



Research Article

## Ethnomedicinal Survey of Some Woody Plant Species of Jakusko Local Government Area of Yobe State, Nigeria

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### ARTICLE INFO:

### ABSTRACT

#### Keyword:

Dachia,  
Ethnomedicine,  
Karage,  
Yobe State

The ethnomedical study of some woody plant species in the Dachia and Karage Communities of the Jakusko Local Government Area of Yobe State, Nigeria, was assessed. The current study offered ethnomedical applications of many medicinal plants for treating various ailments. To conduct the survey, interviews and a stratified random sampling approach were used. We collected 36 species in total, divided into 19 Families and 23 Genera (12 bushes and 24 trees). Most plants were found in the family Fabaceae: *Caesalpinoidae* and *Mimosoidea*. The most frequently utilized component for treating conditions like indigestion, fever, diarrhoea, constipation, and wound healing was leaves. Nineteen (19) different plants were used to treat gastrointestinal disorders, twelve (12) different plants were used to treat inflammatory diseases, and nine (9) different plants were used to treat pain and fever, respectively. Infusion and decoction were the most typical preparation techniques for these herbs. Based on the condition, health, age and severity of the patient's sickness, the dosage and rate of the medicinal plants were determined. In any case, phytopharmacological screening of all plants is required to verify the regional folklore and look for various chemicals for the available traditional medical treatments

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### INTRODUCTION

Plants are a significant source of medication and are crucial to global health (Emmanuel *et al.*, 2015). It has long been known that medicinal herbs or plants can be a valuable source of therapies or curative help. Globally, the usage of medicinal herbs has come to dominate the

healthcare system (Zizka *et al.*, 2015). This entails the use of medicinal plants as potential tools for preserving health and conditions as well as for the treatment of diseases. Two-thirds of the world's population, or many countries, rely on herbal remedies for primary healthcare

(Oladeji, 2016; Daskum *et al.*, 2020). This is because, they are more socially acceptable, better suited to the human body, adaptable, and have fewer negative side effects. Records show that the majority of medications in use contain plant extracts. Some contain bioactive elements or compounds derived from plants as their active ingredients (Mariam *et al.*, 2017). Modern studies of traditional, curative, and treatments, particularly among indigenous people, led to the discovery of plant-derived medications. Some of these claims and beliefs of people persist despite recent advances in science and technology (Oladeji, 2016).

Phytochemicals are naturally occurring, non-nutritive plant compounds that have anti-inflammatory or anti-disease characteristics in plants. They are non-essential nutrients, which mean that the human body cannot function without them. Although it is commonly known that plants create these compounds to protect themselves, the current study has shown that they can also shield people from infections (David *et al.*, 2015). In general, primary and secondary phytochemicals are the two major classifications that phytochemicals fall under. Flavonoids, alkaloids, terpenoids, and phenolic compounds are components of secondary compounds. Primary phytochemicals include carbohydrates, proteins, chlorophyll, and flavonoids (Egamberdieva *et al.*, 2015; Usman *et al.*, 2018). Due to their pharmacological properties, all of these substances are exceedingly significant. The majority of phytochemicals have demonstrated beneficial therapeutic properties, including insecticidal, antifungal, antibacterial, spasmolytic, anticonstipative, and antioxidant activity, among others (Mir *et al.*, 2016; Musa and Adam, 2017; Ezekiel, 2018).

Examining the traits and functions of phytochemicals in some of the regularly used medicinal plants in Nigeria will be important because the value of medicinal plants cannot be

understated in Nigeria (Dambatta *et al.*, 2011; Usman *et al.*, 2018).

The goal of the research has been to find empirical support for traditional healers' assertions about the therapeutic potential of African herbs. The majority of the documented ethnomedicinal data, both published and unpublished, are dispersed in a variety of publications, some of which are not readily accessible. To meet rising demand and ease the strain on natural forests and plants, the value of lumber and other tree products from non-forested areas is becoming more widely recognized (Edwin, 2018; Gana and Sa'id, 2022). As a result, it appears that trees that thrive in open spaces have the potential to offer solutions for rural livelihood and biodiversity preservation. In addition to stabilizing the environment and functioning as safety nets for substances, these trees can aid in reducing poverty because they are beneficial for industrial, cultural, pharmacological, and socioeconomic purposes. Each year, trees contribute millions of dollars to the global economy. According to estimates, trees provide around 90% of the energy used for heating and cooking (Thakur *et al.*, 2020).

Ancient societies have traditionally employed herbs to promote healing, and in developing nations like Nigeria, traditional medicine continues to be the main form of healthcare (Motlhanka and Makhabu, 2017). Woody species are particularly significant and valuable in the Dachia and Karage Communities of the Jakusko LGA, which are primarily made up of subsistence farmers that rely primarily on the rainy season and dry farming (Abdullahi, 2021). Because of human activity, the vegetation in the area is becoming so limited that some species may become extinct entirely soon.

Although the majority of these activities are significant revenue producers, such as the collection and marketing of the diverse range of Non-timber Forest Products (NTFPS), such as

edible fruits, some of these trees play supporting roles in sustainable agriculture, livestock production, and hunting activities. The bark of some trees is used to make ropes, while the seeds and nuts of others are valued for food, medicine, and furniture (Mohamed *et al.*, 2016). Although awareness of the value of these plants is still high, poor exploitation practices, agriculture, and overexploitation are putting the majority of species at risk of local extinction (Gana and Sa'id, 2022).

