



Assessment of Marketing Practices and Strategies of Smoked Fish within Selected Markets in Maiduguri, Borno State, Nigeria

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Abstract

This study assessed the marketing practices and strategies of smoked fish within selected markets in Maiduguri. The findings revealed that males dominated the marketing of smoked fish with 69 (86.25%), primarily within the age range of 41-50 years with 28 (35%), with Arabic education as the predominant educational qualification with 37 (46.25%). The majority of marketers were of Kanuri ethnicity with 45 (56.25%) and operated as retailers with 53 (66.25%), utilizing public transportation with 49 (61.25%) for fish distribution. *Clarias gariepinus* was identified as the most marketable fish species with 35 (43.75%), with cartons being the preferred packaging material with 49 (61.25%). Open market display was the dominant marketing strategy with 45 (56.25%), with texture being the primary factor determining price with 59 (73.75%). High-quality packaging was also found to significantly influence sales with 48 (60%). However, marketers faced challenges such as price fluctuations, lack of government incentives, limited capital, and high transportation costs. The study's findings provide valuable insights into the marketing practices and strategies of smoked fish in Maiduguri, highlighting areas for improvement and potential interventions to support marketers.

Keywords: Fish Marketing Practices; Fish Marketing Strategies; Market Challenges; Fish Smoking, Nigeria.

INTRODUCTION

Fish smoking is a traditional method of preserving fish that is widely practiced in Africa, and its popularity has extended to the modern world. As applied to fish, Smoke curing is a method of preservation affected by a combination of drying and the deposition of naturally produced chemicals resulting from the thermal breakdown of wood [1]. Fish smoking is a very popular processing method in Europe, Africa and the Far Eastern world, where smoked fish and meat are relished as a delicacy. Smoked fish is a fish that has been cured by smoking. The process of smoking fish occurs through the use of fire [2]. Smoked fish is the most dominant product compared to the others because of its acceptability. One reason is that those who are able to win the buyers hearts are those who plan the process of selling their goods carefully and using the basics of good marketing. Smoked fish is highly desirable because of its enhanced flavour and texture in addition to the protection offered by smoking against microbiological, enzymatic and chemical deteriorative alterations [3].

Fish marketing involves all activities undertaken in conveying fish from the producer to consumers. It includes processing, storage, preservation, transportation, wholesaling, and retailing. The process of fish marketing is a very delicate one if the quality and nutrition of fish

are to be maintained at the highest possible level [4]. Fish supply and marketing suffer from various obstacles ranging from shortage of supply, price fluctuation due to drying up of the source and spoilage of transit. Despite these, the people involved in the marketing of fish appeared to be on the increase because of increase in the population and therefore, the demand tends to be high for the cheap sources of nutritious food and increase in concentration implies more scope for the middlemen to exploit either the consumers by charging high or the producer by paying them lower price [5]. Fish marketing is beyond advertising, selling or making fish available to consumers. It is a key management that brings success to the business [6]. Success of fish marketing largely depends on how efficiently the products and services are delivered to consumers and how differently do the consumers perceive the difference in delivery in comparison to the competitors. Fish marketing becomes profitable only when the products are delivered in a wholesome condition and at a price acceptable to the consumers [7].

Marketing strategy involves identification of consumer's needs at a given time, and effective distribution channels to reach them, it also ensures consumer's satisfaction and enhances maximization of profit to key players along the value chain. Fish marketing plays a vital role in the lives of people living in coastal areas, fishing communities and areas with large concentration of fish farmers and consumers in terms of employment and nutrition [8]. However, lack of appropriate marketing strategies, skills and knowledge in marketing had further complicated the situation leaving many fish farmers and fishers struggling to grow market share. As sustainability of fisheries production largely depends on the producers receiving sufficient income [9]. For the fisheries activity to be profitable, a suitable distribution channel must be selected to ensure that the conditions under which fish and other aquatic resource are to be handled are met on time and with minimal cost [10].

