

## Marketing and distribution of *Garcinia kola* (Bitter kola) in southwest Nigeria: opportunity for development of a biological product

Babalola FD & Agbeja BO

Department of Forest Resources Management, University of Ibadan, Nigeria

### Abstract

The study evaluates the different marketing of Bitter kola (*Garcinia kola*) starting from the point of production with the view to improving the trade. Farmers have *Garcinia* trees on their farm and these were spared during land preparation for farming. Marketing of *Garcinia* nuts generated appreciable income to the producers and intermediaries. Unfortunately, *Garcinia* trees are currently on the decrease as a result of deforestation; this therefore calls for urgent attention on the establishment of *Garcinia* plantation. Diversification of the products should be encouraged to create more market opportunities and accrued benefits.

**Keywords:** Selling price, marketing problems, distribution channel, producer, merchant, wholesaler, retailer

### Introduction

*Garcinia kola* Heckel (Bitter kola) is an important and ancient trade product. The nuts are endemic to the humid lowland rainforest vegetation, and are available in markets throughout West and Central Africa, from Senegal town in Sierra Leone to south-west Cameroon. The trees are abundant in densely populated areas of natural and secondary forests where the predominant land-use system is tree-crop plantation farming. The major places where the commodity is found growing wild are forest reserves and free areas of the rainforests (Aiyelaagbe *et al.* 1996), or it is either planted or conserved on farms of oil-palm-cocoa-yam plantations (Adebisi 2004). These two growing regions are found in low-altitude areas with an annual rainfall of 2,000 to 2,500 mm, temperatures of 21 - 32 °C and a minimum relative humidity of 76% (Ntamag 1997). Apart from being a stimulant, the *Garcinia* nut has a bitter astringent and resinous taste when chewed, and is often used as an aphrodisiac. It is highly valued for its perceived medicinal attributes, and the fact that consumption of large quantities does not cause indigestion (as cola nuts do) make it a highly desired product (Adebisi 2004). The *Garcinia* trade is as important in Nigeria as that of cola nut (*Cola nitida* and *C. acuminata*) in the major towns and cities of the southern parts of the country, where the tree grows. The domestic trade extends beyond the southern production areas to the northern parts of the country.

Bitter kola is characterised by slow rate of growth. Difficulties were always encountered in attempting to raise its seedlings in nurseries, and the tree has a long gestation period before flowering and fruiting (Adebisi 2004). This has discouraged farmers from cultivating it. However, many of the germination difficulties have been overcome by methods developed by Okafor (1998), and interest is developing in cultivating the tree in plantations. With this in mind, Ladipo (1995) has developed projected production figures indicating that a mature fruit tree produces 85 to 1,717 fruits, with 208 to 6,112 seeds annually. Taking the mean of these values at 834 fruits and 2,627 nuts per tree, he has projected a fruit production of 26 tonnes per ha per yr, with 278 trees per ha planted at 6 m x 6 m spacing. Fruiting commences in July and ends in October. Fruit harvests continue intermittently as the ripe fruit falls and is then collected for the extraction of seeds. The fruit is reddish-yellow, about 6 cm in diameter, and each fruit contains two to four brown seeds embedded in an orange-coloured pulp (Ladipo 1995).

Several opportunities for improved rural development are linked to non-timber forest products, one of which is Bitter kola. In many areas, rural populations are traditionally dependent on local forest resources to provide additional income through collection and

