



Importance of *Parkia biglobosa* (African Locust Beans) to the Women Livelihoods in Ibarapa North and Ibarapa Central Local Government Areas of Oyo State, Nigeria

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ABSTRACT: *Parkia biglobosa* is a multi-purpose species of fruit tree which have contributed to the women livelihood in the study areas, it has served as raw materials for local soup and it is a good source of plant protein. This work assessed the importance of *Parkia biglobosa* among the women in Ibarapa North and Ibarapa Central Local Government areas of Oyo State, Nigeria using a well-structured questionnaire to obtain information from 120 locust bean sellers. Data obtained showed that the demographic distribution of the respondents were 100% females of which 43.3% were between the age of 41 and 50 years with No formal education of about 58.3%. 41.6% of the respondents had between 11 and 20 family (household) size while household size below 11 and above 20 are 50% and 8.4% respectively. *Parkia biglobosa* has been discovered to treat various ailments such as eye defects, diabetes, asthma, arterial blood pressure, ulcer and diarrhoea amongst others. *Parkia biglobosa* has provided job opportunities for women to enable them to take care of their children and other family domestic expenses. *Parkia biglobosa* trees plantation should be encouraged and established for large scale production.

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Parkia biglobosa is commonly known as the African locust beans tree grows in the Savannah region of West Africa up to the Southern edge of the Sahel zone. It is an important indigenous multipurpose fruit tree in many countries of Sub-Saharan Africa. It is native to West Africa and called by different local names in different areas. For instance, it is referred to as “kinda” in Sierra Leone, “kpalugu” among the inhabitants of Northern Ghana, “Nere” in Burkina Faso, “IgiIgba” in Yoruba land and “worku” in Ghana (Jimoh and Adedokun, 2005; Babalola, 2012; Bahru, *et al.*, 2012). The seeds (kalwa in Hausa; Iyere in Yoruba) are traditionally used as food condiments (dawadawa in Hausa; Iru in Yoruba; soumbala in Burkina Faso, Mali,

Cote d’Ivoire and Guinea, Ogiri in Eastern Nigeria). Dehydrated “tempeli” is an equivalent fermented product in Indonesia. The tree is the source of a natural nutritious condiment that features frequently in the traditional diet of both rural and urban dwellers in at least seventeen West African countries including Nigeria. *Parkia biglobosa* tree is deciduous perennial with a very broad crown that may reach a height of 20 metres or more. It grows under a wide range of conditions where annual rainfall ranges from 600 to 1500 mm and the dry season lasts 5–7 months. *Parkia biglobosa* occurs in natural and semi-natural habitats such as savannahs and woodlands, sometimes on rocky slopes, stony ridges and sandstone hills. It can

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withstand drought because of its deep taproot (Keay, 2006). *Parkia biglobosa* belongs to the genus *Parkia* which belongs to the tribe *Parkieae*. It consists of about 35 species with a pantropical distribution but there are five well recognized species besides African locust beans: *P. filicoidea*, *P. bicolor*, *P. roxburghii*, *P. biglandulosa* and *P. madagascariensis*. *P. biglobosa* has a wide distribution and is found everywhere (Don, 2007).

