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Survey of forest plants used in traditional treatment of typhoid fever in Chikun Local Government Area of Kaduna State, Nigeria

O. I. Faleyimu*, O. Akinyemi and Y. M. Idris

Federal College of Forestry Mechanization, Afaka, Kaduna, Nigeria

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ABSTRACT: This paper examines the use of medicinal plants for the treatment of typhoid fever in Chikun Local Government Area of Kaduna State Nigeria. Structure questionnaire were administered to traditional healer, herb traders, farmers and civil servants in the Local Government Area. Descriptive analysis such as frequency tables and percentages were used for the analysis. Medicinal plants such as *Citrus sinensis*, *Carica papaya*, *Musa species*, *Ananas comosus*, *Citullus vulgaris*, *Pakia biglobosa*, *Vetex doniana*, *Khaya senegalensis*, *Anogeissus leiocarpus*, *Pilliosigma reticulatum*, *Ficus sur*, *Isobertlinia doka*, *Allium sativum*, *Guinera senegalensis*, *Xlopi aethiopica*, *Cyperus tonkinensis*, *Pavetta cassipes*, *Zingiber officinale*, *Calotropis procera*, *Mangifera indica* and *Citrus lemon* were the plants used for the treatment of typhoid fever in the study area. Most of the plants are used in combination to be effective in the treatment of the disease. It is recommended that research institutes in collaboration with federal government should carry out research on this species so as to conserve and improve their genetic constitutions and effort should be made to carry out some pharmaceutical research on the active ingredient to determine their dosage level.

Keywords: Typhoid fever; Herbal medicine; Forest plants; Traditional treatment.

Introduction

A medicinal plants is any plants which in one or more of its organ contain substance that can be use for therapeutic purpose or which is a precursor for synthesis of useful drugs. The plants that possess therapeutic properties or exert beneficial pharmacological effects on the animal body are generally designate as "Medicinal plant". They possess some special qualities or virtues that make them medicinally important. It has been established that the plants which naturally synthesis and accumulate some secondary metabolites like alkaloids, glycosides, tonics, volatile oil and contain minerals and vitamins which possess medicinal properties. Medicinal plants constitute an important natural wealth of country. They play significant role in providing primary health care service to the rural development for the people. They serve as therapeutic agent as well as important raw material for the manufacture of traditional and modern medicine. Substantial amount of foreign exchange can be obtained from other countries. In this way indigenous medicinal plant play significant role of an economy of a country (<http://www.nps.gov/plant/medicinalplants.htm>).

*To whom correspondence should be addressed.

E-mail: orimoloyespecial@yahoo.com

Many modern medicines have their origin in plants that were often used in the treatment of illness and diseases. In fact, plants and derivatives contribute to more than fifty percent of all medicines used world wide. In this way traditional healers and their medicines played an important role in developing the western medicine (<http://www.encounters.co-2a>).

Historically, plants have played important role in medicine for early people and were intricately connected to diet and healing. Through observation and experiment, they learned which plants promote health and well-being. An enumeration of the world health organization from the late 1970 species listed 2100 medicinal species. However, in China alone, 494 of 26092 native species were used as drugs, Chinese tradition medicine (Duke and Ayensu, 1985). If this proportion is calculated for the other well-known medicinal floras and then applied to the global total of 42200 flowering plants species, it can be estimated that the number of plant species used for medicinal purpose is more than 50,000 (<http://www.nps.gov/plant/medicinal/plant.htm>). 200,000 of the world plant species, are found in the tropical countries and are widely in traditional medicine practice. However, until recently specialist practicing in this countries have not been trained in their uses, this dismissal of traditional medicine was reverse by decision by the Africa association of medicinal school in Africa that have training programme for modern doctors which should include exposure to medicinal plants and the traditional medicine (Sofowora 1982).

Without plants most medicine taken would not exist. Over 40% of medicine now prescribed in this contain chemical derived from plants. Historically medicines were discovered by trial and error (<http://www.nps.gov>). Typhoid fever, also known as entire fever, or commonly just typhoid is known to be one of the most deadly diseases of our time also remain very serious health problem in Nigeria and worldwide as it is reported by world health organization (WHO), that typhoid kills up to 3 million people each year and 18,199 new cases of disease were reported in Nigeria in 2006. Additionally the world health organization (WHO, 2000) estimated that one third of the world wide population was infected with *Bacterium Salmonella entrica serovar* typhoid. The incidence of typhoid fever in the United State has markedly decreased since the early 1900s. Today less than 500 cases are reported annually in the United States. Indian, Pakistan and Egypt are also known for high – risk areas for developing this disease. World wide, typhoid fever affects more than one 1 million people annually, with over 500,000 patients dying of the disease (<http://www.medicine net.com /typhoid fever / article.htm>).

