



Socio-Economic Importance of Edible Indigenous Trees in Some Selected Communities around Kainji Lake National Park, Nigeria

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Abstract

The research work examines the socio-economic importance of edible indigenous trees in some selected communities around Kainji Lake National Park, Nigeria. The respondents were the residents, farmers and marketers of the selected communities around Kainji Lake National Park. The Socio-Demographic Characteristics of the respondents showed that males are more than females having 62.0%. The age group 35-40 years recorded the highest with 40.0%. The majority 70.0% of the respondents are Islam while only 30.0% are Christians. 74.0% are married while 26.0% had secondary education. The major occupation of the respondents is farming having 50.0% responses, followed by civil servants 34.0%, while the least is a student 6.0% only. The edible indigenous tree species available in the study area revealed that fourteen (14) tree species are recorded which includes *Anacardium occidentale*, *Mangnifera indica*, *Carica papaya*, *Vernonia amygdalina* etc. The source of edible indigenous trees is indicated that picking from neighbors' farms and buying from gatherers recorded the highest with 61% and 23% respectively, followed by purchase from farmers with 12.0% while direct purchase from the open market is the least with 4.0%. The socio-economic importance of edible indigenous trees showed that they mostly served as a source of income (43%), medicinal importance (31%) and source of food (26%). The study recommends that further research should be carried out to confirm more of the uses of those tree species study most especially their medicinal and nutritional values.

Keywords: *Communities, Edible, Indigenous Trees, Socio-economic*

Introduction

The majority of the African population lives in rural areas, where poverty is a major factor hampering development (World Bank, 2001). Thus, fruit trees play vital roles in livelihood security for many rural community members, especially during periods of drought and scarcity (Saka *et al.*, 2004; Akinnifesi *et al.*, 2004). These fruit trees also become increasingly important as a source of food to supplement the diet in better times (Adewusi, 2017). Indigenous fruit remains one of the major options for coping with hunger, nutritional deficiency in diets and poverty as a source of food and a means of generating cash income essential for purchasing the required household goods in rural areas (Campbell *et al.*, 2002). Wild food plants are used in the diet of rural people worldwide. Fruits from indigenous trees such as baobab and *Tamarindus indica*, for instance, are important for ensuring food security in rural areas by providing a source of food and income. According to Siddhuraju *et al.* (1995), the contribution of wild food plants to combating deficiencies in vitamins and micronutrients is essential in agriculturally marginal areas. Wild food plants are particularly

important during periods of food scarcity (Aline *et al.*, 2008). A report by NRC (2008) indicates that wild fruits are useful for adding culinary variety, flavour, nutrients, and energy to diets. The pulp of *T. indica* and *Vitellaria paradoxa* pod is, for example, eating fresh or as an ingredient in fruit drinks, jams, chewing gums and other products. Pulp of some indigenous plant are mixed into the local millet porridge or bread and eaten as a delicacy (Katende *et al.*, 1999). It is also used for making local juice, eaten as a snack and common in the rural population's diet. There are various examples to show the importance of wild food plants. Food security, health and the socio-economic welfare of both the rural and urban communities has been sustained through non-timber forest products (NTFPs) such as fruits, seeds, roots, stems, leaves and flowers (FAO, 1989) of indigenous species. The edible products from these forest tree species are important for food security, this is because it constitute important parts of a balanced diet as they are natural sources of food nutrients namely; protein, carbohydrates, minerals, dietary fibre, high levels of vitamin C and sugar needed by man and animals etc., thus playing an important role in the

nutritional balance of the people (FAO, 1996). Furthermore, the bark, leaves, fruits, roots, seeds, etc. could be used to cure a variety of sicknesses and diseases (Adewusi, 1997), thus contributing to healthcare delivery. NTFPs 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, roots etc. (Franzel, *et al.*, 2008). Edible indigenous trees play an important agroforestry initiative and they are viewed to a larger context as multipurpose trees, hence their integration into in agroforestry systems (Mithofer *et al.*, 2003). However, there is a paucity of information on the socio-economic importance of edible indigenous trees in the study area. The lack of information on the socio-economic importance of edible indigenous trees can hamper the domestication programme. Therefore this study intends to bridge the knowledge gap.

