FOODSCITECH
Food Science and Technology Journal

Legal Issues and Consumer Awareness on the Effect of Poorly Processed Garri Edo North, Edo State, Nigeria

Esther Chetachukwu Aidonojie[1], Paul Atagamen Aidonojie[*2], Eregbuonye Obieshi[3], Muhammad Mutawalli[4], Adebayo Adesoji Kolawole[5], Lauretta Leslie Banki[6]

[1]Faculty of Agriculture, Nnadi Azikiwe University, Nigeria
[2]School of Law, Kampala International University, Uganda
[3,6]Faculty of Law Edo State University Uzairue, Nigeria
[4]Majene State Islamic College, West Sulawesi, Indonesia
[5]School of Law and Security Studies, Babcock University, Ogun State, Nigeria
Corres Author Email: paul.aidonojie@kiu.ac.ug

ABSTRACT

It's a proverb that says paying a good cook is preferable to paying a doctor, and that eating one meal should be treated as though it were medication. This quotation makes it clear that eating food that has undergone proper processing is necessary for leading a healthy life. Nonetheless, it has been noted that garri, a traditional meal in Nigeria made from cassava, is sometimes prepared incorrectly (half-baked) in some regions of the country without consideration for the potential health risks. The study's tendency to use a hybrid methodology to investigate consumer awareness of the health and legal ramifications of drinking improperly processed garri raises concerns. To that end, respondents who lived in Edo North, Edo State, were given 247 questionnaires. A descriptive and analytical technique of approach was used to analyze the data that was acquired. The majority of the garri procedures in the area, according to the study, are half-bake and frequently include some cyanide. The majority of consumers, the study also revealed, are ignorant of the potential health risks associated with eating cyanide-containing, improperly processed and maintained half-baked garri. In light of this, the study comes to the conclusion and suggests that in order to reduce the prevalence of improperly processed garri, a legislative framework that ensures efficient enforcement and compliance against improperly processed food is required. Sensitization to the risks associated with eating half-baked garri is also necessary.

Keywords*: Consumer; Edo North; Edo State; Legal; Medical; Processed Garri;*

INTRODUCTION

Garri, pronounced gah-ree, is a staple food in West Africa made from granulated cassava tubers (manihot esculenta crantz) that are grated, fermented, sieved, and dried to produce a fine or coarse powder (Udom et al., 2017). Cassava or root vegetables are poisonous unless it is peeled and cooked first or undergo a baking process. Garri comes in two varieties: yellow and white processed formats (Ziska et al., 2009). The length of the fermentation process affects the flavor, and the addition of palm oil affects the color. Nigeria's manufacture of garri is a labor-intensive process with deep cultural and socioeconomic importance. Harvesting cassava is the first stage in the process of making garri. Cassava is utilized because of its high starch content (Adiraodion et al., 2019). After the cassava is harvested, it is then peeled and washed. The cassava must be peeled and washed properly because when cassava peels come in contact with water, the heteroizite present undergoes a process where it breaks down into cyanhydric, acetone, and glucose (Aminu et al., 2017). This breakdown is what makes cassava potentially harmful, mainly because of the cyanohydrin it produces, which can make the garri processed poisonous. The cleaned cassava roots are then grated into a fine pulp using mechanized grating machines or traditional methods such as manual grating or pounding (Adiraodion et al., 2019), and then placed in sacks or containers and allowed to ferment naturally for a short period of time, based on the fermenting conditions and intensity that are specified.The longer garri's fermentation period, the greater its swelling index (Admai et al., 2021). Fermentation serves

ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

multiple purposes, including reducing cyanogenic glucosides, which are toxic compounds present in cassava, improving flavor, and initiating the natural breakdown of starch into fermentable sugars, which enhances the nutritional value and digestibility of garri. After fermentation, the fermented cassava pulp is dewatered to remove excess moisture (Udom et al., 2017). This can be achieved through manual pressing using hydraulic presses or mechanical methods. The cassava mash is then toasted on metal pans on very high heat. This last step not only eliminates residual cyanide compounds but also imparts a distinctive flavor and aroma to garri, making it palatable and appealing to consumers.

However, it suffices to state in Edo North, Edo State, Nigeria, it has been observed that the majority of indigenes are farmers who are involved in garri processing and the process of the garri processing within that region does not involve the full process to reduce the toxicity of garri (Admai et al., 2021). This is concerning the fact that during the process of baking or frying garri mash, the drying process is often not complete but half-baked, then spread in an open place for further drying. Spreading garri in public places might expose it to rats and other contaminating agents, which could result in garri poisoning because badly baked garri still contains some cyanide (Dziedzoave et al, 2010). In Edo North, Edo State, Nigeria, the prevalence of improperly processed garri is rising despite regulations that generally guarantee food processing standards be of the highest caliber and devoid of any harmful materials.

The aim of study is to use a hybrid approach to investigate the legal concerns and public awareness around inappropriately processed garri in Edo North, Edo State, Nigeria.

METHODS

This study adopts a hybrid method involving doctrinal and non-doctrinal). The doctorinal method is a theorizing and conceptualizing the process of making garri, the dangerous half – baked garri, and its legal implications. This study relied on primary and secondary sources of material, including from laws and scholarly literature.

Meanwhile, the non-doctoral method is to determine consumer awareness about the dangers of consuming half-baked garri. In this regard, respondents domiciled in the Edo area will be given a questionnaire and the data obtained will be analyzed using a descriptive and analytical approach.

Material and Tool

Due to the fact that the study focuses on the legal issues and awareness of consuming garri that has not been properly processed in Edo North, Edo State, Nigeria, a Google form was used to distribute the questionnaire to respondents. The data generated in the questionnaire was analysed through descriptive and analytical methods of study.

Research Design

Questionnaire concerning the legal and awareness of consuming poorly processed garri in Edo North, Edo State, Nigeria.

