

## Assessment of Some Socioeconomic Aspects of Achi (*Brachystegia Eurycoma* Harms) in Nsukka Local Government Area of Enugu State, Nigeria

\*Uluocha, O. B.<sup>1</sup>, Edet, D. I.<sup>1</sup> and Ogbonna A. N.<sup>2</sup>

<sup>1</sup>Department of Forestry and Wildlife Technology, Federal University of Technology, Owerri, Imo State, Nigeria.

<sup>2</sup>Department of Forestry and Environmental Management, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria.

\*Corresponding Author's Email: ogechichub@gmail.com

### Abstract

Utility derived from *Brachystegia eurycoma* especially by households and low research interest in the plant necessitated studies to assess forms of significance derived from the plant, margins of productivity, form of landholding where *B. eurycoma* plant exists, prime period of harvest and other salient socioeconomic aspects related to the plant in Nsukka Local Government Area of Enugu State Nigeria. Ten (10) out of Twenty one (21) were randomly selected for the study. Ten (10) respondents were randomly selected from each selected village. A total of one hundred (100) sets of questionnaire were administered to respondents in which eighty sets of questionnaire were duly completed and returned. The result shows that 50.00% of the respondents (aged 50 - 59 years) were actively involved in the trade of *B eurycoma*. Farming (52.50%) is a major occupation while 50.00% of the respondents had household size of 6-10 individuals. Most (86.25%) respondents own *B eurycoma* trees while 37.50% of the respondents have been in the business more than 10 years. There is cultural benefit attached to the cultivation of *B eurycoma* as indicated by 50.00% of the respondents. Most (95.00%) of the respondents reposed harmattan as the best harvesting period for the species while 70.00% sourced the product from the market. Family labour (67.50%) was often acquired for the processing of *B eurycoma* seeds. According to 50.00% of the respondents, ₦2500-₦3000 profit was made monthly in the trade of achi. Seed wastage and storage (25.00%) were major constraints in achi's business. Again, about 35.50% of the respondents owned *B eurycoma* tree which apparently indicate low abundance of the species within household lands. The paper recommends that government should provide extension workers who will educate farmers on the need to plant *B eurycoma* since it potentially can generate income which enhances food security in the study area.

**Keyword:** *Brachystegia eurycoma*, socio-economic importance, livelihood, income

### 1. Introduction

Non-timber forest products (NTFPs) as all forest products other than timber that are extracted from the forest ecosystems and utilized within the household or marketed or have social, cultural or religious significance (Muhammade *et al.*, 2017). The NTFPs, therefore refer to both tangible forest products that are gathered from the forest by local

people for home use (food, fibre and forage) as well as for income generation. In Nigeria, forest food trees grouped as Non-Timber Forest Products (NTFPs), serve as alternative sources of food, especially during the hungry season (e.g. between November and April when food crops are planted) and thus contribute to food security

The edible products from these forest tree species are important for food security and have been noted to contain high level of vitamin C, minerals, sugar, proteins, etc, thus playing an important role in the nutritional balance of the people (FAO, 1989). Their barks, leaves, fruits, roots, seeds, etc could be used to cure a variety of sickness and diseases (FAO, 1998; Adewusi, 1997), thus contributing to the health care delivery. Also, they contribute significantly to rural poverty alleviation by providing employment and enhancing economic empowerment of rural dwellers through the collection, processing and marketing of their products such as fruits, seeds, leaves, root, etc. One of the forest food tree species that has been noted to have high socio-economic importance is *Brachystegia eurycoma*.