Methodology

Study Area

Kainji Lake National Park was established in 1979 by the amalgamation of two formal game reserves Borgu and Zugurma under decree 46 of 29th July 1997, thereby making Kainji Lake National Park the premier National Park in Nigeria (Ayeni, 2007). Kainji Lake National Park is located in the North West central part of the country between latitude 9°45'^N and 10°23'^N and longitude 3°40'^E and 5°47'^E. It is made up of two sectors (Borgu and Zugurma) situated in Borgu and Kaima/Baruten Local Government Areas of Niger and Kwara State respectively. It covers a total land area of 5,340.825q (Ayeni, 2007).

Study Population

The target respondents are the residents, farmers and marketers of the selected communities around Kainji Lake National Park.

Sampling Procedure and Sample Size

A multistage sampling technique was used to collect the data involving a three-stage design procedure. Stage 1: The division of the study area into two (2): Borgu sector and Zugurma sector to represent primary selection units which will denote the strata from where the data was collected.

Stage 2: A purposive sampling technique was used to select three (3) communities from each stratum (i.e. from each of the sectors).

Stage 3: Simple random techniques were used to select 20 respondents in each community (stratum).

The sample size was put at one-hundred and twenty (120) respondents.

Data Collection

The main instrument of data collection was a structured questionnaire. One hundred and twenty (120) questionnaires was administered interpersonally to the respondents in the study area, one hundred questionnaires were retrieved.

Data Analysis

Data obtained was analyzed using descriptive statistics such as frequency tables, percentages and charts.

Result and Discussion

Results

Table 1 shows the Socio-Demographic Characteristics of the Respondents. The result shows that males are more than the female having 62.0% being the highest. The age group 35-40 years recorded the highest (40.0%). The majority (70.0%) of the respondents are Islam while only 30.0% are Christians. 74.0% are married while 26.0% had secondary education. The major occupation of the respondents is farming having 50.0% responses, followed by civil servant 34.0%, while the least is a student having 6.0% only. The edible indigenous tree species available in the study area are shown in Table 2, in which fourteen (14) tree species are recorded. The source of the edible indigenous tree is indicated in Fig. 1, picking from neighbors' farms and buying from gatherers recorded the highest with 61% and 23% respectively, followed by purchases from farmers with 12.0% while direct purchase from the open market is the least with 4.0%. The socio-economic importance of edible indigenous trees in Fig. 2 showed that they mostly served as a source of income (43%), medicinal importance (31%) and source of food (26%).

Discussion

The finding indicates that indigenous fruit trees are of enormous socio-economic benefits to many rural households in the study area. This finding agrees with El-Siddig *et al.* (2006) who ascertain that indigenous fruit served as a source of income to rural dwellers and often use for consumption purposes. The parts collected includes; seed, leaves and bark which are being utilized as food and also sold to generate income being the highest. This result is similar to that of FAO, (2018) who cited that indigenous fruit trees are the crude oil of the local populace. The study showed that indigenous trees were found more in farmland as shade trees or perennial crops due to their overall value and expected benefit. This is evidence of integration into the social and economic life of the people (Pye-smith, 2010). El-Siddig *et al.*, (2006) ascertained that in the past, and even today, seeds have been wasted even though they could be ground to make a palatable livestock feed. For instance the major industrial product of *Terminthia indica* seed is the *Terminthia indica* kernel powder (TKP) which is an important sizing material used in the textile, paper, and jute industries. *Terminthia indica* seed is also the raw material used in the manufacture of polysaccharide (jellose), adhesive and tannin. In 1942, two Indian scientists announced that decorticated kernels contained 46-48% of a gel-forming substance. This polysaccharide (pectin) with carbohydrate character and gelly forming properties, named 'jellose' (El-Siddig *et al.*, 2006), has been recommended for use as a stabiliser in ice cream, mayonnaise and cheese, and as an ingredient or agent in a number of pharmaceutical products (Morton, 1987). Flour from the seed may be made into cake and bread. Roasted seeds are claimed to be superior to groundnuts in flavour (ICUC, 1999). Most

of the households in the study area generate cash income from indigenous fruits for household needs. The study results showed majority of the households obtain more than one benefit from the sale of indigenous fruits and generating cash income essential for purchasing the required household goods. These benefits include school fees for their children and other dependents and pay hospital bills for family members. This indicates the importance of the contribution of indigenous fruit trees towards rural households' cash income. A study has proven that cash income generated from indigenous fruits is the major source of income of many households (ICUC, 1999). This is also the reason why most of the households are involved in the sale of indigenous fruits. Rural households frequently rely on indigenous fruits and other wild food resources to supplement their source of food from agricultural production.

