



Socio-Economic Contributions and Marketing of *Garcinia Kola* (Bitter Kola) in Ijebuode, Ogun State, Nigeria

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ABSTRACT: This study examined the socio-economic contribution and marketing of *Garcinia kola* to human livelihoods in Ijebu-ode Ogun State. Simple random sampling was used to select 100 respondents from the study area and questionnaires were distributed to the selected respondents. Descriptive statistics were used to analyze the socio-economic characteristics of the respondents while Gini coefficient and cost and return analysis were used to analyze the market structure and profitability. The result showed that 95% of the respondents were females, 35-45 age category have the highest percentage (48%). The finding revealed that the Islamic religion pre-dominate the study area. Acquisition of occupational skill by majority (64%) was through apprenticeship i.e. learning. Price fluctuation was the major challenge (78%) faced by the respondents. The valuation and utilization of the bark of *Garcinia kola* for treatment of malaria has highest (84%) percentage while the seed was used by majority (60%) to cure cough. The study showed the average profitability of all the markets, New market has the highest gross profit (₦8,500) while Oke-aje market has the lowest gross profit (₦3,293.75). Computation of Gini-coefficient (G) helped to reveal the structure of the market. The result, $G=0.4708$ indicates the oligopolistic nature of the market, which means the study areas were characterized by few sellers. Majority (90%) of the respondents revealed that trading in bitter kola is profitable than trading in other non-timber forest products. Based on this findings, it was recommended that bitter kola marketers in the study areas should endeavor to form a co-operative and also, banking industry in Ogun State Nigeria should be made to consider in giving out loans to the bitter kola traders to enable them to go on mass trading of the products since price fluctuation was the most severe constraint to bitter kola marketing in the study area.

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The forest is one of the main stays of economic development in Nigeria, millions of households in developing countries and in Nigeria particularly depend on various products other than timber and other industrial round wood i.e. Non-Wood Forest Products (NWFPs) which have always constituted a large part of the forest economy (Adeyoju, 2005).FAO has adopted a working definition which describes “Non-wood Forest Products as consisting of goods of biological origin other than wood, derived from forests, other wooded lands and trees outside forests” (FAO, 2006). They include food items (such as honey, nuts, mushrooms and leaf fodder for animals), construction materials (including rattan and palm leaves), medicinal plants, other health care and cosmetic products and items of cultural and spiritual significance (FAO, 2006). *Garcinia kola* commonly known as ‘bitter kola’ is an economic and highly valued nut-bearing tropical tree available in large quantity in West Africa. *Garcinia kola* Heckel (*Guttiferae*) seeds (‘bitter kola’) which are widely consumed as a stimulant (Famuyide *et al.*, 2012). *Garcinia kola* has great economic, value across

West Africa; and the seeds are of particular importance in the social-cultural lives of the people in the tropics. The nuts of bitter kola are highly valued for their perceived medicinal attributes, and consumption of large quantities of them does not cause indigestion. The part of *Garcinia kola* plants such as the seeds, the nuts and the bark have been used extensively in African traditional medicine for the treatment of various diseases (Adebayo and Oladele, 2012). Traditional African medicinal uses include, treatment of cough, purgative, anti-parasitic, antimicrobial (Adefule-Ositelu *et al.*, 2004). The seed is used in the treatment of diarrhea bronchitis and throat infections and liver disorders (Yakubu *et al.*, 2014). Its economic contribution to both domestic and national markets, according to them, raises the standard of living of those involved in its trading activities both in the rural and urban centers. Trading in bitter kola is more profitable than trading in other non-timber forest products in most developing countries. This is because of the high amenability of bitter kola (both in fresh and dried forms) to storage (Famuyide *et al.*, 2012). In Nigeria, where

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employment opportunities for traditional industries are declining, workers looking for alternative sources of income often turn to the collection of non-timber forest products, such as bitter kola, from nearby forests (Adefule-Ositelu *et al.*, 2004). According to Chinyere *et al.*, (2013), the plants bark, seeds and stem are traditionally used in the treatment of throat infections, acute fever and inflammation of the respiratory tract. The leaves are also used to treat against stomach problems and also a remedy for typhoid. *Garcinia kola* seed and other parts of the plant are sources of medicine and income generation and were examined in Ijebu Ode Local Government area Ogun State to find out the abundance and the socio-economic contribution to rural livelihood in the study area.

