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Ethno-botanical Utilization of Selected Medicinal Plant Species in Edo and Delta States, Nigeria

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Abstract

The ethno-botanical research results were obtained in five communities (Umuagwu, Ogume, Abbi, Kokori and Ekpan) in Delta State and one community (Arue) Esan North East, in Edo State. *Acalypha wilkesiana* was used for the treatment of high blood pressure by the People of Umuagwu Community, Asaba, Delta State, use of *Sida acuta* Burm. f. for the treatment of loss of appetite, digestion problem, tuberculosis and general health by Ogume People, Delta State**,** the use of *Aspilia africana* (Pers) C.D. for ulcer dressing and wound by the people of Abbi, Delta State, use of *Bryophyllum pinnatum* for the treatment of haemorrhoids by the people of Kokori, Delta State, use of *Newbouldia laevis* (P. Beauv.) (Boundary Tree) for treatment of difficulty in breathing by the people of Ekpan, Delta State and use of *Mallotus oppositifolius* for the treatment of haemorrhoids by Arue people of Edo State. Parts of the plants used for preparation included root, leaf, twig, stem and flower. The use of plants for medicinal purposes varied from one community to another depending on their indigenous knowledge on the ethno-botanical application of plants for the treatment of different ailments. The information obtained from the communities was as a result of perennial usage of these plants and the desirable results obtained over the years without negative side effects. This research seeks to document this salient vital information to invoke scientific curiosity and expand the scope of the knowledge for more effective utilization.

Keywords: Delta, Edo, Ethno-botanical, Species. Treatment

Introduction

The practice of the use of plants known as medicinal plants for the treatment of different ailments by different indigenous peoples is gaining acceptance in recent times. Botanists, ecologists and conservationist are intensifying efforts to preserve, conserve and protect floral diversities of different plant ecosystems across the globe with the sole aim of keeping intact the vast potentials of different plant species to man. The level of usage of medicinal plants in one community differs from another due to the depth of indigenous knowledge application between them. Many communities have preserved their indigenous knowledge application via folklores, perennial usage, culture and traditional rites and most recently documentation using local languages, signs and symbols. Ilondu *et al.* (2019) reported on the medicinal plant diversity and utilization from three communities in Delta State, Nigeria.

Selection of specific plant species for a specific ailment is akin to a medical doctor prescribing the specific drug after due diagnosis. It takes an expert in traditional indigenous knowledge to administer such plants due to sufficient years of experience and perennial usage of such plant species without known side effects. Erhenhi (2016) reported on the medicinal plants used for the treatment of rheumatism by Amahor people of Edo State, Nigeria. Different plants were used for the treatment of skin diseases in Edo State, Nigeria (Erhenhi *et al*., 2016). The haemorrhoids or piles are inflammation of the blood vessel that are generally nearby the anal canal. The piles are produced when the anal cushions are disrupted by the power of defecation (Muhammad *et al.,* 2013). Rani *et al. (*2013) reported two types of piles as internal and external pile. The skin can be damaged and wounded by

physical, surgery, thermal agents, chemical and some diseases (including diabetes) (Abbasi, 2020). Khan *et al. (*2014) reported the enormous benefits of using natural plants to treat respiratory diseases affecting mankind across the globe.

Materials and methods

Study areas

The ethno-botanical in formation were obtained in both Delta and Edo States. These two states are located in the southern parts of Nigeria. The two states were created from one former southern state called Bendel. They both maintain similar ecological zones as coastal states as well as rainforest vegetation.

Figure 1. Map of Edo State showing Esan North East, the study area. Source: Igberase and Ogbole (2018).

