

Indigenous Plants and Their Uses Among Nsukka People

Pat Uche Okpoko and Emeafor Obinna F.

Department of Archaeology and Tourism,
University of Nigeria, Nsukka

DOI:<https://doi.org/10.33281/JTHS20129.2017.1.3>

Abstract

The study investigates the uses of indigenous plants in Nsukka cultural area using the qualitative approach. Informants were drawn from selected communities within and outside Nsukka main town to capture the dynamics of the study domain and increase the generalization' of the research findings. Results show that plants have cultural significance in many aspects of Nsukka culture aside from their economic, nutritional, medicinal and environmental importance. The ofo (Detarium senegalense), for instance, is a symbol of authority and justice. It was found that adequate knowledge of the nutritive and medicinal values of indigenous foods can persuade people to lessen the reliance on exotic foods, thereby, reducing economic leakage. The study equally revealed that lack of standard dosage and uncertainty about the chemical composition of the medicinal plants are threats to the development of traditional medicine. Finally, it was observed that knowledge of indigenous plants and their uses are fast sinking into oblivion, especially among the youths. Thus, the study suggests that enormous effort should be channelled towards resuscitating such indigenous knowledge by harnessing, documenting and inculcating such knowledge in schools.

Keywords: Indigenous Knowledge, Ethno-botany, Plants, Sustainable Development, Nsukka.

Introduction

Knowledge is an essential instrument of development. There is need to harness, preserve and share indigenous knowledge, especially in contemporary era where emphasis is on sustainable development. And in the current efforts by the Nigerian government and other developing countries to disentangle citizens from the shackles of underdevelopment, indigenous knowledge will play a key role in this regard.

The people of Nsukka, south-east Nigeria are blessed with rich indigenous knowledge; one facet of this body of knowledge which demands serious attention in ethno-botany. Ethno-botany is a cardinal aspect of traditional knowledge whereby people organize and harness their folk knowledge of flora to advance their livelihood. The land of Nsukka is endowed with different plants which the people have used from time immemorial to subdue negativities in their environment. Eze (2005), for example, reported that as much as 84 medicinal plants can be found in Umunocha-Obukpa, a town which falls under the study area of this discourse.

At the present time, however, knowledge of indigenous plants and their uses among Nsukka people, especially the younger generation, is fast dwindling as alien influence and ideas continue to relegate native understanding to the background. This situation does not augur well for the realization of sustainable development. Worst still, if knowledge of indigenous plants and their uses continue to wane, there is the tendency for this body of shared knowledge to totally disappear in future. Thus, there is the need to raise awareness on the importance of reviving and sustaining knowledge of indigenous plants and their values. A study of indigenous plants and their uses in Nsukka area is relevant because it uncovers what local people know about indigenous plants and, accordingly, provides a suitable platform upon which programs can be designed to enhance sustainability in development.

Specifically, the objectives of the research include:

1. To document indigenous plants and their uses among Nsukka people.
2. To ascertain ways of saving endangered species from extinction.
3. To raise awareness on the need to revamp and preserve folk knowledge of plants and their uses.

Literature Review

Plants are living things (organisms) which possess leaves, stems and roots. The plant kingdom called '*plantae*' "is one of the five main groupings of organisms, the four others being the *monera*, *protists*, *fungi*, and *animals*" (Cavendish 2004:1325). Plants can be classified using various criteria such as: 'duration of life-cycle' (annual, biennial and perennial plants), 'characteristics' (flowering and non-flowering, vascular and non-vascular plants), 'agricultural purposes' (cereals, nuts, fruits, tubers, legumes, spices, vegetables, etc.), and in terms of 'utility' (sacred, ornamental, forage and medicinal plants), etc.

Man's life and survival would be impossible without symbiosis with, and extensive use of plants and plant products" (Chukwuma, Soladoye and Feyisola 2015). In the view of Barkil (1997), plants are vital to other life forms because they form the basis of food webs. The most vital function of plants is the supply of food for man and animal. Apart from their most fundamental function of providing man with food, forests protect and stabilize soils, recycle nutrients and regulate the water cycle. Without plants, the magnitude of land erosion will be much, rivers will be choked up with sediment, and global warming may increase above acceptable level (Unwin in Gray (Ed.) 2007:50).

