

ETHNOBOTANICAL SURVEY OF ANTI-TYPHOID PLANTS AMONGST THE IDOMA PEOPLE OF NIGERIA***Aguoru C. U. and Ogaba J. O.**

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ABSTRACT: An ethnobotanical survey on medicinal plants used in treating typhoid fever amongst the Idoma tribe of Nigeria, was conducted using questionnaires and oral interviews of practicing herbalists and family heads. Results indicated that twenty-one plant species belonging to eighteen families featured in recipes used for treating typhoid fever. Investigations on the plant parts used and the mode of preparation and administration indicated that irrespective of plant and parts or combinations used, water was the main medium for all medicinal preparations. Treatment regimes included drinking the aqueous preparations for five to ten days or until symptoms disappear. Although the efficacy of the recipes described by the respondents is not known with certainty, the people are certain that it works for them and they still rely more on herbal medicine than orthodox. This survey provides a basis for further screening and research on these plants.

KEY WORDS: Typhoid, Herbal medicine, Medicinal Plants; Ethnobotany; Idoma; Nigeria.

INTRODUCTION

Typhoid fever is an ancient disease which has afflicted mankind since the Human population grew large enough to contaminate their water and food supplies. Typhoid fever is caused by a bacterium called *Salmonella enterica serovar typhi*. (often called *Salmonella typhi*). According to the World Health Organization, there are sixteen to thirty-three million cases and five hundred thousand to six hundred thousand deaths from typhoid fever annually. (WHO, 2006)

The human system is the main reservoir for the bacteria and the incubation period for the bacteria is usually one to three weeks. Signs and symptoms of typhoid fever include: High fever, loss of appetite, stomach pains, diarrhoea, headache, splenomegaly and weakness. Typhoid fever is one of the most deadly diseases in Africa. In Nigeria, especially in the rural areas, the prevalence of typhoid fever is as a result of lack of portable drinking water. The need to study medicinal plants cannot be overemphasized for a number of reasons including the widespread use of plants in folk medicine, rescuing traditional medicinal plant from imminent loss as well as the need for health for all (Obute, 2002). Plants containing substances that can be used for therapeutic purposes or which are precursors for the synthesis of useful drugs could be regarded as medicinal (WHO, 1987). One of the earliest records of the use of medicinal plants is that of the chaulunoogra oil obtained from the seeds of *Hydrocappus gaertii* which was used for the treatment of leprosy between 2,730 BC and 3,000 BC as recorded in the Pharmacopodia of Emperor Shen Hung of China (Sofowora, 1970; 1982). Traditional medicine practice has existed in Africa and other cultures for centuries since man came into being, but until recently has been neglected and in some cases outlawed as a result of undue pressure from practitioners of modern medical practice and the unscientific background of its method of operation (Okujagu, 2005).

Traditional medicine is the most ancient method of treating diseases and it has been said that plants are the very first and only true medicines ever used (Gill, 1992). The use of plants by man as sources of medicines in the treatment of

various ailments stems from the belief that they possess medicinal properties. This led to the establishment of the "Doctrine of Signature" (Arber, 1938; Court, 1985). According to this doctrine, any plant part which resembles the organ of human body is created for the cure of the ailment of that part.

The Idoma, the second largest indigenous tribe in the North Central Nigeria with a population of approximately 2.8 Million (NPC, 2006; Erim, 2007) are located in the Southern part of Benue State, Doma local government Area of Nasarawa State and in Ogoja local government council of Cross-River State. Benue and Nasarawa States are located in the middle-belt area of Nigeria, while Cross-River is located in the South-south area of Nigeria. Benue and Nasarawa States fall within the derived Savanna vegetation while Cross-River State falls within the tropical rainforest vegetation (Igoli 2002; 2003). The main occupation of the Idomas are farming and hunting; trading and palm-wine tapping are also practiced as a way of living and for economic purposes too (Armstrong, 1955).

With the advances in technology in the nineteenth century, most efficient methods of plants analysis have been developed and effectively utilized to isolate an ever increasing number of medicinal substances from plants. As a result, a large number of plants have been discovered, the number which precisely stands at about one-sixth of the number of flowering plants so far pharmacologically evaluated (about 250,000-500,000 species) (Shellard, 1979; Tor anyii *et al.* 2003).

