

## **Acceptance Of Fish Crackers Produced From Tilapia And Catfish.**

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**Abstract:** *Sensory Evaluation of fish crackers produced from catfish and tilapia was evaluated in attempt to ensure the possibilities of better utilization of underutilized Tilapia and catfish. The product were produced with corn starch (25%), pepper (0.1%) salt (0.5%), magi (2 cubes) vegetable oil (18.5%) Tilapia (35%), catfish (35%).*

*Tilapia and catfish were deboned using a bone separator and grinded with a pepper grinder and mashed together with 25% of cornstarch. The mixture was kneaded and moulded into a cylindrical shape and wrapped in a nylon and steamed in a steaming pot for 45 minutes and then put into a refrigeration for 24 hours. The cooled product was cut into shapes and sprayed on the sun for 3 days and deep fried. The acceptance was evaluated with 25 man panel based on taste, flavor, colour and texture and general acceptability.*

*75% of the panelist preferred fish crackers from catfish to those made from tilapia in terms of taste. 85% like the texture and flavor of the crackers from tilapia than that of catfish. There was higher consumer acceptability for crackers from catfish in terms of taste to that made from Tilapia. There was significant difference observed between crackers from tilapia and catfish. Diversification of fish industry through better utilization of underutilized tilapia and catfish will help to improve commercialization of these products. This will improve food and nutritional security and also help to create a means of revenue generation and alleviate poverty in Nigeria.*

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### **I. Introduction**

A large proportion of the total landed fish from tilapia and catfish. most of these fishes have stunted growth and cannot be utilized in this form and they remain unused due to inherent problems related to unattractive color, flavor, texture, small size and high fat content. Most of these species belong to the abundantly available pelagic species, which are by catch, of some unconventional species. (Akande, 1989). Adding fish as nutritional value to staple foods has been researched by many nutrition scientists and food technologists (ANON 2001). Though considerable research has been carried out on the different ways of utilizing small fishes in minced fish production (Akande 1989; Eyo 1999; King 2001).

A variety of fish species are used for fish product, while fish like Alaska Pollock and tropical species such as farmed species like Chinese Carp (Shaviklo 2000). maybe used. The use of fish species with high dark/red muscle and fat content has met with some complication such as how grade protein gel, colour problems and lipid oxidation (Park and Lanier 2000). The production and utilization of fish using locally manufactured pepper grinder (Attrition Mill) was developed by King, M.O of the Nigerian Institute for Oceanography and Marine Research in the processing of ingredients for the preparation of fish cakes, fish burger and fish crackers among others.

The processing yield of Tilapia was reported to be 51% for dressed fish and 25.4% for fillet (clement and lovel 1994). Ninan et al., (2010) reported that Tilapia in fresh condition can yield 32-36% mince. The mince is white in colour, has low fat content and pronounced odour, which makes in an ideal raw material for the preparation of value-added products. There is a great interest in using larger quantities of fish for human food (park and lanier 2000). This will lead to better utilization of the fish species.

The study is aimed at value addition using Tilapia, a low-value fish which at present has limited scope for consumption in fresh form than catfish which is abundant (Ninan et al., 2010). Studies showed that the mince yield of this species is commercial important in the utilization of underutilized species for the production of cutlets, fish balls and cully fish which are simple and cost-effective. Commercialization of these product can contribute to the fish processing industry through better utilization of a relatively underutilized species.

Study Area: The production of fish crackers was done in Nigerian Institute of oceanography and marine research lab.

**II. Materials And Methods**

**Sample Preparation**

Fish crackers processing consists of several steps that are described in figure I.

A fresh medium – sized catfish with a length of 30±35cm and a weight of 350g and a tilapia with a length of 25±22cm and a weight of 350g was purchased from the market in the Lagos state. The deheading and gutting of these species of fish were carried out with knife. Fish flesh was separated from the bones and skin using a bone separator at a low temperature of 20<sup>0</sup>C to minimize the deleterious effect of friction heat on the product Fish flesh was washed thoroughly with running tap. The number of washing cycles and water volume varied with fish species, freshness of fish, type of washing unit and desired quality of the product (Shaviklo 2000).

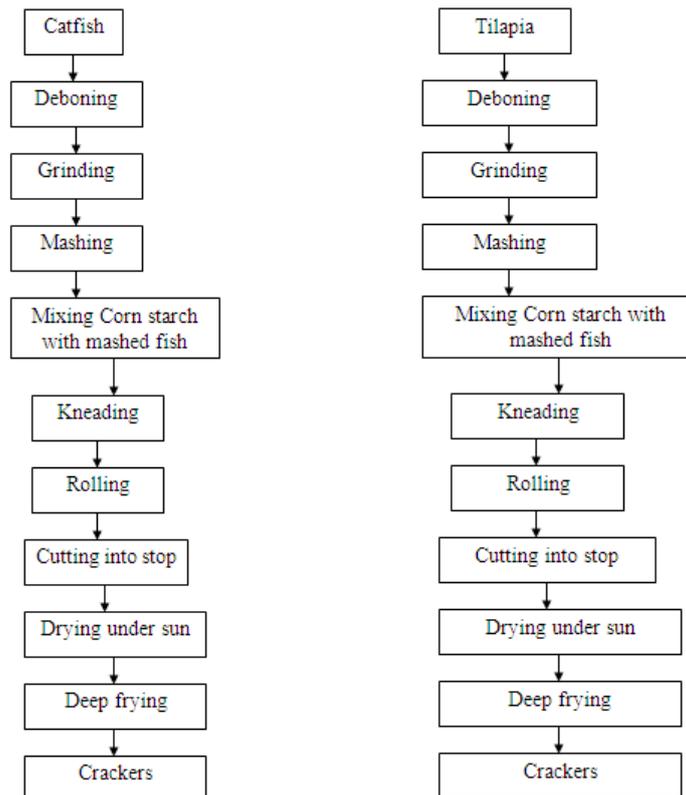
Tilapia and catfish were deboned when they are fresh and mashed with attrition pepper grinder and mixed thoroughly with 25g of corn starch with a cubes of magi, 0.01g of pepper, 0.05g of salt and then rolled out into cylindrical shape and steam with a steaming pot for 45mins and cut out with knife into a nice shaped with ½ thickness sprayed under sun for 3 day for drying. It is then deep fried in 18.5% of vegetable oil and then allowed to cool.