MATERIALS AND METHOD

This study was carried out in Ijebu ode, Ogun State. Ijebu ode is one of the cities in Ogun State located in the South- Western part of Nigeria, close to the A121 highway. It has an estimated population of about 209,175. It lies between latitude 6.82°N and longitude 3.92°E and 68meters elevation above the sea level. Ijebu-ode is the trade center of the farming region where yam, cassava, grain, tobacco and cotton are grown.

Data collection and analysis: The instrument for data collection was structured questionnaire. A total of 100 *Garcinia kola* traders were selected using simple random sampling techniques. The markets that were covered are Oke-aje, New market and Ita-ale, and questionnaires were administered to the randomly selected respondents. The quantitative and qualitative data were analyzed using appropriate descriptive and inferential statistical tools. Descriptive statistical tools such as frequencies and percentage were used to analyze the socio economic characteristics among the respondent.

Cost and return analysis was used to determine the profitability while Gini coefficient was used to determine the market structure.

Gross revenue (GR) = Total output * unit price

Gross profit (GP) = GR- VC

Net profit (NP) =GP-FC

Rate of return (ROR) = $\frac{TR*100}{TC}$

Rate of return on investment (RORI) = $\frac{Profit*100}{TC}$

Profit = TR – TC

$$PI = \frac{GP}{GR}$$

Where PI = Profitability index

Gini coefficient= 1– EXY

Where = Percentages of sellers per period of study and Y = Cumulative percentage of total sales (revenue)

RESULTS AND DISCUSSION

Socio- economic characteristics of respondents: *Garcinia kola* contributes significantly to the socio-economic livelihood of the people. From the field survey shown in Table 1, it was revealed that about 95% of the respondents were female while 5% were male. This show that more female participates in *Garcinia kola* trading and marketing activities and it's probably because women are more predominant in capital aspects of forest business include marketing (Ogunwande *et al.*, 2009).Age distribution of respondents showed that 48% of the respondents were between 35-45 years of age.

Table1- Socio-economic Characteristics of Respondents

Variables	Frequency	Percentage
SEX		
Male	5	5
Female	95	95
AGE (Years)		
24-35	21	21
36-45	48	48
46-55	31	31
MARITAL STATUS		
Married	82	82
Divorced	8	8
Widow	10	10
LEVEL OF EDUCATION		
No Formal Education	42	42
Primary	41	41
Secondary	17	17
ETHNIC GROUP		
Yoruba	100	100
RELIGION		
Christianity	48	48
Islam	52	52
FAMILY SIZE		
2-4	60	60
5-7	40	40
MODE OF ACQUISITION		
Inheritance	36	36
Apprenticeship	64	64
YEARS OF EXPERIENCE		
1-5 years	5	5
6-10 years	29	29
11-15 years	35	35
16-20 years	31	31
THOSE INVOLVED IN OTHER OCCUPATION		
Yes	99	99
No	1	1
SOURCE OF CAPITAL		
Personal savings	100	100

This is an indication that most of the traders of *Garcinia kola* were still within the active age group and could easily move around to source for the *Garcinia kola* products. It was observed from the survey that 82% of the respondents were married and this conforms to the findings of Taphone, (2009) who reported that married people have more responsibilities in taking care of their family members. Table 1 also revealed that 42% of the respondents had no formal education, 41% had at least primary education. This implies that most of the respondents were not educated. Majority (60%) of the respondents had household size between 2-4 people. The finding agrees with Asa and Eyo (2015) who reported that the average household size of rural dwellers in Ijebu-ode is low.

