



Consumption of *Irvingia Gabonensis* in Ukwuani Area, Delta State, Nigeria

Opute, O.H., Idumah, F.O., Arabomen, O and Olugbire, O.O
Forestry Research Institute of Nigeria, PMB 5054, Jericho, Ibadan, Nigeria.

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ABSTRACT

This research work examined the consumption pattern of *Irvingia gabonensis* in Ukwuani area of Delta State, Nigeria. The target respondents were the households in the study area. Data for the study was collected by administering structured questionnaires to and interview of one hundred (100) respondents. Data analysis was done using simple descriptive statistics, T-test and Chi-Square. The students T-test was used to compare the different uses of *Irvingia gabonensis* in the study area by the consumers/households. The result showed that 100% of the respondents are aware of the species; most of the respondents (89.4%) consume it while 10.6% did not utilize it. It was also discovered that, majority of the respondents (62.4%) use it for soup only while 37.6% consumed it as food and fruits. Most of the respondents (67.1%) sourced them from the markets, 4.9% from the collectors and 2.8% from forested areas. The result also confirmed that it is widely accepted (87.1%) in the study area. The study also revealed that the utilization rate of *Irvingia gabonensis* in the study area is increasing (76.5%) while 23.5% asserted that it is decreasing. Majority of the respondents (79.2%) confirmed that they use it because of its nutritional importance while 20.8% consume it because of its medicinal uses. The socio-demographic results showed that all of the respondents (100%) that used it are less than 30 years, 100% of students and civil servants utilize it more than other categories while the result of the Chi-square reveals that utilization depends on primary occupation and also educational background of the respondents. This paper therefore recommended among other things that domestication and interventions of this species should be encouraged for proper management and sustainability.

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Introduction

The forest contains not only timber but many other useful goods and services of subsistence and commercial value. Non-timber forest products (NTFPs), which sustain rural people and rural economies (Nkwatoh *et al* 2010). Various research work have been carried out on NTFPs by different authors, for instance, Nkwatoh (2000) studied the marketing of NTFPs in Cameroon and Nigeria.

NTFPs have several definitions depending on the context. The Food and Agricultural Organization (FAO) 1990 defined it as products that maybe extracted from forest ecosystem and are utilized within the household or are marketed or have social, cultural or religious significance. FAO (1999) also considered NTFPs as goods of biological origin other than wood derived from forests, other wooded lands and trees outside forests. FAO (2001) also defined NTFPs as all products derived from biological resources, foundation forestland but not including timber and fuel wood. According to Clark and Sunderland (2002), NTFPs are materials derived from forests-excluding timber but including 'bark, roots, tubers, corns, leaves, flowers, seeds, fruits, sap, resins, honey, fungi, and animal products'.

Though there are many NTFPs in the study area, this study focused on *Irvingia gabonensis* popularly known as Ogbono because it is one of the indigenous fruit trees with multiple uses and generates a high cash income within and outside Nigeria (Okafor, 1985; Okafor, 1991; Ladipo and

Boland, 1994; Akubor, 1996; Ladipo, 1999). It is very popular and its fruit is a drupe with a kernel inside. Fruits are used in two ways. Mostly children consume the fruit pulp. It is juicy and fibrous but perishable after a couple of days. The almond contained in the kernel is the most important part of the fruit and also, its kernels are highly priced as soup condiments (Okafor, 1985; Okeke, 1995). The pulp of *I. gabonensis* is used for the preparation of juice, jelly and jam; while the extracted fat from it is used in soap making, pharmaceutical preparations and domestic use (Okafor, 1985). It has a high nutritional content and is a commercial product in different countries like Nigeria. It is usually grinded and added into soup as condiment. It is very important as more attention is being paid to them not only to local, and national level but globally. Their utilization or utility differs; it may be direct or indirect on the consumers.

Despite the nutritional importance of *I. gabonensis* in the study area, there are no large scale plantations of the species and as a result it is going into extinction and also no documentation on the consumption pattern and mode. This creates the need for awareness in both the utilization pattern and mode, so as to encourage more people to embark on large scale plantation to ensure food security as well as poverty alleviation. This study will maximize the utilization potentials / patterns of the species to become a much more widely grown and utilized crop throughout the study area and Nigeria as a whole.