**PRODUCTION OF FISH CRACKERS FROM TILAPIA AND CATFISH**

The processing method was by frying and the method is described below.

Recipe for production of crackers using tilapia and catfish flesh is in table1 below.

Ingredient	Percentage
Fresh tilapia	37% salt – 5%
Fresh catfish	35%
Corn starch	25%
Pepper	1%
Vegetable oil	18.5%
Maggi	2 cubes



Flow diagram for fish crackers made from catfish. Flow diagram for fish crackers made from tilapia.

Sensory quality of fish crackers produced from tilapia and catfish was performed using the method of Iwe (2002). A 25 man panel made of staff and student (male and female) of African regional aquaculture centre were used. The product was evaluated by panelists for taste, appearance, texture, flavor and general acceptability. The scoring was based on a 9-point hedonic scale ranging from (extremely dislike) to 9 extremely like) and 5 neither statistical analysis.

The values obtained from sensory evaluation were statistically analyzed using MSTAT .C. program (Annon 1988).

### III. Result And Discussion

Table 1 shows sensory evaluation of fish crackers prepared from catfish and tilapia. There were no significant difference ( $p > 0.05$ ) in the texture of the fish sample. However, there was a significant difference ( $p > 0.05$ ) in the taste, colour of fish crackers from tilapia. There was a significant difference ( $p < 0.05$ ) in the general acceptability of fish crackers from tilapia. Hence fish crackers from tilapia were acceptable in terms of taste, colour and texture and general acceptability. There was significant difference in the fish cracker from catfish in terms of flavor, taste and general acceptability.

Table 1

Sample	Colour	Taste	Texture	Flavor	General
Fish crackers (Tilapia)	5.74	6.70	5.60	5.00	6.39
Fish crackers (catfish)	6.90	7.80	6.59	7.90	7.63
Pr> F	0.03	0.03	0.10	0.00	0.00
T - test (0.00%)	XX	N.S	XX	XX	XXX

Key XX → Significant  
 N.S → Not Significant  
 XXX → Highly Significant

Table 1: Statistical results of sensory evaluation of fish crackers made from different fish species.

Figure 1: Sensory evaluation of fish crackers from tilapia and catfish.

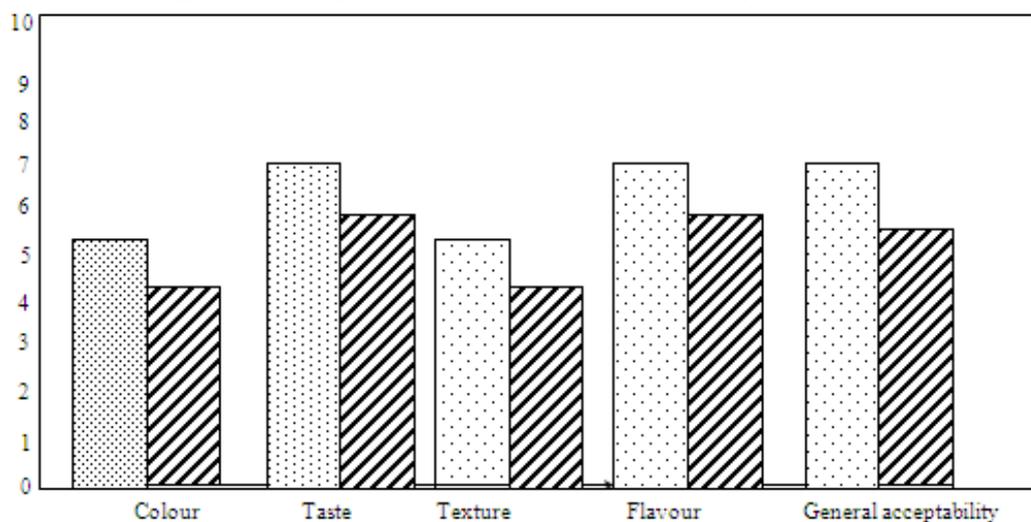


Figure 2: Sensory evaluation of fish crackers from catfish



### IV. Conclusion

Food production, on the other hand is not keeping pace with the increase in population. The resulting effect is malnutrition typified by inadequate food intake. Food distribution has influence on the ability of rural families to meet their nutritional needs. So those in cereal and tuber producing areas consume mainly these commodities and little of anything else. There is need for proper utilization of available seafood species to

ensure adequate nutrition for all. Food insecurity in sub-Saharan Africa is characterized by widespread and chronic hunger and malnutrition as well as recurrent and acute food crises.

In this study, there was a higher consumer acceptability of the fish crackers from tilapia. Fish crackers from catfish were more tasty. Products of fish crackers from catfish should be increased to meet the nutritional requirement needed for healthy growth and provide adequate food security for rural community. There was a higher general acceptability of fish crackers from tilapia and catfish so adequate technology should be provided to improve the production of these products and assure food security for rural community. The production of these products will create a means of revenue generation and sustainable development in rural communities and also alleviate poverty.

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