A significant proportion of the population in Africa depends on traditional herbal medicines for health care, but improvement in the recipes used by these people will require development and documentation of the plant material in an indigenous database. The objective of this research was to document information on the plants and recipes used by the Idoma people of North-Central and South-South Nigeria for the treatment of typhoid fever. This has never been done before according to the authors' knowledge.

MATERIALS AND METHODS

An ethno-medicinal survey was conducted among the Idoma people of North-Central and South-South Nigeria using oral interviews and a questionnaire. To ensure effective survey coverage, the study area was divided into six zones (Table I) and a selected sample population of ten interviews or questionnaire was administered in each zone. The selected population was principally traditional medicine practitioners or herbalists, in a few cases, farmers and hunters that patronized these herbalists at one time or another were also interviewed.

Information sought in the questionnaire and during the interview included the following: recipes for medicines, local names for plants and parts used in medical practices, mode of preparation and extraction, dosage and duration of administration, state of parts used (fresh, dried or powdered). Subsequently, the interviewers were accompanied to the field to ensure identification and collection of the plant specimens. Collected specimens were identified systematically at the Department of Biological Sciences, University of Agriculture Makurdi. Voucher specimens were also deposited in the University Herbarium for reference.

TABLE I: ETHNO-MEDICINAL SURVEY ZONES OF IDOMA.

Zones	States	Local Government Areas
Z-1	Benue	Ado and Okpokwu
Z-2	Benue	Agatu and Apa
Z-3	Benue	Oju and Obi
Z-4	Benue	Ohimini, Ogbadigbo and otukpo
Z-5	Cross-River	Ogoja
Z-6	Nasarawa	Doma

RESULTS

A total of twenty-one (21) plants were identified to be used in treating typhoid fever in Idoma area and these were found in 18 families (Table 2). Sixty respondents across the six zones of the study area were interviewed and oral interviews done with those returning the questionnaire. Based on the questionnaires returned and interviews the ubiquity and usage of medicinal plants used in treating typhoid fever in Idoma areas of Nigeria were discerned (Table 2). Details on the recipes, preparation modes, administration and dosage are also summarized in Table 3. No phytochemical screening was done on any of the plants but possible chemical compositions are documented from literature (Table 4).

TABLE 2: SPECIES USED IN TREATING TYPHOID FEVER IN IDOMA AREAS.

FAMILY	SPECIES	COMMON NAME	IDOMA NAME	ZONES PRESENT
Annonaceae	<i>Annona Senegalensis</i> Var. <i>deltoids</i> Robyns & chesq. Pers	Wild berry	Uwu	Present in all zones, common, cultivated plant.
Annonaceae	<i>Uvaria Chamae</i> P. Beaur	Finger root	Egblakitu	Present in zones, z-1, z-2, z-3 & z-4, common plant, cultivated, wild.
Anacardiaceae	<i>Mangifera indica</i> Linn.	Mango	Umangoro	Present in all zones, common plant cultivated/wild.
Bignoniaceae	<i>Newbouldia leavis</i> (P. Beaur) seaman ex bureau	African border tree	Ogblich	Present in zones z-1, z-2, z-3, z-4 & z-6, scarce plant with limited use cultivated.
Caricaceae	<i>Carica papaya</i> Linn	Pawpaw	Uderu	Present in all zones, common plant cultivated.
Combretaceae	<i>Anogeissus leiocarpus</i> Dc. Guill and Per	African birch	Otla	Present in zones z-1, z-2, z-3, z-4 z-5, common plant cultivated.
Bromeliaceae	<i>Annana comosus</i> B. Comosa Schult	Pineapple	Ari-aje	Present in all zones, scarce plant with limited use, cultivated.