Plant-based medications are thought to make up to 25% of all drugs in industrialized nations like the United States, but up to 80% of all drugs in rapidly emerging nations like China and India (Amjad *et al.*, 2020). Therefore, the economic value of medicinal plants is significantly greater in nations like India and Nigeria than it is in the rest of the world (Salisu *et al.*, 2015). Two-thirds of the plants used in modern medicine come from these nations, and the rural population's healthcare system depends on traditional medicine (Oladeji, 2016; Sa'id and Abba, 2021). Traditional medicinal practices are still used by many individuals. Due to factors like population growth, inadequate drug supply, prohibitive treatment costs, adverse effects of several allopathic drugs, and the emergence of drug resistance to currently prescribed medications for infectious diseases, the use of plant material as a source of medicine has drawn more attention (WHO, 1991). It is estimated that 80% of the four billion people on the planet utilize traditional medicines that are mostly made from the plant material since they cannot afford the products of the Western Pharmaceutical Industry (Zizka *et al.*, 2015). This fact is amply corroborated by the database of medicinal plants, which contains more than 20,000 species. A sizeable fraction of the world's population still favours medicines manufactured from plants despite the immense pressures, our reliance on modern medicine, and the huge advancements made in synthetic pharmaceuticals. Even though

many of these nations spend 40–50% of their total income on medications and healthcare, the use of plant drugs is on the rise in many developing nations as a result of the fact that three-quarters of the population of the third world cannot afford modern life-saving drugs (Soladoye *et al.*, 2010). Greater usage of plant-based pharmaceuticals will be adopted in the future as part of the effort to lessen the financial burden on poor nations (Rita and Shuvon, 2018).

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The abundance of wild species, ecological balance, and biodiversity of these natural endowments are negatively impacted by human disturbance and excessive wild plant resource extraction (Gana and Sa'id, 2022; Yusuf and Sa'id, 2022). For a living and to end poverty in rural regions, wild medicinal herbs can be gathered and sold (Yusuf and Sa'id, 2022). As a result, research is required to learn more about the ethnomedical plants in Jakusko Local Government Area (LGA) Yobe State, Nigeria. Therefore, the study's objective was to assess the woody plants of the Dachia and Karage Communities in the Jakusko (LGA) of Yobe State, Nigeria.

## **MATERIALS AND METHODS**

### **Study Area**

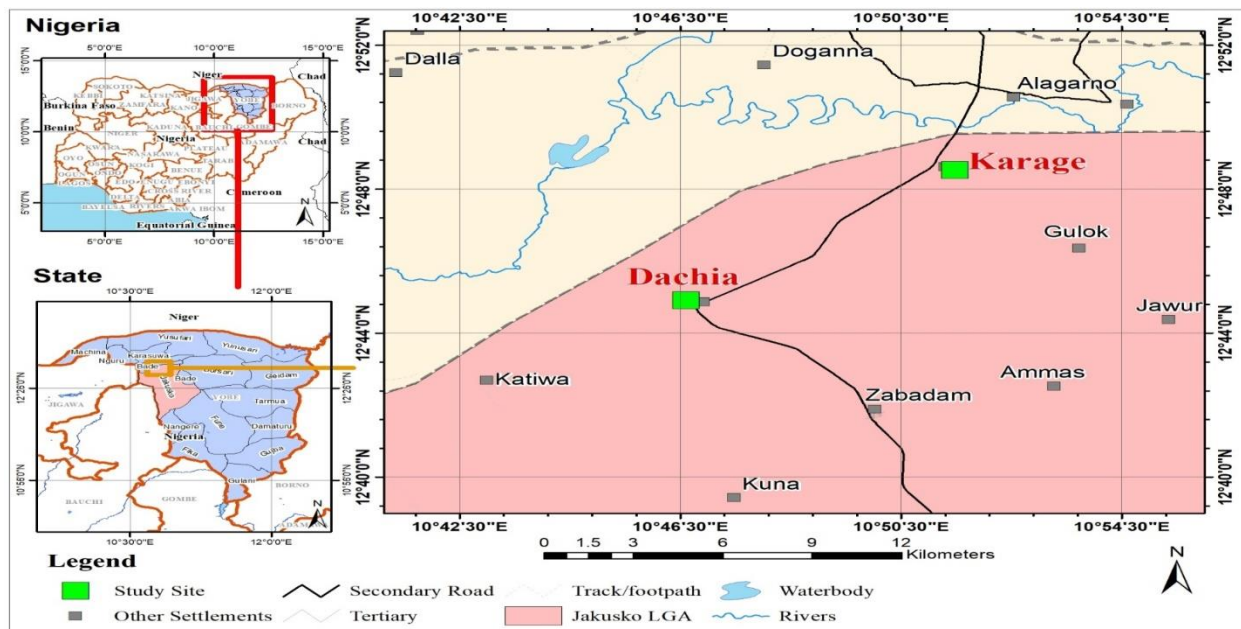
Jakusko LGA of Yobe State, Nigeria is situated on 12°22'09"N 10°46'23"E and has an estimated area of 3,941 km<sup>2</sup> and a population of 229,083 (NPC, 2006). Jakusko shared boundaries with Bade from the West, Nangere and Potiskum

from the South and Karasuwa LGA from the North and with some parts of Bauchi and Jigawa States from the South and West respectively. The majority of areas in habitats are members of Bade ethnic groups. Farming is a key feature of the economy of Jakusko LGA with a wide variety of crops and vegetation grown within the area with several domestic animals, such as

cattle, camels, and rams which are reared and sold in the area (Abdullahi, 2021).

### Study Site

This research was conducted in the Dachia and Karage Communities of Jakusko LGA of Yobe State. Dachia lies between Latitude 12° 47' 741" N, Longitude 010° 49' 926" E while Karage lies between Latitude 12° 47' 263" N, Longitude 010° 52' 146" E (Figure I).