Smoked fish market in Maiduguri faces several marketing challenges that hinder its growth. Smoked fish marketers largely rely on traditional strategies like word-of-mouth and in-person sales, which restrict their market reach and customer base expansion. Additionally, poor understanding of customer preferences, ineffective pricing, and

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inadequate branding make it hard to differentiate in a competitive market. The limited use of digital marketing further reduces their visibility and ability to tap into new markets. Therefore, it's crucial to assess the current state of the smoked fish market in Maiduguri. This assessment will provide insights into best marketing practices and suggest strategies that can help fish traders and vendors optimize their marketing efforts, thereby contributing to the overall development of the fish market in Nigeria. This study covers the assessment of marketing practices and strategies of smoked fish in Gamboru market, Baga road market, Monday market and Muna market of Maiduguri, Borno State of Nigeria.

MATERIALS AND METHODS

Study Area

The study was carried out in Maiduguri Metropolis, the capital city and Jere Local government area of Borno State, Nigeria. Maiduguri is also the main commercial city in the North east geo-political zone of Nigeria. It is located in the Sahel Savanna region of north-eastern Nigeria at latitude 11°05' North and longitude 13°05' East and at about 350m above sea level. It covers an area of about 69,436 square kilometers and bordered by Konduga Local Government Area to the north and northwest, and Jere Local Government Area to the south. According to 2006 population census, Maiduguri has an estimated population of 1,197,497. Both the Maiduguri Metropolis and Jere are ecologically characterized as a sahelian savanna with mainly grasses, shrubs and few trees. The climatic condition of the state is hot and dry for most part of the year. It has low rainfall of about 500 mm annually and a low relative humidity ranging from 42% to 49%. The average temperature is about 200C and a low relative humidity of about 42 percent annually [11].

Data Collection

The data was obtained mainly from primary data and secondary sources. Well-structured questionnaires was administered to eighty (80) respondents which was use for primary data collection. The questionnaire was divided into four (4) sections, section "A" contained the socio-economic characteristics of smoked fish marketers in the study area, section "B" covered the type of marketing practices, section C covered the strategies of marketing and section D covered the constraints of smoked fish marketers. On the other hand secondary sources will be obtained from Journals, conference proceeding, relevant website, published and unpublished materials.

Sampling procedure

Multi stage sampling methods was adopted (Purposive and random sampling), Four major fish markets was purposively selected in Maiduguri for this studies, The fish markets selected are, Gamboru market, Baga road market, Monday market and Muna fish markets, and fish marketers was identified and randomly selected in each of the market selected.

Procedure of Data Collection

Questionnaires were administered to the smoked fish marketers, in a situation where the respondent could not read and write, personal interviews took place, and then their responses were accordingly entered into the questionnaires.

Statistical Analysis

The data obtained was analyzed using description statistics such as percentage (%) and frequency table was used to analyze the completed data from the objectives such as; Socioeconomic characteristics, type of preferred smoked fish species in the market and means of transportation to market.

RESULTS

Socio-Economic Characteristic of Smoked fish marketers

Table 1 shows socio-economic characteristic of smoked fish marketers, fishers with age bracket between 41-50 had the highest representation of 28 (35%) followed closely by age group between 31-40 years that 20 (25%). Age brackets less than 20 years had least representation in the present study. The gender of male constitutes 69 (86.25%) of the sample, while female constitutes 11 (13.75%), which indicate that majority of the respondents in Maiduguri fish markets in were male. From the same table, Marital status showed that, 61 (76.25%) are married, 11 (13.75%) are single while the least is 6 (7.5%) widowed. Majority of the respondents had 28 (35%) household size between 6-10, and household size less than 5 had 9 (11.25%).

The ethnic group in the study area are presented in Table 1. The findings revealed that Kanuri ethnic group dominate fish marketing business in Maiduguri which had 45 (56.25%) followed by Fulani 14 (17.5%) and Margi 6 (7.5%) had the least representation in the study. Similarly, The Educational Qualification of the Respondents are presented in Table 1. The results indicate that majority of the respondents 37 representing (46.25%) had Arabic education (Tsangaya). The second important educational attainments of the respondents is primary school certificates which had 19 fishers representing (23.75) % and least is the tertiary education had 8 (10%). From the respondents 66 (82.5%) are full time smoked fish sellers while 14 (17.5%) had others side business. Years of Experience of the Respondent of the respondents in the study area is presented Table 1. The finding showed that, 49 (61.25%) had fishing experience between 10 years and above followed by those who had 6 to 10 years, 19 (23.75%) and least is less than 1 year had 2 (2.5%). Market association, 41 (51.25%) belongs to a market association while 39 (48.75%) had no any association.