*Brachystegia eurycoma* is an economic tree crop that grows in the tropical rainforest of West Africa. It belongs to the *Caesalpiniaceae* family, the *Spermatophyte* phylum and of the order of *Fabaceae*. The crop is classified as legume with its pod containing seeds that are dicotyledonous. *B. eurycoma* seed contains 56% carbohydrate, 15% crude fat, 9% protein, 4.5% ash, and 2.9% crude fiber (Uhegbu, Onwuchelewa., Iweala & Kanus, 2009). It is a large tree with irregular and twisted spreading branches. The seed has a roundish flat shape with brown colour and hard hull. *B. eurycoma* can grow up to 35-37meters tall. The bole is irregular and usually branches from low down and flat crown; it can be 70-200cm in diameter often with small buttresses. It flowers between April and May while the fruit ripens from September to January and is released by explosive mechanism (Uzomah & Ahiligwo, 1999; Okwu & Okoro, 2007). The fruits occur as broad lathery dark purplish brown pods containing between four and six brown shiny flat disc-like seeds. The plant also possesses a rough fibrous bark which peels off in patches and often gives out brownish buttery exudates (Keay, 1989; Enwere, 1998). It has a restricted area of distribution, occurring in South Nigeria and Western Cameroon, possibly also in Gabon. *B. eurycoma* is a taxonomically difficult genus comprises about 30 species distributed in mainland tropical Africa and South Africa, (Burkill, 2004). *B. eurycoma* grows mainly along the river banks or swamps in Western and Eastern Nigeria and also grows best on a fertile mixture of top soil and river sand with watering interval of up to 3days. It is propagated by seed. *B. eurycoma* is known by various tribal names in the country: Edo (Okunen), Efik (Okung), Ejagham (Etare), Esan (Eku), Igbo (Achi), Igbo-Ukwuani (Onyan), Ijo-Zion (Akpakpaq). (Burkill, 1985).

The tree is harvested from the wild for local use as food and medicine, and also for its wood, which is used locally and also exported. It is suitable for use as both as shade plant and as ornamental tree, especially in the dry season when it produces masses of coloured young foliage (Igwe & Okwu, 2013).

The species is usually not cultivated but exist mainly in the wild although a few stands are found in homestead, compound farms and traditional agroforestry farms. The method of fruit collection for seed extraction is usually by natural seed fall. This method occurs naturally without human influence. Collection of fallen fruits is usually by women and children who provide the needed labour. The people collect the seeds and process them immediately to avoid deterioration that may be due to fungal infections. Sorting of seeds after collection is

done to remove unwanted materials such as twigs, leaves and other materials that normally accompany seed collection.

Despite identified huge benefits of the plant as food, income generator and other environmental services it provides, *B. eurycoma* has been greatly neglected especially with respect to its regeneration and improvement. Given the economic significance of the plant especially to rural households, the difficulty in propagation and low recognition of the crop in botanical and economic research studies, it becomes apt to reinvestigate the standing of this plant. The above is in addition to the observed likelihood of declining yield and productivity of existing stands which are not being replaced. Consequently, this study was conducted to determine the current social and economic implications of *B. eurycoma* in Nsukka Local Government Area of Enugu State, Nigeria.

## 2. Materials and Methods

The research was conducted in Enugu State with particular consideration to Nsukka Local Government Area. Ten (10) out of twenty-one (21) communities were randomly selected for the study. These villages are Nsukka, Eha-Alumona, Obukpa, Ede-Oballa, Ibagwa-Ani, Okpuje, Agu-Obete, Obimo, Edem-Ani and Opi. Ten respondents were randomly selected from each selected village. A total of one hundred (100) questionnaire were administered to respondents in which eighty sets of questionnaire were duly completed and returned. Oral interviews were conducted to make up for gaps identified during a questionnaire survey in the area. Text books, internet and journals were formed secondary sources of information used for the study. The study was basically a survey research method and the data obtained were analysed using descriptive statistics such as frequency, percentage and bar chart

## 3. Results and Discussion

Table 1: Demographic characteristics of respondents

Variable	Frequency	Percentage (%)
<b>Age:</b>		
20-29	3	3.75
30-39	8	10.00
40-49	12	15.00
50-59	40	50.00
60 and above	17	21.25
<b>Marital status:</b>		
Widowed	14	17.50
Married	56	70.00
Divorced	10	12.50
<b>Gender:</b>		
Male	30	37.50
Female	50	62.50
<b>Educational status:</b>		
No informal education	10	12.50
Primary level	32	40.00
Secondary level	26	35.50.

