KOFORIDUA TECHNICAL UNIVERSITY
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DEPARTMENT OF FOOD AND POSTHARVEST TECHNOLOGY

KNOWLEDGE, PERCEPTION AND LEVEL OF CONSUMPTION OF GRASSCUTTER INTESTINAL DIGESTA

BY

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STUDENT'S DECLARATION

I hereby declare that this project work entitled "KNOWLEDGE, PERCEPTION AND LEVEL OF CONSUMPTION OF GRASSCUTTER INTESTINAL DIGESTA." is as a result of my own research findings, prepared and submitted to Koforidua Technical University-Ghana, and that, to the best of our knowledge it contains no material previously published by another person nor material which has been accepted for the award of Bachelor of Technology in this institution or elsewhere except where due acknowledgement has been made in the text.

..... 29th March, 2023

ABENA FRIMPONGMAA ABEKA DATE

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SUPERVISOR'S CERTIFICATION

I hereby certify that this project work was supervised in accordance with the University's guidelines for supervision of project work.

……. …….

Mr. YAW GYAU AKYEREKO DATE

(SUPERVISOR)

ABSTRACT

Wildlife has been an important protein source for many West African countries over centuries. Grasscutters (Thryonomys swinderianus) are commonly hunted for food in Africa, where they serve as the most important bush meat species in terms of both volume of trade and preference. Grasscutter intestinal digesta is known to be consumed by Ghanaians especially among the Akans. However, there is limited information on consumption level, perception and health benefits associated wit its consumption. The main objective of the study was to determine consumer knowledge and perception on the consumption of grasscutter intestinal digesta. This study employed quantitative method and descriptive research approach which involved questionnaire and personal interview with respondents. A simple random sampling procedure was used to select 209 respondent for the survey. Data from the survey was analysed using SPSS version 20, and the results showed that 67.94% of the respondents were males. A little above half [122(58.37%)] of the respondents admitted to consuming intestinal digesta of grasscutter. The majority of respondents [177(84.69%)] believe grasscutter intestinal digesta has no health benefits. A greater portion of the participants believe that grasscutter intestinal digesta is safe for consumption [120(57.42%)] and many [148(70.81%)] also agree it gives good taste and aroma to food. There was a progressive increase in consumers of grasscutter intestinal digesta with advancing age and this was statistically significant ($p<0.001$). Females [91(64.08%); $p<0.001$], the employed [99(62.66%); $p=0.03$] and those aware of grasscutter intestinal digesta [115(64.61%); $p<0.001$] were more likely to consume grasscutter intestinal digesta than those who will not consume it. Determination of the nutritional and microbial quality should form the focus of future research for grasscutter intestinal digesta. Also, further work should be done on how to process grasscutter intestinal digesta for easy handling and better storage life since more than half of the people consume it.

ACKNOWLEDGEMENT

I thank God Almighty for granting me the strength to complete this work I also thank my project supervisor Mr. Yaw Gyau Akyereko for his support throughout the period of this work

DEDICATION

This project work is dedicated to the Lord God Almighty, who has been my strength in carrying out this project work.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Wildlife has been an important protein source for many West African countries over centuries. Due to the benefit being obtained from this animals and their product, governments, non-governmental organizations (NGOs) and business entities have started promoting the domestication to solve the problems associated with the depletion of wildlife and protein deficiency (Laestadius et al., 2014). Livestock and associated products make up more than 50% of the total value of gross agricultural production in developed countries but only one-third of this figure is realized in developing countries (Cimino, 2009). Between one and five million metric tonnes of bush meat is harvested worldwide each year (Clarke, 2003). In Ghana, eleven bush animals are eaten as sources of food (Ntiamoa-Baidu, 1997). Ten of these animals including grass cutter are pests on cocoyam, cassava, maize grasses and other herbs and constitute 80% of all bush meat sold in Ghanaian markets and restaurants (Atmadja, 2004).Among the wild rodents, grasscutter or cane rat or cane cutter is the most preferred (Adu, et al, 2017). In Ghana the largest road side bush meat market where grass utter is dominant is at Anyinam in the Eastern Region of Ghana due highest moist evergreen forest and biodiversity conservation of floral and faunal species including grass cutter in Ghana (McCullough et al., 2007) people moving from Accra to Kumasi and Kumasi by to purchase grass cutter for household consumption, for restaurant food preparation and processing for export.