The use of plant parts in both western and traditional medicine is yet another vital merit of plants. According to Kutama, Dangora, Aisha, Auyo, Sharif, Umma and Hassan (2015), plants produce a diverse range of bioactive molecules and secondary metabolites, making them very rich sources of different types of medicine. "One of the earliest plant-derived drugs is aspirin from the plant known as *Spiraeaulmara*" (Balick and Cox 1996). In his study on *Ethno-botany and Biodiversity Conservation in the Niger Delta, Nigeria*, Rufus (2010) reported that many plant species grow in the Niger Delta forest, and these species have been known to be of importance in the medical and pharmaceutical industries. Abubakar, Musa, Ahmed and Hussaini (2007) recorded 72 plants valuable in the treatment of cancers and related disorders among Fulani and Hausa ethnic groups of Northern Nigeria. Furthermore, Anwana and Obot (2003) stated that 67 plant species from 38 families are used for treating ailments by people living inside and within the support zone of the Cross River National Park.

Nevertheless, Chukwuma, Soladoye and Feyisola (2015) have noted that on one hand, the use of plants has contributed enormously to the health sector; on the other hand, the demand for herbs, particularly in parts of Africa, has brought some plants near extinction. They argued that traditional healers use plant resources in treatment, but they are yet to consider the regeneration of these important medicinal plants used by them. Thus, they highlighted the need for emphasis on managing and protecting our rich flora diversity as this ensures the availability and sustainable use of these important plants.

Furthermore, plants such as seaweeds and the bark of cashew trees are sources of natural gum. "Natural gums are *polysaccharides* of natural origin, capable of causing a large increase in a solution's viscosity ..." (Natural Gum, 2017). In the food industry, they are used as thickening agents, emulsifying agents, and stabilizers. In other industries, they are also used as adhesives, crystal inhibitors, clarifying agents and encapsulating agents (Natural Gum, 2017). Equally, natural dyes can be derived from plant parts such as berries, leaves, roots, bark and wood.

Plants also serve various symbolic, sacred and magical purposes. In African metaphysical ontology, for instance, Ikeke (2013) remarks that the intrinsic value of the forests is rooted in its pantheistic-psychic foundation, which implies that the divine active force and spirit of the creator pervade all creation. "The forest is held and revered to be a sacred entity and in most cases the habitation of supra-human forces" (Ikeke 2013). In Benin Republic, Rey (2008) remarks that it is generally believed that ancestral spirits dwell in *Ceiba pentendra* (cotton/kapok tree). Again, in Haitian Voodoo, there is equally a profound reverence for forests and trees. According to Rey (2008),

the significance of trees in Voudou worship emanates from the fact that trees are the sources of raw materials for the sacred drum, the Voudou priest's sacred rattle, in short, source of celestial approach. In his discussion of the spirit world of African peoples, Adogbo (2000) argues that the people of Urhobo in Delta State, Nigeria believe that forest groves are the homes of various kinds of landspirits existing as either primordial or malignant spirits.

These myths, spiritual beliefs and worldviews of folk cultures have played and are still playing pivotal roles in the use and conservation of biodiversity. A handful of writers have emphasized the central role of cultural practices which are embedded in taboos, myths, folklore, values and traditional institutions in the conservation of biodiversity, and have called attention to the proper integration of indigenous methods in modern conservation endeavours. Berkes, Colding and Folke (2000), as cited in Rankoana (2016), have argued that approaches to conserving plant diversities based on cultural and religious values are often more sustainable than those based only on legislation or regulation. In Indonesia, Sasaoka and Laumonier (2012) reported that local resource management is embedded in the wider socio-cultural context of the local communities; while in the Malagasy's spiritual cosmology, Golden (2014) observed that the use of taboos for sustainable environmental conservation underlines local people's need for their survival.

Methodology

The study used in-depth interview, field observation and photographic documentation as the primary data collection techniques. Empirical data were supported with secondary sources of data from journals, books, unpublished theses, etc. For the purposes of validity and 'generalizability' of findings, participants were selected from communities within and outside Nsukka main town such as Obukpa, Ihe-aka and Orba.