Data Analysis

Conceptualizing the Actual Processes involved in Garri Processing from Cassava

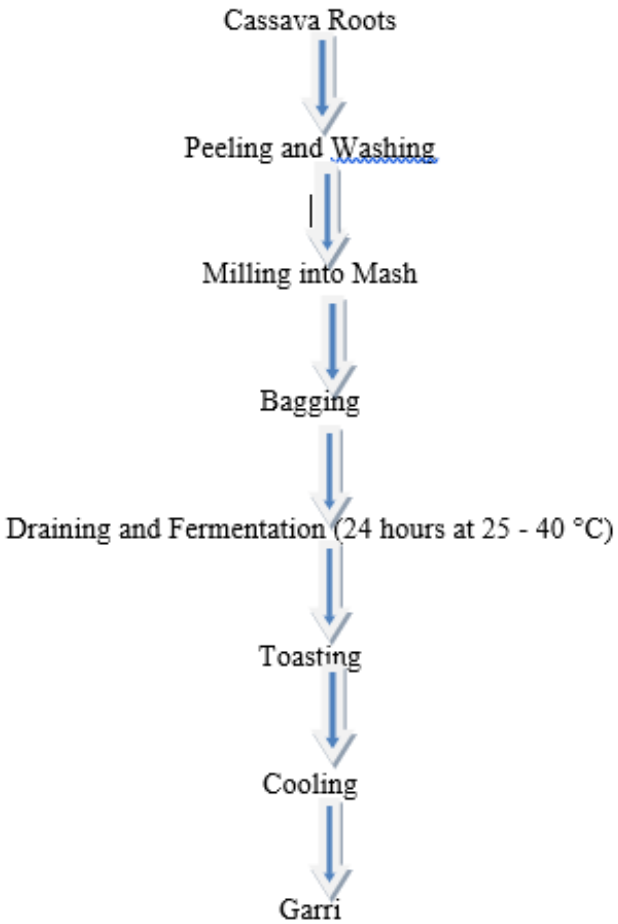
Food is a matter, a substance whether in a solid or liquid state that is nutritionally packed with nutrients, either of: Proteins, carbohydrates, lipids, minerals, or vitamins being in an acidic, basic, or neutral state (Udom et al., 2017). It may be in a processed form (for example processed Garri, children's breakfast cereals, traditional and homemade staple foods,

FOODSCITECH, 7 No. 1 July 2024
ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

commercially sold fruit juices made from varieties of solids and liquids majorly water) (Dziedzoave et al, 2010) from produced from the farm or in its fresh state prepared and eaten with little or no processing methods (for example: Apples, carrot (fruits); vegetables like cabbage, tomatoes; honey, water).

Garri is a common staple food of indigenous Nigerians made from cassava roots *(Manihot spp).* Popular local dishes such as “Eba” often use garri cooked in boiled water during the preparation process and served with any soup of choice (Adekanye et al., 2013). Cassava is a common root crop and the main ingredient for making Garri which is a low cost carbohydrates and is found in tropical regions of Africa (Udom et al., 2017), and in several parts of the world such as South America and Asia. It is a significant source of low- cost carbohydrates and has been a staple in the diets of many African countries. Significant amounts of iron, phosphate, and calcium are present in cassava, which also has a comparatively high vitamin content (Enidiok et al., 2008). However, garri which is a product made from cassava involves a series of processing methods which include; rooting out cassava tubers from the farm, peeling the cassava tubers, washing the peeled tubers, milling the tubers into a mash (Enidiok et al., 2008), filling up the mash in a draining bag or a jute bag, draining the mash bag with a heavy weight placed on the bag for a minimum period of 24 hours to 48 hours period of fermentation process depending on the preference of the consumers (Enidiok et al., 2008). This fermented drained mashed, is then mixed up with palm oil to achieve the popularly called "yellow garri" before it is toasted. Or otherwise toasted without the addition of palm oil to achieve "white garri". Below is a diagrammatical flow of the actual process involved in garri processing.

Diagrammatical Flow of Actual Process of Garri Processing



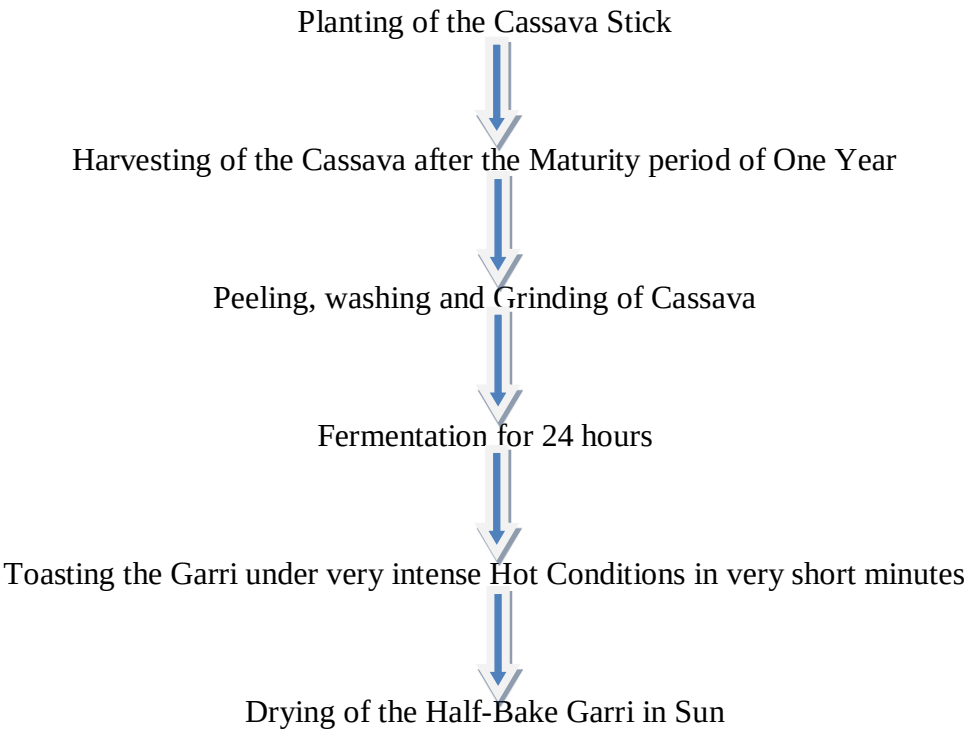
FOODSCITECH, 7 No. 1 July 2024
ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

The fermentation process involved in garri making helps reduce the cyanide content to a minimum level and other toxins that are present in garri. This long-aged practice of fermentation for a minimum of 24 hours allows for the reduction of the cyanide content followed by the complete drying of the mash with the heat from the fire during the toasting process (Enidiok et al., 2008). Sadly, many communities such as in Edo North, Edo State, Nigeria try to circumvent this process through an incomplete toasting process involving lesser time duration of heat and drying (Udom et al., 2017). To finish this method, they expose incompletely toasted garri to the air by sun drying, which could additionally bring in the contamination of garri. Sun drying is a technique used to lower a food's moisture content before extra processing is done (Kegah and Ndjouenkeu, 2023). However, the side effect of sun-drying Garri results in a high microbial load on the dried garri as a result of dropping from rodents and pests.