Grasscutters (Thryonomys swinderianus) are commonly hunted for food in Africa, where they serve as the most important bush meat species in terms of both volume of trade and preference (NtiamoBaidu, 1997; Odebode et al., 2011) These species are

regarded as pests on many crops and have proven to be well adapted to exploitation due to their high reproductive rates (Jeffrey, 1977; Martin 1983). Rural dwellers depend mostly on bush meat as an economic and protein source for livelihood (Abernethy, 2011). Grasscutter makes up the predominant bush meat consumed in African countries (Odebode et al., 2012). Ghana, Nigeria, Togo, and Cote d'voire, and Nigeria are well-known for their consumption of grasscutter (Ojo, 2019) More than 80% of Ghanaians in both rural and urban areas prefer bush meat and would eat it if available and among the wild animals is the grass cutter which has gained wider interest among the people of Ghana (National Research Council, 199; Annor and Kusi, 2008; Ibe et al., 2017). A number of studies focusing on the nutritional value of bush meat have demonstrated that this is equivalent or even superior to that from domestic livestock species, providing high concentrations of protein (16 to 55%), readily amino acids, as well as vitamins and minerals. Besides the contribution of protein, the provision of calories from bushmeat cannot be overlooked and while the meat of many wild animals is low in fat, (Redhead and Boelen, 1990; Ntiamoa-Baidu, 1997)

Due to the potential health benefits, consumers' perceptions of their environment, as well as their knowledge of what they consume, when they consume it, and how they c onsume it, are crucial (Grunert et al., 2004). Perceptions and knowledge obtained influences consumers consumption patterns.

Customers are consequently very careful about what they consume, and as a result, th ey want to know what effects each food ingredient or product will have on their body' s health. This however, calls for more understanding and transparency in the information given about the properties or qualities of the different food products (Miele & Evans, 2010). Consumers who are better knowldge tend to be more concerned than those who are less informed, and this higher degree of worry prompts them to think

about the qualities of products while making purchases or consumption decisions (Joshi & Rahman, 2015).

According to Arens (1996) consumer knowledge and perception are series of processes that involves behavioral and mental dynamics of individuals who buy goods or services for users to receive some sense of satisfaction. Consumers are the primary choice makers because they exercise their purchasing power to opt for a product that suits their taste and preference over all other alternatives (Hart, 1999). Consumer knowledge, perception and preference has a direct relationship to the goods being produced and made available in the market; the higher the demand of a particular product the more producers will be moved to produce more of the product (Adaighofua, 2010). According to Neuvel et al. (2007); Blaylock et al., (1999); Steenkamp (1997), healthy, safety, taste, price, availability, high-quality, environmental factors, and food properties, are such criteria that are propel consumers to choose a particular food.

1.2 Problem statement

Most people in the rural and urban areas in Ghana have being known to use grasscutter and its intestinal digesta as ingredient in the preparation of soup and stews. Some local restaurants in Ghana also use grasscutter intestinal digesta in preparation of soup which is known to be a delicious meal and consumed by all social classes of people in both rural and urban setting. The use of this intestinal digesta as food ingredient has existed for years, but little is known about consumers' knowledge and perception regarding its consumption.

Therefore this study seek to determine consumer preference and perception on the consumption of grass cutter intestinal digester.

1.3 Objective of the study

1.3.1 Main Objective

The main objective of the study was to determine consumers' knowledge and perception on the consumption of grasscutter intestinal digesta

1.3.2 Specific Objectives

i. To assess the level of consumption of grasscutter intestinal digesta

ii. To determine consumers' knowledge about the nutritional composition and health benefits of grasscutter intestinal digesta

iii. To assess the consumers perception on consumption of grasscutter intestinal digesta

1.4 Research Questions

i. What is the level of consumption of grassscutter intestinal digesta?

ii. What are the nutritional composition or health benefits of grassscutter intestinal digesta

iii. What perception do consumers have on grass cutter intestinal digesta?

1.5 Significant of the study

Consumer perception of meat and meat products is a critical issue for the meat industry because it directly impacts profitability. Understanding consumer eating habits regarding the consumption of various protein sources can help the industry to identify target segments of consumers and how to approach them. Not only is it important to identify why consumers purchasing patterns and trends, but this can allow the industry

to realize and overcome consumer misconceptions while also educating the consumer. The study will help provide knowledge to individual in the study areas and others on consumers' knowledge and perception on consumption of grass cutter intestinal digesta. The study will be beneficial because it will help identify and rank characteristics that consumers look in purchasing food made from grasscutter digesta. It will also serve as a guide for other people who want to establish restaurant for the sales of food made from grasscutter intestinal digesta. The study will also provide an additional information about grasscutter in Oder to widen the research area or scope, and also opens avenue for people to develop other product from grasscutter intestinal digesta to generate income to individuals who domesticate and hunt for grasscutter.

1.6 Scope of the Study and limitation

The study covers individuals who eat at various food join that's uses grasscutter intestinal digesta in its food preparations, assessment of consumer's knowledge and perception on grasscutter intestinal digesta. The study will be limited to only food join in koforidua new juaben south municipalility who uses grasscutter intestinal digesta in its meal preparation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Wildlife

Wildlife has great potentials for meat production and serves as an important source of the desired animal protein to people of Africa, both in urban areas and rural communities (Adu et al., 2017)., Wildlife domestication has been recognized due to it high demand and preference by most people in Africa a (Ajayi, 2010, Adu, et al, 2017). Grasscutter (Thryonomys swinderianus) is a wild hystricomorphic rodent widely distributed in the African sub-region and exploited in most areas as a source of animal protein. Since it is the most preferred and expensive meat in West Africa, including Nigeria, Togo, Benin, Ghana, and Cote d'Ivoire, it is fiercely hunted since it increases both domestic and export revenue in most of those nations. (Ibe, et al., 2017).