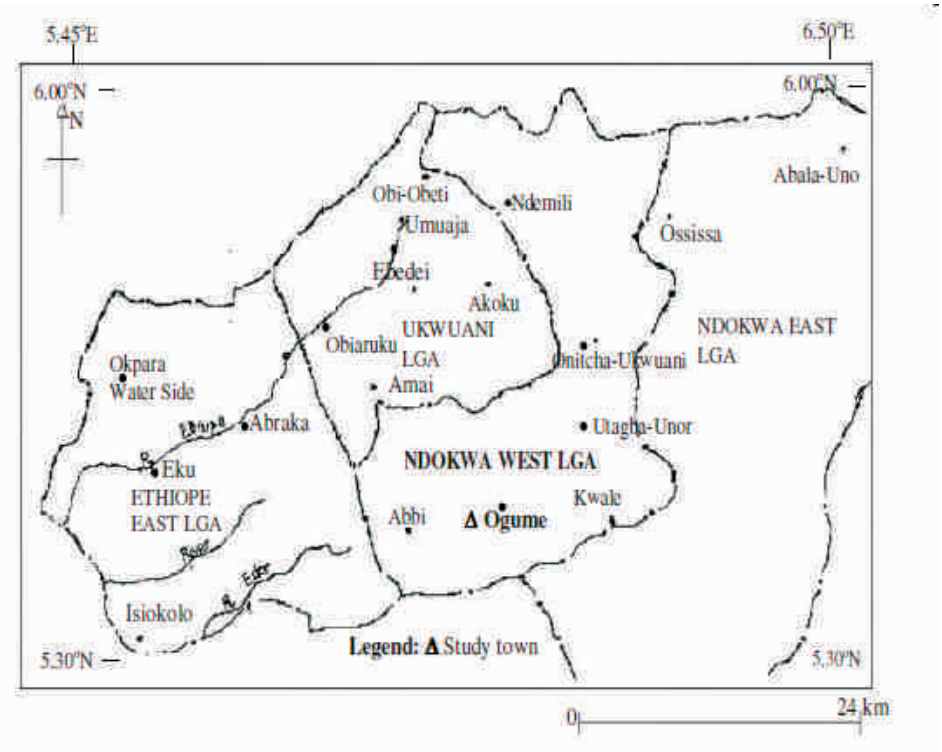

Figure 2. Map of Delta State showing the study areas. Source: Okolie (2011).

Ethno-botanical information

The salient information of plant utilization was obtained across different communities in both Delta and Edo states. Plants were randomly collected, indentified by both *in situ* and *ex situ* approach i.e. in the field and laboratory, while the efficacy of the plants was collaborated by experienced indigenous practitioners, perennial usage by locals, and published scientific articles.

Results

Results of the selected plant species and usage across selected communities in Delta and Edo States are presented in tables 1-6. The tables showed the scientific, common or local names of the plants used, parts of the plants used, different modes of preparations and administration.

Table 1: Mode of preparation and administration of *Acalypha wilkesiana* for the treatment of high blood pressure by the People of Umuagwu Community, Asaba, Delta State.

Scientific Name	***Acalypha wilkesiana***
Common Name	Copperleaf
Part Used	Leaves
Mode of Preparation	The leaves are collected from the plant and washed using clean water to remove sand and other debris. The leaves are soaked in water and squeezed properly to obtain the extract. The leaves can also be soaked in alcohol. In this case it is allowed to stand for some days so as to allow the leaves dissolve its ingredients on the alcohol.
Mode of Administration	The extract obtained from both crude extract and alcohol extract is consumed on daily basis to reduce blood pressure.

Table 2. Use of *Sida acuta* Burm. f. for the treatment of loss of appetite, digestion problem, tuberculosis and general health by Ogume People, Delta State

Ailments	Part Used	Mode of Preparation and Administration
Loss of appetite	Leaves	Fresh leaves of the plant are collected, washed with clean water squeezed. Add a pinch of salt and spoonful of honey. Taking this solution slowly removes the bad taste from the mouth and increases appetite.
Indigestion (digestion problem)	Leaves, twig	Fresh leaves of the plant are extracted using water and taken orally. Salt can also be added to the extract. The twig should be chewed constantly to aid digestion of food.
Tuberculosis	Leaves, twig, root	All p arts of the plant are important in the treatment of tuberculosis. The leaves are extracted using water or gin and taken orally to fight against bacteria causing tuberculosis. The twig can be chewed or soaked in alcohol alongside the root. The content is taken continuously for the treatment of tuberculosis.
General Health	Leaves, twig, root	Squeeze some fresh leaves in a can of water. An adult drink the water extract to extract parasitic worm. Children take 4-5 tablespoonful. Mature leaves are squeezed in water, then sieved and salt added. Ten tablespoonsful of extract are taken for dysentery
	Leaves / root	Fresh leaves are collected, washed with clean water and boiled with addition of few quantity of water. The decoction is taken orally for cough and inhaled to relief catarrh
	Leaves	Some quantities of the leaves are chewed and applied to the spot of the splint
	Leaves	Squeeze some quantity of the leaves, add little amount of water and salt. Few quantities of the decoction are taken which induce vomi ting to relief the heart
	Leaves	Ground the leaves of the plant with addition of little quantity of water. Add half a teaspoon of table salt and take before breakfast for pneumonia

Table 3: The use of *Aspilia africana* (Pers) C.D. for Ulcer dressing and wound by the people of Abbi, Delta State.

Part Used	Mode of Preparation and Administration
Leaves	The leaves are applied directly to injured parts of the body. Collect some quantity of the leaves, squeeze gently till the liquid start coming out. Drop some quantity directly on the injured part of where the wound or ulcer is located in the body.
Flowers	The flower heads, shaped like rather flat umbrellas are the more medicinal parts of the plant. Pick the flower heads and strip some of the fine leaves and dry them, storing in a dark glass jar. Apply the powdered leaves directly to wound. It acts as blood stopper to injuries

Table 4: Use of *Bryophyllum pinnatum* for the treatment of haemorrhoids by the people of Kokori, Delta State

Scientific Name	***Bryophyllum pinnatum***
Common Name	Life plant
Local Name	Ebe okpokpan
Part Used	Leaves
Mode of Preparation	Carefully washed *Bryopyllum pinnatum* leaves, cut into pieces and placed in a 4-litres keg. Soaked in clean water and alcoholic beverages. Allow the mix ture to soak and ferment for three to four days to allow the content mix properly with the water and alcohol.
Mode of Administration	One (1) cup of the extract is taken thrice daily until the pile disappears totally.