The Source of capital from the table shows that 27 (33.75%) had their source of capital from personal savings and family comes bracket, while 2 (2.5%) got the source from loan. 72 (90%) of the fishermen had no fish farm while 8 (10%) had fish farm. The income level of the respondents revealed that majority of the respondents 34 (42.5%) earned between N41,000 and above in a month, followed by 18 (22.5%) fish marketers who earned 31,000- 40,000, while less than 10,000 had 5 (6.25%) respondents.

Marketing Practice

Marketing practice of the smoked fish marketers is should in Table 2 below, 68 (85%) of the respondents doesn't smoke the fish, out of the 68 (85%) 54 of them got it from the markets while 14 gets it from processors, only 12(15%) smoked the fish. The level at which they operate is 53 (66.25%) are retailers, 16 (20%) are wholesalers and least is the producers had 11 (13.75%). The market is usually daily which constitute of 68 (85%) while 9 (11.25%) participate weekly. The mode of transporting the smoked fish to the market is usually by the public transport had 49 (61.25%) followed by head/hand 17 (21.25%) and only few with private transport 3 (3.75%).

Similarly, from the table, the most marketing fish species is African catfish representing 35 (43.75%), followed by Tilapia 32 (40%) and while dansarki had the least 1 (1.25%). The kind of buyers from the markets, consumers had the highest with 52 (65%), retailers 16 (20%) and least is the wholesalers 12 (15%). The most preferred time of sales mostly made indicated that, evening had 50 (62.5%), afternoon 10 (12.5%) and morning had 20 (25%).



Table 1: Socio economic characteristics

Socio economic characteristics	Baga-road market	Gamboru market	Monday market	Muna market	Total	Percentage %
AGE						
<20	2	1	0	0	3	3.75
21-30	3	2	5	2	12	15
31-40	4	5	9	2	20	25
41-50	6	7	5	10	28	35
50 above	5	5	1	6	17	21.25
					80	100%
SEX						
Male	16	18	17	18	69	86.25
Female	4	2	3	2	11	13.75
					80	100%
MARITAL STATUS						
Single	3	2	4	2	11	13.75
Married	14	17	13	17	61	76.25
Divorced	1	0	1	0	2	2.5
Widowed	2	1	2	1	6	7.5
					80	100%
HOUSEHOLD						
<5	2	2	4	1	9	11.25
06-Oct	6	7	9	6	28	35
Nov-15	8	5	4	7	24	30
16>	4	6	3	6	19	23.75
					80	100%
ETHNIC GROUP						
Hausa	4	2	2	2	10	12.5
Kanuri	8	13	10	14	45	56.25
Babur	2	0	2	0	4	5
Margi	2	1	2	1	6	7.5
Fulani	3	4	4	3	14	17.5
Others	1	0	0	0	1	1.25
					80	100%
HIGHEST EDUCATIONAL LEVEL						
No education						
No education	2	4	0	6	12	15
Arabic education (Tsangaya)	12	8	9	8	37	46.25
Primary education	3	5	7	4	19	23.75
Secondary education	2	2	3	1	8	10
Tertiary education	1	1	1	1	4	5



					80	100%
ARE YOU A FULL-TIME SMOKED FISH SELLER?						
Yes	17	15	18	16	66	82.5
No	3	5	2	4	44	17.5
					80	100%
MARKET EXPERIENCE						
<1	1	0	0	1	2	2.5
01-May	3	3	1	3	10	12.5
06-Oct	4	4	8	3	19	23.75
11>	12	13	11	13	49	61.25
					80	100%
DO YOU BELONG TO ANY MARKET ASSOCIATION//GROUP?						
Yes	18	4	16	3	41	51.25
No	2	16	4	17	39	48.75
					80	100%
SOURCE OF CAPITAL						
Friends	6	7	4	7	24	30
loan	1	0	1	0	2	2.5
family	4	5	8	10	27	33.75
Personal savings	9	8	7	3	27	33.75
					80	100%
DO YOU OWN A FARM?						
Yes	2	2	2	2	8	10
No	18	18	18	18	72	90
					80	100%
INCOME PER MONTH						
<10,000	1	2	1	1	5	6.25
11,000-20,000	2	2	1	2	7	8.75
21,000-30,000	2	3	7	4	16	20
31,000-40,000	3	4	6	5	18	22.5
40,000 above	12	9	5	8	34	42.5
					80	100%