**Figure I:** Showing Study Sites

### Sampling Technique

A stratified sampling technique was adopted in this study to survey trees and shrubs that are of medicinal importance. Plant samples were collected and further identified and classified according to taxonomic keys (Blench and Dendo, 2007) by a plant taxonomist in the Herbarium Department of Biological Sciences, Yobe State University Damaturu, voucher specimens were deposited in the herbarium for reference purposes.

### Target Population

Twenty (20) traditional herbalists from each of the two selected communities making a total of forty (40) were targeted and randomly selected

for the study based on their prehistoric proficient practices of ancient remedies.

### Ethno-Medicinal Survey

An ethnomedicinal survey was conducted between the months of October to December 2021, to obtain relevant information about the use of medicinal plants in the treatment of different ailments in the Dachia and Karage Communities of Jakusko LGA of Yobe State Nigeria. Data were collected based on an oral interview with the aid of a semi-structured questionnaire (Daskum *et al.*, 2020). However, data from respondents who consented to participate in the study were obtained and documented. An interview was conducted with the assistance of inhabitants during day time at

different places, where medicinal plants were collected and an account of their local name's medicinal uses. All information was cross-checked. Plant specimens were collected and photographed and brought to the herbarium section of the Department of Biological Science at Yobe State University for complete identification.

#### **Data analysis**

Data obtained were subjected to descriptive statistics, and results were presented in Charts, frequencies and simple percentages.

#### **RESULTS**

This study documented a total number of thirty-six (36) species (both wild and domesticated) that were distributed among 19 families and 29 genera. The list of the plant species, their families, Genera, Habits, and Plant Parts used and their various uses as shown in Table 1. From the findings, 24 of the plant species were trees, while 12 were shrubs.

The Family Fabaceae - Caesalpinoideae had the highest number of 5 plant species followed by Fabaceae: Mimosoideae and Myrtaceae with 4 species each. Moraceae had 3 species: Anonaceae, Combretaceae: Bombacaceae: and Anacardiaceae all had 2 species each. While Rhamnaceae, Musaceae, Sapotaceae, Balanitaceae, Lythraceae, Rutaceae, Caricaceae, Arecaceae, Convolvulaceae Apocynaceae, Oleaceae, Meliaceae had 1 species each. A total of 29 plants of different uses were obtained in this present study. Most plants were used for medicinal uses. The major plant part used were Leaves which constituted 14%. Both communities were observed to use both a single plant part as well a combination of plant parts for a given disease. The stem of *Vitellaria paradoxa* was used for the treatment of stomach cleansing and for curing rheumatism. On the other hand, the combination of leaf and root of *Annona senegalensis* was used for the treatment of cough, urinary tract and chest pain and it also serves as an antioxidant, a single

plant part may be used for the treatment of diverse ailments such as *Mangifera indica* L. was used for the treatment of stomach cleansing and managing hypertension, multiple plant parts from the same plant may be used in the treatment of the same ailments. The leaves of *Citrus aurantifolia* L treat the bee sting, loss of appetite, and kidney stones and serve as a good source of Vitamin C respectively.

In general, the number of plants used to cure a given condition or disorder reveals how common the ailments are among those being treated. According to that perspective, stomach issues, haemorrhoids, cleaning after childbirth, ringworm in children, diarrhoea, ringworm, constipation, indigestion, wound healing, chest discomfort, and fever were the most prevalent disorders among the population. Five different plants were employed in total to cure gastrointestinal diseases, three of which were also used to purify the blood. Four other plants were used to treat pain and fever, seven were used for the treatment of dysentery and Stomach problems, three other plants were used to treat rheumatism, arthritis and respiratory problems while the remaining seven other plants were used to treat the problem like Bacterial infection, hypertension, kidney stone, abdominal pain menstruation, diabetes among others.

The results of the surveys also revealed that *Zizuphus spina-christii* (L.N. Del.) was crucial for blood purification. According to them, toxins build up over time from exposure to numerous environmental elements, such as blood, which if not purified, can result in various illnesses. Therefore, it is necessary to purify the blood by ingesting various plants or plant components. Blood purification was therefore considered a necessary measure for the elimination of such ailments and to cure the patient firmly. The most often utilized mode of administration was oral (82.0%) followed by topical application (10.8%) and inhalation (3.2%) respectively.

**Table 1:** List of Plant Species with their Families, Genera, Habit, Hausa names, Parts used, Uses and Modes of administration