Gramineae	<i>Bambusa bulgaris</i> schrad ex wendel	Bamboo	Otacho	Present in all zones, scarce plant cultivated.
Labiataeae	<i>Occimum gratissimum</i> Linn	Scent leaf	Anyeba	Common plant, present in all zones.
Leguminoseae	<i>Sena Spectabilis</i> H. Irwin & barneby (D.C)	Spectacular Cassia	Okpehukwu	Present in zones z-2 and z-5, scarce plant, cultivated wild
Leguminoseae	<i>Senna Singueana</i> (Del)Lock.		Obonoko	Present in zones, z-1, z-2, z-3, z-4 & z-5, scarce plant, cultivated wild
Meliaceae	<i>Azadirachta indica</i> A. Juss	Neem	Udgonoyaro	Present in all zones, common plant cultivated.
Moraceae	<i>Ficus sur</i> Forssk.	Commercial fig	Ugbanokolo	Present in all zones, common plant, collected wild.
Moringaceae	<i>Moringa oleiferae</i> Lam	Horseradish tree	Izeglegezi	Present in all zones common plant cultivated.
Myrataceae	<i>Psidium guajava</i> Linn	Guava	Uguava	Present in all zones, common plant cultivated
Myrataceae	<i>Eucalyptus citrisodora</i> D.C	Lemon scented gum		Present in all zones, except z-5, common plant with limited use.
Papilionaceae (Leguminosae)	<i>Erythrina senegalensis</i> D.C	Coral tree	Acheche	Present in all zones, common plant cultivated
Poaceae	<i>Cymbopogon citratus</i> (DC) stapf	Lemon grass	Atsi-ubeke	Present in all zones, scarce plant cultivated
Rutaceae	<i>Citrus aurantifolia</i> Bren & keay	Lime	Alemu ikirisi	Present in all zones, common plant
Sterculiceae	<i>Cola hispida</i> Bren & keay		Ikpapleka	Present in all zones, scarce plant
Verbenaceae	<i>Gmelina arborea</i> Roxb	Melina	Umalaina	Present in all zones, common plant.

TABLE 3: RECIPES, PREPARATION MODE, ADMINISTRATION AND DOSAGE.

S/No	Recipes	Mode of Preparation	Administration & Dosage
1	<i>Annona senegalensis</i> , <i>Anogeissus leiocarpus</i>	Sun dry leaves for 40 minutes and put in water to make a concoction	300ml of the concoction in water is taken 2 times daily for 3 weeks, water also used for bathing
2	<i>Ananas comosus</i> , <i>Cymbopogon citratus</i> , <i>Eucalyptus citriodora</i>	Macerate fresh leaves in clean water	300ml of extract is taken 3 or 4 times daily for 10 days

3	<i>Anogeissus leocarpus, Newbouldia leavis, Erythrina senegalensis</i>	Barks boiled in clean water for 30-40 minutes	400ml of the tisane is taken 2 times daily for 7 days.
4	<i>Cola hispida, Uvaria chamae, Ficus sur</i>	Fresh leaves boiled in clean water	300ml of the tisane is taken 2 times daily for 10 days as well as used for bathing.
5	<i>Newbouldia leavis, Anogeissus leiocarpus, Bambusa vulgaris, Moringa oleifera</i>	Barks and leaves boiled in clean water for 40 minutes	300ml of the concoction is taken 3 times for 5 days and the steam is also inhaled.
6	<i>Azadirachta indica, Ocimum gratissimum</i>	Leaves washed and pounded or squeezed and the juice filtered	The filtrate is taken twice daily.
7	<i>Cymbopogon citrates</i>	Leaves washed and boiled water is added to it and left for 10 – 15 minutes	300ml of the infusion is taken 2 times daily until symptom disappears
8	<i>Citrus aurantifolia</i>	Leaves washed and boiled in water. The juice from the fruit is squeezed out separately too	300ml of the tisane is taken once a day and 10ml spoonful of the squeezed juice is taken 3 times daily.
9	<i>Gmelina arborea, Erythrina senegalensis</i>	Leaves and twigs washed and boiled in clean water	300ml of the tisane is taken 3-4 times daily.
10	<i>Moringa Oleifera</i>	Leaves washed and boiled in clean water for 30 minutes	300ml of the tisane is taken twice daily
11	<i>Sena siberiana, Cola hispida</i>	Leaves sun dried and pounded, the mixture is poured into cold water and left to stand for 5 minutes and then filtered	300ml of the decoction is taken twice daily.
12	<i>Anogeissus leiocarpus</i>	Bark boiled in clean water for 30 minutes	300ml of the tisane is taken 3 times.
13	<i>Ficus sur</i>	Bark boiled in clean water for 30 minutes	300ml of the tisane is taken 2 times daily for 10 days.
14	<i>Uvaria chamae, Annona Senegalensis, Erythrina Senegalensis</i>	Root and leaves boiled in water for 40 minutes	300ml of the concoction is taken 3 times daily for 10 days and water used for bathing.
15	<i>Uvaria chamae</i>	Root and bark boiled in water for 30-40 minutes	300ml of the tisane is taken 2 times daily for seven days.
16	<i>Carica papaya, Psidium guajava, Eucalyptus citsodora, Mangifera indica</i>	Leaves washed and boiled in water for 40-50 minutes	300ml of the concoction is taken twice for 10 days and the water used for bathing during the duration of treatment.
17	<i>Mangifera indica, Citrus aurautifolia</i>	Roots and leaves boiled in water for 50 minutes	300ml of the concoction is taken 3-4 times daily for 5 days.

