ETHNOBOTANICAL SURVEY OF MEDICINAL PLANT IN KADUNA NORTH AND SOUTH LOCAL GOVERNMENT AREAS, KADUNA STATE, NIGERIA

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ABSTRACT
An Ethnobotanical Survey of Medicine Plants in two Local Government Area of Kaduna north and south, Kaduna state was carried out, with a view to document the indigenous knowledge of some medicinal plant species found in the area. Questionnaire instrument was designed; for information on demographic data, the most common ailments and plants species used in managing these ailments from sixty-two (62) respondents. The plant species were identified authenticated and herbarium specimens prepared. From the survey, a total of Fifty-two (52) plant species belonging to thirty-seven (37) different families were found to be useful in the treatment of common ailments. Trees were mostly used and the parts of the plants used most frequently applied were the leaves and barks. Medications were mainly prepared in decoctions and taken orally. The questionnaires revealed that the most common ailments were pile, malaria, jaundice, typhoid, and ulcer in that order, and the most frequently used plant species were *Mangifera indica, Psidium Guajava, Senna occidentalis, eucalyptus camadulensis* and *Securidaca longepedunculata* respectively. It is concluded that herbal medicine will continue to be a major component for health care delivery system in the community due to their biologically active compounds, availability and affordability.

Keywords: Ethnobotany, Medicinal plant, Indigenous knowledge.

INTRODUCTION
Medicinal plants have been used in healthcare system since ancient time. Medicinal plants play a dynamic role in disease prevention and their uses fit into all prevailing prevention strategies in human body. There are even more studies and applications of traditional herbal medicine in the treatment of diseases. Medicinal plants are more significant source of molecules with medicinal properties of the nature of phytochemical constituents, medicinal plants are valuable for treating human diseases and play an important role in healing system. Natural and unique medicinal plants are used to treat various diseases and illnesses as well as produce wealth. The use of plants in the treatment of various human disorders is mentioned in Ayurveda and other Indian literature. Medicinal plants are a precious asset in the fight toward serious diseases all over the world (Sohani, 2021).

Traditional herbs medicine is cheaper and easily available to local people, to care for most frequent diseases in some parts of the world. Our study aimed at use inventorying of local plants used as medicine, documenting their uses, and assessing their market value in 2015-2018 during survey, The investigated area is rural and the local people depend on the area's plants for their health needs, and other uses like a fuelwood, vegetable, fodder, etc. (Shuaib *et al*, 2023)

Medicinal plants, as part of natural resources, have been one of the most important sources of human food and medicine for more generations. Diversification of the rural economy is considered as a tool to accelerate economic development at various levels¸ this approach is considered as one of the most important strategies for the development and economic sustainability of rural settlements in Iran¸ because it has a great effect on promoting the welfare and security of the region's economy. (Alipour, Jafari and Alizadeh, 2021)

Traditional medicine (also known as Folk medicine) is the mixture of traditional healing practices and beliefs that involve herbal medicine, spirituality and manual therapies or exercises in order to diagnose, treat or prevent an ailment or illness. The World Health Organization states that it is mostly practiced by indigenous or native populations and as much as 80% of the population in certain countries within Asia and Africa rely on it for primary care.

In Africa, as a case study medicinal plant is still the major source of health care system services in spite of the growth of religious enlightenment and western civilization in the areas of modern technology and orthodox medicine. World Health Organization reported that 80% of the total populations of Asia, Latin-America and Africa use traditional medicine for their primary health care (Augustine *et al.,* 2017).

The demand for native medicinal plants has gained much attention among the developing tropical regions of the world in the last decades owing to their relative affordability, acclaimed efficacy and perceived user safety. The study revealed the high dependence on herbs and the combined of the use of the same with orthodox medicine, with occupation playing a significant role in each case. These observations underscore the importance of traditional medicine as a subsystem of good health delivery and that a double practice exists among health care seekers (Ogunsola and Egbewale, 2018).

Literature review
Abdurrahman *et al., (*2023). reported that the family Fabaceae has the highest of 12 species, trees were mostly. Leaves and bark were mostly frequently used. Most common ailments were: diarrhea, pile, jaundice, malaria, ulcer and typhoid. *Mitragyna innermis Acacia nilotica, Senna occidentalis and Guiera senegalensis* were the most frequently used plants.