This paper therefore seeks to identify medicinal plants that can be used for this deadly typhoid disease and the mode of use in Chikun Local Government Area of Kaduna State.

Materials and Methods

Study Area

The study area was conducted in Chikun Local Government Area in Kaduna State. Chikun local government area was created out of Kachia local government area in 1989. The local government covers an area of about 445,659km with a projected population of 368,250 people according to the 2006 census figure (NPC, 2006). Chikun local government lies between latitude $10^{\circ} 37'N$ and longitudes $7^{\circ} 15'E$. it constitute one of the twenty three (23) local government areas of Kaduna State and is in the Northern part of the State, sharing boundary with Niger State, in the north and south with Kajuru local government, and in the North-west, Birnin Gwari and Giwa local government. Chikun local government area is made up of (9) district namely: Buruku, Gwagwada, Kukau, Kujama, Mataggi, Kasaya, Kunai, Sabon Tasha, Television village.

Instrument of data collection

The instrument used for data collection are the questionnaire and interview schedules. The questionnaires were divided into two (2) sections (A and B). Section A examined bio-data of the respondents while section B identify plants used for treating typhoid fever infection.

Population and sample size

The population of the study covers the traditional healers and medicinal traders, civil servants and farmers. A total of 80 questionnaires were purposively administered to the respondents randomly in each area.

Data Analysis

Frequency distribution, table and percentages were used for the data analysis.

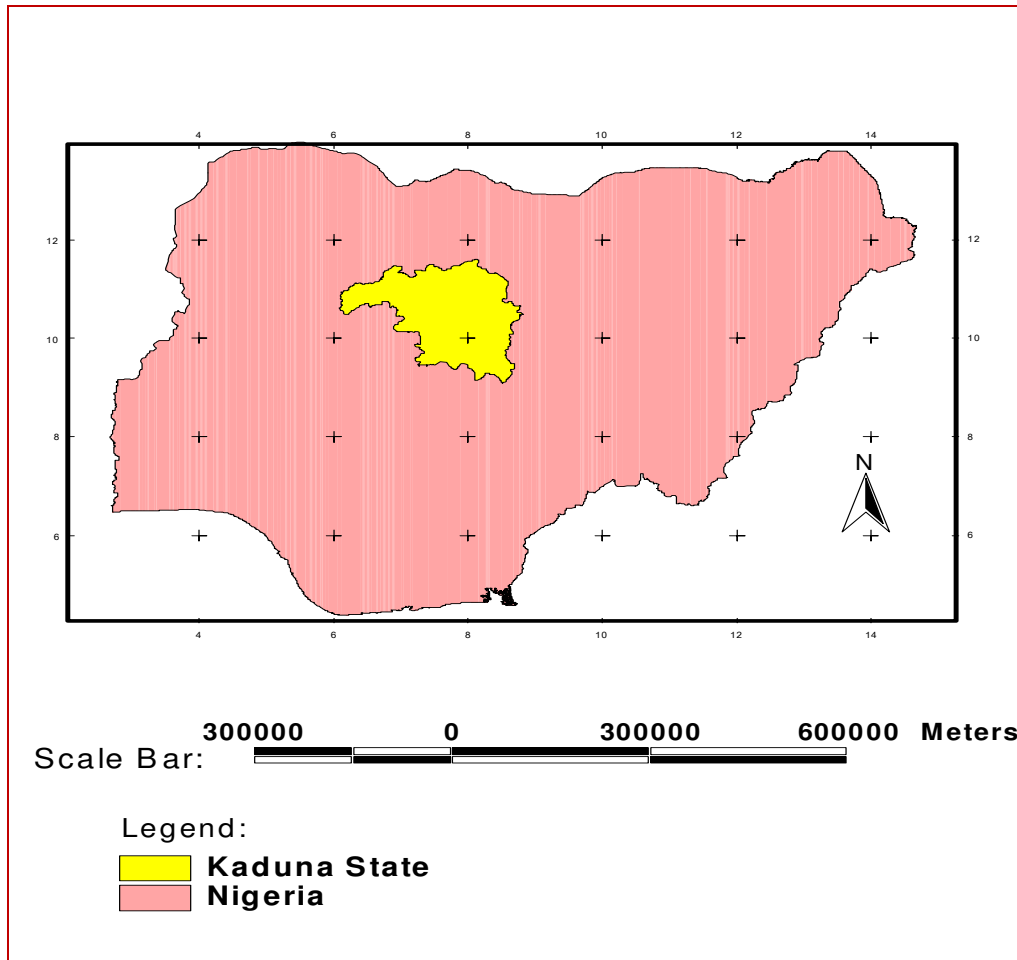


Figure 1: Map of Nigeria showing the study area.