Valuation and Utilization of *Garcinia kola* Parts

Table 2 shows the Valuation and utilization of *Garcinia kola* Parts. From the table, the use of *Garcinia kola* is advantageous to all respondents in the study area. The bark of *Garcinia kola* is used by majority (84%) in treatment of malaria and to treat diabetes (16%). The seed is reported in curing of cough (60%), sore throat (27%), repel of snake around the house (8%) and in neutralizing poisonous substance in food. The root is used for the treatment of stomach disorder and relieve of tiredness. This is in line with (Chinyere *et al.*, 2013) who reported that the seeds, nuts and root of *Garcinia kola* plants have been used extensively in African traditional medicine for the treatment of various diseases.

Table 2. Valuation and Utilization of *Garcinia kola* Parts

Variables	Frequency	Percentage
IS THE PLANT VALUABLE		
Yes	100	100
No		
BARK USAGE		
Malaria	84	84
Diabetes	16	16
SEED		
Sore throat	27	27
Snake repellent	08	08
Cough	60	60
Detoxify poison	15	15
ROOT USAGE		
Stomach	70	70
Tiredness	30	30

Marketing activities of Respondents: Table 3 shows the Marketing Activities of Respondents in the study area. All respondents preserve *Garcinia kola* by air drying and the use of nylon as the preferred packaging materials. Major customers were from general public (98%) while (2%) were herbalist. Majority of the respondents (93%) were tax payer and price

fluctuations (78%) is the major challenge faced by the respondents.

Table 3. Marketing Activities of Respondents

Variables	Frequency	Percentage
METHOD OF PRESERVATION		
Air drying	100	100
PACKAGING MATERIAL		
Nylon	100	100
CUSTOMERS		
General public	98	98
Herbalist	2	2
SHOP RENT		
1000-2000	52	52
2001-3000	48	48
TAX PAYMENT		
Yes	93	93
No	7	7
MODE OF PAYMENT		
Per market day	73	73
Per month	7	7
MARKET CHALLENGES		
Price fluctuation	78	78
Seasonality	21	21
Poor market structure	1	1
BUSINESS RATING		
Lucrative	90	90
Non-lucrative	10	10

Average Monthly Profitability of Respondents: The profitability of selling *Garcinia kola* in the three markets visited (Ita-ale, Oke-aje and New market) are shown in table 4. In Ita-ale market, the gross profit was put at N5,609, the Rate of Return (ROR) was 131.60% while Rate of Return on Investment (RORI) was 24.01. The Benefit Cost Ratio (BCR) was 1.32, with Profitable Index (PI) of 0.24. At Oke-Aje market, the gross profit was put at N3,293.75, the Rate of Return (ROR) was 117.18% while Rate of Return on Investment (RORI) was 14.67. The Benefit Cost Ratio (BCR) was 1.32, with Profitable Index (PI) of 0.15. Also, in New market, the gross profit was put at N8,500, the Rate of Return (ROR) was 171.31% while Rate of Return on Investment (RORI) was 41.63. The Benefit Cost Ratio (BCR) was 1.32, with Profitable Index (PI) of 0.15. According to Olukosi and Erhabor, (2005), the higher the rate of return on investment, the better for the success of the business. Adebayo and Oladele, (2012) also state that trading in bitter kola is more profitable than trading in others non-timber forest products in most developing countries.

Distribution of Bitter kola Traders in the Study Areas: Table 5 shows the distribution of bitter kola traders in the study areas. The Gini co-efficient of 47.08% returned implies that the market is profitable. The indication is therefore that the market concentration is high, suggesting that the market with the highest sales income controlled a large enough volume to be considered dominant, hence, market price would be determined by the market with highest sales.