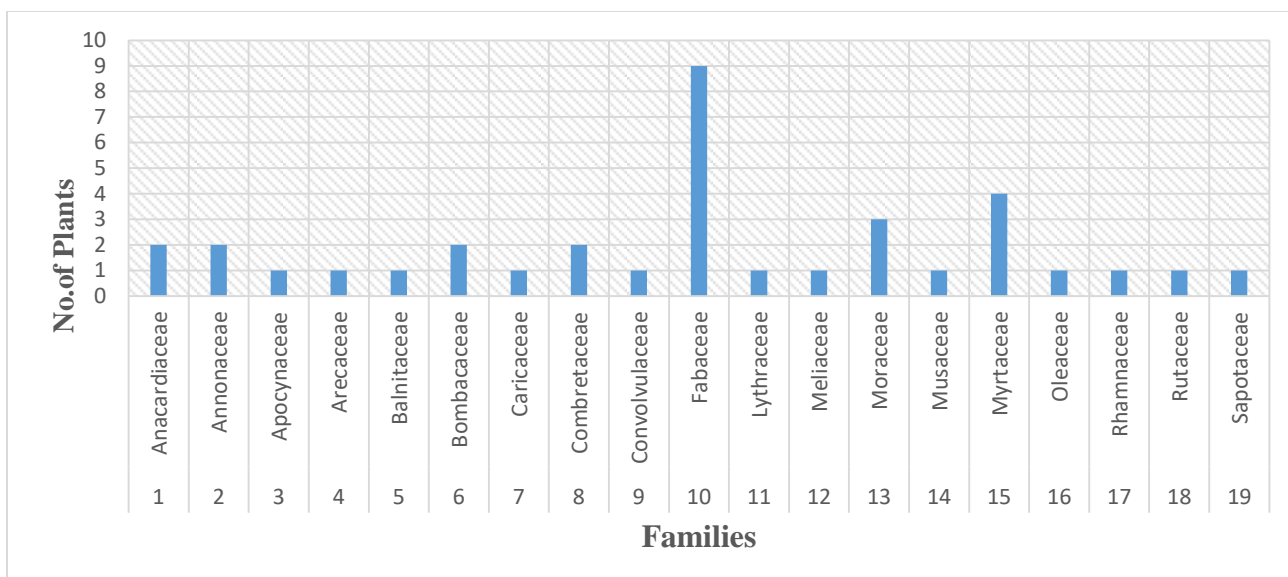
Family	Species	Genera	Habit	Common names	Hausa names	Uses	Parts used	Modes of administration	Voucher No.	
1	Anacardiaceae	<i>Haematostaphis barteri</i> Hook F	<i>Haematostaphis</i>	Tree	Blood plum	Jininkafiri	Treats Stomach Problems	Bark	By infusion with tamarind. One small cup, tree times daily.	YSUH102
		<i>Mangifera indica</i> L	<i>Mangifera</i>	Tree	Mangoes	Mangoro	Treats Bacterial infections to manage hypertension.	Bark and Root	Boiled in water add small potash drink the liquid content 2 cups daily for 3 days	YSUH109
2	Moraceae	<i>Ficus synchomorus</i> L	<i>Ficus</i>	Tree	Sycamore	Baure	Treats Stomach Problems	Leaf	By Maceration; To be diluted with cold water and taken two times daily	YSUH015
		<i>Ficus sur</i> Forssk		Tree	Café fig	Uwar yara	Treats Hemorrhoids	Root	The mixture to be taken two times daily morning and night	YSUH013
		<i>Ficus thonningii</i> Blame		Tree	Red fig	Chediya	Cleansing after delivery. Treats ring worm in children	Leaves and Bark	Squeezed in water and sieve the liquid content, boil with water take two cups daily.	YSUH030
3	Annonaceae	<i>Annona squamosa</i> L	<i>Annona</i>	Shrub	Wild custard apple	Gwandar masar	Treats constipation of stomach	Root and bark	Pounded mixed with water. Drink the liquid content three times daily	YSUH045
		<i>Annona senegalensis</i> Pers.		Shrub	Wild custard apple	Gwandar daji	Treats cough, urinary tract infections and chest pain. An Antioxidant treats respiratory diseases. Treats Eye and Skin diseases, Control's inflammation	Leaf, root	Boiled for 45 minutes in water drink the liquid content 3 times daily for 1 week	YSUH037
4	Combretaceae	<i>Detarium microcarpum</i> Guill.And Perr.	<i>Detarium</i>	Tree	Sweet detar	Taura		Leafs	Decoction of the dried leaf through oral route. Small cups, morning and afternoon two times daily.	YSUH048

		<i>Guiera senegalensis</i> J.E Gue L	<i>Guiera</i>	Shrub	Basantom	Sabara	Used for Stomach cleansing, and abdominal pains	Leaves and bark	Boil the leaves and bark, drink the liquid content one glass cup twice daily	YSUH023
5	Rhamnaceae	<i>Ziziphus spina Christi</i> (L.N) Del	<i>Ziziphus</i>	Shrub	Jujube	Kuma	Blood cleanser and it treats headaches, pain reliever for snake and scorpion venom	Root and leaf	Boil for fifteen minutes with red potash, drink two glass cup daily for three days	YSUH056
6	Musaceae	<i>Musa paradisiaca</i> L	<i>Musa</i>	Shrub	Banana	Ayaba	Promote digestion, treat cancer, hypertension, diarrhea and build tissue in the body. It is a good source of calcium and phosphorus	Leaves, fruit and root	A small cup of infusion to be taken daily morning and evening for 5 days	YSUH051
7	Sapotaceae	<i>Vitellaria paradoxa</i> Gaenut F	<i>Vitellaria</i>	Tree	Shea butter	Kadanya	Treats stomach disorders and rheumatism	Seed and bark	Boil for fifteen minutes in water with red potash ship and drink tree times daily	YSUH043
8	Balanitaceae	<i>Balanite aegyptiaca</i> (Linn)Del	<i>Balanite</i>	Tree	Desert date	Aduwa	Treats cases of diarrhea fever and syphilis	Root and bark	Boiled in water for 20 minutes sieved and drink the content 1/3 cup twice daily for one week	YSUH080
9	Fabaceae: Mimosoidae	<i>Acacia nilotica</i> L	<i>Acacia</i>	Tree	White thorn	Gabaruwa	Stomach problem and dysentery	Fresh leaf root and bark	Boiled the leaf, root for 30 minutes and sieved twice daily one cup morning and evening	YSUH087
		<i>Acacia polyacantha</i> L. ex Del		Tree	White thorn	Farar cibiyar	Treat menstrual problem, treat snake poison	Leaves, Stem and Root.	Boil the extract and drink the content one cup twice for five days	YSUH090
		<i>Parkia biglobosa</i> Jack R. Ba	<i>Parkia</i>	Tree	Locust bean	Dorawa	Wound healing, treat dysentery	Bark root and fruit	Chew and spit on open wound to fasten the healing. Mix with water and drink the yellow content twice a day	YSUH066
		<i>Albizia ferruginea</i>	<i>Albizia</i>	Tree	Trade albizia	Siris	Treats dysentery	Root, Stem and Bark	Boil the extract and take a glass cup daily, for three days	YSUH068
	Fabaceae: Caesalpinoidae	<i>Bauhinia rufescens</i>	<i>Bauhinia</i>	Tree	Mauritania	Jirga	It treats stomach complain and lowers blood	Leaves and fruits	Pounded and boiled the leaves and fruit together with red Potash added and	YSUH044