Results

Demographic characteristics of respondents

Table 1 showed that 25% of the respondents are between age of 31–40, 20% between ages of 41–50, 19% between age of 21–30, 18% between 51–60 and 13% were above 60 years. 69% of the respondents are educated. The distribution of marital status indicated that most of the responded are married (38%) followed by the widow (er) 31%, single (19%) and finally the divorce (12%). The table showed that 79% of the respondents are male while 21% of the respondents are female. Result also showed that most of the respondents in Chikun local government areas are herb traders (40%) followed by the civil servant (28%), (22%) are traditional healers and others (10%). Table 2 showed that there are altogether twenty-seven families of forest plants that are used for treating typhoid fever in the study area.

Table 1: Demographic characteristics of respondents

Variables	Frequency	Percentage (%)
Age		
10 – 20	5	6
21 – 30	15	19
31 – 40	20	25
41 – 50	16	20
51 – 60	14	18
> 60	10	13
Total	80	100
Marital status		
Married	30	38
Divorce	10	12
Single	15	19
Widow (er)	25	31
Total	80	100
Sex		
Male	57	79
Female	23	21
Total	80	100
Educational status		
Tertiary Institution	18	23
Secondary School	28	35
Primary School	9	11
No. formal Edu	25	31
Total	80	100
Occupation status		
Traditional healers	28	22
Herbs traders	27	40
Civil servant	13	28
Farmers	12	10
Total	80	100

SECTION B: PLANTS USE FOR TRADITIONAL TREATMENT OF TYPHOID FEVER

Table 2: Medicinal plants for the treatment of typhoid fever.

S/N name	Local	Botanical name	Family	Types of plant	C or W	Parts used	Methods/mode of use
1.	Lemun zaki Gwanda Ayaba Abarba	<i>Citrus sinensis</i> <i>Carica papaya</i> <i>Musa species</i> <i>Ananas comosus</i>	Rutaceae Caricaceae Musaceae Broneliaceae	T S S S	C C C C	Fruit Fruit Fruit Fruit	These herbs are to be grinded and taken with cow milk (20cl) daily for 14 days.
2.	Kankana Ayaba	<i>Citullus vulgaris</i> <i>Musa species</i>	Cucurbitaceae Musaceae	S S	C C	Fruit back Fruit back	& These herbs are allowed to dried and grinded to flour and are taken with 4 spoon of honey per day.
3.	Dorawa Dinya	<i>Pakia biglobosa</i> (Jacq.) R.Br. Ex G.Don <i>Vetex doniana sweet.</i>	Mimosaceae Verbenaceae	T T	W W	Fruit back Leaves	& These herbs are to be cooked with small quantity of water, and is taken daily for 10 days.
4.	Madachi Marke Lemo tsami	<i>Khaya senegalensis</i> (hochst.) <i>Anogeissus leiocarpus</i> guill-perr <i>Citrus lemon</i>	Mimosaceae combretaceae Rutaceae	T T T	W W C	Leaves Back Leaves & Fruit	Boil these herbs up to 100°C and allow it to cool. 20cl should be taken daily.
5.	Kalgo Marke	<i>Pilliosigma reticulatum</i> (linn) Benth <i>Anogesisus leocarpus</i> Guill-perr	Caesalpmiaceae Combretaceae	T T	W W	Leaves & fruit Back	These herbs are to be boiled up to 100°C with water and allow it to cool, 20cl should be taken daily for 2 weeks.
6.	Chediya Zogale Uwaryara Doka Tafar nuwa Lemon tsami Baure	<i>Ficus thonningii</i> <i>Moringa olifera Adnas</i> <i>Ficus sur; f.capensis</i> (forst) <i>Isoberlinia doka craib and stapf</i> <i>Allium sativum Linn</i> <i>Citrus lemon</i> <i>Ficus sycomorus mig.</i>	Moraceae Moringaceae Moraceae Caesalpinaceae Alliaceae Rutaceae Moraceae	T T S T S T T	C C W W C C C	Leaves Leaves Fleshy part Back Bulb Fruit Fruit	These herbs are to be grinded into flour and put inside meal or drinks and taken for up to 4 weeks or boil with red potassium with some quantity of water (20cl) daily for 4 weeks with sugar or honey.