Table 5: Use of *Newbouldia laevis* (P. Beauv.) (Boundary Tree) for treatment of difficulty in breathing by the people of Ekpan, Delta State.

Common Name	Boundary tree
Scientific Name	*Newbouldia laevis*
Local Name	Ogriki
Part Used	Root extract
Mode of Preparation	The root is collected, wa shed properly to remove sand and other debris. It is then peel to obtain the inner portion which is pounded to paste, small quantity of water is added and sieved. The filtrate is then boiled with the addition of little ground pepper and crayfish. It is cooked like pepper soup and served hot.

Table 6: Use of *Mallotus oppositifolius* for the treatment of haemorrhoids by Arue people of Edo State

Scientific Name	***Mallotus oppositifolius* (Geisel)**
Common Name	Broom weed
Family	Crassulaceae
Local Name	Uhosa
Part Used	Leaves and stem
Life form	Shrub / small tree
Mode of Preparation	Fresh leaves are collected, washed and squeezed with the addition of few quantity of water.
Mode of Administration	Drink half cup of the filtrate two times daily.
Mode of Preparation	Cut some quantity of stem into pieces and place them inside a bottle, add either water or gin to the content and allow to stay for some days
Mode of Administration	Take one glass daily in the morning as long as it last.

Discussion

As the ethno-botanical utilization gains increasing acceptance, many scientific researchers are conducting, surveying, studying and carrying out quality researches with plants of high medicinal potentials against many medical ailments bedevilling mankind. Ailments relating to respiratory problems (Covid 19), high blood pressure, digestion problems, tuberculosis, ulcer, haemorrhoids and so much more. Many scientific literatures and documented indigenous applications abound. The research recorded the traditional usage of *Mallotus oppositifolius* as a medicinal plant by the people of Arue in Edo State for the treatment of haemorrhoids. The utilization of medicinal plant for the treatment of pile as documented in the study area has previously been reported by different authors. Soladoye *et al.* (2010) found a total number of 144 plant species belonging to 58 different families used in the treatment of haemorrhoids in South-Western Nigeria. The leaves have ingredients of common antimalarial, antidysentery, and anti-inflammatory remedies (Kabran *et al.,* 2012). Use of *Bryophyllum pinnatum* for the treatment of haemorrhoids by the people of Kokori, Delta State was also obtained

The use of *Aspilia africana* (Pers) C.D. for ulcer dressing and wound by the people of Abbi, Delta State agreed with other reports of some authors. The use of plants can accelerate the wound-healing process (Yousefi *et al.,* 2017) and reduce the need for using chemical drugs such as antibiotics, thereby preventing the side effects of using them (Choi *et al.,* 2017; Pourhojat *et al.,* 2017). The medicinal uses of *Sida acuta* plant for the treatment of different health related diseases (loss of appetite, digestion problems, tuberculosis and boost health) by the people of Ogume in Ndokwa West Local Government Area of Delta State was obtained. *Sida acuta* Burm.f (Malvaceae) is one of those plants currently used by indigenous people for the management of some health problems (Olivier *et al.,* 2017). The medicinal uses of *Alcalypha wilkesiana* (Mull. Arg) for the treatment of high blood pressure by the People of Umuagwu Community, Asaba, Delta State, Nigeria. Information on the use of leaves of *Acalypha wilkesiana* for the treatment of high blood pressure by the people of Umuagwu in Delta State was obtained. Although this plant species also has horticultural usage, other authors also reported its medicinal application. Some medicinal plants have been shown to reverse or improve deranged cardiovascular parameters particularly raised blood pressure and other complications associated with these diseases (Taiwo *et al.,* 2010).

The use of *Newbouldia laevis* (P. Beauv.) by the Ekpan people of Delta State was obtained. The study showed that the root of the plant is the part used for treatment of breathing difficulties. The trado-medical uses of *N. laevis* widely depend on the ethnic location of the plant and the part of the plant used (Okagu, 2021). Studies on the use of *N. laevis* plant for treating breathing disorder have not been documented. However, the plant has also been documented to be used by Togolese and Nigerians with the leaves prepared as a decoction alone or in combination with other plants and administered orally for the treatment of malaria and fever (Ukwubile *et al.,* 2020; Iyamah and Idu, 2015).

Conclusion

The need to develop and improve indigenous application of plant species for medicinal purposes cannot be overemphasized as there is increasing demand in both developed and developing countries across the globe due to its enormous potentials and efficacies for treatment of ailments that was hitherto difficult to treat with conventional medicines. Ethno medicines are cheap, efficacious, readily available and fresh without additive, sweeteners or preservatives that may trigger future side effects upon usage. The results showed that different communities across Delta state and Edo State still rely on different plant species for the treatments of different ailments based on their level of indigenous knowledge dated back ages ago as well as modern ideas acquired as well.

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