P. biglobosa belongs to the family *Fabaceae*. The fruit is a slightly curved, brown indehiscent pod, 30 to 40 cm long and 2 to 3 cm wide producing up to 20 seeds. *P. biglobosa* seeds are 5 - 20 in number per pod. The individual brown, smooth seeds are oval, 0.9 - 1.5 cm long by 0.8 - 1.1 cm wide and weigh 0.25 grams each. Each seed consists of 30% testa and 70% green cotyledons. The seeds constitute 22% of the fruit, while the pod case is 42% and the pulp is 36%. Taproot often present, lateral roots up to 10-20 m spreading from bole; bole usually straight and robust, cylindrical, up to 130 cm in diameter, often branching low. Barks are distinctly longitudinally fissured, often with more or less regular scales between the fissures, thick, ash-grey to greyish-brown, slash fibrous and reddish-brown, exuding an amber gum; crown dense, wide spreading and umbrella-shaped, consisting of heavy branches. Leaves are alternate, dark green and bipinnate (doubly compound). They are up to 30 cm long and consist of up to 17 pairs of pinnae, with 13-60 pairs of leaflets on each (Alabi, *et al.*, 2005). *P. biglobosa* can be defined as non-timber forest products (NTFP), which has a lot of traditional uses including wood energy (fuel wood and charcoal) and all other tangible products other than timber. Non-timber forest products derived from *P. biglobosa* are food, medicine, animal fodder, soil amendments, charcoal, and firewood. The most significant product from *P. biglobosa* is food. The food products collected from *P. biglobosa* are especially important due to the seasonality of fruit maturation and food availability. The seeds are used in preparation of dawadawa, a protein and fat rich food. The yellow starchy pulp that surrounds the seed is an important food supplement rich in Vitamin C and carbohydrates. The dried powder is often mixed with water to produce a drink called dozim. *P. biglobosa* promotes good sight, reduces hypertension and diseases (like stroke and diabetes), served a lot of medicinal uses and treatments like Malaria, wounds, dysentery, rheumatism, headache, pain, fungal infection, tonic, anti-diarrhoea, female sterility, skin infection, leprosy, blennorrhoea, *Schistosoma* infection, sores, ulcers, mumps, antiemetic, severe colic, snake bites, diabetes, palpitation eye lotion, toothache, burns, fever, haemorrhoids, constipation, anorexia, bronchitis,

whooping cough, amenorrhoea, skin eruption, abscess, stomach ache, yellow fever, conjunctivitis, Sedative, diuretic, purgative, tension, mouth ulcers, wasp and bee sting, bronchitis and pneumonia (Shao, 2002). According to Zaku, (2013a), the tree economically provides income and employment opportunity to many household members, particularly women who were more involved in processing and marketing of African locust bean products. Trading activities are in raw seeds, fermented food condiments, charcoal and firewood. Ecologically, the African locust beans tree plays a vital role in nutrients recycling and erosion control. The tree acts as a buffer against the effect of strong wind or water runoff that usually causes damage to crops and soil (Amusa and Jimoh, 2012). *P. biglobosa* is a leguminous plant that fixes Nitrogen into the soil thereby enriching the soil nutrients content (Zaku, 2013b). Despite all these past investigations, it was not documented in the study areas, there is paucity of information on the socio-economic importance in relation to gender. Therefore, the objective is to assess the importance of *Parkia biglobosa* among the women in Ibarapa North and Ibarapa Central Local Government areas of Oyo State, Nigeria.

MATERIALS AND METHODS

Study Area: This study was carried out in Oyo State which lies within the tropical zone in the rain forest region of south western part of Nigeria. It is located between latitude 8.0°N and Longitude 4.0°E of Greenwich meridian of the equator. Ibarapa North and Ibarapa Central Local Government areas of Oyo State were purposively selected for the study. This location enjoys the wet and dry seasons, average annual rainfall is estimated at 1,278mm, while sunshine hours range from 2.4 hours in August to 7 hours in February, average temperature of 27°C. Based on the prevailing climatic and soil characteristics, three vegetation zones are identified in the areas, these are Forest, Savanna and Derived savanna. The forest zone with high relative humidity favours the cultivation of tree crops such as cocoa, kolanut, citrus, oil palm, *Parkia* tree, arable crops (like yam, cassava, maize and rice) as well as fruit crops (like cashew, mango, grape, guava and watermelon). The derived savanna has a mixture of forest and savanna vegetations. The population Figure of Ibarapa North and Ibarapa Central are 306,795 and 102,979 respectively (NBC, 2006).

Sampling techniques and data collection: Primary data were collected using well-structured questionnaire copies of which were administered to the selected women in the study areas. Also, the socioeconomic characteristics of African locust beans to the women livelihood were considered. These include age, education, working experience, household size, credit

availability, gender and marital status. Two stage sampling technique was used in selecting the respondents. The first stage involves purposive selection of Ibarapa north and central Local Government Area due to the presence of locust beans producers. The second stage was the random selection of 60 producers engaged in African locust beans from each local government area making a total number of 120 respondents.

Analytical techniques: Data collected were analysed using both descriptive statistics and Chi square.