2.2 Grasscutter

Grasscutter is a wild mammalian rodent of the family thyronomyidae (Wood, 1974). Thryonomys swinderianus and Thryonomys gregorianus are the two species that exist (Rosevear, 1969; Simpson, 1974). The commonest species is the Thryonomys swinderianus which looks more like the porcupine than a rat and lives in grassy and wet lands in most Africa countries. In Africa Grasscutter is the second largest wild rodent after the porcupine (wood 1974). Both common species (Thryonomys swinderianus and Thryonomys gregorianus) have firm, bristle fur with yellow-brown to gray-brown bodies with whitish bellies and look like suckling pigs. The round nose, spiny fur and short-scaly-sparse hairy tail differentiate it from the true rat (National Research Council, 1991). Thryonomys swinderianus is up to 60 cm long, weighs up to 9 Kg with 65% dressing excluding the offals (Odebode et al., 2011).

2.2.1 Nutritional Composition of Grasscutter Meat

Compared to conventional livestock, grasscutter has a higher meat yield and a better nutritional profile than meats like chevon, beef, mutton, and chicken. Crude protein content of grasscutter is about 22.7% compared with 20.7% for rabbit, 19.25% for chicken and 18.2% for beef and has less fat and cholesterol than beef, mutton and pork (Omole et al., 2005). According to Louw, (2008), the meat of grasscutter contains 22% protein and 4% fat Adeyeye et al. (2012) analyzed the lipid profile of the skin, muscle and liver of Thryonomys swinderianus and discovered that they were all rich in beneficial polyunsaturated fatty acids. PUFA). The study also showed that the ratio of PUFA to the saturated fatty acids (SFA) was higher than the minimum recommended value of 0.45%. PUFA/SFA values were 0.86% for skin, 1.26% for muscle and 1.07% for liver. Adeyeye and Jegede (2010) discovered that the meat of Thryonomys swinderianus had large concentrations of both essential and non-essential amino acids. Most of the protein in grass cutter is located in the limb muscles with the skin having the lowest crude protein value but containing the highest value of carbohydrates followed by the liver and muscle while the brain contains more fat than the skin, muscle and liver (Oyarekua and Ketiku, 2010). The liver of grascuter is known to be rich in Phospholipids Phosphorus, zinc and iron. The skin has higher value of iron magnesium, zinc and calcium (Adeyeye et al., 2012). The meat og grasscutter meat is very low in cholesterol and high in protein. It has a rich in iron, calcium and phosphorous (Oyarekua and Ketiku, 2010).

2.3 Market Value for Grasscutter Meat

Bush meat which is valued at 350 million US dollars of which 83 million US dollars is sold commercially, is a vital source of income for the people of West Africa (Mendelson et al., 2003). Many different actor groups are involved in the bush meat trade these

groups are the farmer hunters, commercial hunters, wholesalers, market traders and chop bar operators. (Ahenkan and Boon, 2010).

The grass cutter has a higher market price in Ghana compared with other bush meat (Elango, 2007). Swensson (2005) identified that grass cutter was the most common hunted wild rodent on sale in Techiman central market in Ghana, West Africa. It was also found out in the same study that most of the grasscutter traded in the Techiman central market were smoked while those traded by wholesalers and chop bars operators were fresh. Two reasons identified for smoking grass cutter were for preservation of the meat and its superior taste compared with fresh meat. In a similar study by Cowlishaw et al. (2004), grass cutter was the most common bush meat traded in the Takoradi market in Ghana, West Africa. According to the National Research Council, (1991), the most expensive meat in West Africa is grass cutter, which is sold for more per kilogram than beef, chicken, hog, and mutton.

2.3.1 Demand and Consumption Patterns of Grass cutter Meat

Grass cutter meat is in high demand for meat in Central and West Africa. About eighty million (80 million) equivalent to three hundred thousand (300,000) metric tonnes grasscutter are hunted for meat every year in West Africa (Louw, 2008). The demand for grass cutter meat is high because its consumption has no religious, sex, age and ethnic barrier. According to Boateng, (2005) and Kinsella, (2012)., in Ghana, it is the most consumed bush meat Due to the continued urbanization of rural regions, demand for wild grass cutter has decreased and preference for domesticated species has increased

2.4 Domestication of grasscutter in Ghana

Grass cutter domestication has been in existence in ghana since the early 60s, its first start by Sefa Asante who had 200 animals with 60 young grass cutters as of 2005 and Omari who had 1,500 animals as of 2005 (Mack et al., 2005). The issue of hunting wild grass cutter with bushfires has been alleviated by grass cutter raising, which has also lessened the dangers to hunters who could be killed by wild animals or detained by a forester. Rearing grasscutter is important due to it f revenue generation and, making grasscutter more available as wild grasscutter is becoming scarce (Raouffou, 2005).

