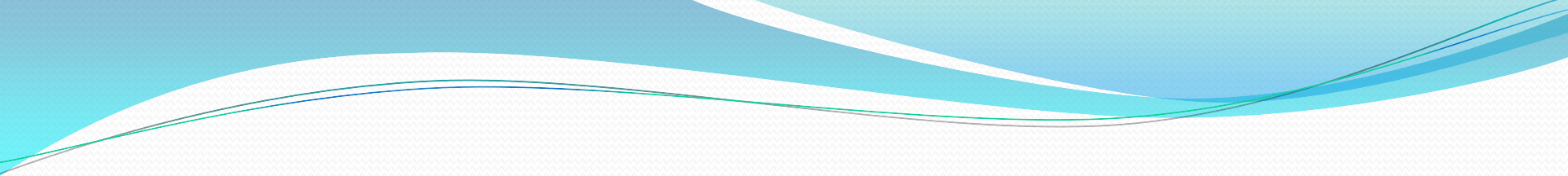


**IMPROVING NUTRITIONAL SECURITY THROUGH THE
METHOD OF DRYING *HETEROCLARIAS* AND
OREOCHROMIS NILOTICUS FOR PRESERVATION**


**Fapohunda, Olawumi Oluwafunmilola and Esan, Ibiyemi
Department of Fisheries and Aquaculture Management
Ekiti State University, Ado Ekiti**

INTRODUCTION

- ❖ Food security is a major concern in Nigeria of today because of the increasing gap between population and food production growth rates.
- ❖ Fish production remains a vital tool to promote food and nutritional security in Nigeria.

- 
- ❖ Fish production remains a vital tool to promote food and nutritional security in Nigeria.
 - ❖ Fish is a major source of protein and its harvesting, handling, processing and distribution provide livelihood for millions of people as well as providing foreign exchange earning to many countries (Al-Jufaili and Opara, 2006).

- ❖ Fish is an extremely perishable food item (Agbo *et al.*, 2002). Soon after death, fish begins to spoil.
- ❖ The caught fish quality depends on the handling and preservation of the fish as received from the hands of the fishers after capture.
- ❖ The methods that are commonly employed are the traditional techniques such as salting/brining, sun-drying and smoking which also increase fish availability to the consumers (Abolagba *et al.*, 1996).



❖ Preservation is through moisture removal and the presence of salt which at the right level inhibits chemical, microbial and enzymatic activities and also attack biological agents (Abraham and Oramadike, 2011).

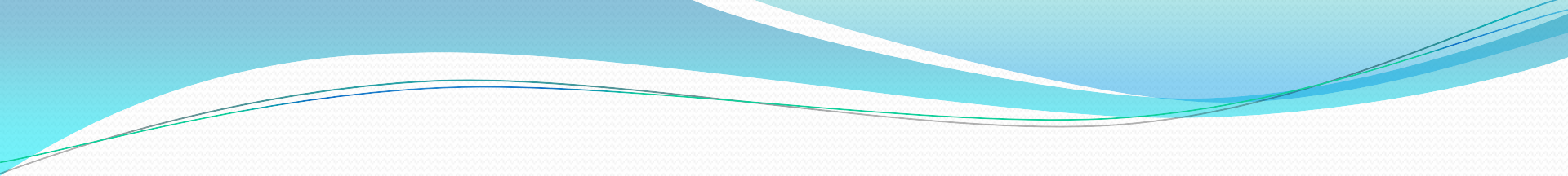
❖ There is a need to adopt an adequate preservation method for fish, so that at the cost of preserving fish, the nutritional composition of the fish is not altered unconsciously.

MATERIALS AND METHODS

❖ Ten freshly harvested catfish (*Heteroclarias*) and Tilapia (*Oreochromis niloticus*) were obtained from Durante fish farms, Ibadan. The average weight of catfish (*Heteroclarias*) was 400g while that of Tilapia (*Oreochromis niloticus*) was 300g. The twenty fishes of both species were shared into two equal portions; ten was used for oven drying and the other ten for sun drying.

Processing Methods

- ❖ The major processing methods employed were; gutting, washing, cutting, brining, hanging and drying (Oven drying and Sun drying).

- 
- ❖ **Sun-drying:** A portion of the fish samples was sun-dried for 12 days (7 hours/day) in broad day sunlight.
 - ❖ **Oven-drying:** The other portion of the fish samples was dried using laboratory electric oven (DHG – 9101. ISA). The well drained fish samples were oven dried at a temperature of 80⁰C for 5 days (4 hours daily) after which the proximate analysis was carried out.

Proximate Analysis of the Fish Samples

Heteroclarias:

Fish species	Moisture (%)	Ash (%)	Fat (%)	Fibre (%)	Protein (%)	CHO (%)	Energy Value (Kj/g)
Ovendried <i>Heteroclarias</i>	8.60±0.2	15.57±0.6	28.26±1.9	0.57±0.1	43.02±2.6	4.02±1.0	1,845.36±37.8
Sundried <i>Heteroclarias</i>	14.88±0.7	15.08±1.0	26.77±2.1	0.20±0.1	35.12±1.7	7.95±1.1	1,722.68±79.3

Oreochromis niloticus:

Fish species	Moisture (%)	Ash (%)	Fat (%)	Fibre (%)	Protein (%)	CHO (%)	Energy Value(kj/g)
Ovendried <i>Oreochromis niloticus</i>	8.4±0.6	17.34±1.5	20.05±1.0	1.0±0.0	40.73±1.1	12.48±0.5	1,646.42±31.7
Sundried <i>Oreochromis niloticus</i>	12.64±2.0	17.04±0.1	19.70±0.5	1.6±0.6	33.33±1.0	15.34±0.6	1,556.29±19.2

The Organoleptic Properties

Oven - dried and Sun - dried *Heteroclarias*

Fish Species	Taste	Texture	Palatability	Flavor
Oven dried <i>Heteroclarias</i>	6.0 ± 0.0	5.3 ± 0.6	5.7 ± 0.4	5.6 ± 0.6
Sun dried <i>Heteroclarias</i>	3.4 ± 0.6	3.7 ± 0.8	2.9 ± 0.7	3.1 ± 0.5

CONCLUSION

- ❖ The quality of the oven dried fish products is better than that of the sun dried products; this might be as a result of the elevated and uniform temperature in the oven, which brought about a quick removal of moisture than the sun dried products.



❖ The most remarkable organoleptic characteristic is taste.

❖ The taste of the oven dried *Heteroclarias* sample is the most pleasant while the sun dried *Oreochromis niloticus* had the least pleasant taste.



THANK YOU FOR LISTENING