S/N	Local name	Botanical name	Family	Types of plant	C or W	Parts used	Methods/mode of use
7.	Uwar Magunguna	<i>Sucunda calonge pedane</i>	Moraceae	S	W	Root back	These type of herbs has to be dried and grinded to flour and will be taken with water, (20cl) daily.
8.	Sabara	<i>Guinera senegalensis</i>	Combretaceae	S	W	Leaves	These herbs are grinded to flour and divided into two parts: one has to be put into meals, while one is to take bath.
9.	Kimba Zaitun Kajiji Rubatari	<i>Xlopi aethiopica</i> <i>Linn</i> <i>Oleahodstatter</i> <i>Cyperus tonkinensis</i> <i>Pavetta cassipes</i>	Annonaceae Oleaceae Cyperaceae Poaceae	T T S S	W W W W	Fruit & leaves Leaves Leaves Leaves	Boil with 2 liter and small quantity of sugar, these herbs are put into 4 liter of water and be taken for 4 weeks.
10.	Chitta Timfafiya Sabara	<i>Zingiber officinale</i> <i>rose</i> <i>Calotropis procera</i> <i>Guinera senegalensis</i>	Zngibaraceae Asclepiadaceae Combretaceae	S S S	C W W	Stem Leaves Leaves	These herbs are to be boiled and sieved; it has to be taken for good 2 weeks, 3 times daily.
11.	Marke Mangwaro Gwanda	<i>Anogeissus leiocarpus</i> <i>Mangifera indica</i> <i>(Linn)</i> <i>Carica papaya</i>	Combretaceae Anarcadiaceae Caricaceae	T T S	W C C	Leaves Back Leaves	The herbs are cooked with water, to take bath and drink.
12.	Lemo tsami Gwanda Mangwaro	<i>Citrus lemon</i> <i>Carica papaya</i> <i>Mangifera indica</i> <i>(linn)</i>	Rutaceae Caricaceae Anacadiaceae	T S T	C C C	Leaves Leaves Leaves	This has to be boiled with small quantity of water, 10cl should be taken daily.

T- tree; S-shrub; W-wild; C-cultivated

Source: Field survey, 2009.

Discussion

The study revealed that majority of the respondents are adult (64%). This justifies the finding of Rathman et al (2002) who opined that the age bracket is the economically active age and as such will respond positively to any intervention aimed at improving their productive capacities and well being. Also the study revealed that most of the

active and the physically capable youths were not involved in the sale and administration of herbs in the study area. This could be as a result of rural-urban migration of youth in search of white collar job due to the drudgery involved in the search and processing of herbs. Most of the respondents are educated. Education has been regarded as a major factor of influence on the totality of the individual because it predisposes a person to ideas, widens mental horizon and develop a system of assessment of new ideas. By this, their idea of biological conservation could be easily adopted. Most of the respondents are male and are married. This showed that they have family to support with the income realized from the sale and administration of the herbs.

Most of the respondents are herbs traders. This confirmed the findings of Adekunle and Sam-wobo, (2004) and Faleyimu *et al* (2009) that medicinal plants, apart from providing subsistence medicare, are also items of trade providing employment and income to indigenous people in Nigeria. Table 2 revealed that there are 27 families of plants that could be used for the treatment of typhoid fever in the study area. Medicinal plants such as *Citrus sinensis*, *Carica papaya*, *Musa species*, *Ananas comosus*, *Citullus vulgaris*, *Pakia biglobosa*, *Vetex doniana*, *Khaya senegalensis*, *Anogeissus leiocarpus*, *Pilliosigma reticulatum*, *Ficus sur*, *Isoblerlinia doka*, *Allium sativum*, *Guinera senegalensis*, *Xlopi aethiopica*, *Cyperus tonkinensis*, *Pavetta cassipes*, *Zingiber officinale*, *Calotropis procera*, *Mangifera indica* and *Citrus lemon* were the plants used for the treatment of typhoid fever in the study area. Most of the plants are used in combinations to be effective in the treatment of the disease and total healing takes between one day to four weeks.

Conclusion and Recommendations

The study has shown that some forest plants could be used for the treatment of typhoid fever in Chikun Local government area of Kaduna State. The practice of traditional medicine has been with us from time immemorial and it is upon it that the rural population, which forms about 75% of the country, depends. The knowledge of medicinal plants is been passed from generation to generation, orally or in written from within the family cycle. The proper identification of the medicinal plants is also very important in the development of traditional Medicare.

It is recommended that research institutes in collaboration with federal government should carry out research on this species so as to conserve and improve their genetic constitutions. Also, attempts must be made to encourage the documentation of plants, to be readily accessible to a larger number of populace. Effort should be made to carry out some pharmaceutical research on the active ingredient to determine their dosage level.

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