Bakker, (2005) stated that, breeding grasscutter enables the sustainability of wildlife and provides frequent income, ensures food security hence, breaking the vicious circle of poverty.

Owen, & UA, (2012) and Onyeanusi et al., (2008) indicated that, grasscutter was the most preferred species for domestication due to its wide acceptability, excellent taste, high value of meat, high disease resistance, low capital inputs, low noise and relatively high meat yield compared with other animal species are some of the reasons most people rear grasscutter (Onyeanusi et al., 2008).

2.5 Constraints to Grasscutter Production in West Africa

Farmers who want to produce grasscutter frequently lack the production abilities and value chain addition understanding necessary for a profitable business. and adverse illnesses, startup costs, easy access to stock, and a lack of feed all hinder the development of grasscutter equipment. (Heloo, 2005; Ahenkan and Boon, 2010; Okorafor et al., 2012).

2.6 Common Diseases Associated with Grasscutter

Opara and Fagbemi (2008) and Futagbi et al. (2010) reported that grassa cutter are prevalence to Gastrointestinal Tract (GIT) helminthes parasites infections. According to Opare, (2010) 17% of grasscutter arelost through diseases including abscesses, pneumonia and cardio-splenic dilation. Opara and Fagbemi (2010) revealed that grasscutter is a host to trypanasomiasis which can cause leucopenia and also decrease the immunity of the grasscutter leading to other infections and death. Their study also revealed that worms infestation of all grasscutter with high prevalence of Ascaris species. Some of the Nematodes were Ascaris sp., Bunostomum sp., Strongyloides sp., Trichostrongylus sp., Oesophagostomum sp., Trichuris sp., Haemonchus sp., Nematodirus sp, and Strongyles sp. The Cestode identified was Taenia sp, while Eimeira oocyst was the only protozoan parasite isolated (Olayemi, 2011).

2.7 Consumer Preference

Consumer preference is considers as the ability of a consumer to choose between ranges of products (Dawson, 2013). Arens (1996) and Chiu et al., (2012), stated that as a series of processes that involves behavioral and mental dynamics of individuals who buy goods or services for users to receive some sense of satisfaction. Consumers use their purchasing power to choose a product over all other options that meet their tastes and preferences (Hart, 1999). The items created and made available on the market are generally directly related to consumer preferences; the greater the demand for acertain product, the more producers will be motivated to provide that commodity. (Adaighofua, 2010). One of the major demand determining factors is preference A change in consumer preference for goodwill leads to a shift in the demand curve. Consumer preference does not mean being able to buy a product because the inability to purchase a particular commodity does not define a consumer's likes or dislikes.

(Krep, 1990). The ability of customers to rate commodities according to the level of utility gained from the commodity is the end of preference idea.

2.7.1 Factors that Influence Consumer Preference

According to Ling (2015), sociological, economic, and psychological factors are among the underlying factors or elements that always influence purchasing decisions of a consumer. The consumer's category, social class, reference group membership, sex, age, education and household size are all examples of social factors that can affect their purchase choices. With the economic factors, it's of the income level of the individual as well household of the consumer in general that determined its preference. The consumers' perception, the attitude towards the product and the motivation of the consumer make up the psychological factor. An advanced level of education improves a person or individual's economic and social decisions making process. According to Bonilla (2010). Packaging is a crucial aspect for consumers, coming in second to price, and knowing a product's nutritional information. Pilgrim (1957), proposed three factors noted to influence consumer preference and their perception of food which affects their acceptance or approval of food. These factors are physiological, sensation, and attitudes. Physiological factors are internal and the cause of it may be hunger and appetite and sensory attributes of the consumer which are being influenced by sensation. .

According to Sarwade (2002), a consumer making a purchasing decision is being influenced by price as against the quality of the product. Household did not consider the image or brand image of the company when making the purchasing decision, he discussed. Nandagopal and Chinnaiyan (2003) found that the quality of the product came first, followed by the retail price, and the availability were the primary elements that impacted the rural customer of a certain product. According to Kubendran and

Vanniarayan (2005), as income and urbanization rise among consumers, so does the percentage of money spent on food. Acceptability, quality regular supply, door delivery, and manner of payment were shown to be factors affecting consumer purchasing decisions.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter discusses the methods that were followed in undertaking the research and achieving the objectives of the research. The chapter begins with the research approach, research design, study area, population of the study, sampling technique, sources of data, research instruments, data collection procedures and analysis of data.

3.2 Research Approach

There are three main approaches/techniques in conducting a research and these are the qualitative approach, quantitative approach and mixed method approach (Creswell, 2008). This study employed quantitative method approach. Hair et al., (1998), This research design is considered adequate as it provides useful way of reporting the way things are to gather information on peoples knowledge, attitude and practices and perception. Alvesson and Skoldberg (2008) and Harwell (2011) explain that the quantitative study consists of standardized variables which describe people's experiences or opinions. Descriptivet echniques used for the study would enable determine respondent knowledge and perception with the consumption of grasscutter.