RESULTS AND DISCUSSION

The result of the analysis in Table 1 below showed that majority of the respondents were female (100%). This indicated dominance of female in the production and marketing of the African locust beans. 85.8 % of the respondents were less than 60 years old revealing the presence of old, young and little middle-aged individuals who are known to be innovative and active to new ideas.

Table 1: Socio-economics characteristics of African Locust beans in the study areas

Variables	Frequency	Percentage
Age		
21-30	5	4.2
31-40	19	15.8
41-50	52	43.3
51-60	27	22.5
Above 60	17	14.2
Total	120	100
Gender		
Male	Nil	Nil
Female	120	100
Total	120	100
Marital Status		
Single	5	4.2
Married	80	66.7
Widowed	35	29.2
Total	120	100
Education		
Primary	35	29.2
Secondary	5	4.2
Technical/Vocational Skills	10	8.3
No Formal Education	70	58.3
Total	120	100
Family Size		
1-10	60	50
11-20	50	41.6
21-30	5	4.2
Above 30	5	4.2
Total	120	100
Membership of Cooperative		
Yes	120	100
No	Nil	Nil
Total	120	100

Majority of the women in the areas were (66.7%) married, (29.2%) were widowed and (4.2%) were single. This indicated that married women were stable

& well involved in the trade. About (53.3%) had No formal education, (29.2%) attended primary school, (8.3%) had technical/vocational education skills and (4.2%) attended secondary school. This revealed that few women had educational knowledge and skills with little formal education to secondary level. The mean household size was 10. This indicated that the household size of the respondents was relatively large. Credit facilities were enjoyed since all the respondents were active members of the cooperative society. This is due to the presence of Micro Finance institution in the study areas. This revealed that production and marketing of African locust beans among the women is not a newly introduced profession of the people in the areas.

The result in Table 2 revealed monetary benefits/profits obtained from African locust beans trade. The Results of the Chi square analysis showed ($\chi^2 = 18.35^*$, $df = 3$ and Sig. level = 0.00. of the total number of respondents that benefited from African locust beans trade, 50% had between ₦1,000 - ₦10,000 while 37.5% had between ₦11,000 - ₦20,000 as monthly profits. This result indicated that over 87.5% had a successful trade in African locust beans.

Table 2: Chi-Square of Financial Benefits from the sales of African locust beans

Amount Realised from the Sales of African Locust Beans	Observed N	Expected N
1000 – 10000	60	27.3
11000 – 20000	45	27.3
Above 20000	15	27.3
Total	120	

*Chi-square = 18.31, df = 3 and Sig level. = 0.00 *Significant (P<0.05)*

The years of experience of most of the traders of African Locust beans have positive influence on profitability and this is presented in Table 3 below. The result indicated the years that the respondents had engaged in African locust beans trade with Chi-square = 22.39*, $df = 3$ and Sig. level = 0.00. Majority of the women in the study areas that engaged in the sale of African Locust Beans have put in at least 5years into the business with, 1-5years, 6-10 years, 11-15years and above 15years experience with 11.67%, 50.83%, 29.17% and 8.33% respectively. This result implies that the experience in terms of years of trade talks more about the reliability and profitability of the business. It was also confirmed that African locust beans marketing in the study areas is a very profitable venture which have been used by some households' women as a tool for reducing poverty. According to Aiyeloja *et al.*, (2012), that many important Non-Timber Forest Products are traded profitably in local communities of Nigeria.

Table 3: Effect of trading experience on Profitability of African Locust beans in the study areas

Years of Selling African Locust Beans	Observed N	Expected N
1 – 5	14	27.3
6 – 10	61	27.3
11 – 15	35	27.3
>15	10	
Total	120	

Chi-square = 22.39, df = 3 and Sig level. = 0.00 *Significant (P<0.05)

Conclusion: The study revealed that *Parkia biglobosa* is economically viable and profitable business in the study areas. It has been recommended that the processing and packaging of the product should improve under hygienic condition using modern production machine to make it more presentable and attractive to the customers and investors. Also, enlightenment of women in the rural areas would enhance food security and reduce poverty in the environment. The government could create awareness through audio-visual aids by organizing seminars at their different locations to enlighten the importance and plantation establishment of *Parkia biglobosa*.

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