

UTILIZATION OF *Allanblackia floribunda* FOR RURAL LIVELIHOOD SUSTENANCE IN RIVERS STATE, NIGERIA

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ABSTRACT

Allanblackia floribunda Oliv. (Clusiaceae) is valued for food, medicine, timber and soap making across tropical African regions. This study was carried out in five local government areas in Rivers State; Eleme, Emohua, ObioAkor, Ndoni and Oyigbo to evaluate indigenous uses of the plant. The five local government areas were selected using random sampling technique. One community was randomly selected in each local government area; Eneka, Ebubu, Obukegi, Ubimini and Mgboji. Also, 20 households were randomly selected further in each community. The results showed that *A. floribunda* is used as food [oil (26.90%), condiment (15.97%)], medicine for treating [malaria (17.30%), stomach ache (65.65%), head ache (1.60%), body pain (4.00%) and infertility (4.13%)], timber [construction (13.35%), building (52.65%), pole (13.35%)]. It was also observed that there are some factors that predispose the species to endangeredness/extinction such as urbanization (19.18%), shifting cultivation (8.80%), logging (33.26%), bush burning (21.10%), oil spillage (7.82%). The respondents expressed willingness to support conservation strategies for *A. floribunda* such as seedling provision by agencies/government, domestication of seedlings and appropriate policy with adequate implementation by government. If the strategies listed above are adopted the species will be preserved and prevented from being extinct.

Keywords: *Allanblackia*, Conservation, Ethnobotany, Rural dwellers, Rivers State

INTRODUCTION

Forest fruit tree species such as *Treculia africana*, *Chrysophyllum albidum*, *Allanblackia floribunda*, *Irvingia gabonensis* produce edible fruits which contain minerals and vitamins essential for healthy growth. *Allanblackia floribunda* Oliv. (Clusiaceae) is one of the nine species of the genus *Allanblackia*, found in the moist tropical forest which stretches across Africa from Liberia to Tanzania (Pye-smith, 2009). The tree, which grows up to 30m, is evergreen, and has a straight bole (occasionally fluted). Branches of the tree are slender and drooping and often conspicuously whorled (Keay, 1989). The fruit of *A. floribunda*, is known as Izeni and Uzoka (Edo), Orogbo-erin (Yoruba), Egba (Ibo), Ediang (Efik), Obobio-obo (Ijaw) (Anegbeh et al., 2007). The local name of the fruit vary from one community to the other in the study area, it is known as "Njahabinah" (Eleme), "Ucham" (Obio/Akor) (Emohua), "Ichaa" (Oyigbo), and "Ureni" at (Ogba/Egbema/Ndoni). The fruit is brown, roughly fleshy, slightly grooved longitudinally and contains about 50 brittle-shelled seeds.

Ecologically, *Allanblackia floribunda* is found in wide range of habitats: it is distributed in wet evergreen rainforests. The tree thrives well in the Niger Delta Region of Nigeria, especially in abandoned forests (acidic soils) with rainfall as high as 2400 mm. It is also found in forest reserves, fallow lands and occasionally in farmlands etc. (Anegbeh et al., 2005).

Culturally in the moist rain forest area of Nigeria the plant is valued for firewood, construction of village hut, furniture (doors, windows), poles, bridge-piles, yam stakes, candlesticks and chewing sticks. Local hunters use the fruits as animal feeds/bait in trapping animals such as rats and porcupines (Anegbeh et al, 2005). Fat obtained from the seed, known as 'Allanblackia fat' or 'beurre de bouandjo' in Congo, is used in food preparation. The seeds are eaten in times of food scarcity while the fruit slimy pulp can be made into jams and jellies. Decoction of the stem bark and leaves is used in the treatment of dysentery, toothache, asthma, bronchitis, urethral discharge and cough in Gabon and Democratic Republic of Congo (Ayoola et al., 2009, Orwa et al, 2009). Bonanome and Grundy (1988) said, the oleic and stearic acids from the oil are used to lower plasma cholesterol levels thus reducing the risks of heart attack.