3.3 Research Design

The study adopted. A descriptive research approach was used because the study had to do with the collection of views or opinions of respondents on a particular issue. This method was chosen because it is effective when it comes to getting opinions, attitudes and descriptions. This study design is deemed suitable since it offers a helpful method of describing how things are to obtain data. The main goal of descriptive design is to

describe the current situation as it stands. The descriptive survey approach, according to Best and Kahn (2005), is helpful for determining a group of people's knowledge, attitudes, and views. The major features of this methodology are that the researcher has no control over the variables and is only able to report what has already occurred or is now occurring (Kothari, 2004).

3.4 Study Area

The study was conducted in the Atiwa Municipality

3.5 Population

The population of the study involved involves individual coming to eat at restaurant and chopbars where grasscutter intestinal digesta are used in food preparation in the study area.

3.6 Sampling and sample procedure

A sample of two hundred (200) respondents was selected for this study. Sampling is the process of selecting units from a population of interest. Therefore, Random sampling (non-probability sampling) was adopted and used in this study because it gives the respondents an equal chance of being selected or reduces biasness. The other advantage of choosing random sampling was that it is relatively less costly and also gives a fair representative of the population. By using random sampling the researcher was able to select at least 209 respondents.

3.7 Data Collection Method

Data collection methods employed for this research were questionnaires and interview

Questionnaires was formulated from the specific objectives in other to achive the main objective of the study. The questionnaire was administer personally to reduce the risk of failure to respond and also ensure that relevant and accurate information are obtained from the respondents as well as make the data collection easy and effective. The respondent selected for the study were asked the various quedtions and answers were received to fill the questions personally to ensure accuarete answers are provided. Interviews during research were also used especially when more information is needed from respondents from the various study area if they are suspected to have more additional information relevant for the study.

3.8 Data Processing and Analysis

After data collection, questionnaires were edited for errors and omissions were corrected to ensure completeness, consistency and accuracy. Numerical codes were assigned to data in each questionnaire to ensure efficient data entry and analysis. The data was analysed using Statistical Package for Social Sciences (SPSS version 20.0). The result was present in Tables and graphs using excel for easily interpretation.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Socio-Demographics of Respondents

As shown in Table 1, a total of two hundred and nine (209) participants were recruited into this study, with a mean age of 33.43 years. The majority were between the ages of 18 and 30 [98(46.89%)] and a greater proportion of the study participants were males [142(67.94%)]. At the time of this study, most participants were unmarried [119(56.94%)] while almost all [207(99.04%)] participants had attained at least secondary level education.

The reason for such a great disparity in gender distribution could be attributed to the fact that men do more hunting for bush meat and thus prefere to eat it more compared to their female counterpart. A higher percentage of the respondents were youth with the minority above 50 years. An appreciable number of the participant were single with minority married but separated. The higher percentage of single respondents is an indication they eat outside the home where bush meat are sold and this could lead to increase preference for grass cutter intestinal digesta by those who are single

The educational level among respondent was very higher among the respondeents with majority having tertiary education. The higher educatioinal level among the respondent will help them to know more about health benefit of grasscutter intestinal digesta because they might have read about it before consuming. Nevertheless, some of the consumers had only primary education which could make it difficult for them to ascertain the nutritional and health benefit of grass cutter intestinal digesta.

Table 4.1: Socio-demographic of respondents.

Parameter	Frequency (N=209)	Percentage (%)
Mean age ± SD	33.43 ± 9.57	
Age Group		
18-30	98	46.89
31-40	64	30.62
41-50	34	16.27
>50	13	6.22
Sex		
Male	142	67.94
Female	67	32.06
Marital Status		
Single	119	56.94
Married	88	42.11
Separated	2	0.96
Education		
None	0	0.00
Primary	0	0.00
Junior High	2	0.96
Secondary	33	15.79
Tertiary	174	83.25
Occupation		
Employed	158	75.60
Unemployed	51	24.40

Data are presented as frequency, percentages and mean ± standard deviation.

4.2 Awareness and Consumption of Grasscutter Intestinal Digesta

A greater proportion of the respondents [178(85.17%)] were aware of the consumption of grasscutter intestinal digesta This great number could be as a result of higher educational level among the respondent because they might have read about the nutrient and health benefit before consumption (Figure 1). [122(58.37%)] of the respondents admitted to consuming intestinal digesta of grasscutter with the majority being Bososu residents, 55(43.08%) [Figure 3]. A report by Futagbi et al., (2005) state that people do not only consume the meat of grasscutter but also use the intestinal digesta for food and medicinal purpose. This could be the reason why most of the respondent admitted

to consuming grasscutter intestinal digesta. Most people first heard of it from friends (Figure 2). However, a little above half From table 2, the majority of those who consume grasscutter intestinal digesta consume it occasionally [65(53.28%)] at home [62(50.82%)] and served in soups [120(98.36%)] most of the time.