18	<i>Azadirachta indica</i>	Leaves sun dried and then pounded and mixed with water then filtered	300ml of the filtrate is taken twice daily for 7 days.
19	<i>Sena singueana</i>	Roots washed and then placed on cold water and allowed to stand for 5-7 hours	300ml of the decoction is taken once daily for 10 days.
20	<i>Newbouldia leavis</i>	Leaves washed and boiled for 30 minutes	300ml of the tisane is taken twice daily for 7 days.
21	<i>Annona senegalensis</i>	Make aqueous decoction of fresh leaves	300ml of the decoction is taken 4 times daily for 10 days
22	<i>Sena spectabilis</i>	Macerate fresh root in clean water for 30 minutes and filter	300ml of the filtrate is taken 2-3times daily until symptoms disappears.
23	<i>Bambusa vulgaris</i> , <i>Uvaria chamae</i> , <i>Cymbopogon citrates</i> , <i>Anonas comosus</i>	Make aqueous decoction of mixed fresh leaves	300ml of the decoction is taken 4 times daily until symptoms disappear.
24	<i>Uvaria chamae</i> , <i>Moringa oleifera</i>	Make aqueous decoction of mixed leaves	300ml of the decoction is taken 4 times daily for 5 days.
25	<i>Carica Papaya</i> , <i>Mangifera indica</i>	Leaves washed and boiled in water for 30 minutes	300ml of the concoction is taken twice daily for 10 days.

TABLE 4: REPORTED COMPOSITION OF MEDICINAL PLANTS USED IN TREATING TYPHOID FEVER IN IDOMA AREAS.

S/No	Plant material	Tissue/parts used	Class of compound	Reference
1	<i>Ananas comosus</i>	Leaves, Fruits, and Roots	Bromelina, alkaloid	William and Li, 1970; Burkill 1985.
2	<i>Annana senegalensis</i>	Stem bark	Tannis, saponins, sardinolides	Amusan, 1994; Court, 1985.
3	<i>Anogeissus leiocarpus</i>	Bark.	Sterols, Alkaloids, Saponins, Tannins	Kerharo and Bouquet 1950; Adegoke <i>et al.</i> 1962; Burkill, 1985
4	<i>Azadirachta indica</i>	Seeds	Limonoids	Gbeassor, <i>et al.</i> , 1996, Okwute, 1992, National Research Council, 1992.
5	<i>Bambusa vulgaris</i>	Available literature reported	none	None reported in available literature
6	<i>Carica papaya</i>	Latex roots	Alkaloids glycosides	Burkill, 1985; Ekpendu,2000.
7	<i>Citrus aurantifolia</i>	Fruits and leaves.	Vitamin P; Glycosides; Essential oils; Limonene.	Swingle 1964; Idem 1974; Watt and Breyer-Brandwijk 1962 and Burkill 1997.
8	<i>Cola hispida</i>	Fruit	Caffeine	Burkill, 1995; Gill, 1992; Irvine, 1961.