Nsukka: Background Information

Nsukka is the headquarters of Nsukka Local Government Area of Enugu State, Nigeria. The town is situated on the north-western border of Enugu State; lying at "latitude 06 52'N, longitude 07 24'E and with an altitude of 447.26 metres above sea level" (Onyeonagu and Asiegbu 2006). Nsukka main town is made up of Nkpunanor, Ihe n' Owerre and Nru communities; each of these communities comprise smaller villages and clans. However, neighbouring towns such as Orba, Enugu-ezike, Obollo-afor, Mkplogwu, Okpuje, etc. are sometimes referred to as Nsukka because of their close affinity not only in physical terms, but also in socio-cultural

relatedness. This explains why all of the mentioned towns fall under one political zone known as Nsukka or Enugu North Senatorial Zone.

In the view of Ofomata (1972), the landforms of the Nsukka area, as in most south-eastern Nigeria, are developed over relatively simple geological formations. The sedimentary formations which cover the area fall into three main but simple geological groups: the shale, the coal measures and sandstones". Ofomata notes that four geomorphic divisions which are closely related can be identified in the Nsukka area: western lowland, a plateau zone, an escarpment zone, and eastern lowland. Nsukka has a tropical wet and dry climate; two distinct seasons - wet and dry - are recognizable. On the average, the weather condition of Nsukka is quite caressing and the vegetation is best described as derived savanna.

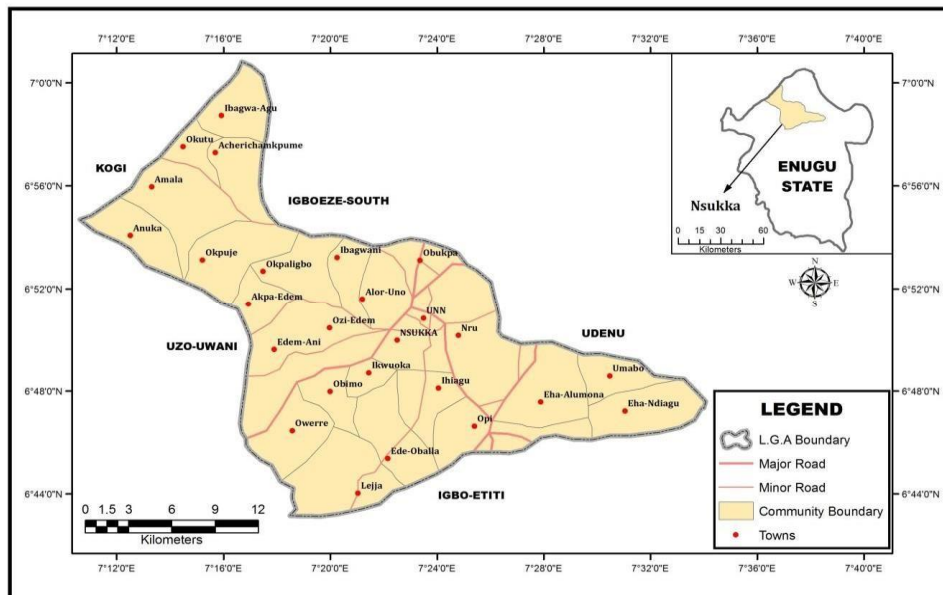


Figure 1: Map of Nsukka L.G.A.

Source: Google Earth Library and Modification, GIS Unit, UNN (2017).

Findings

It is necessary to note that in terms of utility, plant classification adopted here is contextual as it is hardly possible to proffer a model of classification that will hold in every situation. This is true because numerous plants serve diverse purposes, and as the world progresses, new uses of plants are constantly evolving.

Sacred and Symbolic Plants

Sacred plants are plants which are of special religious, cultural, magical or medicinal significance to indigenous people. In Nsukka traditional society, *omu-nkwu* (young leaves of oil palm tree - *Elaeis guineensis*) symbolizes peace, death and danger. In the olden days, an area cordoned off with *omu nkwu* symbolized the presence of a small pox, leprosy or contagious disease victim. Furthermore, *ejuru-osisi* or *ogirisi* (*Newbouldia leavis*) were planted beside the graves of adult men usually aligned with the position of the head. The trees then became pointers for future generations in locating where their ancestors were buried.