Tertiary:	12	15.00
Occupation:		
Farmers	42	52.50
Traders	22	27.50
Civil servants	16	20.00
Household size:		
1-5	12	15.00
6-10	40	50.00
11-15	18	22.50
≥16	10	12.50

Source; Field data (2016)

Table 1 shows that majority of the respondents (50%) were between 50 and 59 years of age, 21.25% were from 60 years and above, 5% were from the age bracket of 40-49 years while 3.75% were between ages 20-29 years. This indicates that the respondents were predominantly middle aged people who are energetic and strong enough to engage in collecting, preservation and marketing of *B. eurycoma*. However the marital status shows that majority (70%) of the respondents are married and according to Gristein-Weiss and Sherraden (2006) and Uluocha, Udeagha, Udofia, and Duruigbo, (2016), marriage, in socioeconomic terms, has positive implications in wealth creation and accumulation. Gender of the respondents indicates that 62.5% of the respondents were females while 37.5% were male. This implies that females likely partake more in the collection, preservation and marketing of *B. eurycoma* in the study area, which agreed with the findings of Ijeomah (2006) and Uluocha *et al.*, (2016) that women are more involved in the collection and processing of homegarden based NTFPs. However the educational level of the respondents shows that 40% had primary education, 35.50% had secondary education while 12.5% of the respondents had no informal education. This implies that the respondents in the study area had one form of education or the other which will bring about improvement in the productivity, profitability and efficiency in *B. eurycoma* business. However majority (52.5%) of the respondents engaged in farming as a major occupation, 27.50% engaged in trading while 20% of the respondents are civil servants. This indicates that the respondents are mostly farmers and they depend on farming for their livelihood. Household size shows that majority (50%) of the respondents had household size of 6-10 persons while 12.5% had household size 6-20 persons. This implies that larger proportion of residents in the study area had household size of 6-10 persons. This is implicated in terms of ready source of family labour to help with collection and marketing. This study agrees with the position of Anyanwu (2013) who observed that children are considered as an essential part of the household work force to generate household income.

Table 2: Distribution of the Respondents based on Ownership, form of Tenure and Benefit

Variables	Frequency	Percentage (%)
Ownership		
Yes	11	13.75
No	69	86.25
Source of land		
Communal land	56	70
Inheritance	20	25
Bought	4	5
Benefits		
Environmental	28	35
Cultural	40	50
Both	12	15
Total	80	100

Source: Field survey data (2016)

Table 2: shows that 13.75% of the respondents in the study area indicate that they have *B eurycoma* tree within their farm, 86.25% of the respondents indicated that they do not have *B eurycoma* tree though found in communal land (70%). This implies that the respondents in the study area do not attach importance in the planting of *B eurycoma* tree within their farmlands irrespective of the form of tenure holding. Again, about 70 % of the respondents in the study area indicated that land where *B. eurycoma* is planted is community land, 25% is inherited, while 5% of the respondents indicate that such *B. eurycoma* lands are bought. This reveals that majority of the lands where *B eurycoma* trees are grown were owned by the community (communal lands). Furthermore, 50% of the respondents indicate that there is cultural benefit attach to *B eurycoma* while 35% signified environment benefit. This implies that the plant apparently has a strong cultural significance for the people in the region.