Tele:

E-mail address: ndiomezeopute@gmail.com

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The objective of this study is to: investigate the consumption level of *Irvingia gabonensis* within the study area; determine the factors affecting its consumption and investigate why it is generally accepted as a delicacy in the study area.

Methodology

The study area

Ndokwa-West Local Government Area (LGA) of Ukwuani area of Delta State, Nigeria has an area of 816km² and an estimate population of 149,323 (2006 Census). It lies between Longitude 6° 6', and 6° 42' E and Latitude 6° 31' and 5° 25' N. It is bounded in the North-East by Ika and Aniocha, South-East by Ahoada. It has three (3) robust local government areas namely; Ndokwa –West, Ndokwa–East and Ukwuani. The study area is predominantly a rural area with one of the major ethnic groups in the state. Though, Ndokwa-West local government area is made up of six autonomous communities (Emu, Abbi, Ogume, Onitsha-Ukwuani, Utagbano and Utagba-Ogbe), two (2) were purposively selected for the study as they are deemed to be sufficient representatives of the local government area in terms of the utilization of *Irvingia gabonensis*.

Sampling procedure and sample size

Ukwuani area of Delta state is made up of three (3) robust Local Government Areas (LGAs) of which Ndokwa-West was randomly selected for the study. Two (2) major communities in Ndokwa-West local Government area of Ukwuani were purposely selected based on the fact that it is one of their major delicacies. Random sampling technique was adopted for the selection of the respondents in the two communities. 50 respondents were randomly selected from each of the selected communities making a total of 100 respondents. Data were obtained through the use of structured questionnaires which were administered to the household/consumers in the area. In the end, only eighty five (85) of the questionnaires were valid and used for the analysis.

Data analysis

Data collected such as the socio-economic characteristics, utilization pattern and rates of utilization as indicated by the respondents were subjected to simple descriptive statistics and results are presented in tables. Students T-test was used to compare the different uses of *Irvingia gabonensis* in the study area by the consumers/households while Chi-square test was also used to determine the factors affecting the utilization pattern.

Results and Discussion

A. Utilization, Sources and Acceptance of *I. gabonensis*

The result (table 1) shows that *I. gabonensis* is widely known (100%) to the respondents in the study area in Delta state. As a result of this, majority of the people (89.4%) in the study area utilize it, which shows its importance to food security and also agrees with the findings of Jimoh and Adedokun (2005) which stated that, those who consume *Parkia biglobosa* have the largest percentage and it is therefore expedient to ensure sustainability of this species through effective management. On the other hand, few respondents (10.6%) did not consume it. It was basically discovered that the utilization form of *I. gabonensis* is soup (62.4%) and 37.6% consume it as fruit while the basic source of *I. gabonensis* by the respondent is the market (64.7%), this corroborates with the findings of Awono et al., 2009 which stated that *I. gabonensis* products utilized by the persons interviewed came from markets (48%) and that the market is therefore the main source of food supply for 48.4% of persons

interviewed. The result also revealed that other sources are from collectors (8.2%) and forested area (27.1%).

The result presented in table 2 also shows that in the study area 87.1% of the respondents accepted *I. gabonensis*. Many (72.9%) respondents emphasized that the species rate of consumption is highly increasing, whereas some (27.1%) argued that the utilization rate is decreasing. It was further noted that the utilization rate of *I. gabonensis* is decreasing majorly because of its price hike. The result shows that utilization of *I. gabonensis* is as a result of its nutritional importance (79.2%) coupled with its medicinal uses (20.8%).

Table I. Awareness, Consumption, and Purpose and Source of *Irvingia gabonensis*.

RESEARCH QUESTIONS	RESPONSE	FREQUENCY	PERCENTAGE %
Do you know <i>Irvingia gabonensis</i>?			
	Yes	85	100
	No	0	0
	Total	85	100
Do you consume it?			
	Yes	76	89.4
	No	9	10.6
	Total	85	100
How do you eat it?			
	As soup	53	62.4
	As fruit	32	37.6
	Total	85	100
How do you get it?			
	Market	55	64.7
	Collectors	7	8.2
	Forest	23	27.1
	Total	85	100

Source: Field Survey, 2013

Table II. Acceptance, Rate of Consumption, Reason for decrease and Value of *I. gabonensis*.