Different types of kola nut exist, however, *oji Igbo* (*Cola acuminata*), which has more than two cotyledons (seed leaves) is of high socio-cultural importance in Igbo land, Nsukka being no exception. Among Nsukka people, breaking of kola nut is a *sine qua non* in most gatherings, thus, the authenticity of ceremonies and meetings are usually confirmed and kickstarted by the breaking of kola nut. Other sacred trees include *ngwu* (*Albizia ferruginea*), *aboshi* (*Baphia nitida*) and *ofo* (*Detarium senegalense*). *Ofo* (or *oho* in Nsukka dialect) is a foremost sacred tree in the Nsukka area. According to an informant, Fabian Ozioko of Umueze-Umakashi, Nsukka, the *ofo* tree located along Orba road, Nsukka is the “mother” of *ofo* trees in Nsukka main town. Those conferred with titles such as *ozioke*, *oha* and *onyishi* are entitled to hold *ofo*. Any person in possession of *ofo* title is not expected to tell lies or exhibit partiality; in other words, *ofo* symbolizes justice.



Plate 1: *Ukwu oho* (*Detarium senegalense*) along Orba Road, Nsukka.

Forage Plants

Forage is a plant material (mainly plant leaves and stems) eaten by grazing livestock (Forage 2017). Leaves and twigs of the following plants are used as forage for goats and sheep: oil palm tree leaves (*igu nkwu*), *alagba*,

itari-oba, and *uturukpa* (*Kigelia africana*). The main grasses that serve as fodder include: *ebandu*, *igowa*, *akamtoro* (*Upatorium odoreta*), *nri-ewu* or *aramjila* (*Aspilia Africana*), and bitter leaves (*Vernonia amygdalina*) locally known as *onugbu*.

Plants for Boundary Demarcation

These are live trees and shrubs used in demarcating land boundaries. It is instructive to note that a handful of plants with religious significance are also in this category. Some of the boundary plants are also used in fencing portions of land; examples are: *ejuru-osisi* or *ogirisi* (*Newbouldia laevis*), *aboshi* (*Baphia nitida*), *ibodo*, *ogbu* (*Ficus spp*), *ijikara* (*Spondias mombin*), *odo* (*Dracaena arborea*), etc.



Plate 2: Traditional fencing (*uho*) constructed with *ogbu* (*Ficus spp*) and *azana* (*Hyparrhenia spp*)

Handicraft Plants

Certain plants are suppliers of raw materials for the production of various crafts such as brooms, trays, baskets etc. Basically, brooms (*aziza*) are made from midribs of the oil palm tree (*Elaeis guineensis*) by scraping the leaf blade or lamina from the midrib of oil palm leaves (see Okigbo 1980:25). In addition, the twigs of certain plants can also be used as brooms, for example, *agba* (*Carpolobea alata*), *atu ogiri* (*Olax latifolia*) and *aziza-agu*.

Trays are made from spear grass referred to as *eta* or *ata* (*Imperata cylindrical*). The material which is produced from *ata* used in the production of tray is called *ekwere* or *emere*. Another plant that supplies raw material for tray production is the *okwete* plant. Also, *akpara* and *emere* got from the palm oil tree are used to make basket. Walking stick in Nsukka dialect is known as *mgburu*. *Mgburu* is made from *emida* tree because it is very strong. Walking stick can also be produced from other hard woods, including *iroko*.

Blacksmiths produce charcoal from the wood of *ahaba* (*Acioa barteri*). However, one of the informants remarked that due to extensive and

unsustainable farming practices, *ahaba* has become an endangered plant. As a very hard wood, the stem and branches of *ukpaka* (*Pentaclethra macrophylla*) are used to produce mortar and pestle known as *ikwe* and *odu* respectively. Palm production vessel locally known as *ugbo-akwu* or *ikwe-akwu* is also hewn out of stems of *ukpaka* tree. Other tree plants from which mortar and pestle can be produced are *inyi*, *okpeye*, and *ado*.

Some of the plants used in constructing hoe and machete handles include: *ukpaka* (*Pentaclethra macrophylla*), *ujuru*, *ado*, *inyi*, *ngwu* and *akparata*. Rope can be produced from palm trees and from a thorny, sticky shrub locally known as *ebari*. A particular type - *ebari-iyi* is found around Ohe, Nsukka. According to Okigbo (1980:29), double looped climbing rope called *agbu* or *udo-nkwu* is made of twisted fibres from the upper surface of the oil palm leaf petioles (*ekwere*) and the fibrous part of the petiole attached to it.