9	<i>Cymbopogon citratus</i>	Leaves	Alkaloids	Ibe, 2003
10	<i>Erythrina senegalensis</i>	Seeds, bark and leaves	Alkaloids, Hypaphorine and Berthroidine.	Oliver 1960b; Idem 1974 and Burkill, 1995
11	<i>Eucalyptus citisodora</i>			
12	<i>Gmelina arborea</i>	Fruits	Alkaloids and Dyes.	Burkill, 2000.
13	<i>Ficus sur</i>	Stem bark; root	Alkaloids, Tannins	Adegoke <i>et al.</i> , 1968; Burkill, 1997.
14	<i>Mangifera indica</i>	Stem bark	Tannins & polyphenols	Garrido, <i>et al.</i> , 2001; Githens, 1994.
15	<i>Moringa oleifera</i>	Seeds, Stem, Leaves and root.	Oil, Benzyl-senevol, antibiotic compounds	Bouquet and Debarry, 1974; Idem 1974; Burkill 1997.
16	<i>Newbouldia leaves</i>	Stem bark	Tannins	Burkill, 1985; Githens, 1994
17	<i>Ocimum gratissimum</i>	Whole plant	Essential oil	El-said, 1969; Nlezurubanza, <i>et al.</i> , 1987; Sofowora, 1970; NRC ,1992
18	<i>Psidium guajava</i>	Leaves	Gingerol & Glycosides	Gbeassor, 1996.
19	<i>Senna singueana</i>	Stem bark	Tannins and Alkaloids.	Aubreville 1950; Watt and Bryer-Brandwijk 1962; Burkill 1995.
20	<i>Senna spectabilis</i>	Stem bark and leaves	Dye and Alkaloids.	Irvine 1961; Burkill 1995.
21	<i>Uvaria chamae</i>	Roots	Alkaloids, Tannins	Adegoke <i>et al.</i> 1968; Kerharo and Adam 1974; Burkill 1985

DISCUSSION

Herbal remedies may be in liquid, solid, semi-solid or vapour form (Sofowora, 1984). The survey revealed that, the Idoma people of Nigeria still rely upon herbal remedies for the treatment of various ailments. It has continually been relied upon by these people who refused to be swayed inspite of criticisms, because they have been working for them. This is because sometimes it is the only provider of medicine available to them, cheaper and the herbalist and the plant materials for herbal preparations are readily accessible to the people. Water is the main solvent for extraction either by maceration, decoction, infusion or concoction. This survey identified 21 plant species from 18 families, which were used for the treatment of typhoid fever in the study area.

The dosages were usually 300ml 400ml, 2-4 times daily and the duration of treatment (usually 5-10 days or until symptoms disappear) were prescribed presently, it is imperative on developing nations such as Nigeria to systematically document uses of medicinal plants in all autonomous areas of communities, which are still largely unexplored, this is because the old folks are usually custodians of such information and with the fast disappearance of traditional cultures and natural resources arising from urbanization and industrialization of these areas, such information could be lost forever (Igoli *et al.*,

2003). Documentation of this kind of information will be beneficial in general health care, ecological control, forest conservation, research and providing leads to plants with useful medicinal properties.

The prescriptions were both mono plant and poly plant, with poly plant prescription dominating. Although none of the identical recipes were administered on any patient to test the efficacy, the fact that the herbalists are well patronized suggests the recipes may indeed be efficacious and safe, most practicing respondents claimed that their patients were completely cured and clients claimed complete relief following treatment.

It is worthwhile to note that in this survey, no attempt was made to screen plants phyto-chemically, but possible compositions contained in these plants were obtained from literature, since the primary focus of the survey was to document plants and recipes used in the treatment of typhoid fever in the study area.

CONCLUSION AND RECOMMENDATION

Considering the fact that most of these useful plants are grown in the wild, and the fact that the numerous anthropogenic activities of man in an attempt to exploit natural resources constitute big problems in destruction of these plants, there is urgent need to map out strategies for conservation of these plants to avoid their extinction in the nearest future.

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