Allanblanchia twigs have been used as candlesticks and chewing-sticks or tooth picks locally, the timber is fairly durable and suitable for use under damp conditions especially in harbours, bridges piers and pit props (Orwa et al 2009). *Allanblackia floribunda* oil is used in soap manufacture and is of commercial interest for margarine production, as it requires less chemical processing and refraction than palm oil (Atangana et al, 2006). Recently, the international food industry has become interested in the fat as a natural solid component for margarines and similar products (Orwa et al, 2009).

Natural forests, the habitat of this important species is currently being lost in an alarming rate to shifting agriculture and urbanization throughout the tropics, vegetation loss associated with crude oil exploration and processing with incessant spillage in the Niger Delta Region of Nigeria further threatens the wild populations of the species. Despite the multiple utility of *A. floribunda* across cultural heritages, scanty literature exists on its ethnobotany and conservation in the Niger Delta region of Nigeria. This work focused on the ethnobotanical studies of the plant in Rivers state, Nigeria.

METHODS

Study Area

Rivers State is situated between latitudes $4^{\circ}45'N$ and longitudes $6^{\circ}50'E$ East of Greenwich Meridian in the south-south region of Nigeria. The state is bounded on the North by Imo State, on the south by the Atlantic Ocean, on the East by Abia and Akwa Ibom States and on the West by Bayelsa and Delta States, (Fig. 1). The inland part of the state consists of tropical freshwater rainforest vegetation and mangrove swamp towards the coast. It is made up of various ethnic groups, such as, Ekpeye, Ikwerre, Etche, Ogoni, Kalabari and Okirika. The people largely engaged in peasant and subsistence farming, fishing and trading. Port Harcourt, the administrative headquarters is a cosmopolitan city and has witnessed the influx of professionals of different nationalities due to exploration of crude oil and associated industries. All these activities led to high population and urbanization, the population of the state was 5,198,716 during the 2006 census, (FGN, 2009)

Five Local Government Areas (LGAs) were randomly selected for the ethnobotanical study; Eleme, Oyigbo, Obio/Akpor, Ogba/Egbema/Ndoni and Emohua. In each of the LGAs, a community was randomly selected namely: Ebubu, Eneka, Obukeji, Ubimini and Mgboji respectively. Twenty households each were further selected for questionnaire administration in the five communities totaling 100 households. Information on the local uses and conservation of the species were obtained through the use of structured questionnaires and oral interviews. The data obtained from the field survey was analyzed using descriptive statistics.