Table 4. Average Monthly Profitability at the Market Visited

Parameters	Ita-Ale Market	Oke-Aje Market	New Market
Fixed Cost			
Basket	650	650	650
Rent	1,284.33	2,550	553.33
Variable Cost			
Cost of buying	15,666.67	15,825	10,566.67
Tax	75	75	75
Other Expenses	75	75	75
Total Fixed Cost	1,933.33	3,200	1,203.33
Total Variable Cost	15816.67	15,975	10,716.67
Total Cost	17,750	19,175	11,920
Total Revenue	23,359	22,468.75	20,420
Gross Profit	5,609	3,293.75	8,500
Rate of Return	131.60	117.18	171.31
Rate of Return on Investment	24.01	14.67	41.63
Benefit Cost Ratio	1.32	1.17	1.17
Profitability index	0.24	0.15	0.42

Table 5. Computation of Gini Co-Efficient in the Study Areas

Markets	Frequency	% of sellers (X)	Cumulative %	GP	% of Income	Cumulative% (Y)	(XY)
Oke-aje market	40	40%	40%	3,293.75	19%	19%	0.0757
Ita-ale market	30	30%	70%	5,609	32%	51%	0.1535
New market	30	30%	100%	8,500	49%	100%	0.3000
Total	100			17,402.75			0.5292

GINI CO-EFFICIENT: 0.4708

Conclusion: In conclusion, the study has shown that the contributions of *Garcinia kola* should not be underestimated when we consider the roles they play in the economy of any nation. Women were the dominant participants in the trade because they play crucial role in the downstream Forestry enterprise development. Bitter kola marketing is profitable as evidenced from the result of budgetary analysis. Most severe constraints to bitter kola marketing in the study area were poor marketing channels, price fluctuation, and season availability of bitter kola nuts.

REFERENCES

- Adebayo, SA; Oladele, OI. (2012): Medicinal Value of Kolanut in Nigeria: Implication of Extension Service Delivery. *Life Sci. J.* 9(2): 114-118
- Adefule-Ositelu, OA; Adefule, OK; Oosa, BO; Onyenefa, PC. (2004): Anti-fungal Activity of *Garcinia Kola* nut extract as an ocular bacteria isolates in Lagos. *Nig Qt. J. Hosp. Med.* 14: 112-114
- Adeyoju, SK. (2005): Forestry and the Nigerian Economy. Ibadan University Press, Ibadan 1st Edition. pp 308.
- Asa, UA; Eyo, EJ. (2015): Constraint to palmwine marketing in rural areas of Akwa Ibom State, Nigeria. *British J. Sci.*, 33(8): 625-630
- Chinyere, CE; Ebakota, OD. (2013) Antibacteria Activity of *Garcinia kola* seed and leaf extract on some selected clinical isolate. *Science J. of Microbiol.* 9: 35-47
- Famuyide, OO; Adebayo, O; Adediran, O; Owese, T; Bolaji-Olatunji, K; Odebiyi, A.(2012); Price determination of *Garcinia kola* (cited kola) and *Aframomum elegnata* (Alligator pepper) in Ibadan, Oyo State. *J. Bio. Agric. Health Care:* 2. (7) 52-60
- Food and Agriculture Organization, FAO (2006): Better Forestry, Less Poverty: A practical Guide. FAO Forestry Paper. No. 149, pp 66.
- Ogunwande OA; Jimoh, SO; Asinwa, IO; and Adegoke, FF. (2009): Survey and comparism of market prices of selected NTFPs in Osun and Oyo States. *Obeche J. of Tree Club.* 2: 9-22
- Olukosi, JO; Erhabor, PO. (2005).Introduction to Farm Management Economics: Principles and Applications. Agitab Publishers Ltd, Samaru, Zaria, Nigeria.
- Taphone BG. (2009): Resources productivity and Efficiency in Groundnut Farming in Northern part of Taraba State, Assessed 14th November, 2016. Pp 456
- Yakubu, FB; Adejoh, OP; Ogunade, JO; Igboanugo, AB (2014): NTFPs collection as an alternative source of income for poverty alleviation among rural farmers in Egbeda Local Government, Oyo State. *Acad. J. Interdisciplinary Stud.* (3): 467-474.

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