		<i>Senna alata</i> L. Robox	<i>Senna</i>	Shrub	Christmas candle	Isa Yoruba	pressure Treat dysentery and skin disease	Leaves, Stem and Bark	drink the liquid content half cups two times daily Decoction of the mixture to be taken two times daily	YSUH017
		<i>Senna italica</i> Mill		Shrub	Italian senna	Filasko	Treats intestinal worms as abortifacient. Decreases potassium level of the body	Leaves and Fruit and Seed	Decoction of the extract. Small cup to be taken morning, afternoon and evening, three times daily.	YSUH088
		<i>Tamarindus indica</i> L. Wileed ex Del	<i>Tamarindus</i>	Tree	Tamarine	Tsamiya	Treats cases of ribs pains. Typhoid and Malaria	Fruit, Bark and Root	Peel the outer layer, soaked in water squeezed drink the liquid with small cup three times daily	YSUH089
		<i>Pilostigma reticulatum</i> DC Hochet	<i>Pilliosigma</i>	Shrub	Camel foot tree	Kalgo	To treat diarrhea	Root and leafs	Boil in water sieved the liquid content and drink twice daily with a small cup	YSUH095
10	Myrtaceae	<i>Eucalyptus globulus</i> L.	<i>Eucalyptus</i>	Tree	Southern blue gum	Zaiti	Treats arthritis and, eases cold symptoms and respiratory remedy	Leaf and bark	Added a few drops of Eucalyptus oil rubbing the mixture on to the chest and throat, boil the leaf and stem inhale	YSUH100
		<i>Eucalyptus citriodora</i> Hook		Tree	Lemon scented gum	Itacen turare	Treats Typhoid fever and Malaria	Leaf and root	Boil in hot water for 30 minutes drink the liquid content and bath with water for 3 days daily.	YSUH093
		<i>Eucalyptus camaldulensis</i> L. <i>Corymbia torellia</i> (F.MUENN) K.D.E HILL	<i>Corymbia</i>	Tree	River red gum Scented leaves	Bishiyan Turare Cadaghi	Treats Typhoid and Malaria Treats bladder inflammation	Leaf and bark Leaves	Can be taken orally to hasten digestion, The leaf oil can be applied to the cut and skin infection. A good source of antimicrobial resistance	YSUH026 YSUH038
11	Lythraceae	<i>Lawsonia intermis</i> L ex Del	<i>Lawsonia</i>	Shrub	Henna	Lalle	Treats skin diseases and arthritis	Leaves, Bark and Root	Soaked the bark in water for 5 hours drink the liquid content 2 cups daily for 5 days	YSUH099
12	Rutaceae	<i>Citrus aurantifolia</i> L.	<i>Citrus</i>	Tree	Orange	Lemo	To treat bee sting, kidney stone and a good source of vitamin C	Fruit peel, Fruits	The juice is applied to relief pain of the bee stings, ripe fruit is taken as a good source of Vitamin C	YSUH066



13	Caricaceae	<i>Carica papaya</i> L. Wileed ex	<i>Carica</i>	Shrub	Pawpaw	Gwanda	To treat Malaria and stop vomiting, Treats Tuberculosis	Fruit, latex and leaves	Take unripe fruits first in the morning and taking garlic before bed to treat tuberculosis. Treat men and women impotency	YSUH044
14	Arecaceae	<i>Borassus ethiopum</i> Mart	<i>Borassus</i>	Tree	African palm	Gigingya	Treats fresh wound and skin rashes, good source of vitamin A	Fruits kernel oil and fresh leaves	Juice from the fresh leaf treat cases of hiccups, a good source of vitamin A when eaten it can also serve as a detoxification substance	YSUH078
15	Convolvaceae	<i>Ipomoea carnea pistulosa</i> L.	<i>Ipomoea</i>	Shrub	Morning glory	Dumankai	Treat menstruation pain and stomach problem	Leaves	Boiled and drink the liquid content for 5 days two cups daily	YSUH061
16	Bombaceae	<i>Adansonia digitata</i> L.	<i>Adansonia</i>	Tree	Baobab	Kuka	Treat malaria, Asthma, diabetes	Leaf, fruit Pulp, Bark	Infusion mixture to be taken twice a day for 3 days	YSUH067
		<i>Ceiba pentandra</i> L Gaertn	<i>Ceiba</i>	Tree	Kapok tree	Rimi	Treats rheumatism	Leaf and Oil	Decoction, the mixture is to be taken once daily for 5 days	YSUH077
17	Apocynaceae	<i>Calotropis procera</i> (Aiton)AWT	<i>Calotropis</i>	Shrub	Giant milk weed	Tumfafiya	Remedy for fever, hypertension. Jaundice, gastrointestinal disorders and malaria Ectoparasite, Cure's ulcers.	Leaves	Leaf powder should be taken by maceration	YSUH089
18	Oleaceae	<i>Olea europiacea</i> Linn –Folium	<i>Olea</i>	Tree	European olive	Zaitun	Reduces cardiovascular risk, boost immunity	Leaf, Bark and Root	Leaves are taken orally for stomach intestinal problems. Decoction of the dried fruit and leaf, 2 times daily. 1/2 cup.	YSUH013
19	Meliaceae	<i>Azadirachta indica</i> A. Juss	<i>Azadirachta</i>	Tree	Neem Tree	Darbejiya	Treats Malaria, Jaundice and diabetic Mellitus	Root, Bark and Leafs	Boil the extract in water for 15-30 minutes 1/3 cup twice daily	YSUH001