According to the survey conducted by Ukwuani *et al.* (2021) in Gwandu emirate of Kebbi State, surveyed 16 medicinal plants used in antiulcer, with high frequency index include *Moringa oliefera* (37.04 %), *Mangifera indica* (37.04 %), *Azadirachta indica* (29.63 %). And *Acacia nilotica* (33.30 %), The root of plant mostly used in antiulcer herbal preparations, seeds and leaves are usually administered orally.

Kankara *et al*. (2020), documented medicinal plants against complementary and alternative cancer therapy in Katsina State, North western Nigeria, a total of 56 medicinal plants distributed in twenty-two families were documented. The species of family Fabaceae has the highest number with 21 representatives and *Diospyros mespiliformis* had the highest Relative Frequency Citation (RFC) and UCV of 0.15 and 0.30, respectively, while the least RFC and UCV were seen in *Tamarindus indica* with 0.09 and 0.18, respectively. of the 57 species, 11 (19 %) shrubs and 46 (81 %) were trees. While decoction and powder prepared for medications of (63 %).

Ogunkalu *et al.* (2022) were carried out research on the medicinal plants used for the management of Diabetes mellitus in Kaduna metropolis, Kaduna state, Nigeria. The most common plants species are *Azadiracta indica* (8.74%), *venonia amygdaline* (6.64%), *Mangifera indica* (6.29%), *Citrus auriantim* (5.9), and *Allium sativum* (4.9%). Plant species stem bark and roots are the plant produce.

MATERIALS AND METHODS

Description of the Study Area
The study area covers Kaduna North and South Kaduna Local Government Arear of Kaduna State. The study area lies between latitudes 10° 24, 59.85, N and 10° 43, 59.85" N and Longitudes 178° 29'574.3" E with total area coverage of 131 Km^2 and population of 760,084(National Population Commission, 2006 and 2007). The LGA shares borders with other LGAs within Kaduna State, including Chikun and Igabi Kaduna North and South LGAs has its headquarters in the city of Kaduna, which is also the capital of Kaduna state. The city of Kaduna is major commercial and industrial center in northern Nigeria, and it is known for its diverse population and rich biodiversity.
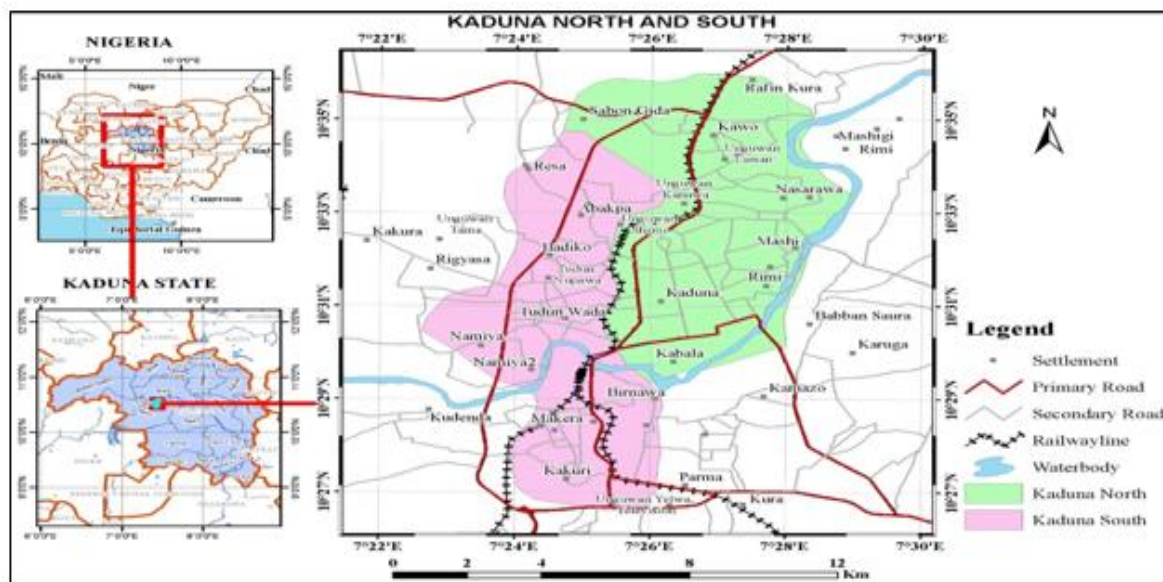

Fig 1. The location of study area (Sources; GIS Analysis Department of Geography Gombe State University)

Data Collection
Ethnobotanical survey was carried out in August– October 2023. Data was collected from herbal practitioners residing in Kaduna north and south local government areas of Kaduna state. The herbal practitioners were comprised of traditional birth attendants, local herbalists, farmers, herb sellers, and old people of who have practiced and used of medicinal plants. Information was obtained from herbal practitioners through administration of questionnaire and by oral interview (Abdurrahman *et al.,* 2023).

