

Ethnobotanical survey of stomach ailments treatments among the indigenes of Otu-Jeremi, Ughelli South Local Government, Delta State, Nigeria

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Abstract

The present study documents some of the medicinal plants which are used by the indigenous people of Otu-Jeremi in Ughelli South Local Government Area, Delta State, Nigeria for the treatment of stomach ailments. Data were gathered through structured questionnaires and interviews with some traditional herbal practitioners and patients suffering from stomach ailments about the plants, parts used, method of preparation and mode of administration and their therapeutic values. The study revealed that twenty-seven (27) plant species belonging to twenty-one different families were used in treating various stomach ailments. The stomach ailments treated with these plants include stomach ache, dysentery, constipation, stomach ulcer, diarrhea, gastric ailment and digestive disorder. Out of these twenty-seven plant species, 51.85% are used in the treatment of stomach ache and other ailments either solely or in combination with other plants. Stomach ulcer, and constipation as well as dysentery alone were treated with 5(18.52%), 2(7.41%) and 2(7.41%) plants, respectively. Gastric ailments, diabetes, dysentery, constipation and diarrhea as well as digestive disorder were treated with one (1) plant species accounting for 3.70% each of the total plant species used in the area for the treatment of stomach ailments. The plant parts used in these treatments include leaves, roots, fruits, bark and seeds. It is recommended that government and ethnomedical practitioners should come together to find means of encouraging and promoting the use of medicinal plant in treatment of different ailments which is now becoming a global practice.

Keywords: Medicinal plants, indigenous practices, health care delivery

Introduction

Ethnobotany is a broad term used to study the direct inter-relations between man and plants. Practices known as ethnomedicine include herbal, Ayurveda, Siddha medicine, Unani, ancient Iranian medicine, traditional Vietnamese medicine, acupuncture, Muti, Ifa, traditional African medicine and other medical knowledge and practices all over the globe [1].

Man's dependence on plants for his livelihood is as old as creation. Early man depended on plants for shelter, clothing and food. The domestication and use of plants by man for healthcare dates back to 10,000 years ago [2]. A medicinal plant is any plant which in one or more of its organs contain substances that can be used for the therapeutic purposes or which

are precursors for the synthesis of useful drugs [3]. Medicinal plants are divine gifts from God [4 in Ezekiel 47:12 and Psalm 104:14] who endowed these plants with remedies for man to use for food and healing of disease and thus take care of different ailments and health challenges. Stomach ailment sometimes is experienced as upper abdominal pain [5]. It occurs predominantly amongst people of different age groups (infants, teenagers, adolescents, middle-aged and aged). Pains associated with stomach ailments vary from peripheral discomfort to an ulcer-like pain which are not relieved by antacids [5].

As opined earlier, the early man depended on plants for his health when no synthetic drugs/medicines were available [6]. Traditional medicine

refers to the application of medical knowledge system that developed over generations in various traditional societies before the era of modern medicines. The World Health Organisation (WHO) expounded traditional medicine to include health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral-based medicines, spiritual therapies, applied singularly or in combination to treat, diagnose and prevent illness or maintain individual well-being [7].

Plant medicinal values are based on some chemical substances or secondary metabolites that produce definite physiological action on the human body. They contain biologically active chemical substances such as saponins, tannins, essential oil, flavonoids, alkaloids, phenolic compounds and other chemical compounds which have curative properties. These complex chemical substances of different compositions are found as plant secondary metabolites. The chemical properties of these substances vary in distribution within plant parts as well as their occurrence in plant species [8, 9].

Tradomedical recipes can be prepared in different forms (liquid, solid, semi-solid or gaseous) for the treatment of different stomach ailments. The liquid forms can be decoction, infusions, oily mixtures, gargles; solids forms can be in form of powders for oral administration with pap or other drinks; semi-solids in form of crude balms, resins, latex, etc or gaseous form as in steam inhalation preparations, fumigations like incense [10]. The use of medicinal plants varies from species to species just as diseases vary from one form to another in different organisms and places.

The use of medicinal plants and their extracts for healing by traditional herbal practitioners were the main method of treating illness before the advent of Western medicine [11]. The use of plant parts in the treatment of human disease is as old as the disease itself and herbal medicine was the major form of medicine in Nigeria. Over 80% of world population especially in developing countries depends on traditional medicines for their primary health care needs while about 25% of the homeopathic drugs currently in use today are plant-based drugs and their derivatives [12].