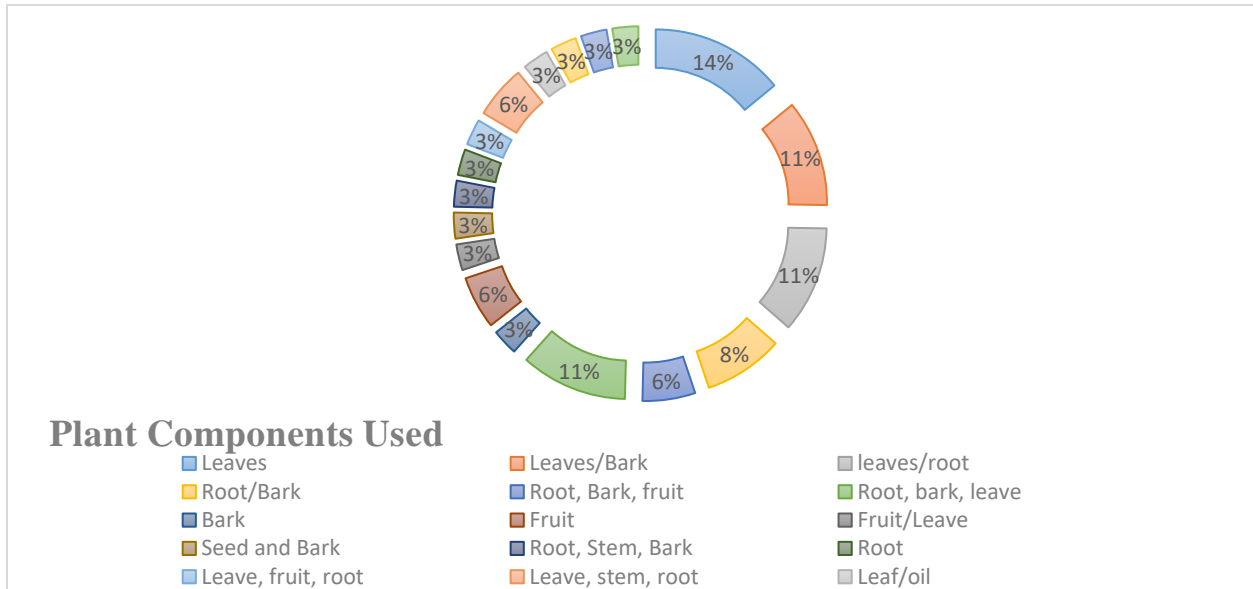


**Figure 2:** Distribution of Plant Species across families.

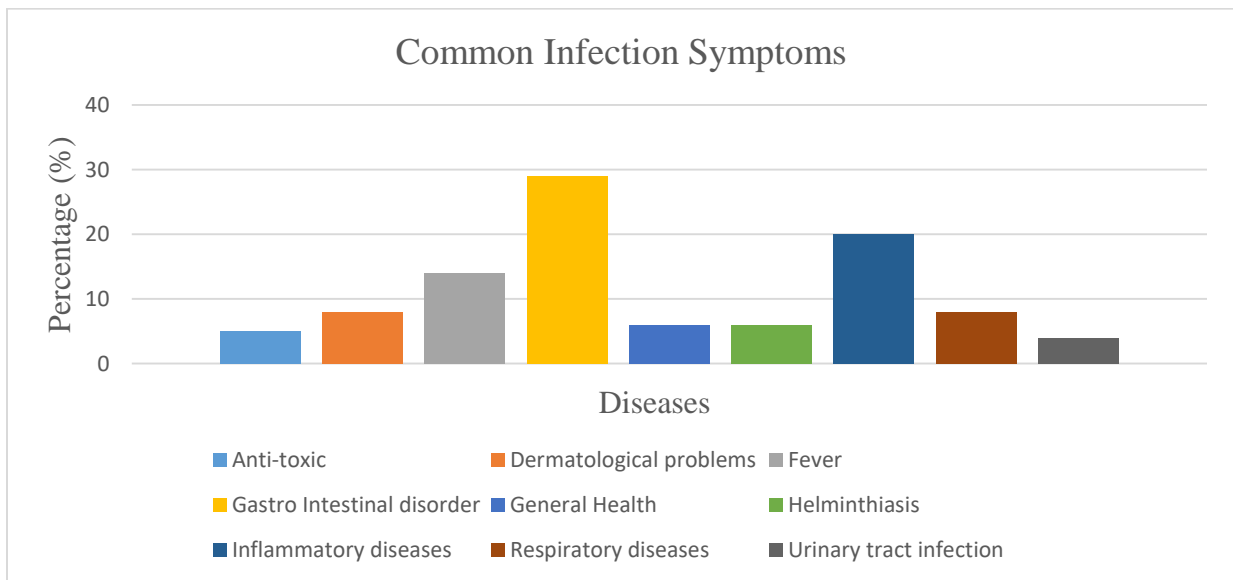
**Table 2:** Illnesses Treated by Plant Species

