Gossypium hirsutum	Malvaceae	leaves, roots	Malaria
Haematostaphis barteri	Anacardiaceae	leaves, barks	Malaria, Typhoid fever
Harungana madagascariensi	Hypericaceae	Leaves roots, barks	Typhoid fever cough
Heeria insignis	Anacardiaceae	Leaves, bark, roots	Malaria, Typhoid fever, blood tonic
Heliotropicum indicum	Boraginaceae	Leaves, barks	Malaria, Typhoid
Hexalobus crispiflorus	Annonaceae	Leaves	Malaria
Hibiscus rosasinensis	Malvacea e	Leaves	Malaria, dysentery,
Hyptis suaveolens	Labiatae	Laves, roots	Malaria, Cough
Khaya senegalensis	Meliaceae	Barks	Typhoid fever
Khaya grandifoliola	Meliaceae	Barks	Typhoid fever, cough
Leea guineensis	Leeaceae	Leaves	Malaria
Leonotis nepetifolia	Lamiaceae	Leaves	Malaria
Leucas martinicensis	Lamiaceae	Laves, barks	Malaria, Typhoid fever,
Lophira alata	Ochnaceae	Leaves, barks, seed, roots	Malaria, Typhoid fever, jaundice
Lycopodium cernuum	Lycopodiaceae	Leaves	Malaria, jaundice in New born baby
Mangifera indica	Anacardaceae	Leaves, bark	Malaria
Melicia excels	Moraceae	leaves, barks	Malaria, dysentery
Millettia thonningii	Leguminaceae	Leaves	Malaria
Mitragyna inermis	Rubiaceae	Leaves	Malaria
Monadora myristica	Annonaceae	Leaves, Seeds	Malaria, typhoid fever
Morinda lucida	Rubiaceae	Leaves	malaria
Morus alba	Lecythidaceae	Leaves	Malaria, piles
Musa paradisiaca	Musaceae	fruits, flowers	Malaria, Typhoid fever
Musa sapientum	Asteraceae	fruits, flowers	Malaria, Typhoid fever
Napoleonaea imperialis	Lecythidaceae	Leaves, barks ,roots	Malaria, Yellow fever, diabetes
Nauclea latifolia	Rubiacea	Leaves	Typhoid fever
Newbouldia laevis	Bignonaceae	Leaves	Blood tonic,

			dysentery
Nicotiana tobacum	Solanaceae	Leaves,	Malaria
Nymphaea lotus	Nymphaeaceae	whole plant	Malaria, vomiting
Ocimum basilicum	Lamiaceae	Leaves	Malaria, stomach disorders
Ocimum gratissimum	Lamiaceae	Leaves	Malaria
Ouratea flava	Ochnacea	Leaves, Fruits	Malaria, Laxative
Oxalis corniculata	Ochnacea	Leaves	Typhoid fever, boils
Parkia biglobosa	Fabaceae	Leaves, barks, seed, roots	Typhoid fever blood tonic, diabetes
Parquetina nigrescens	Lamiaceae	Leaves, barks	Malaria, Blood tonic, cough
Paullinia pinnata	Sapindaceae	Leaves	Malaria
Pennisetum purpureum	Poaceae	Leaves	Malaria,
Pentaclethra macrophylla	Fabaceae	Leaves, barks, latex	Typhoid fever, cough, gonorrhoea
Pergularia daemi	Asclepiadaceae	Leaves	Malaria
Physalis angulate	Solanaceae	Leaves	Malaria
Piliostigma thonningii	Caesalpinaceae	Leaves	Malaria
Pseudocedrella kotschyi	Rubiacea	Leaves, barks	Typhoid fever, vomiting
Pycanthus angolensis	Myristicaceae	Laves, barks	Malaria typhoid fever
Rauvolfia vomitoria	Apocynaceae	Leaves, roots	Constipation, Typhoid fever,
Sarcocephalus latifolius	Rubiaceae	Leaves	Malaria
Senna podocarpa	Caesalpiniaceae	Leaves	Malaria
Senna siamea	Caesalpiniaceae	Leaves	Malaria
Sida acuta	Malvaceae	Leaves	Malaria
Solanum lycopersicon	Solanaceae	Leaves, fruits	Malaria
Solanum nigrum	Solanaceae	Leaves	Malaria
Sphenocentrum jollyanum	Menispermacea e	Leaves	Malaria
Synclisia scabrida	Menispermacea e	Leaves, barks	Malaria, Yellow fever,
Tithonia diversifolia	Compositae	Leaves	Malaria
Trema orientalis	Ulmaceae	Leaves, barks	Typhoid fever
Vernonia amygdalina	Asteraceae	Leaves, stem	Malaria, Typhoid fever
Xylopia aethiopica	Annonaceae	Seeds	Malaria