Processes involve in Garri Processing in Edo North, Edo State, Nigeria

Gari processed from cassava is a common staple food that is common to the people of Nigeria. Also, Edo North, which is a city in Edo State, Nigeria is regarded as a major producer of garri making from cassava (Udom et al., 2017). This concerns the fact that commercial and subsistence farming is the major occupation of the individual residing within that locality. Some individuals indulge in the actual process of garri processing by allowing it to be properly baked in a frying pan in a fire condition (Adeniyi, 2015). However, it has been observed that the majority of the individuals involved in garri processing often indulge in poorly (half-baked) garri which often results in the garri having some cyanide content considered toxic to the consumer. The process involved in the processing of this half-bake garri involve the following;

Garri Processing in Edo North, Edo State



Based on the above, it is sufficient to state that preserving the cassava mash throughout the a 24-hour fermentation period is considered part of the right way to make garri. processing, which may help lower the amount of cyanide content in the product (Oghotomo, 2019).

ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

However, toasting for a few minutes and drying the garri in the sun is totally out of context. This is concerning the fact that there is still a high level of cyanide content left which could be poisonous and further expose the garri to another contaminating agent. This process is considered unsafe, unhealthy, and dangerous to the final consumer when consuming such a product (Udom et al., 2017). However, the majority of the people in Edo North, Edo State involve in garri production and consider this process of poorly processed garri as normal, cheap, and less stressful.

Medical Side effect of Consuming Poorly Processed Garri

Garri holds a significant place in Nigerian culture and economy. It is a versatile ingredient used in various traditional dishes such as eba, fufu, and garri soakings. It serves as a source of sustenance for millions of Nigerians, providing carbohydrates and essential nutrients to their diets (Oghotomo, 2019). Garri is also an important meal in many social gatherings, ceremonies, and festivals. Economically, garri production and trade form a substantial sector of Nigeria's agricultural industry, providing livelihoods for farmers, processors, and traders across the country. Garri is not only in demand in various parts of the country, it also has demand internationally contributing greatly to the country's economy (Ozoegwu, et al., 2017).

Meanwhile, it is sufficient to say that there are serious consequences for health implications of consuming poorly processed garri. This is concerning the fact that half-baked and poorly processed garri often contain cyanide content and high microbial contamination (Aminu et al., 2017). Cyanide is considered a major contaminant of garri, it is naturally present in cassava, particularly in certain varieties, and can accumulate in garri if not processed properly. Consuming garri with high levels of cyanide can lead to cyanide poisoning, causing symptoms such as nausea, vomiting, headaches, and in severe cases, neurological damage or death (Adiraodion et al., 2019). Cyanide poisoning usually affects the heart, brain, and central nervous system especially the nerves in the eyes. Therefore, ensuring proper processing methods and storage practices is essential for minimizing the risk of contamination and protecting consumer health (Adiraodion et al., 2019). To put it succinctly, cyanide is hazardous to both humans and animals in this aspect. However, a cyanogenic plant's ability to create hydrogen cyanide is what essentially determines how hazardous it might be.

Furthermore, where there is no standardized practice for the processing and storage of garri such as in the case of Edo North, Edo State, Nigeria, staple food tends to be contaminated by various things like bits of glass, hair particles, etc (Adejumo and Raji, 2012). Fungi-contaminated soils can also infect garri, and this can have detrimental effects on health because they include strong aflatoxins such as ochratoxin A, zeralenone, scopoletin, patulin, sterigmatocystin, penicillic acid, etc. (Ziska et al., 2009). Aflatoxin, a toxic substance produced by fungi, can contaminate cassava during storage or processing, posing a risk to consumers. Chronic exposure to aflatoxin through contaminated garri may increase the risk of liver damage, cancer, and other health issues. Furthermore, the common effect of any poorly processed food ranges from indigestion, abdominal pain, or stool as a result of high Microbial load, toxins present in the food. However, long-time consumption of poorly processed garri could affect the ability of the eyes to function properly.

Regarding the aforementioned, it is sufficient to say that garri is a staple diet for the majority of people living in Africa, particularly Nigerians. Therefore, consuming improperly processed Garri can be risky and detrimental to people’s health. Examining some of the regulations pertaining to food production and the producer's obligation to the consumer to ensure that the product is of a high standard will be pertinent in this regard.

FOODSCITECH, 7 No. 1 July 2024
ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

Legal Implication of Poorly Processed Garri

Consumers are at the heart of every business because, without them, there would be nobody to buy the goods and services. This is also the case with garri. Consumers are usually not there when products are manufactured and as such may sometimes fall victim to substandard or defective products (Adejumo and Raji, 2012). These substandard or defective products may be harmful and where an injury has occurred, the manufacturer can be made to take liability along the path of the two main redress mechanisms provided by law: by contract or an action in tort (negligence). Most times, the redress mechanism of the contract cannot be used in circumstances where the injury was caused by poorly processed or poisoned food. Such action usually comes under an action in tort (negligence). For the responsibility of the food processor to be established, Before a court of law, three key things must be proven: that the food manufacturer owed the customer a duty of care, that duty of care was breached, and that the consumer suffered damages as a result.

The concept of the duty of care was established by the well-known English case Donoghue v. Stevenson {1932} A.C. 562. Before the House of Lords' decision in Donoghue v. Stevenson, opinions on whether non-contractual parties may have a duty of care differed. For example, the Postmaster-General engaged M & W 109 to run a postal carriage that the Postmaster furnished in Winterbottom v. Wright {1841} 10. Additionally, Wright, the defendant, had a duty to maintain the coach's security. When the bus fell, the plaintiff was injured while she was driving. In a case involving carelessness and no privity of contract, the court refused to recognize a duty of care. However, because of the landmark decision in Donoghue v. Stevenson {supra}, which concluded that the manufacturer {Defendant} was careless and eventually breached his duty of care to the Plaintiff, an injured consumer {Plaintiff} may still bring a claim and compensation. The following are the case's facts: Donoghue, the plaintiff, went to a café with her companion, where her friend purchased ginger beer for Donoghue, which was packaged in an opaque container. Donoghue filled the bottle with water. But as Donoghue's friend filled a glass cup with the leftover ginger beer, a decayed snail also slipped out of the bottle. Donoghue reported experiencing stomach ache and feeling sick as a result of what she saw. The Court determined that Stevenson, the Defendant, had a responsibility to take precautions to prevent snails from getting into his ginger beer bottle, and that he had violated that obligation by neglecting to set up a system that would adequately clean the bottle. As a result of the aforementioned, the Court established the ruling in the case of Donoghue v. Stevenson {supra} that a reasonable individual has a duty of care whenever he reasonably anticipates that failing to exercise reasonable care will result in harm to another person's person or property. He does not anticipate harm or risk to any one individual. If proper care is not taken, it suffices that someone is likely to get hurt.