Conclusion

This study concludes that there are numerous indigenous edible tree species in the study area. They mostly serve as source of income, food and medicinal purposes. These tree species are usually gotten from nearby farmland. There is need therefore, for various organs such as governments and NGOs, as well as community-based must ensure integrated approach of tree multiplication and propagation through policies and programs and enlightenment campaigns. Further research should be carried out to confirm more of the uses of those tree species study most especially their medicinal and nutritional values.

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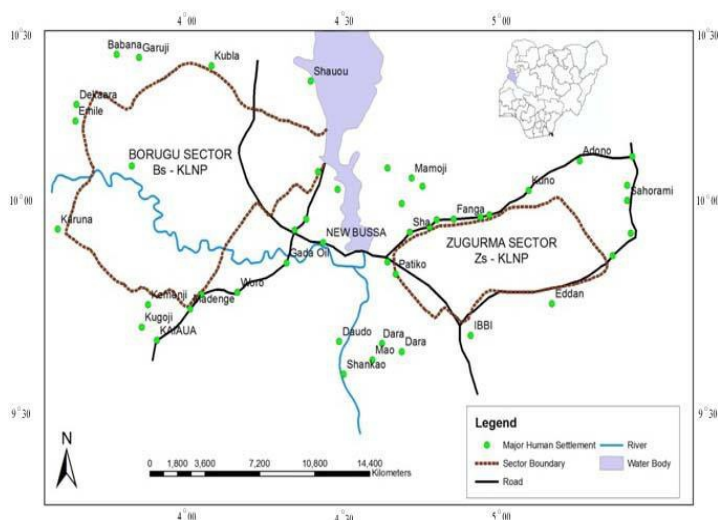


Fig. 1: Map of the Study Area
Source: Ayeni (2007)

Table 1: Demographic Characteristics of the Respondents

Demographic	Categories	Frequency	Percentage (%)
Sex	Male	62	62.0
	Female	38	38.0
	Total	100	100
Age	15- 20	10	10.0
	21- 30	30	30.0
	35- 40	40	40.0
	41 above	20	20.0
	Total	100	100
Religion	Islamic	70	70.0
	Christianity	30	30.0
	Total	100	100
Marital Status	Single	26	26.0
	Married	74	54.0
	Total	100	100
Level Of Education	Primary education	6	6.0
	Secondary education	42	42.0
	OND/NCE	30	30.0
	HND/Degree	8	8.0
	No formal education	12	12.0
	Total	100	100
Occupation	Farmer	50	50.0
	Student	6	6.0
	Civil servant	34	34.0
	Trader	10	10.0
	Total	100	100

Source: field survey (2022)

Table 2: Edible Indigenous Trees available in the Study Area

S/N	Botanical Names	Common Name	Local Name
1	<i>Anacardium occidentale</i>	Cashew	Cashew
2	<i>Mangnifer aindica</i>	Mango tree	Mongoro
3	<i>Carica papaya</i>	Pawpaw	Gwanda
4	<i>Vernonia amygdalina</i>	Bitter leave	
5	<i>Parkia biglobosa</i>	African Locust Bean	Doruwa
6	<i>Musa paradisiacal</i>	Banana	Ayaba
7	<i>Psidium guajava</i>	Guava	Guava
8	<i>Citrus sp</i>	Lime	Lemo
9	<i>Citrus sinensis</i>	Oranges	Lemo
10	<i>Vitellaria paradoxa</i>	Shea Butter	Kadanya
11	<i>Tamarindus indica</i>	Tamanrid	Tsamaya
12	<i>Hibiscus sabdariffa</i>		Zobo
13	<i>Adansonia digitata</i>	Baobab	Kuka
14	<i>Moringa oliifera</i>	Moringa	Zogala