Plants for Costumes and Musical Instruments

A prime traditional musical instrument in Nsukka is *ekwe* (wooden gong). *Ekwe* is carved from logs of tree such as red *ugbamaji* or *ora* (*Pterocarpus soyauxii*), *okpeye*, *iketeku* and *okpo*. The choice of these plants as material for producing *ekwe* is based on the capacity of the woods to generate loud sound. *Okpo*, for example, is used as musical instrument in ritual ceremonies because when beaten, it produces loud and sharp sound. *Okwe*, African wood oil nut tree (*Ricinodendron heudelottii*) and *olu* (mahogany) are used in constructing a local drum known as *igba* or *abia*. Because *okpo* is a light wood, wooden mask worn by masquerades (*ishi-mma*) are carved from it. Another masquerade costume is *odeshe* which is worn around the ankle and waist. This costume which is made by lacing together seeds of plants like *udara* (*Crysophyllum albidium*) produces sound as the masquerade moves.

Another musical instrument is *osha*. It is made from *akpara*, leaf petioles of the oil palm tree. Percussion or rattle instrument called *oyo* is made of a small conical basket mounted on a circular gourd (Okigbo 1980:25). The basket has a curved handle and is filled with gravel or seeds of certain plants such as *udara* (*Crysophyllum albidium*) and when shaken, the *oyo* produces characteristic sounds varying according to the pattern of shaking (see Okigbo 1980:25).

Plants (Woods) used in Building Construction

In traditional building construction, posts or pillars are usually erected with the stem and big branches of hard woods. One of the most prominent woods is the oil bean, *ukpaka* (*Pentaclethra macrophylla*). Other hard woods which the same purpose include: mahogany locally known as *uroko* (*Chlorophora excelsa*), *inyi*, *akparata*, *ngwu* and *egbu* (*Alstonia boonei*), etc. Logs

of these trees, in modern times, are sawn into various sizes for construction of skeletal roofing, doors and windows as well as frames for doors and windows. The 2 x 2 inch wood popularly known as 'poline' is locally referred to as *emuma*, while the 2 x 3 inch wood used as wall plate is called *ndido*.

Traditionally, leaf petioles of the oil palm tree, *nkwu* (*Elaeis guineensis*) known as *akpara*, *igu* or *ogugu nkwu* are used in roofing together with the stem of *otoshi* or *achara* (*Oxytenanthera abyssinica*). Thatching materials are mostly derived from grasses such as *eta* (*Loudetia arundinacea*), *azana* (*Hyparrhenia spp*) and *uma* (*Marantochloa cuspidata*).

In contemporary time, *otoshi* (*Oxytenanthera abyssinica*) has become very useful in constructing storeyed buildings as the stems are used to support beam and floor boards during casting. The most prominent plants used in constructing temporary shelter are *otoshi* (*Oxytenanthera abyssinica*) and the leaves and stems of the oil palm tree. The use of parts of the oil palm tree to construct shade is locally known as *idondo*.

Medicinal Plants

A medicinal plant is any plant which one or more of its organs contains substances that can be used for therapeutic purposes, or which are precursors for the synthesis of useful drugs (WHO 1977 in Chukwuma, Soladoye and Feyisola 2015). Plants have been found useful in medicine in three major ways. First, they may be used directly as tea or in other extracted forms for their natural chemical constituents. Second, they may be used as agents in the synthesis of drugs. Finally, the organic molecules found in plants may be used as models for synthetic drugs (The Columbia Encyclopedia, 2009).

The use of plant parts as medicine dates back to ancient times and the Igbo culture of south-east Nigeria, including Nsukka, are not left out in this ancient practice. In Nsukka area, trees, shrubs, grasses, weeds, and even saprophytes of medicinal values abound. Eze (2005), for instance, identified no fewer than 84 medicinal plants in Umunocha-Obukpa, Nsukka. Ugwu (1999) has equally studied some medicinal plants used in the treatment of dysentery in Nsukka zone. The plant parts used in traditional medicine include: fruit, leaves, root, bark, bulb, stem, latex and seed.