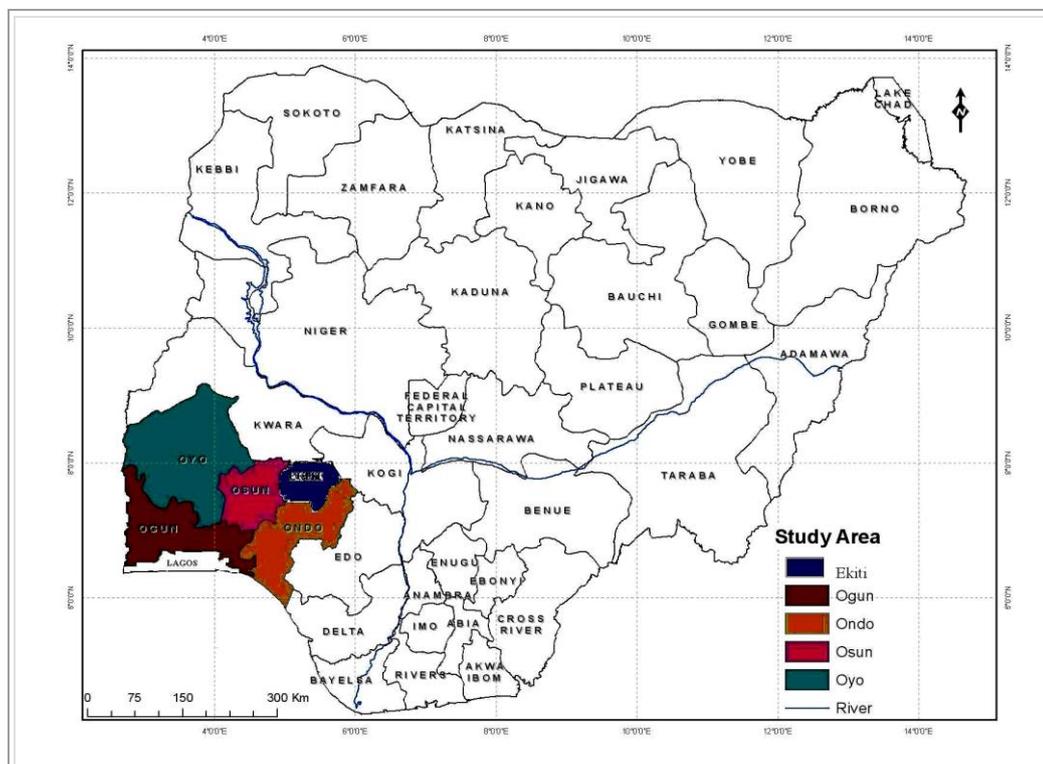
marketing (Arnold 1995). Where employment opportunities from traditional industries are declining, workers looking for alternative sources of income often turn to the collection of these products from the nearby forest (Adepoju & Salau 2007). This study therefore evaluates the different marketing networks of Bitter kola, starting from the point of production with a view to improving the trade and marketing of *Garcinia* to enhance the rural economy and product development.

## Materials & Methods

Ekiti, Oyo, Ogun, Ondo, and Osun states in southwest Nigeria were selected for the study (Fig 1). Multi-stage random sampling was used to select six study sites within each of the states (two villages from each of three Local Government Areas within each state), totalling thirty sites for the study.

Thirty traders and thirty producers of *Garcinia* nuts within each of the state (totaling 60 respondents per state and 300 for the five states) were sampled for the study. Structured questionnaires were developed for each category of respondent, administered through individual and focus-group methods. Interviewing of respondents was conducted to supplement the data obtained from the questionnaires.

The study of the marketing and the channels of distribution of *Garcinia* nuts started from the point of production (collection and harvesting from the wild and on-farm), coupled with monitoring of the exchange of the products among middlemen. Purposive sampling was used to select local markets where Bitter kola was sold. The processing methods that lead to the addition of value, and the subsequent changes in price among the intermediaries, was evaluated. Contributions of Bitter kola to the middlemen and producers, as well as its potential to the livelihood of the rural economy, were also evaluated.



**Fig. 1:** Map of Nigeria showing the selected States in Southwest Nigeria

## Results

Local farmers have *Garcinia* trees on their farm, and these trees were spared during the preparation of the land for farming rather than the farmers deliberately planting them. The processing and sale of Bitter kola is largely a family-based home industry, which, when the product is harvested at sustainable levels, has little negative impact on the mother tree. When ripe, the green pericarp turns a reddish-yellow colour, and the fruit falls from the tree. The fruits are collected and kept in an open, cool place till the pericarp and the pulpy mesocarp become soft. Once softened, the fruits are threshed to release the nuts, which are thoroughly washed to remove the sticky mucilaginous material that sheaths the nut.