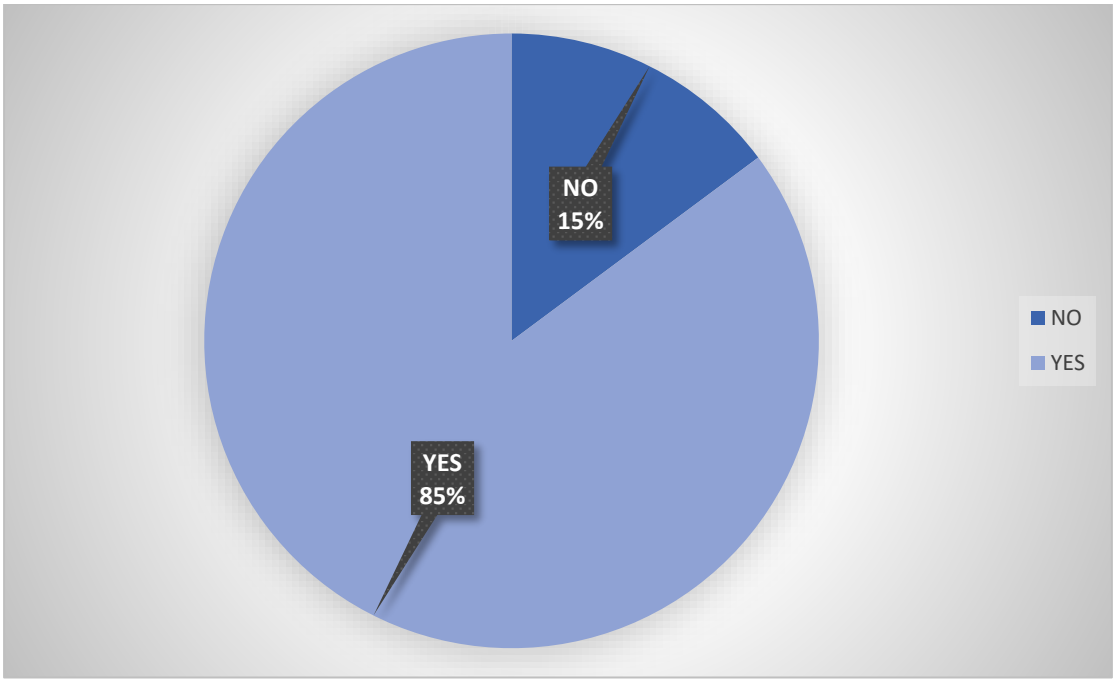

Figure 4.1: Awareness of Consumption of Grasscutter Intestinal Digesta

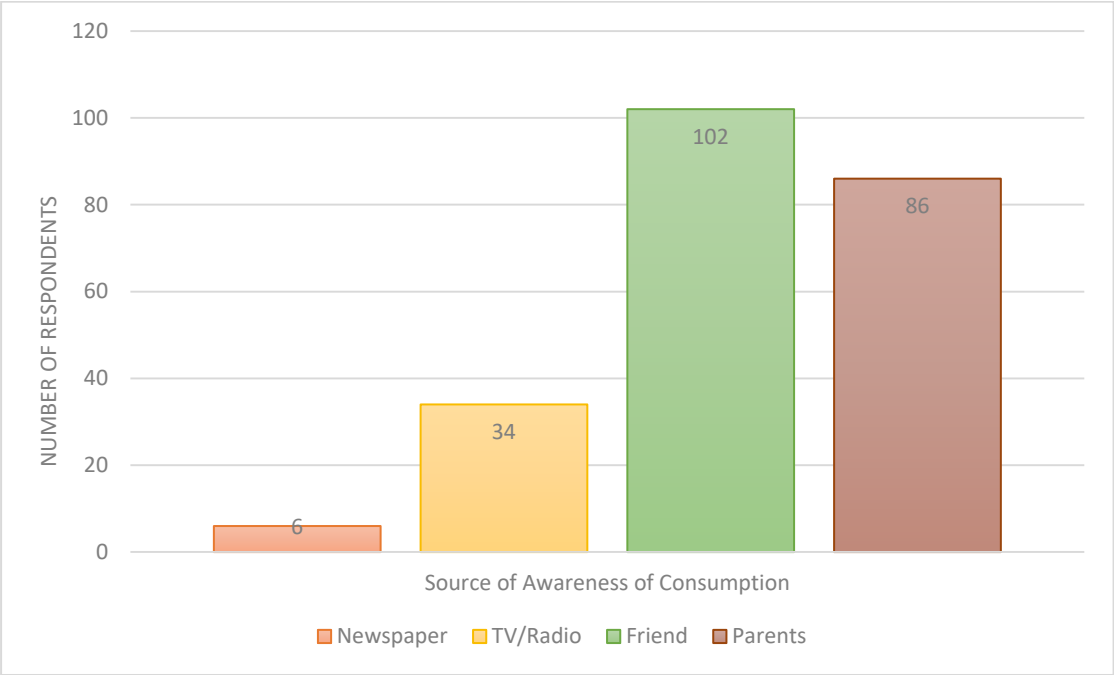

Figure 4.2: Source of Awareness of Consumption of Grasscutter Intestinal Digesta

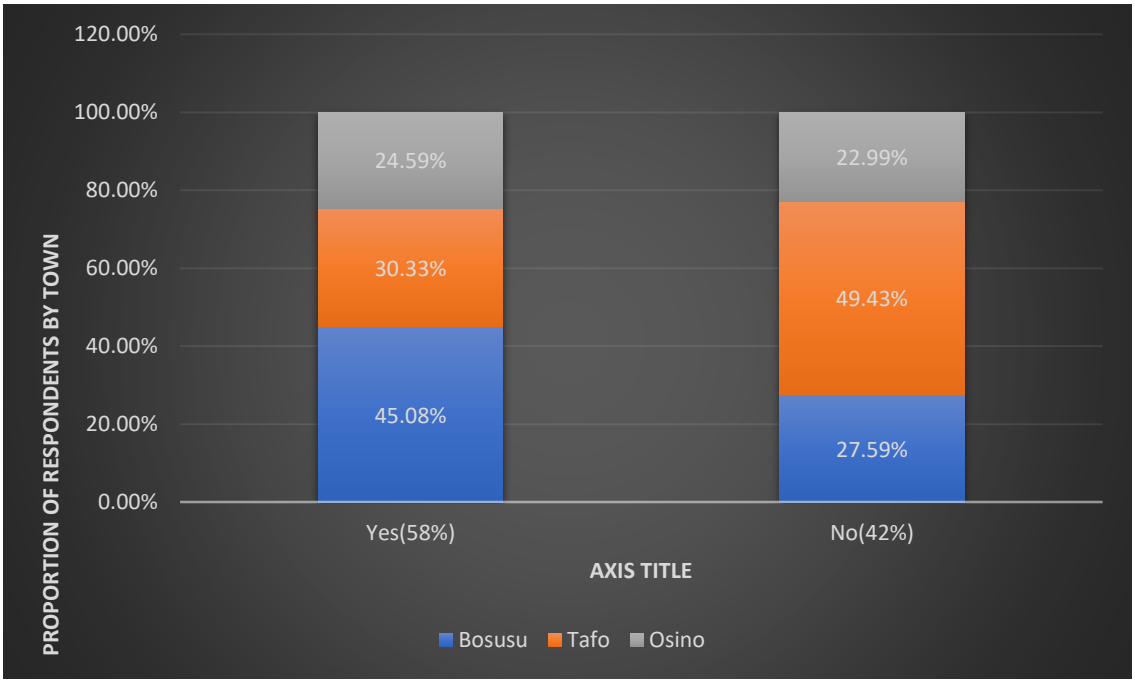

Figure 4.3: Consumption of Grasscutter Intestinal Digesta Stratified by Town

Table 4.2: Consumption of Grasscutter Intestinal Digesta

Parameter	Frequency (N=122)	Percentage (%)
How often do you consume grasscutter intestinal digesta?		
Daily	0	0.00
Weekly	7	5.74
Occasional	65	53.28
Infrequent	50	40.98
Where do you normally consume it?		
Home	62	50.82
Chop bar/ Restaurant	60	49.18
Other	0	0.00
In what food types do you get grasscutter intestinal digesta to consume?		
Soup	120	98.36
Stew	2	1.64
Others	0	0.00

Data is presented as frequencies and percentages.

4.3 Knowledge About Health Benefits and Safety of Grasscutter Intestinal Digesta

The majority of respondents [177(84.69%)] believe grasscutter intestinal digesta has no health benefits. This large number of consumers juust stated their opinions without any scientific knowledge about it. There is limited information on consumer knowledge of grass cutter intestinal digesta, but few studies studies have been carried out in recent times on the parasitic and microbial profile