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Effect of Okra (*Abelmoschus esculentus* L. Moench) on Human Development and its Impact on the Economy of Farmers in Obubra Rainforest Zone of Nigeria

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ABSTRACT

Okra (*Abelmoschus esculentus* (L.) Moench) has been found to be productive, serving nutritional, medicinal, pharmaceutical needs and, hence, holding economic value for the grower and marketer. Indeed, studies show that the growing of Okra has raised the standard of living/economy of local farmers. Apart from serving as food, the multitude of uses of Okra in herbal medicine indicate its value as a pharmaceutical. As a cash crop, demand and patronage has increased, there-by bringing more income to farmers and partly contributing to enhanced food/crop production, especially in developing countries such as Nigeria.

Keywords: *Abelmoschus esculentus*, Food, Human development, Human health, Impact, Okra

1. INTRODUCTION

Agriculture has always been a means by which man provides his basic needs, providing food; clothing's and materials for shelter. Agriculture also plays an important role in economic development, placing over 65% of the population under her employment in-addition to providing raw materials/foreign exchange earnings. However, Nigeria Agricultural development has been on the decline especially during the discovery of oil. In an attempt to

solve the problem, the Nigerian government has adopted different agricultural programs and policies aim at increasing the benefit derived from effective agrarian society. These programs and policies generated by the Nigerian government seeks to place the smallholder farmers in the center, recognizing the fact that the Nation's agriculture is 90% been practice/produced by this smallholder farmers who represent a substantial proportion of the farming population. Unlike grains, cassava, cocoyam, plantain including sweet potato, data on economic of horticulture are rare especially in developing countries, partly because horticultural crops are cropped by farmers as a minor crop, as intercrop, just to cover the left-over space in-between the main planted crop. Horticultural crop like *Abelmoschus esculentus* (L.) Moench plays an important role in the economy of farmers in villages, in-addition to its contribution in nutritional and dietary role (Figs. 1 & 2).

Abelmoschus esculentus (L.) Moench with a common name as Okra is cultivated extensively, the vegetable crop can be found in most market in Africa. The crop is widely cultivated in tropical, subtropical and warm temperature regions.

Reported calcium, protein, oil, carbohydrate, iron, magnesium including phosphorus as nutritional constituents of okra. Okra is utilized in a variety of ways, the fruit may be eaten in cooked form, and it can also be eaten in a processed form. Young fruit can also be eaten raw. Oil content in okra seed was reported to be as high as that of poultry eggs including soybean. The vegetable is consumed in Nigeria with stable food like fufu, amala including garri.

The study was design to determine the effect of okra on human development and its impact on the economy of farmers in Obubra rainforest zone of southern Nigeria.



Fig. 1. *Abelmoschus esculentus* (L.) Moench



Fig. 2. *Abelmoschus esculentus* (L.) Moench

2. MATERIALS AND METHODS

2. 1. Study Location

The study was carried out in Obubra, location of the Faculty of Agriculture and Forestry, Cross River University of Technology (CRUTECH), Nigeria. Obubra is on latitude 6° 06' N and longitude 8° 18' E in the rainforest zone of Nigeria. The study was conducted in 2013 and 2014. Obubra is characterized by a mean annual rainfall distribution at 2250 mm – 2500 mm with annual temperature range at 25-27 °C. Proximate analysis of okra fruit was carried out in the biochemistry laboratory at CRUTECH.

2. 2. Methodology

Proximate analysis of okra seed, oral interview of local people/farmers, field trips to different communities within Obubra where okra is planted and consultation of relevant literature were the methods used in collection and collation of data for this study

3. RESULTS AND DISCUSSIONS

3. 1. Contribution of Okra to Human Nutritional Development

Preparation and uses of Okra as Food

Okra is one of the horticultural crops which provide an avenue for making various types of foods. The fruit crop has some medicinal values, apart from serving as food and as raw

materials for many industrial productions. The fruit of the crop is the most important part of the crop with its uses ranging from;

Soup preparation: The popular ‘draw’ (sticky) soup in Southern Nigeria, locally known as ‘okra-soup’ is commonly eaten with cassava flour, garri including roasted plantain. To prepare okra soup, the okra is harvested while still fresh, wash chop or slice into tiny sizes, then added to other ingredients like fish, oil, crayfish and water, heated for a few minutes to keep the volatile nutrients still intact. The soup is most often use especially as a fast-tract to meet the quick demand for food by the local people who have been hungry for some hours.