S/N	Treatments	Plant Species
1	Abdominal pain	<i>Guiera senegalensis</i>
2	Bacterial infection and Hypertension	<i>Mangifera indica</i>
3	Bee sting kidney stone	<i>Citrus aurantifolia</i>
4	Blood clean and headache, pain reliever. Scorpion and Snake venom.	<i>Ziziphus spina-christi</i>
5	Cleaning after delivery, Treats ringworm in children	<i>Ficus thonningii</i>
6	Constipation of stomach. Treats cough, urinary tract diseases and	<i>Annona squamosa</i>
7	Diarrhea and bladder inflammations, syphilis	<i>Corymbia torellia</i>
8	Diarrhea and fever	<i>Balanite aegyptiaca</i>
9	Diarrhea, epilepsy promotes digestion, treat cancer, hypertension, and build tissue in the body 'a good source of calcium.	<i>Musa paradisiaca</i>
10	Diarrhoea	<i>Piliostigma reticulatum</i>
11	Fever, Hypertension, Jaundice, Gastrointestinal disorder, Ulcers	<i>Calotropis procera</i>
12	Fresh wound skin rashes	<i>Borassus aethiopium</i>
13	Hemorrhoids	<i>Ficus surfursk</i>
14	Hypertension and Diabetes	<i>Olea europia</i>
15	Inflammation	<i>Detarium microcarpum.</i>
16	Malaria Asthma and diabetes	<i>Adansonia digitata</i>
17	Malaria Jaundice and Diabetes mellitus	<i>Azadirachta indica</i>
18	Malaria, Vomiting Tuberculosis	<i>Carica papaya</i>
19	Menstruation pain and stomach problem	<i>Ipomoea carnea</i>
20	Rheumatism	<i>Ceiba pentandra</i>
21	Skin disease and arthritis	<i>Lawsonia inermis</i>
22	Stomach problems	<i>Ficus synchomorus</i>
23	Stomach problems	<i>Haematostaphis barberi</i>
24	Stomach disorders and rheumatism	<i>Vitellaria paradoxa</i>
25	Stomach problem and dysentery Menstrual problem snake poison	<i>Acacia nilotica</i>
25	Wound healing	<i>Acacia polyacantha</i>
26	Dysentery	<i>Parkia biglobosa</i>
27	Dysentery	<i>Albizia ferruginea</i>
28	Stomach Complain lower blood pressure	<i>Bauhinia rufescens</i>

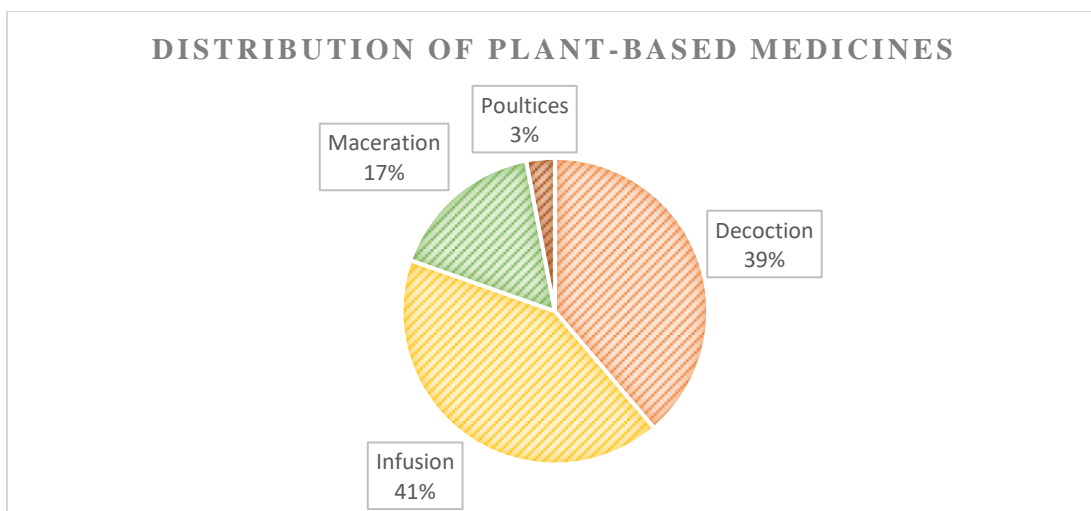
29	Dysentery and Skin disease	<i>Senna alata</i>
30	Typhoid and Malaria	<i>Tamarindus indica</i>
31	Treats Arthritis, cold symptoms and respiratory remedies	<i>Eucalyptus globulus</i>
32	Treats Intestinal worms, decreases potassium levels of the body	<i>Senna italica</i>
33	Typhoid fever and Malaria	<i>Eucalyptus camaldulensis</i>
34	Typhoid fever and malaria	<i>Eucalyptus citriodora</i>
36	Chest pain	<i>Annona senegalensis</i>