Nuts that are not sold fresh are spread out and air-dried in preparation for storage, which is provided by wrapping the nuts in leaves and storing them in a basket lined with jute bag material. This process is repeated as the fruit ripens and is collected throughout the harvesting period. There is normally no secondary or industrial transformation of the nuts, with the exception of uses in breweries, where Bitter kola nuts are further dried and ground into powder before use.

The traders engaged in the selling of non-timber forest products were surveyed, and the results are presented in Table 2. The traders indicated that they are engaged in the processing and/or storage of the product. They sourced the *Garcinia* nuts from farmland. All the traders sold the nuts raw, and about half of them sold them to both wholesale and retail markets. The major consumers of the nuts were individuals.

**Table 2:** Trade characteristics of *G. kola* in southwest Nigeria

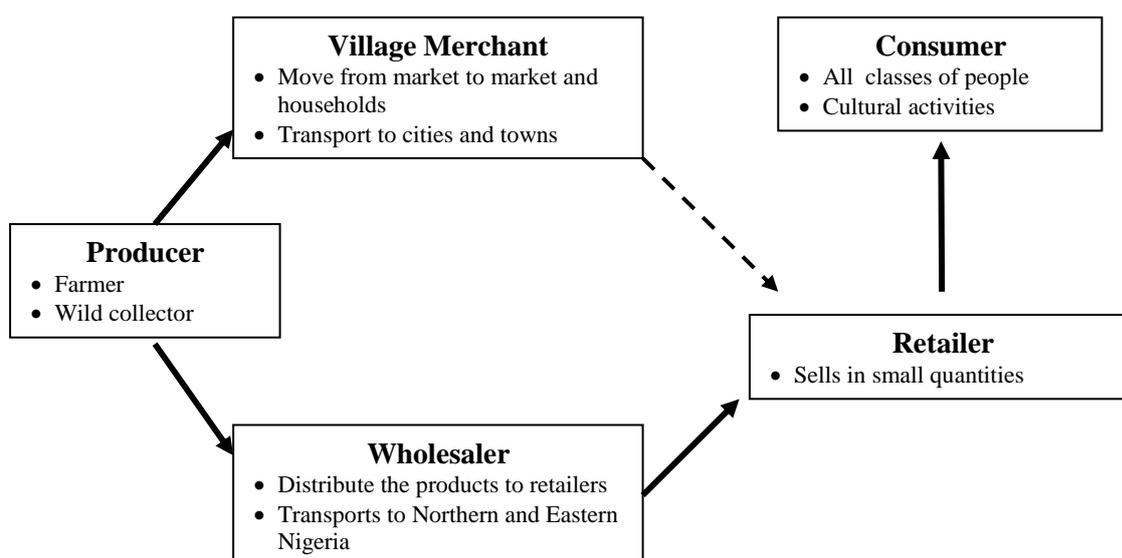
Question asked		Answers given		
1	Engaged in the selling of the <i>G. kola</i> ?	<i>Yes</i> 284	<i>No</i> 16	
2	Sources of the <i>G. kola</i> that you sell	<i>Farmland</i> 200	<i>Wild</i> 39	<i>Both</i> 61
3	Engage in the processing and/or storage of the <i>G. kola</i>	<i>Yes</i> 165	<i>No</i> 135	
4	Forms the traders sell the <i>G. kola</i> nuts	<i>Raw</i> 300	<i>Processed</i> 0	
5	Quantity the traders sell the <i>G. kola</i>	<i>Retail</i> 89	<i>Wholesale</i> 66	<i>Both</i> 145
6	Major customer	<i>Individuals</i> 222	<i>Marketers</i> 78	<i>Industry</i> 0
7	Problems encountered in marketing of the <i>G. kola</i>			
	- Lack of transport	55		
	- Lack of storage facilities	20		
	- Price fluctuation	30		
	- Middlemen low price	15		
	- Seasonal fluctuation in production	50		
	- Deforestation	105		
	- Lack of modern processing technology	15		

After processing, marketing of the nuts started from the producers (from farms and wild collectors) who sell in quantities of ‘baskets’ and ‘basins’ to village merchants and wholesalers (Fig. 2). As indicated by the traders (Table 2), the highest problems confronting marketing was

deforestation. Other significant problems include lack of transport, seasonal fluctuation in production, price fluctuation, and lack of storage facilities.