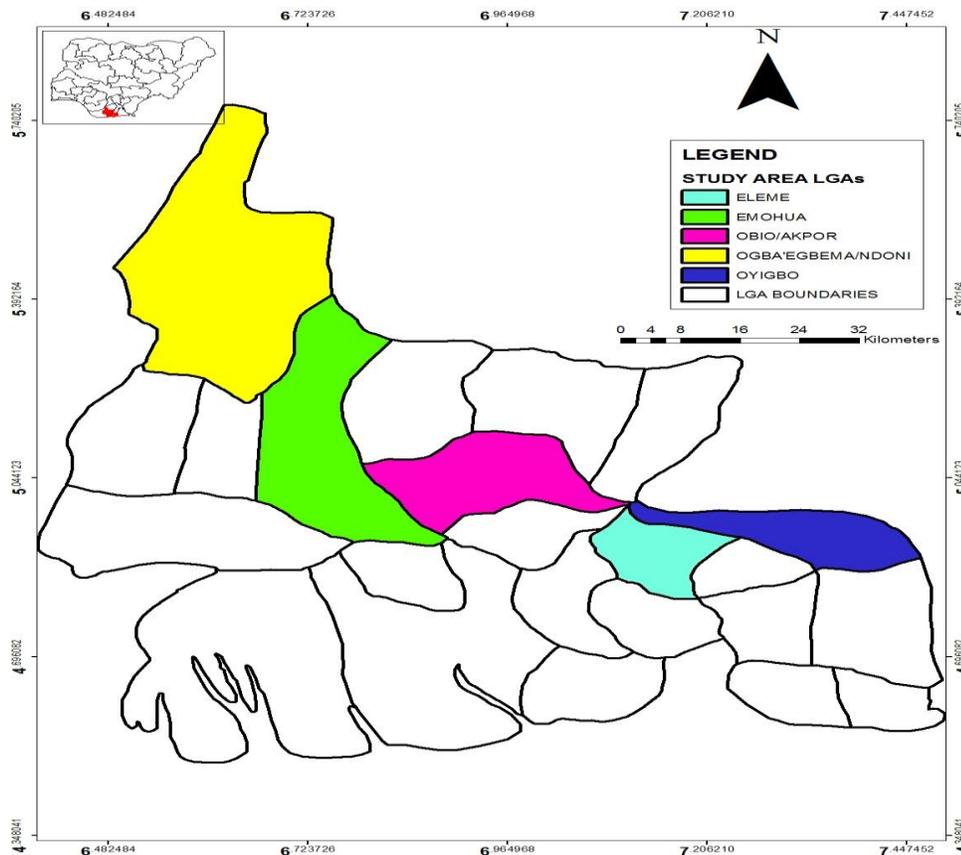


Fig. 1:Map of Rivers state showing the study areas,
Source: Ministry of works, Rivers State

RESULTS AND DISCUSSION

A. floribunda plays very important role in sustaining rural livelihood in the study area, its utilization varies with community. The species fruit is locally consumed as food (oil and condiments), medicine and timber. It is used for firewood and hut construction, doors, windows, poles, bridge-piles, yam stakes, candlesticks and chew sticks (Anegbehet *et al.*, 2005a). Local hunters use the fruit as bait for large vertebrate animals such as Elephant, *Loxodonta africana* during hunting, decoction of the stem bark relieves body pains, cough, asthma, bronchitis, dysentery, hypertension and toothache in Ghana, (Orwaet *et al.*, 2009, Bilandaet *et al.*, 2010). About 100%, 69.2% and 63.6% of the respondents in Emohua, Oyigbo and ObioAkpor respectively use the plant for the treatment of stomach upsets locally (Table 1). Orwaet *et al.*, 2007 also reported that the fruits and seeds are edible and produces edible oil. Forest fruits, leaves and nuts contribute significantly to the household food supply during off season among forest based communities in sub Saharan Africa. The fruit oil is used as food 91.7%, 42.9% in Emuoha and Ndoni LGAs respectively; this is unique especially in the remote rural areas of Rivers state as reflected in Table 1. Dike, (2010) noted some leaves, fruits and seeds of tropical rain forest tree species are edible both by man and animals. Several parts of some plants such as stem, bark, leaves and roots are used in folk medicine (Burkill, 1985; Odoemelam and Onwubuazu, 2009). The bole of *A. floribunda* is used as timber and pole in local construction of houses for windows and doors, several edible fruit bearing trees in the forest are also good sources of timber such as *Irvingia gabonensis*, *Ricinodendron heudelotii* and *Pycnanthus angolense*.

Table 1: Utilization of *Allanblackia floribunda* in Rivers state, Nigeria

Community	Food		Medicine				Timber			
	Oil (%)	Condiment (%)	Stomach upset (%)	Malaria (%)	Head-ache (%)	Body pain (%)	Infertility (%)	Building (%)	Construction (%)	Pole (%)
Emohua	91.7	8.4	100.0	-	-	-	-	85.7	9.53	4.8
Ndoni	42.9	71.4	32.0	40.0	8.0	20.0	-	68.0	12	20.0
Eleme	-	-	-	-	-	-	-	39.5	34.88	25.5
Oyigbo	-	-	69.2	19.2	-	-	11.5	70.0	13.58	16.4
Obio/Akpor	-	-	63.6	27.3	-	-	9.1	-	-	-