The seeds of bitter kola, *igogoro* or *aki-ilu* (*Garcinia cola*) are used to cure cough. A research participant, Ejiofor Ugwuowo of Umuse Village in Ihe n' Owerre, Nsukka, explained that *ibodo* and *akamtoro* (*Chromolena odoranta*) are used in treating snake and scorpion bites. Bleeding can as well be stopped by drinking the liquid squeezed from the leaves of *akamtoro* (*chromolena odoranta*) and *ahinji* (*Ocimum gratissimum*).



Plate 3: An informant demonstrating how akamtoro (*Chromolena odoranta*) is used in treating snake/scorpion bites

Eze (2005) extensively studied some of the medicinal plants in UmuonchaObukpa, Nsukka. The following is an excerpt from his work presented in tabular form:

Table 1: Some Plants and their Medicinal Values

S/N	Family	Botanical Name	Common name	Native Name	Parts used	Medicinal Value
1.	<i>Annonaceae</i>	<i>Xylopiiaet hiopica</i>		<i>Udah</i>	Seed	<i>Udah</i> is a herbal seasoning used in the preparation of a stimulating hot soup for a woman who is delivered of a child. As a seasoning with herbal potentials, <i>udah</i> helps in contracting the uterus which results in the expulsion of blood clots. This is referred to as post partum maternal health care.
2.	<i>Crassiaceae</i>	<i>Garcinia kola</i>	Bitter kola	<i>igogoro</i>	Fruit, bark and root	The fruit can be chewed to prevent cracked or coarse voice, sore throat and cough. It can be used as antidote for poison. Again, bark and root decoction is used for treating stomach and rib pains. The fruit can as well bed chewed to stimulate sexual urge.
3.	<i>Asteraceae</i>	<i>Vernoniaa mygdalina</i>	Bitter leaf	<i>Onugbu</i>	Leaves and twigs	Decoction of the leaves is used as worm expellant. Mashed leaves can be used to stop bleeding. Twigs are chewed for stomach upset, and leaves are taken to cure

						cough.
4.	<i>Piperaceae</i>	<i>Piper guineensis</i>		<i>Uziza</i>	Leaves	Leaves are eaten to improve chances of pregnancy.
5.	<i>Lamiaceae</i>	<i>Ocimum gratissimum</i>	Fever plant	<i>Nchuanwu</i>	Leaves	The leaves contain thymol oil which is antiseptic and laxative. The leaves are dried for about ten days. The dried leaves are then crushed and the powder particle is used to prepare tea which is taken as hot infusion. This can serve as remedy for fever.
6.	<i>Rutaceae</i>	<i>Citrus aurantifolia</i>	Lime	<i>Oroman kirisi</i>	Root and juice	The root of <i>Psidium quajava</i> are used to treat impotence. The root is also used for preparing medicine for rheumatic pains; the juice is also an excellent purgative.
7.	<i>Asteraceae</i>	<i>Chromola odorata</i>	Baby bush	<i>Akamtoro</i>	Leaves	Decoction of the leaves together with <i>Emilia souchifolia</i> is used to bath a child as remedy for measles. The liquid from the macerated leaves is applied on wound to stop bleeding; equally, headache can be alleviated when the leaves are chewed.
8.	<i>Apocynaceae</i>	<i>Alstonia boonei</i>	Pattern wood	<i>Egbu</i>	Bark	Decoction of the bark when given to a woman in labour helps in delivery of the placenta. The bark and the leaves of paw paw (<i>Carica papaya</i>) and mango (<i>Mangifera indica</i>) are used to cure malaria. The bark is also used in post-parturition treatment.
9.	<i>Acanthaceae</i>	<i>Acanthus monanthus</i>		<i>Agamsos o (Igbo)</i>	Leaves	Leaves help in controlling diabetes.
10	<i>Euphorbiaceae</i>	<i>Ricinus communis</i>	Castor oil	<i>Ugba</i>	Leaves and root	Paste got from cooked leaves is applied to guinea worm sore. Decoction of the root is taken as remedy for lumbago (lower back pain).