Preparation of okra salad is another way okra is been used as food, where the fruit is been chop and spread on boiled rice or dried fish with pepper and eaten with garri, bread or yam. This finding agrees with findings where the researcher stated okra fruit been consumed as vegetable crop, which can be eaten raw or cooked.

Okra seeds are used as coffee substitute by the local people, it may be cooked with other vegetables for consumption. Okra mucus-like juice is used to thicken strews, this is one of the widely used, as the local people of Obubra prefer it over all other thickener that are rarely available.

3. 2. Nutritional/Health Benefit of Okra to Human Development

The fruit was digested and analyzed for protein, carbohydrate (CHO) and fat as presented in (Table 1) using the procedure for Karl Fischer titration method

Table 1. Analyzed Chemical Composition of Okra in the Study Area.

Nutrient	Grams (g)
Protein	2.0g
Carbohydrate	7.5g
Fat	0.1g

Result obtained in the proximate analysis is in-line with findings reported, stating that okra contains protein, carbohydrate including fat, which enhance proper functioning of the biological system.

Decoction of young okra fruit was found to be used in herbal homes for treatment of respiratory tract infection. Juice extracted from okra was also observed to be used in the treatment of sore throat associated with coughing in all the herbal home surveyed during the study. Decoction of okra leaves and fruits was observed to be used to tract urinary related problems, also used as poultice for wounds including abdominal pains.

Various oral interview on several illiterate herbal practionners indicated okra leaves, fruit, and juice been used in one way or the other for treatment of diarrhea with fever, abdominal pains, skin itching including involuntary discharge of semen. Findings of this study is in accordance with the survey.

Antidiabetic and antihyperlipidemic potential of okra has been studied and the crop was found to be active, having the ability to solve diabetic and hyperlipidemic problems, hence, presenting the crop as one of the important crops contributing to the development of human health advancement. Several studies have found okra to have the potential to act as an antibacterial, antioxidant including pharmaceutical agents in-order to promote human nutrition, health and environment, contributing to the overall development of Mankind.

3. 3. Impact of Okra (*Abelmoschus esculentus* (L.) Moench) on the Economy of Farmers

Increase in income generation in the study area was observed, as a result of sales from okra production. Farmers visited/interviewed stated that the wide awareness/value derived from cultivation of okra make them happy, further stating that they can afford to buy farm tools like hoe, cutlass, digging fork from the “extra income” they have generated.

Apart from serving as food, findings of this study also presented okra as been a semi cash crop, as its intensive cultivation in the area has reawaken the potentials of the crop in providing cash, especially as its physiological point of harvest encourages two or more cultivation in a year, supplementing for crops like cassava or yam which stays in the field longer and keeps the farmers’ income low, especially during off-season period. This view is in accordance with research finding, were the author stated cultivation of crops been used to fight hunger in household and for increasing food/income sufficiency especially in Africa.

4. CONCLUSION

Result of this study indicated that okra has positively influenced the development of Man, providing nutritional, medicinal, pharmaceutical including economic benefits for Humanity. Apart from serving as food, production of okra has been found to raise the standard of living/economy of the local farmers, providing income during off-season to supplement for crops like cassava and yam and in-turn contributing to increase in global crop production.

Recommendation

Form the result of the study, it could be recommended that more heaters of land should be devoted to okra production as the crop has been found productive in medicinal, pharmaceutical, nutritional including its high economic value, especially in the face of global food shortages.

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