Table 2: Marketing practice

PRACTICES	Baga road market	Gamboru market	Monday Market	Muna market	Total	Percentage %
DO YOU SMOKE THE FISH?						
Yes	4	3	3	2	12	15
No	16	17	17	18	68	85
					80	100%
If no, where do you get the smoked fish						
From the market	11	12	15	16	54	
From processors	5	5	2	2	14	
AT WHAT LEVEL OF THE MARKET DO YOU OPERATE?						
Producer	3	3	3	2	11	13.2
Wholesaler	7	4	3	2	16	20
Retailer	10	13	14	16	53	66.25
					80	100%
NATURE OF MARKET						
Daily	17	16	18	17	68	85
Weekly	3	3	2	1	9	11.25
Periodically	0	1	0	2	3	3.75
					80	100%
MODE OF TRANSPORTATING SMOKED FISH TO MARKET						
Head/hand	3	4	4	6	17	21.25
Wheelbarrow	4	3	2	2	11	13.75
Public transport	11	13	13	12	49	61.25
Private transport	2	0	1	0	3	3.75
					80	100%
MOST MARKETING FISH SPECIES						
Oreochromis niloticus (Tilapia)	9	7	10	6	32	40
Clarias gariepinus (African catfish)	6	11	8	10	35	43.75
Hydrocynus forskahlii (*Lulu)	2	0	1	3	6	7.5
Lates niloticus (*Bargi)	2	2	1	1	6	7.5
Synodontis schall (*Dan sarki)	1	0	0	0	1	1.25
					80	100%



KIND OF BUYERS						
Consumers	9	14	15	14	52	65
Wholesalers	2	2	1	1	6	7.5
Retailers	1	0	0	0	1	1.25
					80	100%
PREFERED TIME OF DAY SALES ARE MOSTLY MADE						
Morning	10	3	4	3	20	25
Afternoon	3	2	4	1	10	12.5
Evening	7	15	12	16	50	62.5
					80	100%
RATE OF DEMAND FOR SMOKED FISH						
Low	0	1	0	0	1	1.25
Average	2	2	2	1	7	8.75
High	18	17	18	19	72	90
					80	100%
IS THE PRICE DETERMINED BY THE SEASON OF THE YEAR?						
Yes	18	16	19	19	72	90
No	2	4	1	1	8	10
					80	100%
If YES, DURING WHICH SEASON YOU SELL HIGHER						
Dry	13	12	11	11	47	58.75
Rainy	4	6	3	8	21	26.25
Harmattan	3	2	6	1	12	15
					80	100%
SOURCE OF INFORMATION FOR AVAILABILITY OF SMOKED FISH FROM THE SOURCE						
Personal contact	13	17	17	17	64	80
Phone call	7	3	3	3	16	20
Radio/television	0	0	0	0	0	0
					80	100%



Table 3: Marketing strategies

Strategies	Baga road market	Gamboru market	Monday market	Muna market	Total	Percentage %
WHICH OF THESE MODULES DO YOU USE TO BUY YOUR FISH?						
Sack						
Pieces	7	4	5	3	19	23.75
Cartons	2	3	3	4	12	15
	11	13	12	13	49	61.25
STRATEGY OF MARKETING					80	100%
Online	3	1	2	0	6	7.5
Open marketing	8	12	9	16	45	56.25
Supply to mini-mart	1	0	0	0	1	1.25
Hawking	2	2	2	1	7	8.75
Lock-up shop	6	5	7	3	21	26.25
NATURE OF PACKAGING						
Exposed on table/mat	11	14	13	15	53	66.25
From bowl	3	3	5	2	13	16.25
Packaged	6	3	2	3	4	17.5
					80	100%
HOW ARE SMOKED FISH PRICES DETERMINED IN THE MARKET?						
Fixed	3	2	3	3	11	13.75
Negotiated	17	18	17	17	69	86.25
Controlled by some value chain actors	0	0	0	0	0	0
					80	100%
WHICH OF THESE FACTORS DETERMINE THE PRICE OF FISH IN THE MARKET?						
Colour	4	3	3	6	16	20
Texture	14	15	16	14	59	73.75
Odour	2	2	1	0	5	6.25
					80	100%
SALE INFLUENCE						
High quality	10	14	11	13	48	60
Consumer interaction	3	2	4	4	13	16.25
Diverse fish products	4	3	3	3	13	16.25
Use of social media	3	1	2	0	6	7.5
					80	100%