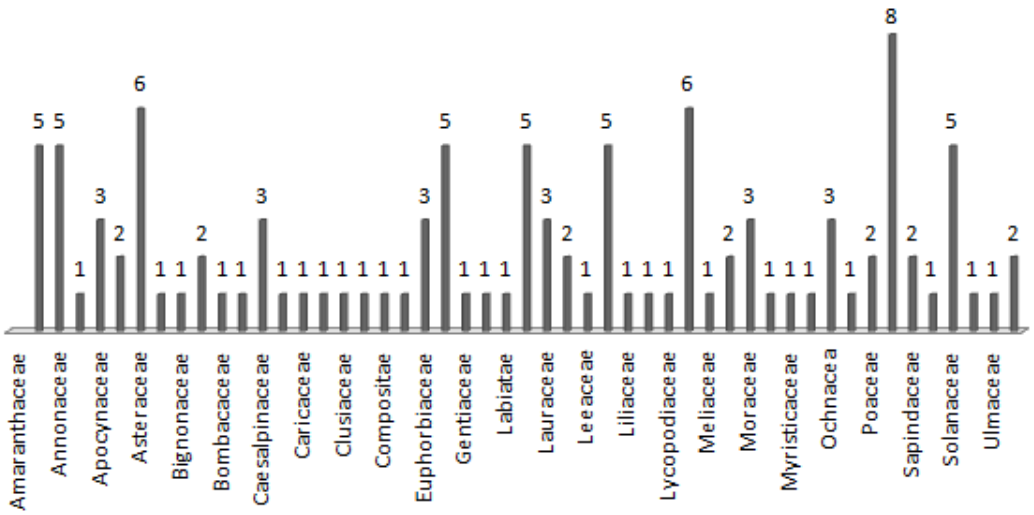

Figure 2: The family composition of the medicinal plant species in the study area

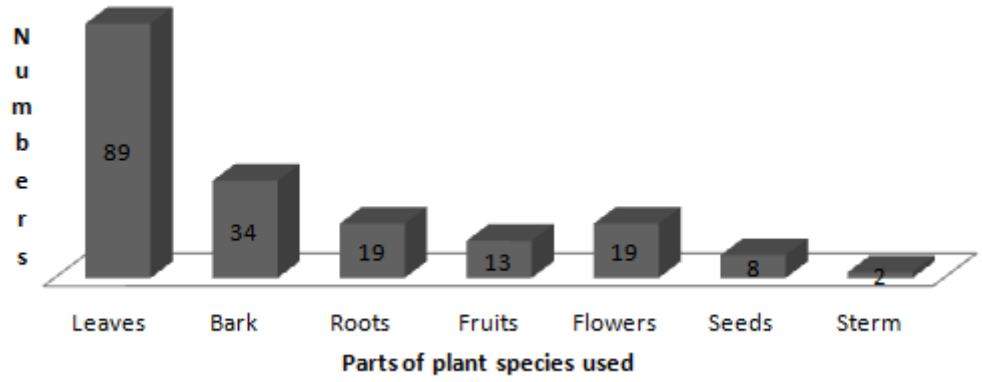

Figure 3: The parts of plant species used

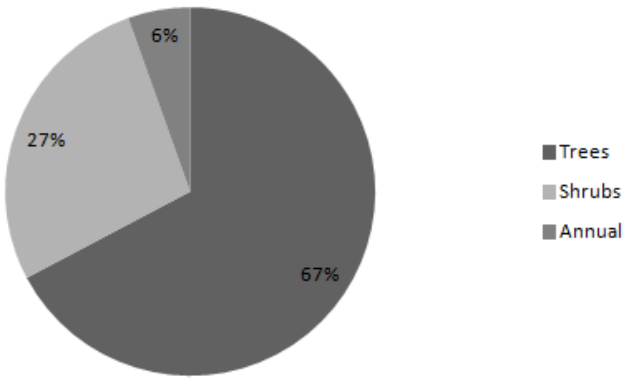

Figure 4: Plant Types recorded as medicinal in the study area

Table 2: Diversity index of the plant species in the study area

Diversity index	Dry season	Lower	Upper	Wet season	Lower	Upper
Taxa_S	110	108	110	110	98	109
Individuals	192	192	192	155	155	155
Dominance_D	0.01427	0.0115	0.01373	0.01145	0.01136	0.01494
Shannon_H	4.469	4.502	4.58	4.591	4.426	4.583
Evenness_e^H/S	0.7937	0.8255	0.8873	0.8967	0.8414	0.9102
Brillouin	3.824	3.85	3.913	3.826	3.722	3.824
Menhinick	7.939	7.794	7.939	8.835	7.872	8.755
Margalef	20.73	20.35	20.73	21.61	19.23	21.41
Equitability_J	0.9509	0.9592	0.9746	0.9768	0.9626	0.9798

V. CONCLUSION AND RECOMMENDATION

The need to search for or effective drugs to treat malaria cannot be over-emphasized. With the widespread of resistant malaria to orthodox variant across Asia and Africa countries and Nigeria in particular, there is an urgent need to study the most commonly used remedies and plants implicated in their formulation to ascertain their capacity to reduce parasite densities and symptoms of malaria. This chapter will documented a diversity of plants species used in the treatment of malaria in Southwestern Nigeria. Health and wellness tourism has grown throughout the world and includes the consumption of much traditional medicine. Owing to its medicinal history, India and Nigeria has significant potential for promoting traditional medicine as a consumer product for local consumption, as an export product, and as a tourism resource. It is clearly one of the most important elements of these countries intangible heritagescape that is worthy of additional consideration by tourism developers. Based on this research study many local residents can establish herbal gardens that will enhanced a sense of familiarity with local biodiversity and its conservation, especially herbal plants. The traditional use of herbal health remedies will provides 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 and farms to reduce damages done to the forest reserve The government should set up a mechanism to integrate alternate medicine which is the use of wild herbs with orthodox medicine. This will improve the sustainable use of these wild plants and create an efficient method of collecting extract from the plant species. It is also common knowledge that the safety of most herbal products is further compromised by lack of suitable quality controls, inadequate labeling, and the absence of appropriate patient information

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