The objective of this study was to document the medicinal plants used by the people of Otu-Jeremi in Ughelli South Local Government Area of Delta State, Nigeria in the treatment of stomach ailments before the advent of western medicine and make case for its inclusion into the modern day medical practice.

Materials and methods

Study area

The study was carried out at Otu-Jeremi; headquarter of Ughelli South Local Government Area, Delta State, Nigeria. Otu-Jeremi is on geographic coordinates of 9°45' N and 8°43' E. The topography of the area is marshy with mangrove forest. Otu-Jeremi is one of the highest crude oil producing area in Delta State and hosted Otorogun gas plant, which is one of the largest in Africa [13].

Ethno-botanical survey and data collection

Ethnobotanical survey and interviews were carried out to collect information from the indigenes of the area with respect to common stomach ailment challenges in the area and common herbs used in the treatment. Information collected included local names of the plants, plant parts used, time and method of collection, method of preparation and mode of administration.

Medicinal plants used in treating stomach ailments were also harvested for confirmation and authentication by the tradomedical practitioners who identified the plants, their medicinal values and efficacy, modes of preparation and administration of the plants' extracts in the treatment of stomach ailments. One hundred and twenty informants and ten tradomedical practitioners were randomly interviewed. The harvested plants were pressed in a pressboard to preserve the plants and taken to the University Herbarium Ibadan (UHI) where they were further identified and authenticated, and voucher specimens deposited. Data obtained were subjected to descriptive statistics.

Results

Table 1 below shows the twenty-seven plants species belonging to twenty-one families used by the indigenes of Otu-Jeremi in the treatment of stomach ailments. Most of the plants used belong to the family Asteraceae. The decoction of these plants are taken orally and most frequent prepared and administered to patients while in some cases the leaves are chewed and their fruits eaten fresh. In some cases, combinations of different parts of two plants are boiled or active ingredients extracted with alcohol (in order to eschew fermentation) and taken orally. In extreme cases, salt is mixed with the ground powder of the plant as in the case of *B. pinnatum* and used as a plaster on the stomach to sooth the pain.

Table 1. List of some medicinal plants for the treatment of stomach ailments in Otu-Jeremi

S/N	Botanical names	Common names	Local names (Urhobo)	Family	Part used	Uses	Method of preparation/Mode of administration
1.	<i>Ageratum conyzoides</i> (L.)	Goat weed	Ebeikpamaku	Asteraceae	Leaves	Gastric ailment	Drink leaves extract
2.	<i>Aloe vera</i> (L.)	Aloe	Aloevera	Xanthorroea	Leaves	Stomach ache	Leaves pulp mixed with hot water and taken orally
3.	<i>Amaranthus spinosus</i> (L.)	Spiny amaranth	Isoerhue	Amaranthaceae	Leaves	Stomach ache and diarrhea	Decoction and taken orally
4.	<i>Araucana columnaris</i> (J.R. Forst. Hook.)	Monkey-puzzle	Ebiureramasi	Araucariaceae	Leaves	Stomach ulcer and constipation.	Chewed
5.	<i>Azadirachta indica</i> (A.Juss)	Neem tree	Dogoyaro	Meliaceae	Leaves	Dysentery	Eight pieces of lime and <i>A. indica</i> leaves soaked with two litres of water and taken orally for one month
6.	<i>Bryophyllum pinnatum</i> (Lam.) Oken.	Miracle plant	Ebe Okponkpan	Crassulaceae	Leaves	Stomach ulcer	Mixed with salt used as plaster and applied to stomach
7.	<i>Capsicum annum</i> (L.)	Pepper fruit	Umako	Solanaceae	Fruit	Stomach ulcer	Eaten fresh and ripe
8.	<i>Carica papaya</i> (L.)	Paw-paw	Ipopo	Caricaceae	Pulp Bark peels and seeds	Digestive disorder Constipation	Eaten fresh Soaked in five litres of water for four days, sieved and half glass cup of it is taken thrice daily for two weeks
9.	<i>Chromolaena odorata</i> (L.) R.M. King & Robinson	Siam weed	Obeselle	Asteraceae	Leaves	Stomach ache	Decoction and taken orally
10.	<i>Citrus aurantifolia</i> (Christm.)Swingle	Lime	Utin-afera	Rutaceae	Fruits	Stomach ache	Juice taken orally
11.	<i>Citrus limon</i> (L.) Osbeck	Lemon	Otioghaga	Rutaceae	Fruit	Digestive disorder, diarrhea and stomach ache	Juice mixed with alcohol and taken orally
12.	<i>Cocos nucifera</i> (L.)	Coconut	Ikokodia	Arecaceae	Fruit	Kills bacteria that cause stomach ulcer	Eaten and drink a few cups of fresh <i>C. nucifera</i> juice
13.	<i>Cymbopoon citratus</i> (DC.) Stapf	Lemon grass or oil grass	Ebeutiepiapiah	Poaceae	Leaves	Stomach ache General digestive disorder	Chewed Decoction and taken orally