Consumer claims are not barred by the privity of contract concept, which customarily restricts the validity of contractual commitments to the persons directly engaged. The Okwejiminor v. Gbekeji & Nigerian Bottling Co. Plc {2008} 5 NWLR {Pt 1079} 176 case provided clear evidence of this. In this case, the appellant, who was working as a distributor or agent for the manufacturer, the second respondent, bought a crate of Fanta Orange Drink from the first respondent. The appellant detected contamination after opening one of the bottles from the container and finding a cockroach inside, while another unopened bottle had a fly in it. Consequently, the Appellant suffered injury and pursued legal action against the Respondents, who were the Defendants in the trial Court. Initially, the trial Court ruled in favor of the Appellant. However, the Court of Appeal later overturned this decision. After a second appeal to the Supreme Court, which found that the Respondents were in fact guilty for negligence, the first decision was upheld. Notably, Justice Muhammad of the Supreme Court stressed that culpability in tort cases is not always absolved only because there is no privity of contract

ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

between the plaintiff and defendant. In addition, the court upheld the idea that producers have an obligation of care to the final customer or product user. This judicial precedent emphasizes that producers, regardless of their direct contractual connection with consumers, have an obligation to guarantee the safety and quality of their goods.

In Nigeria today, the doctrine of duty of care and the whole concept of negligence is enshrined in some statutes as well as some judicial principles. Some of the statutes concerning poorly processed or poisonous food include: the Consumer Protection Council Act 1992; the National Agency for Food and Drugs Administration and Control (NAFDAC) Act, 1993; the Counterfeit and Fake Drugs and Unwholesome Processed Foods (Miscellaneous Provisions) Act 1999 and Pre-packaged Food (Labeling) Regulations; National Environmental Health Practice Regulation 2016 (NEHPR); The Standards Organisation of Nigeria (SON) Act; Criminal Code Act (CCA). They provide for necessary measures to be taken while preparing food products as well as the sanctions for not adhering to the laid down rules. Nigeria is not alone in this struggle for food security, other countries have also enacted legislation to make food products safer. Examples of such English legislation, are The Adulteration of Food and Drugs Act 1872; the Sales of Goods Act 1984; The Food Act 1984; the consumer Arbitration Agreements Act 1988, the Consumer Protection Act 1987, etc. These legislations make provisions to impose liability for the supply of poisonous or allergy-causing food.

Concerning the above, it is sufficient to state that the laws and court decisions are laws and regulations that require producers to guarantee the highest quality and standards of their products before they are distributed to consumers. In this regard, it is apt to state that this position of law also applies to garri processing. Given this, the process involved in garri processing within the territory of Edo North, Edo State, Nigeria which does not accede to normal processes involved in garri processing is contrary to what is obtainable by law in Nigeria as it concerns quality and standard food processing. This is concerning the way that the course of garri creation in Edo North in Edo State, Nigeria is viewed as unsafe and could bring about serious wellbeing dangers as analyzed in the former subheading in this review.

Presentation and Analysis of Data

With regard, to the distribution of the questionnaire to the respondents residing in the various zones of Edo North, Edos State, the results obtained are therefore examined as follows:

Sample Size and Techniques

It must be noted that to achieve a sufficient scope of reaching the audience or respondents residing in Edo North Edo State with the questionnaire, the study adopts a simple random sampling method technique. The simple random sampling method is considered to have several unique features that allow for this type of empirical review (Mukhis et al., 2023; Idemudia et al., 2023; Aidonojie et al, 2024; Aidonojie et al., 2022; Inagbor et al., 2023; Imoisi and Aidonojie, 2023; Aidonojie et al., 2020; Oladele et al., 2022; Aidonojie, 2022; Aidonojie et al., 2024). Some of these characteristics are attributed to the simple random method of sampling (Aidonojie et al, 2020; Majekudumi et al., 2022; Aidonojie and Odojor, 2020; Aidonojie et al., 2022; Majekudumi et al., 2022; Aidonojie et al., 2021) include:

1. It is devoid of bias and dispassionate
2. It is free from any form of complication and difficulty in ascertaining the result
3. It is more suitable in sampling a heterogeneous population such as the Edo North that has several cultural and traditional practice
4. It is suitable for conducting hybrid or mixed legal research

FOODSCITECH, 7 No. 1 July 2024
ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

Concerning the above, to effectively generate responses from the respondents the study focuses on 247 respondents residing in Edo North, Edo State, Nigeria.

Data Analysis

Regarding the response of the respondents concerning the questionnaire distributed to them, the result is therefore presented, analyzed, and examined in graphical and tabular presentation as follows:

Research Question One

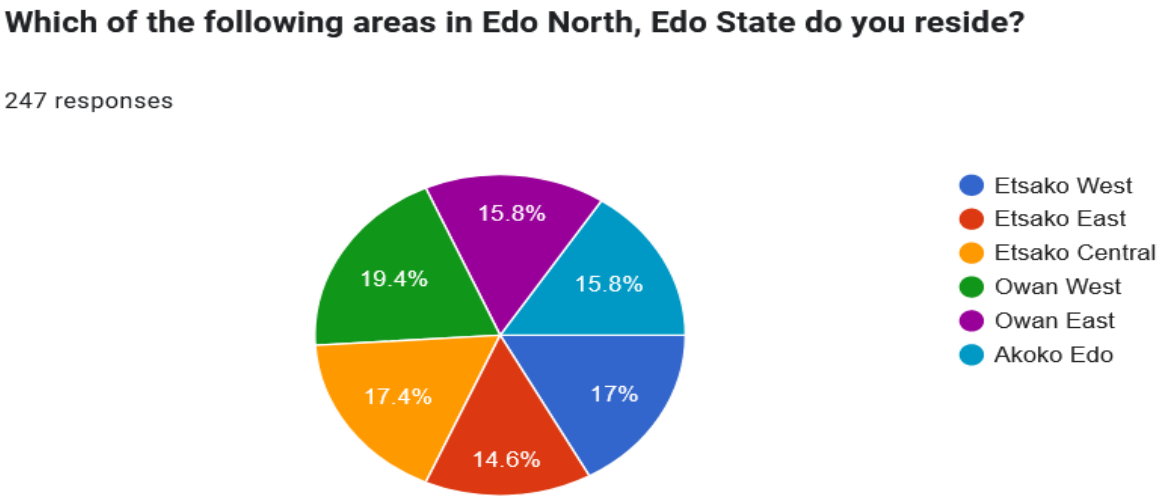


Figure 1: Respondents identifying their residential area in Edo North, Edo State, Nigeria