Statistical Analysis
A frequencies and percentages were used to analyzed the socio-demographic data of the people and Relative Frequency of Citation (RFC) was analyzed the Ethnobotanical information (Kankara *et al.,* 2015).

RESULTS
The demographic data in **Table 4.1** reveal that the sample is predominantly male (69.35%) and females (30.65%). An average age range was 1 to 50years with majority of respondents in that age bracket. Respondents with 51- 60years were also sizeable (16.13%). The level of respondent in education was generally high, with (41.94%) pursuing secondary and junior school was about a quarter (30%) with basic education. In terms of occupation, the most of the respondents were local herbalist (32.26%) and (19.35%) were farmers and herbal seller or in a related profession. Overall, the respondents were generally matured, enlightened, traditional and close to the grassroots.

Table 4.1: Data of the respondents.

Biodata	Frequency (n)	Percentage (%)
Sex		
Male	43	69.35%
Female	19	30.65%
Age		
20–30	11	17.74%
31–40	23	37.09%
41–50	15	24.19%
51–60	10	16.13%
Above 60	3	4.84%
Education		
None	8	12.90%
Basic	21	33.87%
Secondary	26	41.94%
Tertiary	7	11.29%
Occupation		
Local Herbalist	20	32.26%
TBAs	7	11.29%
Herb Sellers	12	19.35%
Farmers	12	19.35%
Others	11	17.74%

TBAs = Traditional Birth Attendants

Table 4.2 showed the medicinal plants species found in the survey area, Scientific name, local name (Hausa Language), Family, habitat and their relative frequency of citation with respect to their used. Majority of the plant were trees with (48.39%), few were herb (32.26%) and very few shrubs with (12.90%) and three were climbers (4.84%). *Mangifera indica, Psidium Guajava, Senna occidentalis, eucalyptus camadulensis and Securidaca longepedunculata* have a highest RFC of 0.05, 0.05, 0.05, 0.03 and 0. 03 respectively.

Table 4.2. Identification of Some Medicinal Plants Survey Collected from the Study Area Kaduna north and south

S/N	Scientific Name	Family Name	Local Name	Habit	RFC
1	Adansonia digitata L.	Anacardiaceae	Kuka	Tree	0.02
2	Acanthospermum	Asteraceae	Kashinyawo	Herb	0.02
3	Acacia nolitica	Fabaceae	Bagaruwa	Tree	0.02
4	Anacardium occidentale Linn.	Anacardiaceae	Kashu	Tree	0.02
5	Aloe vera	Asphodelaceae	Alobera	Herb	0.02
6	Anisopus mannu	Apocynaceae	Kashezaki	Tree	0.02
7	Anogeissus leiocarpus	Combretaceae	Market	Tree	0.02
8	Azadirachta indica A. Juss.	Meliaceae	Maina	Tree	0.02
9	Annona senegalensis Pers.	Annonaceae	Gwandandaji	Tree	0.02
10	Balanites aegyptiaca (L.) Delile	Balanitaceae	Aduwa	Tree	0.02