Table 4: Constraints

CONSRANTS	VERY SEVERE	SEVERE	NOT SEVERE	NOT A CONSTRAINTS
Price fluctuation	80	0	0	0
Inadequate smoked fish supply	29	48	2	1
Inadequate space for selling fish	2	34	32	12
High cost of transportation	46	26	6	2
Inadequate capital	62	15	3	0
Lack of storage facilities	4	25	33	17
Low bargaining price	4	45	25	5
Lack of incentives from government	75	3	2	0

The finding from the table revealed that the rate of demand for smoked fish is high with 72 (90%) and as low as 1 (1.25%). The price of fish determined by the season of the with Yes 72 (90%) and No 8 (10%). During the season they sell higher, Dry season 47 (58.75%) and harmattan 12 (15%). Source of information for availability of smoked fish from the source indicated that personal contact has the majority of 64 (80%), and the least is phone call 16 (20%).

Marketing Strategies

Table 3 shows the marketing strategies which revealed that the modules used in buying fish with the highest respondents is carton's which had 49 (61.25%), followed by sack 19 (23.75%) and least is pieces which had 12 (15%). The strategy of marketing is usually open market display which had 45 (56.25%), online had 6 (7.5%) and least is supplying to mini-mart store 1 (1.25%). The nature of packaging most of the respondents are exposing on table/mat which indicated 53 (66.25%), packaged 14 (17.5%) and from bowl is the least 13 (16.25%).

The finding from the table also revealed that smoked fish prices are determined in the market by negotiation which had the highest respondents of 69 (86.25%) and least is fixed 11 (13.75%). The factor that determines the price of fish is usually by the texture 59 (73.75%), color 16 (20%) and least is odor 5 (6.25%). Majority of sales influence indicated that high packaging had 48 (60%), consumer interaction and diverse fish products had bracket of 13 (16.25%), and use of social media had 6 (7.5%).

Constraints

Table 4 shows the constraints which revealed that 80 (100%) of the respondents reported high price fluctuations is a very severe constraint to fish marketing, which would obviously increase the cost of a transportation of the fish. Another very severe constraint to smoke fish marketing is lack of government incentives had 75 (93.75%). Inadequate Capital had 62 (77.5%). And from the table a severe constraint is inadequate smoked fish supply had 48 (60%). And lastly not severe, lack of storage facilities 33 (41.25%).

DISCUSSION

This study revealed that smoked fish marketers in Maiduguri, Borno state were dominated by male. The study is in line with Bello et. al. [1],

who reported a predominance of males involved in fish marketing in Borno state, The age of the respondents varied across occupations shows majority of the marketers were within 41-50 years, which is their economic active age. The finding was in agreement with those of Nwabeze et al.[12], who found that most of the fish marketers are in their economic active ages to undertake strenuous task associated to the fishing enterprise and that there was a predominance of married respondents followed by single respondents, The high incidence of marriage shows a high level of responsibility among the respondents and implies that marriage remains an acceptable and valued culture in the area, contended marriage is an important factor in the livelihood and majority had large households with mean household sizes within 6-10 persons. This is in agreement with Jibrin et al. [13], that the highest education for majority of the marketers had Arabic education (Tsangaya). Majority of the marketers had 11> above years of experience. This implies that most of the respondents possess high marketing skills and knowledge compared to respondents who have been in the business for a few years. This is in line with the findings of Nwabeze et al. [12], who asserted that experience enhances risk management. Most of the smoked fish sellers in the study area obtained their funds from family and personal savings. This implies that there is little or no access to credit which is in line with the findings of Bello et al. [1], that lack of access to credit could result to low business performance.