of the grasscutter, all of which had discovered new parasite which make grass cutter intestinal digesta unhealthy for consumption (Simpson and Yeboah, 2001; Kankan et al., 2009). Lack of these information makes it difficult for coonsumers to ascertain the health condition of grass cutter intestinal digesta they consume. A majority [126(60.29%)] also do not know of any nutrient found in grasscutter intestinal digesta. However, a little above half of the consumers [70(57.38%)] admitted there were essential nutrients in grasscutter intestinal

digesta. Proteins and minerals were reported by a few as some major nutrients found in grasscutter intestinal digesta (Figure 4). Lack of informaation on the nutritional status of grass cutter intestinal digesta could contribute to respondent's lack of knowledge on the nutrional status of the intestinal digesta.

Table 4.3: Knowledge About Health Benefits of Grasscutter Intestinal Digesta

Parameter	All Respondents (N=209)	Consumers Only (N=122)
Do you know of any nutrients found in grasscutter intestinal digesta?		
Yes	83(39.71)	70(57.38)
No	126(60.29)	52(42.62)
Do you have any idea if grasscutter intestinal digesta offers any health benefits?		
Yes	32(15.31)	26(21.31)
No	177(84.69)	96(78.69)

Consumers here refers to those who eat grasscutter intestinal digesta.