Table 1: Valid identification of the residential area of the respondents

S/N	Geopolitical Zones in Nigeria	Responses of Respondents	Percent
1	Etsako West	42	17%
2	Etsako East	36	14.6%
3	Etsako Central	43	17.4%
4	Owan West	48	19.4%
5	Owan East	39	15.8%
6	Akoko Edo	39	15.8%
	TOTAL	**247**	**100%**

Figure 1 and Table 1 respondents identify the various areas or localities they reside in Edo North Edo State.

FOODSCITECH, 7 No. 1 July 2024
ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

Research Question Two

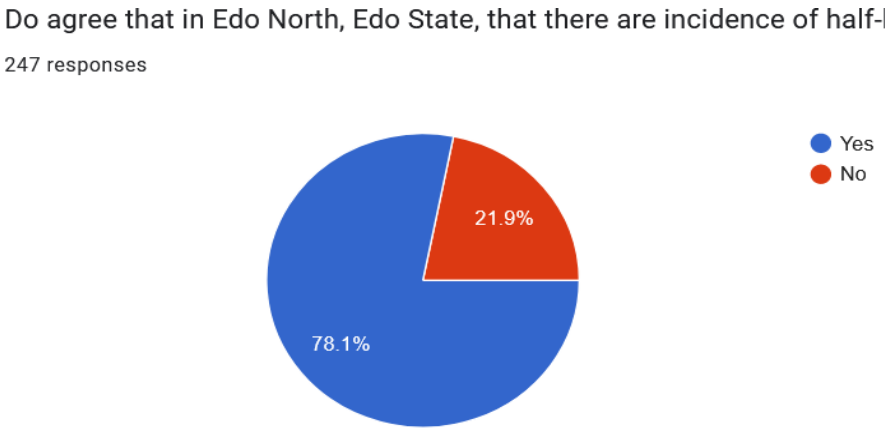


Figure 2: identification of poorly processed garri in Edo North, Edo State, Nigeria

Table 2: Valid identification of poorly processed garri in Edo North, Edo State, Nigeria

	Response	Percent
Valid Yes	193	78.1%
Valid No	54	21.9%
Total	**247**	**100%**

Figure 2 and Table 2 above are graphical representations of the respondents identifying the incidence of poorly processed garri in Nigeria.

Research Question Three

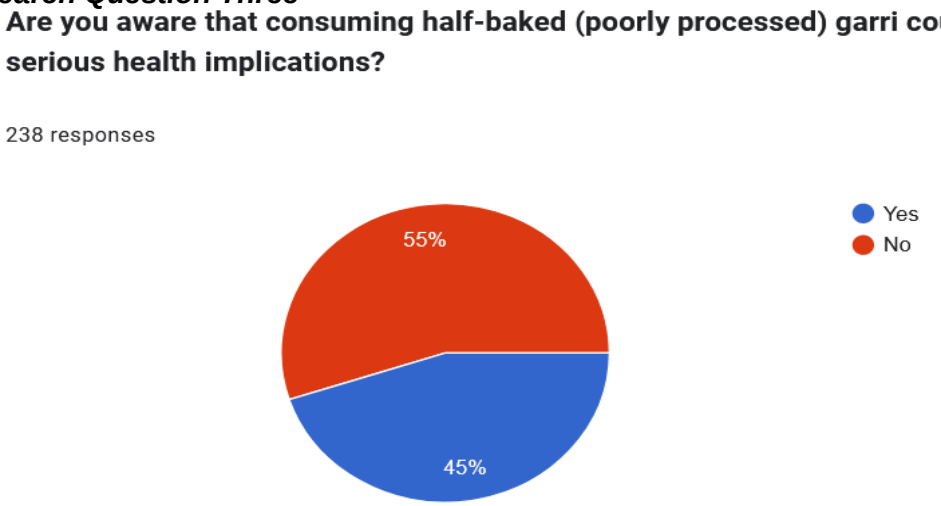


Figure 3: Respondent awareness of consuming poorly processed garri

Table 3: Valid clarification of respondents' awareness of consuming poorly processed garri

	Response	Percent
Valid Yes	107	45%
Valid No	131	55%
Total	**238**	**100%**

Figure 3 and Table 3 are respondents' clearification of their awareness of the danger of consuming poorly processed garri.

FOODSCITECH, 7 No. 1 July 2024
ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

Research Question Four

Which of the following health issues could occur in consuming poorly processed garri? You tick more than one option

111 responses

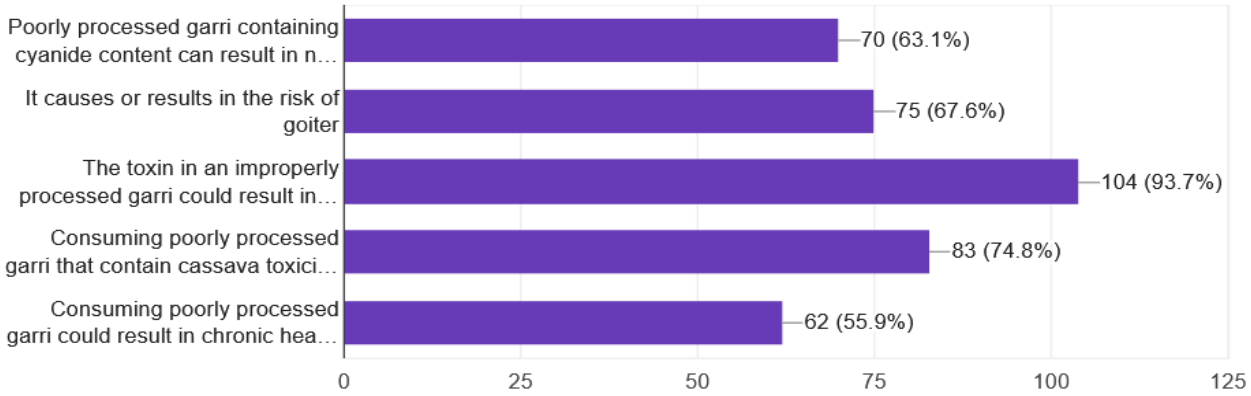


Figure 4: identification of the various health issues often cause by consuming poorly processed garri