Majority of the fish marketers don't smoke the fish they gets it from the other markets or from processors. Fish smoking preservation is required to amplify its shelf life /storage time and maintain its nutritional value, texture and flavour as stated by Ayuba et al. [14]. Consumers are the highest kind of buyers from this study, they come to purchase smoked fish in various markets. This is in agreement with Fapohunda [15]. The rate of demand is high and the price is determined by the season of the year, during dry the season. The study revealed that respondents' demand for smoked fish during the dry season dominated the sample, it is said that the dry season is more favourable and conducive for the arrival of the fish marketers and also when customers make themselves available to the markets. This is in agreement with Abolagba et al. [16]. Fapohunda [15], also stated that smoked fish marketers sold fish on daily basis, this implies that majority of fish marketers sold on daily basis due to regular demand of smoked fish. Only few of the marketers sold on weekly basis, this was observed to be higher than those that sold periodically. Likewise mode of transported their smoked fish to the market mostly by public transport,



This depicts that many smoked fish sellers depended on public transport for transportation in this area, this probably due to cheaper transport fares of motor cycles in comparison to use of private motor cars. The source of information is for smoked fish market from the source indicated that personal contact is the commonly way they get there information. The personal contact is the most effective way of assessing high quality smoked fish and to bargain. The most marketable fish species across the study area was Catfish. Despite it being expensive, consumers prefer it than other species. This species is the most widely cultivated fish species in Nigeria because of its air-breathing ability, fast growth rate, high feed conversion efficiency and high fecundity (Wing-keong, [17]; Dan-Kisshiya et al. [18]).

In the study area, the modules use in buying fish from marketers or processors is cartons, while open market display was the major marketing strategies that is prevalent in the area, and nature of packaging is exposed on table/mat. This is in line with the finding of George and Akinrotimi [19]. Majority of the respondents depended on negotiating the pricing of smoked fish because it is largely dependent on the prevailing market situation. This is in agreement with Papohunda [15]. While factors that determine the price of fish in the market is the texture. Sales influence, what influence the customer to buy the smoked fish is high quality packaging as the use of social media is not relevant to the marketers.

The most severe constraints revealed in the study is price fluctuations, lack of government incentives, inadequate Capital and high cost of transportation and the severe is inadequate smoked fish supply and low bargaining price where not severe is lack of storage facilities. This is similar with the findings of Jibrin et al. [13], who revealed that the constraints to effective marketing of smoked fish includes inadequate capital, high cost of transportation and lack of good road. Michael [20], observed that the problems of agricultural products are not the instability of the marketable surplus which is affected by loss in the distributive system. Then unavailability of adequate transportation (roads, vehicles, rails etc) also hinder effective distribution of goods from one point to another. Lack of capital also constitutes a problem in the marketing process.

CONCLUSION

In conclusion, this study revealed that the marketing of smoked fish is male-dominated, with most marketers aged between 41-50 years, primarily from the Kanuri tribe and with Arabic education (Tsangaya), as their main qualification. The majority of marketers operate as retailers, using private transport for fish distribution. Catfish is the most marketable fish species, with demand peaking during the dry season. Cartons are commonly used for packaging, and the primary marketing strategy is open market display, with limited adoption of online marketing. Pricing of fish is influenced by the texture and quality of the fish, while high-quality packaging has a significant positive influence on sales. However, marketers face several challenges, including price fluctuations, lack of government incentives, inadequate capital, high transportation costs, and insufficient supply of smoked fish. These constraints limit the growth and profitability of the smoked fish trade, despite its high demand and economic potential in Maiduguri. It is therefore, recommended that youth with the aged between 18-30 years should participate in smoked fish marketing as they possess the energy, creativity and adaptability required for entrepreneurship, training for marketers on modern marketing techniques, including online marketing, customer relations, and effective negotiation skills to improve bargaining power should be provided and government should provide incentives such as subsidies for transportation and packaging materials to reduce costs. Additionally, measures to stabilize smoked fish prices should be implemented to minimize the impact of price fluctuations.