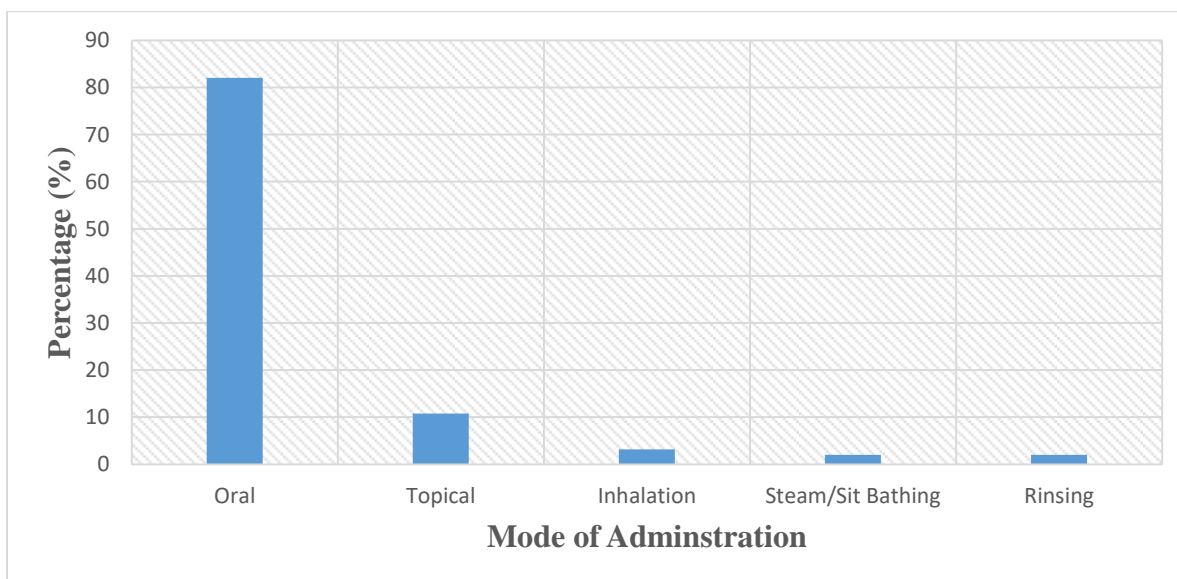
**Figure 3:** Plant Parts Used



**Figure 4:** Common Infection treated



**Figure 5:** Distribution of Plant-Based Medicines



**Figure 6:** Mode of Administration

## DISCUSSION

A total of 36 plant species were identified in the study belonging to 19 families. The Fabaceae family had the most representation, followed by the Myrtaceae family, which included 4 species. Our findings are consistent with the previous work (Kajidu *et al.*, 2019; Daskum *et al.*, 2020; Amjad *et al.*, 2020). These families may have a disproportionate amount of power because they are prevalent and simple to reach in the research area.

Additionally, the bulk of the identified species in these families has noteworthy pharmacological and medicinal characteristics such as Antifungal, antibacterial, anticonstipative, spasmolytic, antiplasmodial and antioxidants activities among others (Mir *et al.*, 2016; Musa and Adam, 2017; Ezekiel, 2018). This research supports the findings of Bello *et al.* (2019), who suggested that the high prevalence of Fabaceae in tropical regions could be explained by the

ability of the majority of the species to withstand the negative effects of environmental changes in the Savannah region.

For the ethnomedicinal purpose, it was observed that locals used two different kinds of plants: trees and shrubs, based on most herbs dry down quickly after the rainy season, leaving trees and shrubs, trees were more commonly employed in ethnomedicine than herbs, hence the study was conducted during the dry season. This is similar to the works of Umar *et al.* (2020) in Gombe State Nigeria who stated that plants and shrubs are the most commonly used in their study area.

Leafy plant pieces were the most frequently used (Figure 3). Based on their abundance of bioactive secondary metabolites, leaves are frequently employed in herbal treatments (Daskum *et al.*, 2020). In addition to serving as the primary organs for photosynthetic activity, leaves also function as exudates or photosynthates, which have therapeutic benefits for humans. The most often used plant portion in earlier investigations was likewise noted to be leaves (Dambatta *et al.*, 2011; Arshad *et al.*, 2019; Chakravarty *et al.*, 2021; Benkhingue *et al.*, 2022). Herbal preparations occasionally included whole plants. The majority of herbal recipes were created using just one type of plant since they were thought to be harmless, delicious, and highly functional (Usman *et al.*, 2018). To eliminate bitterness and get the greatest number of therapeutic effects, certain recipes called for the use of two or more plants or certain additives, such as white potassium (Daskum *et al.*, 2020; Kankara *et al.*, 2022). Patient condition, health, age, and disease severity all factor into how much medicinal plant is used and how frequently. To verify regional traditional knowledge and discover novel chemicals for contemporary allopathic

medications, phytopharmacological screening of all plant sections is required.

The most popular technique of preparation in the research area was infusion (41.0%). This data is consistent with prior research showing that the most popular method for making herbal medications to treat a variety of ailments is an infusion (Daskum *et al.*, 2020; Nadaf *et al.*, 2019). The aqueous extraction is equal to infusion in water, and it seems to be greatly preferred because it is easier to make. Water is also the most frequently used solvent for dissolving polymeric substances that have varied antibacterial effects (Mohamed *et al.*, 2016).

Based on symptoms, a total of 9 groupings of medical problems were noted of which Gastro-intestinal disorder, inflammatory disease and fever are more frequent (Figure 4). The symptoms and indicators are typically used by the neighbourhood herbalists to make a diagnosis. The greatest variety of plants (19 species) was employed for digestive issues, followed by inflammatory illness (12 species) and fever (9 species). These findings are consistent with earlier research from (Musarella *et al.*, 2019; Thakur *et al.*, 2020), which found that stomach problems were widespread. Insufficient access to clean water, improper sanitation, and breathing fuel wood smoke while creating charcoal may all lead to digestive issues, which may explain why digestive diseases are a primary usage condition in the study area. In addition, residents in the research area have traditional knowledge because they interact with these plant species more frequently, particularly those used to treat fevers and digestive problems.

The study also reveals that oral delivery is the most popular method (82.0%) of the mode of administration among the communities. The use of some additives or solvents (such as; water, juice, and tea) that are typically thought

to act as a vehicle to transport herbal medicines may be connected to the practice of oral administration. The use of chemicals or solvents can also enhance flavour, lessen discomfort, reduce negative side effects including vomiting and diarrhoea, and improve the environment for healing. These findings concur with those of other studies (Adekunle *et al.*, 2010; Umair *et al.*, 2019).

## CONCLUSION

Traditional medicine has been used for thousands of years in both developed and

developing nations as the foundation for the treatment of various illnesses, and there is no doubt that its significance has been widely recognized. Despite traditional medical practitioners' lack of complete recognition, the present study highlights the fact that medicinal plants have continued to play important roles in Nigeria's healthcare system. The study also recommends that the government should do enough to support the conservation and sustainable use of certain plant diversity.

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