S/N	Scientific Name	Family Name	Local Name	Habit	RFC
11	Boswellia dalzielii Hutch	Burseraceae	Ararrabi	Tree	0.02
12	Carica papaya L.	Caricaceae	Gwanda	Shrub	0.02
13	Calotropis procera (Aiton)	Apocynaceae	Tumfafiya	Shrub	0.02
14	Citrus aurantifolia Roxb.	Rutaceae	Lemon tsami	Tree	0.02
15	Cacciana indica	Cucurbitaceae	Bimba	Tree	0.02
16	Cola millemii	Malvaceae	Nil	Shrub	0.02
17	Combretum micranthum	Combretaceae	Geza	Shrub	0.02
18	Cocos nucifera	Arecaceae	Kwakwa	Tree	0.02
19	Curculigo pilosa	Hypoxidaceae	Doyan kurege	Herb	0.02
20	Cucurbita maxima	Cucurbitaceae	Kabewa	Climber	0.02
21	Cymbopogon citratus	Poaceae	Ciyawan shayi	Grass	0.02
22	Diospyros mespiliformis	Ebenaceae	Kanya	Tree	0.02
23	Euphorbia hirta	Euphorbiaceae	Nononkurciya	Herb	0.02
24	Eucalyptus camaldulensis	Myrtaceae	Turare	Tree	0.03
25	Emilia coccinea	Compositae	Odundum	Herb	0.02
26	Ficus polata Vahl.	Moraceae	Dirimi	Tree	0.02
27	Ficus thonningii Flickr	Moraceae	Chediya	Tree	0.02
28	Ficus platyphylla Pers.	Moraceae	Gamji	Tree	0.02
29	Guiera senegalensis	Combretaceae	Sabara	Shrub	0.02
30	Hibiscus sabdariffa L.	Malvaceae	Soborodo	Herb	0.02
31	Hypoxia nyasila	Hypoxidaceae	Leggalbali	Tree	0.02
32	Ipomoea batatas	Convolvulaceae	Dankali	Climber	0.02
33	Khaya senegalensis (Desr.)	Meliaceae	Madaci	Tree	0.02
34	Lawsonia inermis L.	Lythraceae	Lalle	Shrub	0.02
35	Leptadenia hastata (Pers.)	Asclepiadaceae	Yadiya	Climber	0.02
36	Mangifera indica L.	Anacardiaceae	Mangoro	Tree	0.05
37	Mitragyna inermis	Rubiaceae	Giyayya	Tree	0.02
38	Moringa oleifera Lam.	Moringaceae	Zogale	Shrub	0.02
39	Monoon longifolium	Annonaceae	Dogonyaro	Tree	0.02
40	Musa sapientium	Musaceae	Ayaba	Herb	0.02
41	Nymphaea lotus	Nymphaeaceae	Bado	Herb	0.02
42	Olea europaea	Oleaceae	Zaitun	Shrub	0.02
43	Parkia biglobosa	Fabaceae	Dorawa	Tree	0.02

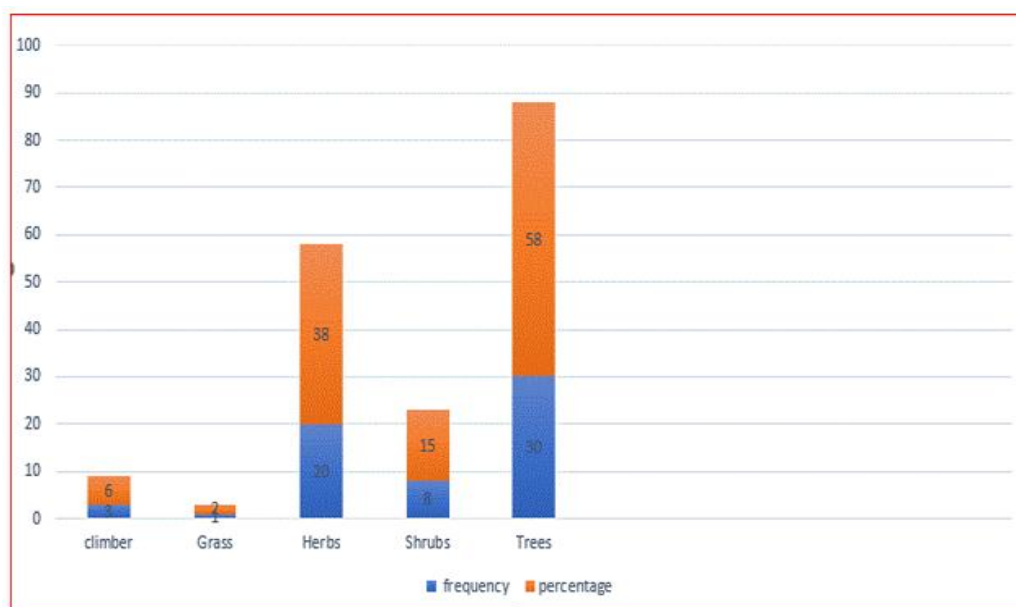| S/N	Scientific Name	Family Name	Local Name	Habit	RFC
44	Psidium guajava L.	Myrtaceae	Gwaiba	Tree	0.05
45	Sesamum indicum	Pedaliaceae	Noni	Herb	0.02
46	Securidaca longepedunculata	Polygalaceae	Sanya	Herb	0.03
47	Senna occidentalis L.	Fabaceae	Majanfari	Herb	0.05
48	Tamarindus indica L.	Fabaceae	Tsamiya	Tree	0.02
49	Vitex doniana L.	Verbenaceae	Dinya	Tree	0.02
50	Vernonia amygdalina	Asteraceae	Shuwaka	Herb	0.02
51	Zingiber officinale	Zingiberaceae	Citta	Herb	0.02
52	Ziziphus mauritiana Lam.	Rhamnaceae	Magarya	Tree	0.02