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REFERENCES

1. Bello MM, Aneto EN, Lawan I. The effect of different concentrations of water extract of Sodom apple leaves (*Calotropis procera*) in the control of *Dermestes maculatus* on smoked fish (*Oreochromis niloticus* Linnaeus, 1758). *IJFAS*. 2021; 9: 112-116.
2. Samuel AOA. Smoking of fish: a critical review. *J Culinary Sci Technol*. 2018; 559-575.
3. Felix OA, Kehinde TA. Microbiological Analysis of Three of Smoked Fish Obtained from the Ondo State, Nigeria. *Food and Public Health*. 2015; 5: 122-126.
4. Adegeye AJ, Dittoh JS. Agricultural marketing in developing economies: The Nigerian experience. *IJFAEC*. 2017; 5: 25-34.
5. Ali MM, Hossain MB, Minar MH, Rahman S, Islam MS. Socio-Economic Aspects of the Fishermen of Lohalia River, Bangladesh. *MEJSR*. 2014; 19: 191-195.
6. Babalola DA, Bamiji O, Isitor SU. Economic potentials of fish marketing and women empowerment in Nigeria. Evidence from Ogun state. *Africa J Food Agriculture Nutrit Dev*. 2015; 15: p.27.
7. Nwabunike MO. Constraints of Fish Marketing in Abakaliki Metropolis. *IJFAS*. 2015; 2: 337-344.
8. George ADI, Akinrotimi OA. Socio Economic Characteristics and Bio-Security Measures among Fish Farmers in Some Coastal Communities of Rivers State, Nigeria. *Int J Res Scientific Innovation*. 2021; 3: 190-193.
9. Aswathy N, Narayanakumar R, Harshan NK. Marketing costs, margings and efficiency of domestic marine fish marketing in Koral. *India J Fish*. 2014; 61: 97-102.
10. Adebayo EF, Anyanwu SO, Ikenwachukwu N, Onyia LU. Economics fish harvesting in Nigeria: a case study of Yola North Local Government Area of Adamawa State. *IIFT Australia Conference Proceedings*. 2014.
11. NIMET. Seasonal Rainfall Prediction Bulletin - 2020. Nigerian Meteorological Agency (NIMET). 2020.
12. Nwabeze GO, Faleke S, Tanko M, Malgwi YY. Strategies Use by Smoked Fish Marketers in Kainji Lake Basin, Nigeria. *J Agricultural Extension*. 2019; 23: 54
13. Jibrin SA, Bulama YM, Idi AS, Orjiakor CC. Analysis of price fluctuation and its effect on the marketing of smoked fish in Maiduguri Metropolitan Council, Borno State, Nig *J Agriculture Economics. Environment and Social Sciences*. 2023; 9 :186-200.
14. Ayuba VO, Okomoda VT, Ikape SI. Suitability of corn husk and cow dung as alternatives to fuel wood for smoking fish. *J Food Health Sci*. 2015; 2149-0473.
15. Papohunda OO. Economic analysis of smoked fish marketing in Owo Local Government Area of Ondo-State, Nigeria. *Continental J Fisheries Aquatic Sci*. 2012; 6: 38-46.
16. Abolagba OJ, Ogboru RO, Ajari EE. Processing and marketing of fish in Sapele Metropolis, Delta State. *J Agric for Fish*. 2018; 17: 54-57.



17. Wing-Keong N. *Clarias gariepinus*. Cabi Digital Library. 2021.
18. Dan-Kisshiya AS, Abolu BY, Ado A. Survey of preserved fish and fisher folks in the distribution and marketing in Gwagwalada town, FCT, Abuja Nigeria. *Fudma J Sci*. 2017; 1: 23-27.
19. George AD, Akinrotimi OA. Evaluation of Fish Marketing Strategies in Obio Akpor Local Government of Rivers State. *Nigeria J Res Env Earth Sci*. 2021; 7: 55-59.
20. Michael KM. Marketing strategies of commercial fish farming under economic stimulus programme (esp) in Kenya: a case of Kitui county. A Research Project Submitted in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Business Administration of Kenyatta University. 2014.