Table 4: Valid Cluster of health issues often cause by consuming poorly processed garri

Health issues caused by consuming poorly process garri	Cluster of Response	Percentage
Poorly processed garri containing cyanide content can result in neurological problems such as nerve damage and paralysis	70	63.1%
It causes or results in the risk of goiter	75	67.6%
The toxin in an improperly processed garri could result in bloating, diarrhea, and stomach cramps	104	93.7%
Consuming poorly processed garri that contain cassava toxicity could cause abdominal pain and vomiting	83	74.8%
Consuming poorly processed garri could result in chronic health issues such as cardiovascular disease, kidney disease, and cancer	62	55.9%

Figure 4 and Table 4 are clusters of respondents identifying the various health issues that often occur in consuming poorly processed garri.

ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

Research Question Five

Which of the following could aid in consumer awareness and protection concerning poorly processed garri in Edo North Edo State? You can tick more than one option

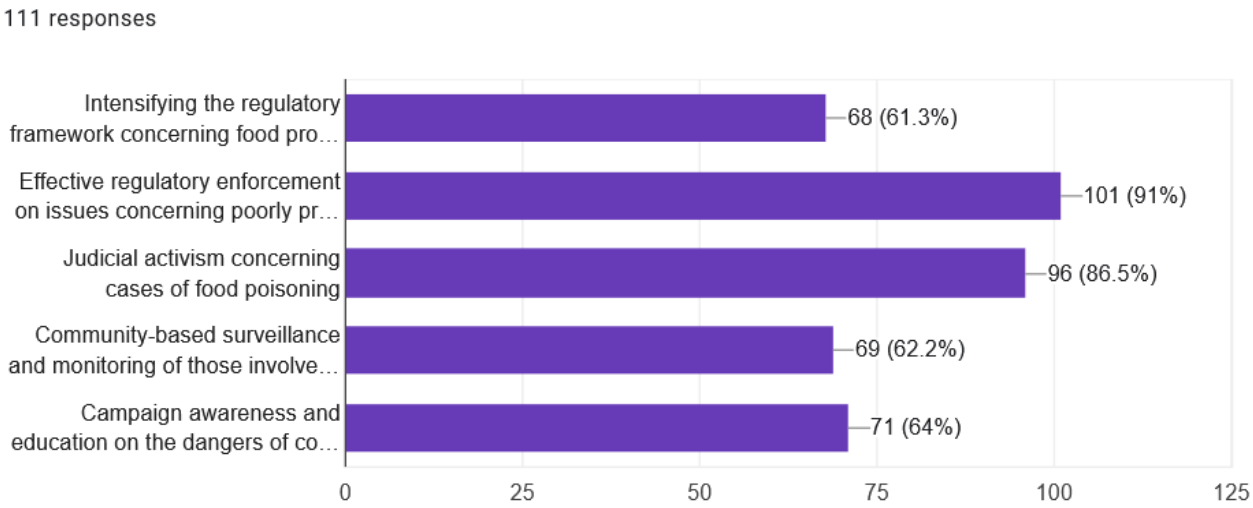


Figure 5: possible remedies of curtailing poorly processed garri

Table 5: Valid cluster of possible remedies for curtailing poorly processed garri

Strategy in curtailing poorly processed garri	Cluster of Responses	Percentage
Intensifying the regulatory framework concerning food processing	68	61.3
Effective regulatory enforcement on issues concerning poorly processed	101	91%
Judicial activism concerning cases of food poisoning	96	86.5%
Community-based surveillance and monitoring of those involved in garri processing	69	62.2%
Campaign awareness and education on the dangers of consuming poorly processed garri within the Edo North, Edo State	71	64%

Figure 5 and Table 5 are valid identification of possible remedies for curtailing poorly processed garri in Edo North, Edo State, Nigeria. State the type of data analysis used to solve research problems

RESULT AND DISCUSSIONS

Based on the data presented and analyzed above, Figure 1 and Table 1 show that the 247 respondents who responded to the questionnaire came from various districts in Edo North, Edo State. In Essence, it shows a reflection of the fact that the individual who responded to the questionnaire possesses the actual knowledge concerning the incident of poorly processed garri. In this regard, figure 2 and Table 2, the78.1% of the respondents identify the fact that there are incidences and practices of poor processing (half-baked garri) in most of the areas of Edo North, Edo State, Nigeria. However, according to Figure 3 and Table 3, 55% of

ISSN 2622-1985 (print) | ISSN 2622-4127 (online)
DOI: http://dx.doi.org/10.25139/fst.vi.8190

respondents were aware that they did not possess or were unaware of the health risks and dangers of consuming poorly processed (half-baked) garri. This figure represents a larger percentage of respondents. In this regard, this reflects the main reason why it is very prevalent having most individuals process half-baked garri, believing it is normal and there are no consequences of consuming such poorly processed garri. However, only a small percentage of responders illustrate and prove that eating garri that has been improperly prepared has negative health effects in Figure 3 and Table 3. In this context, the following health problems linked to ingesting improperly prepared garri were identified by these few people in Figure 4 and Table 4:

i. 63.1% of the respondents stated that poorly processed garri containing cyanide content can result in neurological problems such as nerve damage and paralysis
ii. 67.6% agreed that it causes or results in the risk of goiter
iii. 93.7% of the respondents were of the view that the toxin in an improperly processed garri could result in bloating, diarrhea, and stomach cramps
iv. 74.8 of the respondents stated that consuming poorly processed garri that contain cassava toxicity could cause abdominal pain and vomiting
v. While 55.9% agreed that consuming poorly processed garri could result in chronic health issues such as cardiovascular disease, kidney disease, and cancer

Concerning the above, it suffices to state that the above health issues identified as possible resultant effects from consuming poorly processed garri could be very fatal it could result in death. In essence, there is a need to curtail the act of indulging in poorly processed garri, concerning this, in Figure 5 and Table 5, the respondents identify possible remedies that could aid in curtailing poorly processed garri in Edo North, Edo State as follows;

I. 61.3% stated that there is a need to intensify the regulatory framework concerning food processing
II. 91% of the respondents identify effective regulatory enforcement on issues concerning poorly processed
III. 86.5% stated that there is a need for Judicial activism concerning cases of food poisoning
IV. Also, 62.2% identify community-based surveillance and monitoring of those involved in garri processing as a good measure to curtail the incidence
V. Furthermore, 64% identify campaign awareness and education on the dangers of consuming poorly processed garri within the Edo North, Edo State

CONCLUSSION

In conclusion, the study has examined the cultural and socioeconomic significance of garri within West Africa, particularly Nigeria. It identifies the importance of understanding and addressing the risks associated with its production and consumption. Furthermore, the study also identifies that, while garri serves as a staple food and cultural emblem in Edo North, Edo State, Nigeria, its journey from cassava tuber to finished product is fraught with potential hazards, primarily from contamination during processing and storage. The study also observed that contaminants such as aflatoxin and cyanide pose significant health risks to consumers, including liver damage, cancer, and neurological impairment.