Beverage and Food Plant

Nkwu is a local wine produced from palm oil tree (*Elaeis guineensis*). Wine tapped from a live oil palm tree is called *nkwu*, while the one tapped from a felled palm tree is known as *ekpo*. *Ekpo* is not as tasty as *nkwu*. The leaves of *ugbamaji* or *ora* (*Pterocarpus soyauxii*) are used in cooking soup, while the seeds of *ado* and *akparata* are used as thickeners. The leaves of *abara ugba* are used in processing *ogiri-okpei*, a local sweetener which is preferred to imported ones by some people. When cooked, the seed of *ukwa*, African breadfruit (*Treculia africana*) can serve as food together with the product-like soup, *mmiri-ukwa*, with which the seeds were cooked. Finally, *Udara* (*Cryosophyllum albidium*) produces fruits which are edible; the fruit of *ukpaka* is edible and is mostly used in cooking yam.



Plate 4: Fruits of the oil bean tree, *ukpaka* (*Pentaclethra macrophylla*)

Cover/Fallow Plants

Aramjila (*Aspilia africana*) is the major cover crop and it replenishes the soil nutrient. *Nkogbu*, which is a very tough weed and *akamtoro* (*Chromolena odoranta*) can also serve as cover crops. A shrub called *ahaba* (*Acioa barteri*) is used as fallow plant and for checking erosion.

Plants for other Utilitarian Purposes

Chewing sticks are mostly obtained from the stem of plants; such plants contain chemical substances that inhibit the formation of dental plagues. Plant parts used as chewing sticks have equally been shown to contain alkaloids, saponin glycosides, terpenoids, and tannins as their main constituents of biological importance (Ighodaro 1987:2). The smaller branches of *aboshi* (*Baphia nitida*) which have sugary taste are used as chewing stick among Nsukka people. Other plants used as chewing sticks are: *ado*, *ujuru*, *atu-ilu*, *igogoro* (*Garcinia kola*) and *aziza- agu*.

The fruit of the shrub locally known as *uli* is macerated to produce liquid used as dye. In parts of Igbo-Etiti Local Government Area, some women still use the dye for body decoration. Another type of dye known as *uhie* is made from red *ugbamajai* or *ora* (*Pterocarpus soyauxii*) by cutting open the tree trunk to extract the dye. Native pear, *ube* (*Dacryode edulis*) and the incense tree, *ubeagba* (*Canarium schweinfurthiis*) produce resinous substances which are used in mending broken pots, calabashes and gourds (*iko*, *oba*, *obammanya*). The resin from *ube* (*Dacryode edulis*) and latex from *ogbu* (*Ficus spp*) can also serve as gum (see Okigbo 1980:31).

Yam is the king of foods in Igbo Culture. The New Yam Festival is the most popular of all traditional festivals among the Igbo, as it cuts across the entire Igbo land. In Nsukka area, the stems of *ogbu* (*Ficus spp*), the branches of *udele-esue*, *itari-oba* and *ahaba* (*Acioa barteri*) are used for constructing yam barns. Others include *otoshi* (*Oxytenanthera abyssinica*) and *akpara* produced from the oil palm tree.

Finally, certain plants serve as raw materials for constructing objects used in recreational activities. *Eche* or *ncho* is a well-known local game in traditional Igbo society. The wooden material used to play the game is carved from *okpeye* or *okpo*. *Udara* (*Crysophyllum albidium*) and *egbela* seeds are used to play the game of *eche*.



Plate 5: The local game of eche

Discussion

The various uses derived from indigenous plants show that plants have played and continue to play indispensable roles in the socio-economic, ecological, cultural and religious/cosmic well-being of the people of Nsukka. This explains why native knowledge of the various uses of indigenous plants should be revived and sustained as ways of achieving sustainable development. This is considered necessary as it was found, in the course of this study, that knowledge of indigenous plants and their various uses are

disappearing among the younger generations, owing to factors such as globalization and urbanization. This finding lends credence to the views of Salerno, Guarrera and Caneva (2005) in their study on 'Agricultural, Domestic and Handicraft Folk uses of Plants in the Tyrrhenian Sector of Italy', when they observed that the loss in the knowledge of the highly specific techniques of knotting is traceable to the disappearing custom of using twine made from plants in the craft of knotting. This ugly trend in Nsukka area has to be nipped in the bud since the shared knowledge of plants and their uses promote cultural resurgence and preservation of cultural resources. Sustaining cultural identity could manifest in the form of local crafts which serve as both artifacts and souvenirs. Also, production of local crafts can be saved from sinking into oblivion where folk people's knowledge of the various uses of indigenous plants is revitalized. Revival of native understanding of indigenous plants and their uses are also central to the maintenance of ecosystems and biodiversity which discourages environmental degradation and promotes conservation of the natural environment.