Table 1 Continued

S/No	Botanical names	Common name	Local names (Urhobo)	Family	Part used	Uses	Method of preparation/Mode of administration
14.	<i>Eleusine indica</i> (L.) Gaertn	Wire grass	Igbri	Poaceae	Leaves	Constipation and stomach ulcer	Chewed
15.	<i>Gracinia kola</i> (Heckel.)	Monkey fruit	Ulalor	Clusoaceae	Fruit	Stomach ache	Decoction and taken orally
16.	<i>Jatropha curcas</i> (L.)	Physic nut	Udogbah	Euphorbiceae	Leaves	Stomach ache	Decoction and taken orally
18.	<i>Manihot esculenta</i> (Crantz)	Cassava	Ebeimidaka	Euporbiaceae	Leaves	Dysentery	Boil seven leaves with 80% of water, allow the water to boil down to half before drinking
19.	<i>Musa paradisiaca</i> (L.)	Banana	Odibo	Musaceae	Unripe fresh fruit	Stomach ulcer	Eaten
20.	<i>Ocimum grattissimum</i> (L.)	Scent leaf	Ebe-era	Lamiaceae	Leaves	Constipation and diarrhea	Decoction and taken orally
21.	<i>Phyllanthus amarus</i> (Schum. &Thonn.)	Bahupata	Obokoiyeke	Phyllantaceae	Bark or whole plant	Stomach ache	Extract mixed with alcohol and taken as drink
22.	<i>Psidium guajava</i> (L.)	Guava	Eguavara	Myritaceae	Leaves	Dysentery, diarrhea and stomach ache	Decoction and taken orally, chew raw leaves and guava pulp mixed with honey and milk
23.	<i>Sida acuta</i> (Burm. F)	Wire weed	Esiviwemisio	Malvaceae	Root	Dysentery	Chewed
24.	<i>Solanum tuberosum</i> (L.)	Potato	Edhukwu	Solanaceae	Leaves Root	Stomach disorder Stomach ulcer	Decoction and taken orally Decoction and taken orally
26.	<i>Vitis vinifera</i> (L.)	Grape	Egrapu	Vitaceae	Seed	Stomach ache	Decoction and taken orally
27.	<i>Xylophia aethiopica</i> (Dunal.)	Ethiopia pepper	Ehreren	Annonaceae	Fruit	Stomach ache and dysentery	Stimulant to other herbs in treatment

Table 2. Plants used in treating various stomach ailments and number of plants in use

S/No.	Stomach ailments	Plants species used	Percentage (%) contribution to the total plants used
1.	Constipation and diarrhea	<i>O. grattissimum</i>	3.70
2.	Constipation and digestive disorder	<i>C. papaya</i>	3.70
3.	Diabetes and dysentery	<i>M. indica</i>	3.70
4.	Gastric ailment	<i>A. conyzoides</i>	3.70
5.	Stomach ulcer and constipation	<i>A. columnaris</i> and <i>E. indica</i>	7.41
6.	Dysentery alone	<i>A. indica</i> and <i>M. esculenta</i>	7.41
7.	Stomach ulcer alone	<i>B. pinnatum</i> , <i>C. annum</i> , <i>C. nucifera</i> , <i>M. paradisiaca</i> and <i>S. tuberosum</i> ,	18.52
8.	Stomach ache and other ailments	<i>A. vera</i> , <i>G. kola</i> , <i>J. curcas</i> , <i>P. amarus</i> , <i>V. amygdalina</i> , <i>V. vinifera</i> , <i>C. odorata</i> , <i>C. aurantifolia</i> , <i>A. spinosus</i> , <i>C. limon</i> , <i>C. citratus</i> , <i>P. guajava</i> ,	51.85