Source: *Field Survey, 2022*

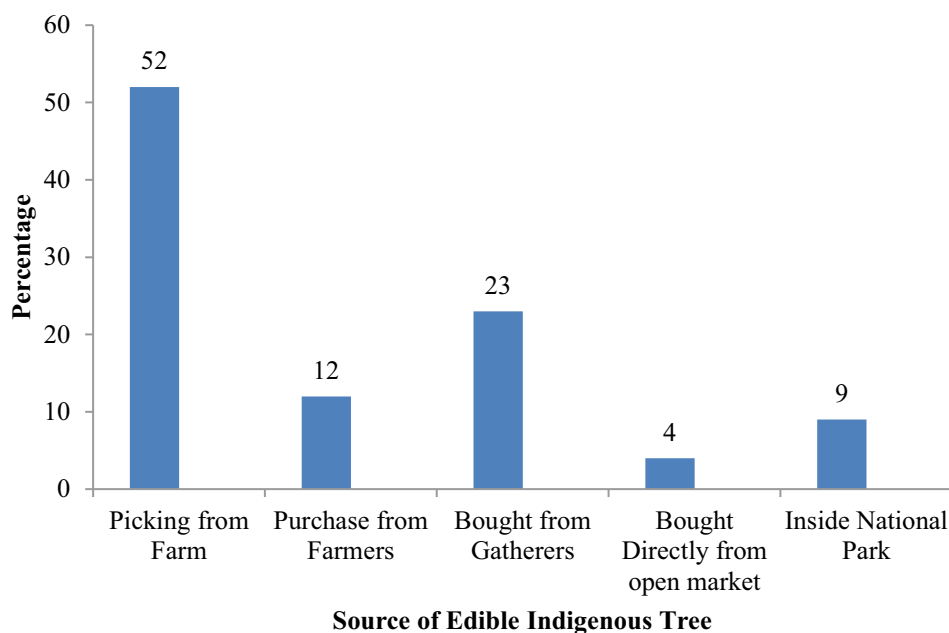


Fig 1: Source of Edible Indigenous Tree

Source: *field survey (2022)*

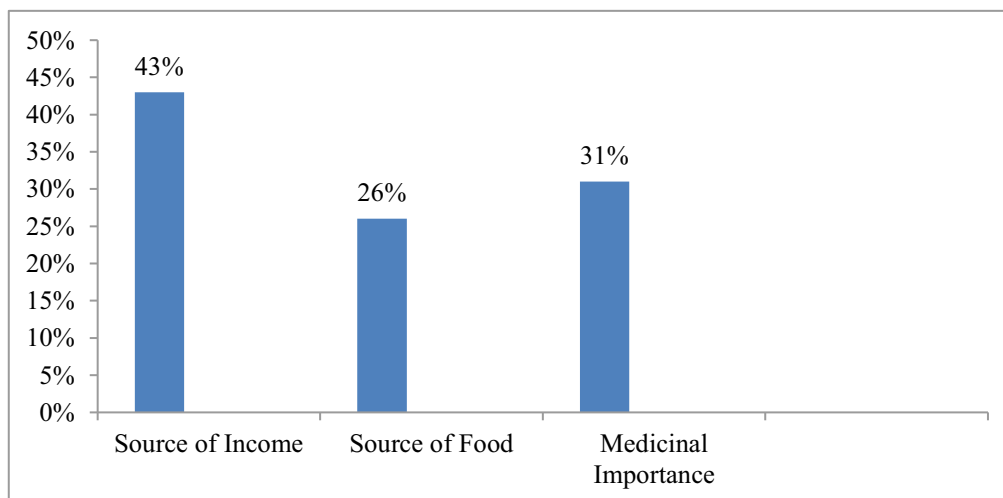


Fig. 2: Socio-economic Importance of Edible Indigenous Tree in the Study Area

Source: *field survey (2022)*

Table 3: Income generated from the sales of *Terminandus indica* in the study area

Status in Naira (₦)	No of Response	Percentage (%)
1-10,000	24	24.0
11,000-20,000	34	34.0
21,000-30,000	26	26.0
31,000-40,000	10	10.0
41,000 and above	18	18.0
Total	100	100.0

Source: field survey (2022)