The selling prices (Table 3) vary among the intermediaries. The general trend is of course that as the product moves from the point of production to the consumer, there is a general increase in the selling price.

**Fig 2:** Channel of distribution of *G.kola* products by intermediaries in Southwestern Nigeria. Solid arrows indicate major routes; dashed lines indicate minor routes. From field survey 2007



**Table 3:** Selling price differences between the intermediaries of the trade of *G. kola* in southwestern Nigeria. 1 basket (25 kg) = 2 basins (approx. 15 kg per basin), 1 basin (15 kg) = 5 packs (approx. 3 kg per pack), 1 pack = 250 nuts. Exchange rate: USD (\$) 1 = N120. The retailer sells each nut for 10-30 (mean 20) Naira (US\$ 0.17), the equivalent of 5K Naira per pack, 25K per basin, 50K per basket. This is 20-fold markup relative to the producer.

Variables	Producers			Village merchant			Wholesaler	
	Basket	Basin	Pack	Basket	Basin	Pack	Basin	Pack
Price Range (1000s Naira)	2-3	0.5-1.5	0.1-0.3	5-8	3-5	0.6-1	10-12	0.2-0.3
Average price (1000s Naira)	2.5	1.0	0.2	6.5	4.0	0.8	11	0.25
Dollar equivalent (US\$)	20.83	8.33	1.67	54.17	33.33	6.67	91.67	2.08

## Discussion

The trade of *Garcinia* nuts starts from the point of production. After maturation, the fruits of bitter kola is allowed to drop and then gathered by children and women. This collection was from trees growing in plantations of cocoa, kola, etc, or from trees in the wild or growing on fallow land. The processing system of Bitter kola is very simple; the fruits are collected and the nuts extracted, washed and stored for later sale. Processing costs are minimal.

After processing, the marketing of the nuts starts from the producers (farmers or wild collectors) who sell in baskets and basins to the village merchant and wholesaler. The village merchant either comes to buy from the producer, or from family members of the farmer (the

wife in most cases), and takes the nuts to the local market to sell to the village merchant or wholesaler. The bulk of Bitter kola nuts is purchased by wholesalers from the eastern and northern parts of Nigeria. These are then transported for further distribution to traders who sell in retail quantities. The price for the pack and per nut experienced an increase from producers to the village merchant, but a reduction in price from the village merchant to the wholesalers. This reduction in price between merchant and wholesaler was to make up for the cost of transportation, which is usually incurred by the village merchant. Some of the retailers sell in packs of seeds tied in transparent nylon, containing different quantities of seeds; some retailers sell the nuts by counting.

In his cursory survey of people involved in the trade of Bitter kola in the J4 area of Omo Forest Reserve (south-west Nigeria), Adebisi (2004) observed that the production-to-consumption system of *Garcinia* nuts has an obvious positive impact on households of the J4 communities, its commercialisation contributing to improving the standard of living of the villagers. Furthermore, the trade of Bitter kola is more profitable than trade in other non-timber forest products such as wonder cola (*Bucchozia coriacea*), sponge (*Acanthus montanus*) and cola nuts (*Cola nitida / acuminata*). This is because of its high amenability to storage, both fresh and dried. The price increases as the commodity changes hands from first-degree to third-degree traders. Handling costs and other expenses involved in bringing the commodity to market contribute immensely to this increase, but with the base collectors at an advantage.

Bitter kola is favoured by the three major ethnic groups in Nigeria: the Yoruba, Igbos and Hausa. It holds a high position of cultural importance, particularly by Yoruba and Ibo communities. The Yoruba use Bitter kola nuts as an important component of the materials used in traditional naming and marriage ceremonies, while the Ibos use them in their traditional 'fetish' recipes. Traditional herbalists use Bitter kola in various pharmacopoeia preparations for various ailments (Aiyelaagbe *et al.* 1996, Adebisi 2004). In addition to its popular eating and usage in cultural activities, unlike the cola nut, *Garcinia* seed is used for various medicinal purposes in curing cough, toothache, fever, diabetes, etc.: the seed is also a stimulant. Despite its socio-economic benefits to rural dwellers, the tree is believed to take many years to reach maturity and start fruiting; therefore it is not deliberately planted by most farmers, but is at least spared during land preparation for the establishment of plantations of agricultural tree crops.