These risks highlight the urgent need for robust regulatory frameworks and industry standards to mitigate contamination and ensure the safety of garri products. Although, the study also observed that, legally, consumers have recourse through established principles such as duty of care, which obligates producers to uphold safety standards and protect consumers from harm. However, gaps in enforcement and compliance remain significant challenges,

necessitating comprehensive measures from stakeholders to strengthen oversight and accountability within the garri production chain.

REFERENCES

Adejumo, B.A. and A.O. Raji (2012) Microbiological Safety and Sensory Attributes of Gari in Selected Packaging Materials, PART-I: Natural and Applied Sciences,Vol 3, No 3, pp 153 – 162. Available at www. Savap.org.pk/…/2013(3.3-19)

Adekanye, T. A., S. I. Ogunjimi and A. O.Ajala. 2013. An Assessment of Cassava Processing Plants in Irepodun Local Government Areas, Kwara State, Nigeria. World Journal of Agricultural Research 1(1): 14-17

Adeniyi, O.R. and Akande O. T. (2015), Resource Use and Technical Efficiency in Value Addition to Cassava: A Case Study on Gari and Fufu Processing in Ogun State, Nigeria. American Journal of Experimental Agriculture 5(2): 139-147

Adiraodion A. I. and Airaodion E. O., Ewa O., Ogbuagu E. O. and Ogbuagu U. (2019) Nutritional and Anti–Nutritional Evaluation of Garri Processed by Traditional and Instant Mechanical Methods, Asian Food Science Journal, 9 (4). pp. 1-13

Adiraodion A. I., Olatoyinbo P. O., Ogbuagu U., Ogbuagu E. O., Akinmolayan J. D., Adekale O. A., Awosanya O. O., Agunbiade A. P., Oloruntoba A. P., Obajimi O. O., Adeniji A. R., Airaodion E. O. (2019), Comparative assessment of phytochemical content and antioxidant potential of Azadirachta indica and Parquetina nigrescens leaves. Asian Plant Research Journal. 2(3):1-14.

Admai, I. U., Ogbonna, I. O., Aguoru, C. U., & Amai, D. C. (2021). Aflatoxin contamination of Garri sold in some selected markets in Benue state, North Central, Nigeria. Advances in Microbiology, 11(09), 499–509. https://doi.org/10.4236/aim.2021.119037

Adminu, F.O., Rosulu, H.O., Toku, A.S.O., Dinyo, O.B., Akhigbe, E.C. (2017), Technical Efficiency in Value Addition to Cassava: A Case of Cassava-Garri Processing in Lagos State, Nigeria, Journal of Agriculture and Sustainability, Vol. 10(1), 97-115

Aidonojie P. A, Majekodunmi T. A., Edetalehn O. I., Adeyemi-Balogun O. J. (2023), “A facile review concerning the Protection of an Invention in Nigeria: Issues and Challenges”, Jurnal Hukum dan Peradilan, 12(2), 371-408, http://dx.doi.org/10.25216/jhp.12.2.2023.371-408

Aidonojie P. A. and Majekodunmi T A, Adeyemi-Balogun O J, (2023), The Legal Issues Concerning the Operation of Fin-Tech in Nigeria, Jurnal Media Hukum, 30(20): 78-79

Aidonojie P. A. and Majekodunmi T A, Adeyemi-Balogun O J, (2023), ‘UNETHICAL AND UNCENSORED CONTENT CREATION IN NIGERIA ENTERTAINMENT INDUSTRY: SPRINGING THE LAW TO ACTION’ Jurnal Hukum Replik, 11(2): 173-202

Aidonojie P. A. and O. I. Edetalehn, (2023), ‘A Facile Study of the Statutory Challenges Concerning Customary Practice of Intestate Succession in Nigeria’ Jurnal Hukum Replik, 11(1): 1-11

Aidonojie P. A., (2024), Challenges concerning the Legal Framework of an Automated Personal Income Tax in Edo State, Nigeria, Jurnal Hukum Replik, 12(1), 83-115, http://dx.doi.org/10.31000/jhr.v12i1.7717

Aidonojie P. A., Adesoji K. A., Onwubiko K., Adeyuma G., Natukunda M. and Aidonojie E. C., (2024)Combating the Silent Threat of Livestock Anthrax in Uganda: Issues and Challenges, IAA Journal of Applied Science, 11(2), 90-99,

Aidonojie P. A., Aidonojie E. C., Edetalehn O. I., Ikubanni O. O. and Oyebade A. A., (2022), A Facile Study concerning the Legal Issues and Challenges of Herbal Medicine in Nigeria, The Indonesian Journal of International Clinical Legal Education, Vol. 4(4), https://doi.org/10.15294/ijicle.v4i4.61641

Aidonojie P. A., Aidonojie E. C., Mulegi T., and Eregbuonye O., (2024), Legal Issues

Concerning Compulsory COVID-19 Vaccination: Nigeria as a Case Study, Golden Ratio of Law and Social Policy Review, 3(2), 74-83, https://doi.org/10.52970/grlspr.v3i2.349

Aidonojie P. A., Eregbuonye O., Inagbor M., Ogbemudia O., (2024), "Legal and Socioeconomic Issues Concerning the Nigeria Higher Institution Loan Act 2023", JURNAL LEGALITAS, 17(1), 1-23, https://doi.org/10.33756/jelta.v17i1.23143

Aidonojie P. A., Majekodunmi T. A., Eregbuonye O. and Adeyemi-Balogun O. J., (2024), Potential and Legal Challenges of Metaverse for Environmental Awareness and Sustainable Practice in Nigeria: A Comparative Study with Singapore, Administrative and Environmental Law Review 5 (1):37-64. https://doi.org/10.25041/aelr.v5i1.3230.