Economically, adequate knowledge of the nutritive and medicinal value of foods processed from indigenous plants can encourage people to reduce their reliance on exotic foods which leads to economic leakage due to excessive food importation. As Okigbo (1980) has noted, increased reliance on exotic foods has considerably reduced the fibre content of our foods. Dietary fibre (roughage), as we know, is very effective in the treatment of constipation.

From the perspective of medicinal plants, this study reveals that lack of standard dosage and uncertainty about the chemical composition of the medicinal plants are among the problems confronting traditional medicine. Similarly, Okonkwo (2012: 69) remarked that traditional healing systems have come under backlash because of the low educational status of [most] practitioners, and the fact that herbs are not subjected to scientific scrutiny, thus, may not be administered in the right dosages. In view of this, it is pertinent that government should encourage more rigorous pharmacological and toxicological inquiries into medicinal plants in order to establish valid dosage standard, avoid administration of toxic dosage, and validate the therapeutic claims. If these measures are taken, demand for medicinal plants will increase, and the need for their conservation will gain more credence. Allaby (1998) pointed out the darkest side to ignoring conservation when he stated that lack of conservation measures will lead to an increase in the number of endangered plant species, and this will ultimately result in extinction of important plant species.

To this effect, it is of paramount importance to emphasize the role of participatory approach towards conserving plant species. This approach encourages active involvement of all stakeholders, especially local people whose plant resources are at risk. At this juncture, it will suffice to argue that the pivotal role of traditional practices in the preservation of plant species cannot be dismissed with a wave of hand. Taboos which feature prominently in native conservation practices may be refined and re-conceptualized to blend with modern conservation approaches.

Another way of conserving plant species is the use of forests for the provision of outdoor recreation as suggested by Ozor and Odo (2008). These authors opine that parks provided by forests serve as avenues for ecotourists who pay to experience nature at work. A typical example is the famous 14,500 km² Serengeti National Park in Tanzania that has long been protected and managed for wildlife and other natural resources (Mastrantonio and Francis, (1997) as cited by Ozor and Odo (2008)). Indeed, arguing from the perspective of Social Exchange Theory, people will be better motivated to protect and conserve their plant resources when they begin to see the practical benefits (e.g. economic diversification and employment opportunities) that may accrue from using their forests, botanical gardens and arboreta as centres for recreation and tourism.

Recommendation and Concluding Remarks

The rediscovery of the uses of indigenous plants in the Nsukka area will be a milestone in the efforts being made towards using cultural resources as a platform for achieving the goals of sustainable development. To make this feasible, concerted effort should be made towards managing and conserving the plants which are at the centre of the agenda. And when we remember that new uses of plants are relentlessly evolving aside from the conventional uses, we then clearly realize the crucial role of conservation in the sustainable development quest. Based on the aforesaid, the following recommendations may be instructive in the conservation of plant species not just in the study area, but also among the people of other cultural groups.

- Identification of endangered plants species.
- The use of botanical gardens and arboreta as means of conservation.
- Coordinated efforts by the ministries of Agriculture and Health at establishment of nurseries where medicinal plants can be cultivated.

- Identification of institutions including NGOs to plan and implement findings from ethno-botanical studies.
- Traditional conservation practices should be encouraged and made to blend with modern conservation approaches.
- Harmful harvesting practices such as up-rooting and ring-barking (girdling) should be discouraged.
- Media campaign activities (like radio jingles) that raise awareness on the importance of habitat and biodiversity conservation should be introduced.
- Policy on salvage of botanical materials from potential development sites, and promotion of ex-situ conservation practices should be introduced.

In a millennium where sustainable development has come to the fore, indigenous knowledge which is a key component of cultural resource management is expected to play a leading role. A major aspect of indigenous knowledge that should be given priority is ethno-botany – the knowledge of how folk people make use of plants.

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