Source: Field survey, 2011

Table 2 revealed that rural populations in Rivers state use *A. floribunda*; in treating stomach ache (65.65%), malaria (17.30%), infertility (4.13%), body pain (4.00%) and headache (1.60%); for building (52.65%), construction (13.96%), pole (13.35%) and as oil (26.90%) and condiment (15.97%). Herbal remedies from *A. floribunda* are prepared with fresh or dry leaves and stem barks. Rejdali and Birouk, (1996) observed that about 80% of rural populations in developing countries rely on herbal preparations for their healthcare needs. *A. floribunda* is prominent among plants used in the treatment of prevalent diseases in the poor tropical populations, the efficacy of *A. floribunda* in male fertility improvement has been reported in rats to confirm folkloric claims by local people in Cameroun (Kadaet al, 2012), all the plant parts (Root, stem bark and seed) are used in various herbal preparations by the people in the study area (Table 2). In Eleme LGA *A. floribunda* is mainly used as timber, this is due to the fact that LGA has the highest level of urbanization among the surveyed LGAs.

Table 2: Parts of *Allanblackia floribunda* used locally the study area

Community	Food		Medicine				Timber
	Fruits (%)	Seeds (%)	Seeds (%)	Leaves (%)	Root (%)	Bark (%)	
Emohua	75.0	25.0	94.4	5.6	-	-	100.0
Ndoni	64.3	35.7	48.9	28.5	13.6	8.9	100.0
Eleme	-	-	-	-	-	-	100.0
Oyigbo	-	-	56.3	34.4	3.1	6.3	100.0
Obio/Akpor	-	-	44.4	11.1	33.3	11.2	100.0

Source: Field survey, 2011

Factors pre-disposing *Allanblackia floribunda* to endangeredness/extinction

The factors that predispose the species to endangeredness are logging of mature trees for timber without replanting (33.26%), indiscriminate annual bush burning by hunters (21.10%), urbanization through infrastructural developments (19.18%), pest and diseases (9.84%), shifting cultivation (8.80%) and oil exploration (7.82%). Dereservation of natural forest for urbanization, illegal and uncontrolled logging and annual bush burning during land preparation for shifting agriculture have been identified as agents' leading to the extinction of many rare and endemic species in tropical Africa (Oladele et al., 2011). Results showed that uncontrolled logging activities in the area predisposed the species to endangeredness. Arable agriculture

practiced through annual bush burning by the farming communities contributes to loss of many genetic resources including *A. floribunda*. Oil exploration was the least due to the fact that only two of the study sites Eleme and Ndoni play host to crude oil exploration projects significantly.

Table 3: Factors that predispose the species to endangeredness/extinction

Factors of extinction	Local Government Areas				
	Emohua (%)	Ndoni (%)	Eleme (%)	Oyigbo (%)	Obio/Akpor (%)
Urbanization	-	2.33	35.85	2.17	55.56
Shifting cultivation	17.95	-	-	26.05	-
Logging	40.03	39.53	35.85	37	13.89
Bush burning	35.9	20.93	-	34.78	13.89
Oil exploration	-	37.21	1.89	-	-
Others (erosion, pest and diseases)	6.12	-	26.41	-	16.66

Source: Field survey, 2011

CONCLUSION

This study has shown the local uses and importance of *Allanblackia floribunda* as an indigenous forest tree. It also highlighted various uses derived from *Allanblackia floribunda* in the different study areas which includes food (oil, condiment), medicinal uses, and timber.

The findings in this work have shown that despite the various uses of *A. floribunda*, the plant is becoming rare and faces extinction in the study area gradually through uncontrolled logging, bush burning, urbanization, shifting cultivation and oil exploration. There is dire need for conservation measures considering its prospects industrially for *Allanblackia* fruit oil, local medicinal values and preservation of indigenous genetic resources. Sustainable use through controlled logging, domestication programmes and farmers' education should be encouraged in the Niger Delta region where the plant is abundant.

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