RESEARCH QUESTIONS	RESPONSE	FREQUENCY	PERCENTAGE %
Is <i>Irvingia gabonensis</i> accepted?			
	Yes	74	87.1
	No	11	12.9
	Total	85	100
Rate of consumption?			
	Increasing	62	72.9
	Decreasing	23	27.1
	Total	85	100
If decreasing, why?			
	Price hike	19	59.3
	Others	7	25.9
	Substitutes	4	14.8
	Total	27	100
What value do you derive?			
	Nutritional	61	79.2
	Nutritional and medicinal	16	20.8
	Total	85	100

Source: Field Survey, 2013

B. Socio-demographic factors affecting the utilization of *I. Gabonensis*

In order to discover the contribution of the socio-demographic characteristics of respondents on the utilization of *I. gabonensis*, some demographic characteristics were selected and cross tabulated with utilization rate, the results are presented in Table 3. It was discovered that the respondents that are less than 30 years (100%) consume the species more than every other age groups. Hence, there is significant difference ($p < 0.05$) in the utilization rate between

the age groups. Another socio-demographic factor that was discovered to affect the consumption of *I. gabonensis* is the primary occupation of the respondents. Here, student and civil servant (100%) happened to consume the tree more than all other categories of occupation. Chi square shows that utilization significantly ($p < 0.05$) depends on the primary occupation. It was also found out that utilization of *I. gabonensis* significantly ($p < 0.05$) depends on the educational background of the respondent. This is based on the fact that people with no formal education and those that hold tertiary certificate (100%) happened to have the highest rate of utilization of *I. gabonensis*. Ethnicity does not affect utilization of *I. gabonensis*, although, people from Kwale area (93.8%) have higher rate of utilization compared to Urhobo (66.7%) and Igbo (80%). Other factors such as economic status, residential area and the size of household do not affect the utilization of *I. gabonensi* in the study area.

Table III: Utilization of *Irvingia gabonensis* and socio-demographic characteristics.

Variable	Percentage	Chi-square value	Df	p-value
Age				
❖ <30	100	25.8	3	0.000*
❖ 30-59	93.3			
❖ 60-89	100			
❖ 89 & above	0			
Ethnicity				
❖ Urhobo	66.7	5.95	2	0.051ns
❖ Kwale	93.8			
❖ Igbo	80			
Primary occupation				
❖ Farmer	0	21.2	3	0.000*
❖ civil servant	100			
❖ self-employed	86.3			
❖ student	100			
Educational background				
❖ no formal education	100	13.84	3	0.003*
❖ primary	88.9			
❖ secondary	70.8			
❖ tertiary	100			
Economic status				
❖ poor	100	2.22	2	0.328ns
❖ average	90.2			
❖ rich	100			
Residential area				
❖ urban	89.8	1.87	1	0.171ns
❖ rural	100			
Household size				
❖ 1-4.	86.7	0.74	2	0.689ns
❖ 5-8.	90.2			
❖ 9& above	100			

Source: Field survey, 2013

ns=not significant at $p=0.05$, *=significant at $p=0.05$

Conclusion

Non-timber forest products (NTFPs) are very important to man for its nutritional values. *Irvingia gabonensis* is one of the important NTFPs in the area under study as majority of the people consumed it. This work has provided some information

on the utilization potentials of *I. gabonensis* in addition to raising awareness of the level of utilization of the species in the study area. Based on the findings of this study, it can be concluded that it is known by all the respondents in the area and majority of the respondents (89.4%) utilized it for both its nutritional and medicinal values. The level of utilization of *Irvingia gabonensis* is increasing as majority of the respondents (76.5%) reported, this corroborates with the findings of (Omokhua *et al* 2012), which stated that, in the last 15 years, the trend in marketing of *I. gabonensis* in Edo State has expanded through bulk buyers and retailers from different parts of Nigeria. The utilization rate varies with age as most of the people that utilize it are less than 30 years of age.

Recommendation

From the result and conclusion of this study, it is therefore recommended that since the rate of utilization is increasing, domestication and regeneration of the species should be encouraged and it should be harvested and utilized sustainably. Since the majority of the respondents reported that they consume it because of their nutritional importance, there is need to improve on its processing and preservation to increase the shelf life so as to be available all year round and reduce the tempo of over exploitation and for the product to be more acceptable not only at the local level this time around but also both at the national and international levels, this will also help in achieving sustainable management of the forest.

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