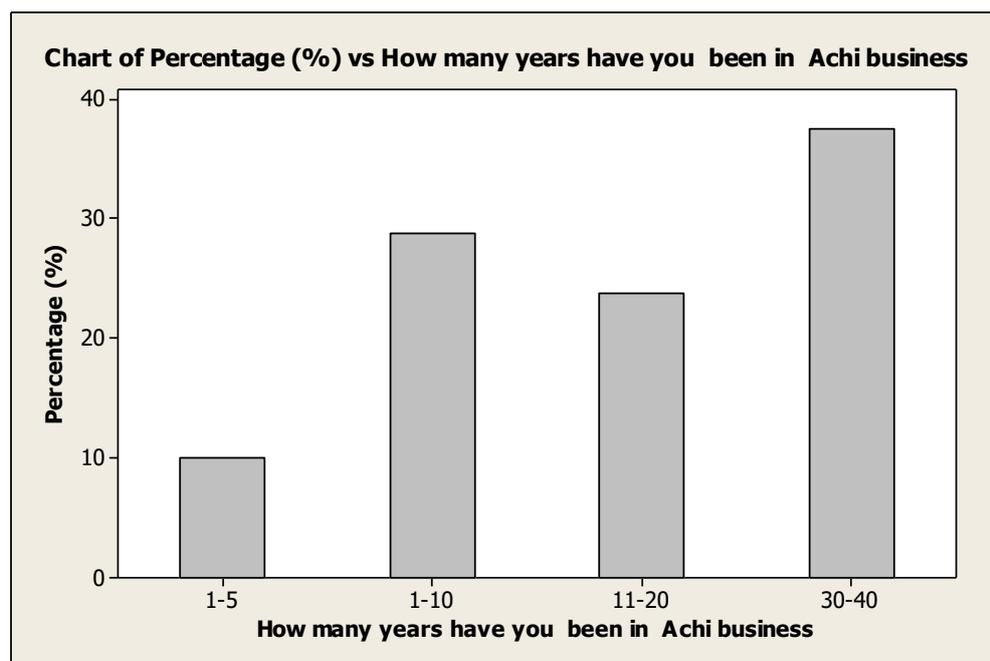


Figure 1: Description of Respondents' Involvement in the business

Figure 1: indicates that majority (37.5%) of the respondents have been in the *Brachystegia eurycoma* business for 6-10 years,. This implies that a large proportion of the respondents are into *B. eurycoma* business in the study area.

Table 3: Response on *Brachystegia eurycoma* abundance

Variable	Frequency	Percentage (%)
Species abundance		
1-5	30	37.50
10-20	10	12.50
30 and above	0	0.00
No idea	40	50.00
Total	80	100.00

Source field survey 2016

### 3.1. Respondents' perception of abundance of *Brachstegia.erycoma* in the study sites

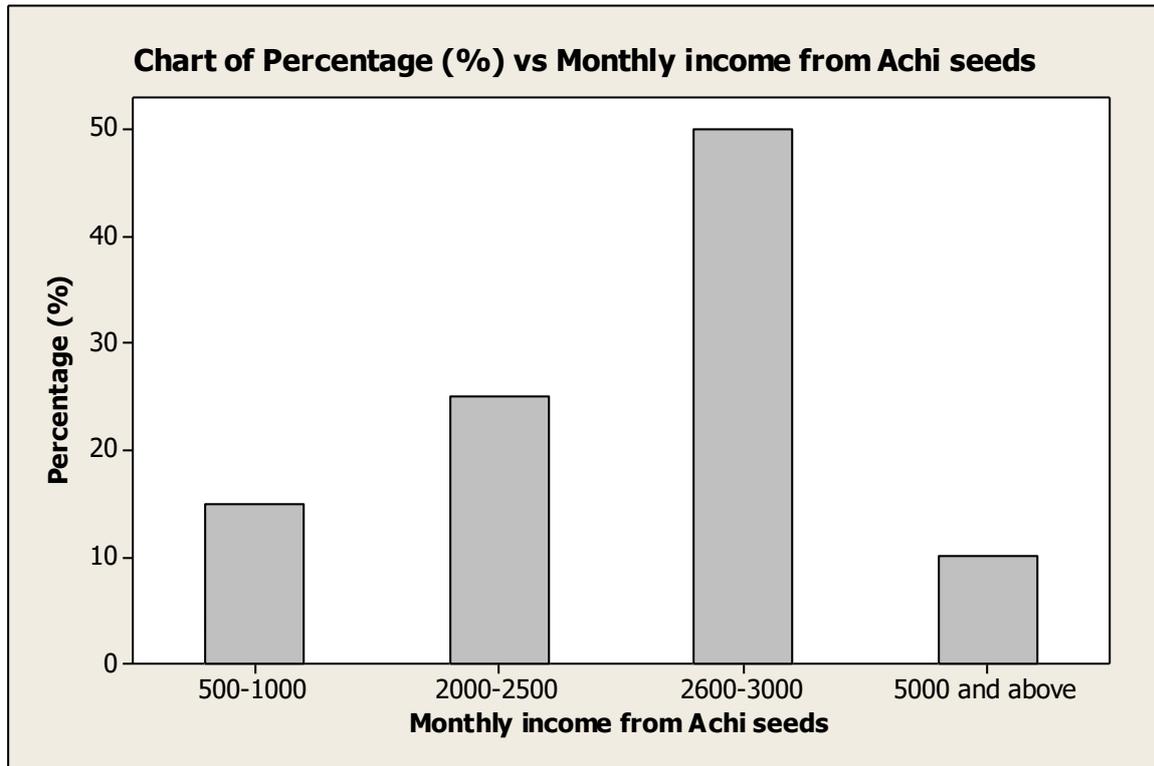
Table 4 shows that 75% of the respondents indicated availability of *Brachystegia eurycoma* in the study area. This implies that the respondents do not attach any importance in planting of *Brachystegia eurycoma* in the study area which makes the species to be rare and justifiably ought to be included among near-endangered species.