S. acuta and *X. aethiopica*

Table 2 shows the number of medicinal plants used in the treatment of different stomach ailments such as stomach ache, dysentery, constipation, stomach ulcer, diarrhea, diabetes, gastric ailment and digestive disorder. One plant species each, which accounts for 3.70% is used in the treatment of constipation and diarrhea, constipation and digestive disorder, diabetes and dysentery, and gastric ailment. Two plant species each accounting for 7.41% is used in the treatment of stomach ulcer and constipation, and dysentery alone. Five plant species accounting for 18.52% are used in the treatment of stomach ulcer alone while fourteen plant species are used in the treatment of stomach ache and other ailments.

Table 3. Number and percentage of plants' parts used in the treatment of stomach ailments

S/No.	Plants' part	Frequency	Percentage (%)
1.	Leaves	15	55.56
2.	Root	1	3.70
3.	Fruit	7	25.93
4.	Bark	2	7.41
5.	Seed	1	3.70
6.	Root and leaves	1	3.70

The Table 3 above shows that the leaves of the plants (55.56%) were the most commonly used parts while the roots and seeds of the plants (3.70%) either solely or in combination were the least parts used in the treatment of stomach ailments. Fruits and bark of plant species used in the treatment of stomach ailments accounted for 25.93% and 7.41%, respectively.

Discussion

The present study revealed that twenty-seven medicinal plant species belonging to twenty-one families with the family Asteraceae were used in the treatment of stomach ailments. These findings were in line with the findings of [1] who reported the use of plants in the family Asteraceae in the treatment of stomach ailments in Bolivia.

It is worthy to note that one plant can be used in the treatment of different ailments besides stomach ailments. Plants species such as *E. indica*, *S.acuta*, *A. columnaris*, *C. citratus*, *A. spinosus*, *C. papaya*, *M. indica*, *X. aethiopica*, *G. kola*, *B. pinnatum*, *C. limon*, *O. grattissimum* and *P. guajava* are also useful in the treatment of malaria. Similarly, *X.*

aethiopica is used in the management of fibroids; a stomach related health problem. Also *A. vera* used in the treatment of malaria is very potent in the treatment of breast cancer and impotence [14] among others. Different plant parts as leaves, roots, fruits, seed, bark and whole plant contain different secondary metabolites which confer healing properties when used in the preparation of traditional medicine as done by the indigenes of Otu-Jeremi. Edeoga *et al.* [8] and Chellaiah *et al.* [9] opined that the chemical compounds which have curative properties vary in distribution within the plant parts as well as their occurrence in different plant species. In this study, plant leaves were mostly used in the treatment of stomach ailments. These findings agreed with [1] that aerial parts and leaves were the most frequently used parts of plants in ethnomedicine.

The mode of preparation and administration of traditional medicine for stomach ailments by the indigenous people of Otu-Jeremi are also in line with [1] and [15]. These authors reported similar mode of preparation and administration of traditional medicine by decoction in Boliva and Esan land of Edo State, Nigeria, respectively and taken orally. The same plant species used by the Otu-Jeremi indigenes for the treatment of stomach ailments have also been reported by other scholars in other location: Cheryl [16] used *Cocos nucifera* (Trinidad and Tobago), Idu and Ndukwu [17] used leaves *Amaranthus spinosus* (Delta State, Nigeria) and Nwauzoma and Magdalene [18] used *J. curcas*, *A. indica* and *V. amygdalina* (Rivers State, Nigeria) for the same ailment.

Conclusion

The knowledge and usage of ethnomedicine has been of immense benefit to man globally from time immemorial. The use of medicinal plants to manage various ailments in modern societies is a necessity especially in developing countries like Nigeria. Medicinal plants have been credited with many therapeutic properties, some are used in fighting infections such as gonorrhoea, eczema, rashes, cough while others are known to aid pregnancy, cure pile, arthritis, convulsion, poor genital erection and deformity, epilepsy and others. This therefore, calls for the attention of government and ethnomedical practitioners to find means of encouraging and promoting the use of medicinal plant in treatment of different ailments which is now becoming a global practice.

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