Aidonojie P. A., Okuonghae N. and Ukhurebor K. E., (2022), The Legal Rights and Challenges of COVID-19 Patients Accessing Private Healthcare in Nigeria, BESTUUR, Vol. 10(2), 183-197, https://doi.org/10.20961/bestuur.v10i2.68118

Aidonojie P.A., Adesoji K.A., Eregbuonye O., Antai G. O, Ottah I.O., Muhammad Mutawalli (2024), Vol. 19(4), YURISDIKSI, 455, https://doi.org/10.55173/yurisdiksi.v19i4.201

Aidonojie P.A., Eregbuonye O., Adebayo A. K., and Ibeh S., (2024), "Legal and Socio-economic Issues in Adopting Robotic Lawyers in the Nigerian Legal System" Journal of Human Rights, Culture and Legal System, 4(1), https://doi.org/10.53955/jhcls.v4i1.115

Aidonojie P.A., Eregbuonye O., Majekodunmi T.A., Inagbor M.E., (2024), "The Prospect and Legal Issues of Income Tax in the Nigerian Metaverse", Trunojoyo Law Review (TLR), 6(1) 17-50, https://doi.org/10.21107/tlr.v6i1.23874

Aidonojie P.A., Toyin A. M., Obieshi E., and Ogbemudia I.O. (2024), "Legal Issues Concerning of Data Security and Privacy in Automated Income Tax Systems in Nigeria", Hang Tuah Law Journal, 8(1), 14-41, https://doi.org/10.30649/htlj.v8i1.223

Aidonojie, P. A. (2023), 'Voluntary Assets and Income Declaration Scheme a Panacea to Tax Evasion in Edo State, Nigeria', Administrative And Environmental Law Review, 4(1): 1-20, https://doi.org/10.25041/aelr.v4i1.2822

Aidonojie, P. A. (2023). Environmental Hazard: The Legal Issues Concerning Environmental Justice in Nigeria, Journal of Human Rights, Culture and Legal System, 3(1), pp. 17-32, https://doi.org/10.53955/jhcls.v3i1.60

Aidonojie, P. A., Nwazi, J. and Ugiomo E., (2023), "Illegality of Income Tax Evasion in Edo State: Adopting an Automated Income Tax System as a Panacea" Jurnal Legalitas, 16(1): 56-86

Aidonojie, P.A., Abacha, W.S., & David, A. (2023). Effectiveness of the Administration of Justice in Nigeria under the Development of Digital Technologies. Journal of Digital Technologies and Law, 1(4), 1105-1131. https://doi.org/10.21202/jdtl.2023.48

Dziedzoave, N.T., A. B. Abass, W. K. A. Amoa-Awua and M. Sablah. (2010), Quality management manual for the production of high quality cassava flour. In: Adegoke, G.O and Brimer L.eds. International Institute of Tropical Agriculture (IITA): 6-49.

Edetalehn O. I., and Aidonojie P. A., (2023). The Innovative concept and Issues Concerning the Non-Custodial Sentence in Nigerian Criminal Justice System. Journal of Law and Development; 8(2): 243–255

Enidiok S. O., Attah L. E. and Otuechere C. A., (2008). Evaluation of Moisture, Total Cyanide and Fiber Contents of Garri Produced from Cassava (Manihot utilissima) Varieties Obtained from Awassa in Southern Ethiopia. Pakistan Journal of Nutrition 7 (5): 625-629, 2008.

Idahosa, M., Agbale, O., & Aidonojie, P. (2023). The Causes and Legal Implications concerning Assault against Healthcare Providers by Patients or their Relatives in Nigeria. KIU Journal Of Humanities, 7(4), 79-88. https://doi.org/10.58709/kiujhu.v7i4.1558.79-88

Imoisi S. E. and Aidonojie P. A., (2023). Legal and Socio-economic Issues Concerning Black

Marketer's Activities of Petroleum Products in Nigeria. Yuridika, 38(2), 61-84, https://doi.org/10.20473/ydk.v38i2.44999

Kégah, F. N., & Ndjouenkeu, R. (2023). Gari, a Cassava (Manihot esculenta Crantz) Derived Product: Review on Its Quality and Their Determinants. Journal of Food Quality, 2023, 1–17. https://doi.org/10.1155/2023/7238309

Majekodunmi, T. A., Oluwaseun, J. A., Aidonojie P. A., Ikubbanni, O. O. and Oyebade A. A., (2022), Legal Issues in Combating the Scourge of Terrorism;Its Impact on International Trade and Investment: Nigeria as a Case Study, KIU Journal of Humanities, Vol. 7(3), PP. 129-139

Majekodunmi, T. A., Oluwaseun, J. A., Idahosa, M. E., Ikubbanni, O. O. and Aidonojie, P. A., (2022), The causes of the Rising incidence of Terrorism occasioning Deprivation of the Right to Life in Nigeria, KIU Journal of Humanities, Vol. 7(2), PP. 5-19

Oghotomo, O. (2019). "All You Can Eat": - Legal Regulatory Compliance Requirements for Restaurant Operators in Nigeria. Lexology. https://www.lexology.com/library/detail.aspx?g=23c3c99a-9780-48b4-81ec-d71571c74766

Oladele, O. O., Aidonojie, P. A., Uzualu, J. E., Ikubanni, O. O. and Oyedeji, A. I., (2022), An Empirical Study of Criminalizing Minor Infractions of Tax Laws in Nigeria: The Need for Negotiated Punishments, KIU Journal of Humanities, Vol. 7(2), 23-35

Ozoegwu C. G., Eze C., Onwosi C. O., Mgbemene C. A, Ozor P. A., (2017), Biomass and bioenergy potential of cassava waste in Nigeria: Estimations based partly on rural-level garri processing case studies, Renewable and Sustainable Energy Reviews, Vol. 72, 625-638, https://doi.org/10.1016/j.rser.2017.01.031

Udom E. A. , Eze P. C. and Eze C. N., (2017), Material Losses and Garri Recovery Rate during the Processing of Varieties of Cassava into Garri, International Journal of Environment, Agriculture and Biotechnology (IJEAB), Vol 2(4), 2250-2255, http://dx.doi.org/10.22161/ijeab/2.4.86

Ziska, L., Runion, G. B., Tomecek, M., Prior, S. A., Torbet, H. A. and Sicher. R. (2009). An evaluation of cassava, sweet potato and field corn as potential carbohydrate sources for bioethanol production in Alabama and Maryland. Biomass and Bioenergy 33:1503-1508.