Table 4: Pattern of Collection and Harvesting of *B. eurycoma* in the Study Area

Variables	Categories	Frequency	Percentage (%)
Best collecting Season	Rainy season	12	15
	Dry season	76	95
Source of product	Wild	20	25.00
	Homegarden	4	5.00
	Other (market)	46	70.00
Reason for harvest	Marketing	40	50.00
	Home Consumption	24	30.00
	Both	16	29.00
Source of labour	Family labour	54	67.50
	Hired labour	14	17.50
	Both	12	15.00

Table 5 indicates that most of the respondents (95%) harvest optimally in the dry season while 15% harvest optimally in the rainy season. The result of the above suggests that the best season for collection of *Brachystegia eurycoma* seeds is in dry season,. In the result also, about 70% of the respondents sourced *Brachystegia eurycoma* seed from the market, 20% from wild and 5% from the homegarden. From the foregoing, *Brachystegia eurycoma* is most widely sourced in the market than from other sources/areas . Similarly, questionnaire analysis reveals that 50% of the respondents indicates that the reason for which they harvest the produce is for marketing. Furthermore, 67.5% of the respondents in the study area sourced labour from the family , 17.5% hired labour while 15% of the respondents obtained the labour from both hiring and family sources., In the light of the above, family among other sources predominantly provide ready, cheap and available

source of labour for planting, collection and marketing of *Brachystegia eurycoma* in the study area just as in most agricultural-based enterprise activities.



**Figure 2: Respondents estimation for monthly income from *Brachystegia eurycoma* seeds in the study area.**

According to interviews and discussions, the seeds of *B eurycoma* were being sold at the rate of ₦ 250.00 for 0.17kg weight and ₦ 2800.00 for 2.00kg weigh indicating increasingly high price associated with the produce. Figure 2 also shows that about 50% of the respondents in the study area were able to make profit between ₦2600-N3000 on monthly basis, 25% of earned ₦2000-N2500 monthly, 15% earned ₦1000 -N2000 monthly while 10% earned N5000 above on the monthly. This implies that residents in Nsukka area earn significant income from trade in forest products though in small scale. If this findings is something to be generalized, it then becomes difficult to reconcile this result with the views of International Bank for Economic Reconstruction and Development (IBRD) which latter document ranked Nigeria with per capital income of ₦1254.60 and thus placing Nigeria as one of the poorest nations in the world .

Table 5: Distribution of respondent according to the constraints in study area

Constrains	Frequency	Percentage (%)
Labour availability and cost	5	6.25
Storage problem and wastage	20	25.00
Tediousness	3	3.75
Price variation due to seasonality	10	12.50
Harvesting technique	4	5.00
Scarcity	6	7.50
Inadequate capital and founds	8	10.00

Lack of information	15	18.75
Ineffectiveness of indigenous practices	7	8.75
Absences of government policy	2	2.50
Total	80	100.00

### 3.2. Factors that affect the price of *Brachystegia eurycoma* in the study area

Table 5 shows that majority (25%) of the respondents had storage problem and wastage, 18.75% faced lack of information, 12.5% price variation due to seasonality while 10% of the respondents indicate inadequate capital and found. This implies that storage and wastage was the major problem faced by the respondents in the study area.

### 4. Conclusion and Recommendation

Based on the outcome of the research carried out, *Brachystegia eurycoma* has the ability to enhance rural livelihoods by providing income, environmental and cultural value in Nsukka Local Government Area. Currently, the species is becoming rare around the study area due to perceived lack of interest in the species growth and propagation with evident, uncontrolled fruit harvesting and exploitation. There is therefore need for provision of extension worker who will educate the people especially farmer on the need to plant *Branchystegia eurycoma* since it has the ability to sequester carbon, generate income which enhance food security. There is need also for further research on how to improve on the variety that could have early maturity. This would possibly guarantee its abundance and availability and equally increase its contribution towards sustaining the livelihoods of the rural households who depend on it.

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