The economic importance of Bitter kola cannot be underestimated, especially in the area of poverty alleviation among rural people. However, *Garcinia kola* trees are currently on the decrease as a result of deforestation. Many of the farmers who have the trees on their farms indicated that they spared them during land preparation for farming, rather than planting them themselves; this therefore calls for urgent attention to the establishment of *Garcinia* plantations. Diversification of the products should be encouraged to create more market opportunities and accrued benefits.

### **Acknowledgements**

Our appreciation goes to the African Forest Research Network (AFORNET) for providing the Fellowship used to implement this research, which is part of the programme entitled "Socio-economic potential of selected non-timber forest products in southwest Nigeria".

### **References**

- Adebisi AA (2004) A case study of *Garcinia kola* nut production-to-consumption system in J4 area of Omo forest reserve, south-west Nigeria. pp 115-132 in Sunderland T & Ndoye O (eds) *Forest products, livelihoods and conservation. Case studies of Non-timber Forest Product Systems*. Vol. 2 Africa. CIFOR. ISBN 979-3361-25-5
- Adepoju AA & Salau AS (2007) Economic Valuation Of Non-Timber Forest Products. MPRA Paper No. 2689. Online at <http://mpra.ub.uni-muenchen.de/2689/>. Accessed 08/08/2007.

- Aiyelaagbe IO, Labode Popoola, Adeola AO, Obisesan KO & Ladipo DO (1996) *Garcinia kola*: its prevalence, farmer valuation, and strategies for its conservation in the rainforest of southeastern Nigeria. Paper contributed to the workshop on the Rainforest of Southeastern Nigeria and Southwestern Cameroon. 21–23 October, Cross River National Park, Obudu Ranch, Nigeria.
- Arnold JEM (1995) Poverty & Conservation. Society and Non-Timber Forest Products in Tropical Asia. in Fox J (ed) Occasional paper No 19, East West Centre, Honolulu, Hawaii, USA
- Ladipo DO (1995) Physiological/morphological growth rate and fruit/nut yields in *Garcinia kola* trees on acid soil of Onne, Port-Harcourt. ICRAF In-House Report.
- Ntamag CN (1997) Spatial distribution of non-timber forest production collection: a case study of south Cameroon. MSc Thesis, Wageningen Agricultural University, the Netherlands
- Okafor JC (1998) Mass propagation of species for immediate utilization. Paper presented at the meeting of underutilized crops of Nigeria. 4–8 May 1998. NACGRAB Moor Plantation, Ibadan, Nigeria.

### الملخص العربي

تسويق وتوزيع الكولا المرة *Garcinia kola* في جنوب غرب نيجيريا: فرصة لتنمية منتج بيولوجي  
بأبالولا ف د – أجييشا ب و  
قسم إدارة مصادر الغابات – جامعة إبادان – نيجيريا

تتناول الدراسة تقييم الوضع التسويقي لأنواع المختلفة من الكولا المرة بداية من الإنتاج ونهاية بتحسين مستوى التجارة. إن الفلاحين لديهم أشجار الكولا في مزارعهم وهم يدخرونها خلال مرحلة تجهيز الأرض للزراعة. إن تسويق محصول الكولا يخلق دخل معقول إلى المنتجين والوسطاء، ولكن ولسوء الحظ فقد نقصت أشجار الكولا نظراً لعمليات قطع أشجار الغابات، ولذا فإن هذه الدراسة تمثل دعوة لإعادة استزراع أشجار الكولا وتنويع منتجاتها حتى نسمح بزيادة الفرص التسويقية المتاحة ونتأكد من حدوث المنفعة للمزارعين والتجار.