Figure 4.2: Growth of the Medicinal Plants Identified In kaduna north and south LGA

DISCUSSION

Base of the respondents, according to Demographic data information were males (69.35%), this may be because in Nigeria, males most commonly participate in the outdoors activities like trading among, farming, traveling, others. This also agrees with findings of Ogunkalu et al. (2022) found that majority of traditional medicinal practitioners were male with (78.4%).

Many of the respondents have secondary education with (43.1%) and (48.3%) traders, civil servants, while (17.2%) each were artisans and farmers.

Fifty-Two (52) plant species of medicine were surveyed, identified and majority of the plants were trees belong to the family of Fabaceae with (11%) species and their traditional uses were provided by the traditional healers interviewed. Majority of the plant's species from Thirty-seven (37) families. This is corresponding with the finding of Abdurrahman *et al.,* (2023).

Where they found the family, Fabaceae has the highest frequent of (12) species from twenty-nine (29) families used in management common ailments in seven local governments area of zone A. Yobe state, Nigeria. Most common ailments were: pile, jaundice, malaria, typhoid diarrhea, and ulcer. *Guiera senegalensis, Senna occidentalis, Mitragyna innermis* and *acacia nilotica* were the most frequently used plants. Leaves and bark were mostly frequently used also. It can be seen from the result reveal that barks and leaves were recorded as the most used parts of plant in management of some diseases in the study area. Some parts of plants used include the whole plant, roots, and seed/fruits. This similar to the findings of Olatokunbo and Akinjagunla. (2020) and Mudansiru *et al*. (2016) found that stem barks and leaves are the most reported species part of plant used in the preparation of various ailment in indigenous people of Bayelsa and Gumel town of Jigawa State. This may be because, they are easily to obtained and processed in a desired medicament and may also be used in

any mode of administration. The plant root and leaves are the important ingredient in traditional treatment of various ailment as it features as a component of herbal preparations (Ukwuani *et al.,*2021).

The common ailments reported during this survey affecting the people of the study area were; jaundice, pile, malaria, typhoid, diabetes and ulcer. This also corresponds to the findings of Sodimu *et al.* (2020) Where fond malaria; fever; diabetics dysentery; diarrhea; joint pains; etc. were the most common ailment managed. On ethnobotanical Survey of Medicinal Utilization and Phytochemical Composition of Baobab Tree (*Adansonia digitata L.)* in Zaria Local Government Area of Kaduna State, Nigeria. The results indicated that most of the medicinal plants were mostly trees. This corresponds to the finding of Kankara *et al.* (2020) result revealed 57 species, 46 (81%) were trees and 11 (19%) shrubs. under the Medicinal Plants used for Complementary and Alternative Cancer Therapy in Katsina State, Northwestern Nigeria.

Conclusion
The ethnobotanical survey was conducted successfully in two local government areas of Kaduna north and south in kaduna state. The study affirmed that the most common ailments affecting the people of the study area are typhoid fever, malaria, ulcer, pile, Rheumatism, and jaundice. *Mangifera indica, Musa sapientium*, *Senna occidentalis* and *Psidium guajaba,* were the most frequently used plants in the area management of these diseases were also been documented. This knowledge of the indigenous medicinal plants was properly documented for future use of some important medicinal plant's species were collected, identified, pressed and mounted (Abdurrahman *et al* 2023).

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