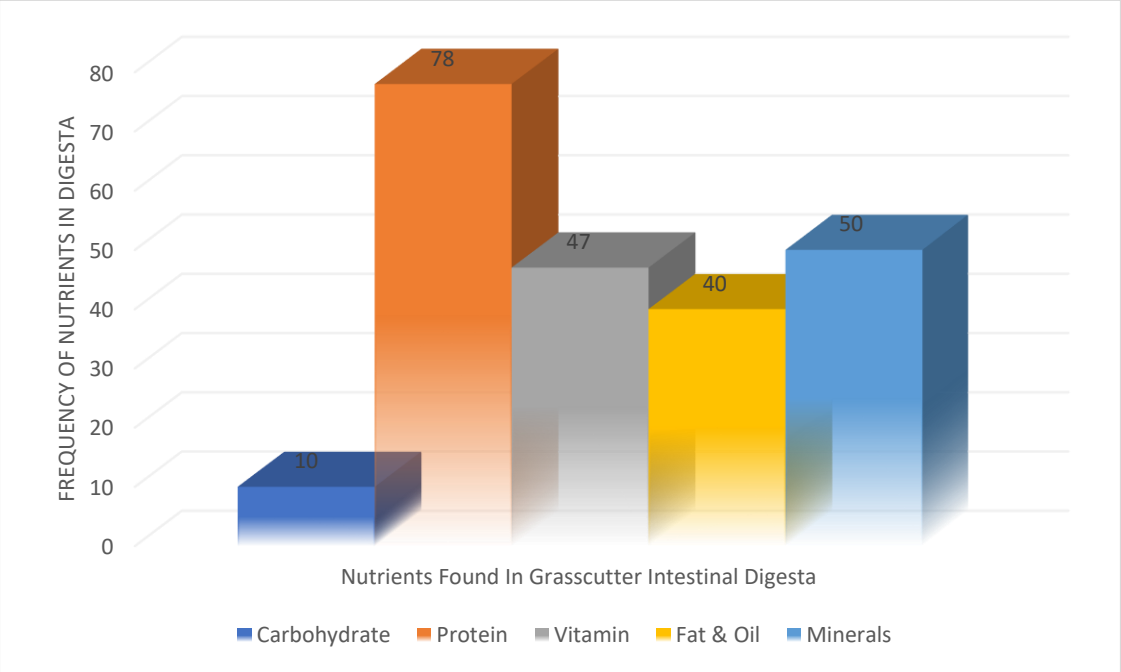

Figure 4.4: Nutrients found in grasscutter intestinal digesta

4.4 Perception Towards the Consumption of Grasscutter Intestinal Digesta

From table 4, the majority of the participants believed that grasscutter intestinal digesta is safe for consumption [120(57.42%)]. They gave their views on the safety of grass cutter intestinal digesta without any scientific data to back their argument. Futagbi et al., (2005) reports that 95.2% of the grasscutter intestinal gutt examine were infested with one paracite or the other. These report is contrary to the view of the of the respondent. Many [148(70.81%)] also agreed it gives good taste and aroma to food this could be from their own experiences as taste and aroma influences consumer preferences for a particalar food product these agrees with the following responses where The majority of the respondents [110(67.90%)] believe that it is the taste and aroma of the grasscutter intestinal digesta-containing dish that informs their decision not necessarily its availability, accessibility or its nutritional value. The majority of the respondents [139(66.51%)] were of the view that a lot of people consume grasscutter intestinal digesta in the country at large. A good number of the respondents [152(72.73%)] also believe that an increase in information on grasscutter intestinal digesta will promote its consumption. This is a good suggestions from the respondents because information like nutritional status and microbial loads in the grass cutter intestinal digesta will help them to the condition of the diigesta they consume.

Table 4.4: Perceptions about the Consumption of Grasscutter Intestinal Digesta

Parameter	Frequency (N=209)	Percentage (%)
Grasscutter intestinal digesta is safe for consumption		
Agree	120	57.42
Neutral	50	23.92
Disagree	39	18.66
Grasscutter intestinal digesta adds good taste and aroma to food		
Agree	148	70.81
Neutral	31	14.83
Disagree	30	14.35
More information on grasscutter intestinal digesta will promote its consumption		
Agree	152	72.73
Neutral	31	14.83
Disagree	26	12.44
A lot of people consume grasscutter intestinal digesta		
Agree	139	66.51
Neutral	50	23.92
Disagree	20	9.57
What informs your choice of food containing grasscutter intestinal digesta?		
Affordability (N=126)		
High	33	26.19
Moderate	32	25.40
Low	61	48.41
Availability (N=153)		
High	46	30.07
Moderate	30	19.61
Low	77	50.33
Nutritional benefits (N=138)		
High	48	34.78
Moderate	28	20.29
Low	62	44.93
Taste and Aroma (N=162)		
High	110	67.90
Moderate	12	7.41
Lowest	40	24.69

4.5 Associated Factors Influencing the Consumption of Grasscutter Intestinal Digesta

From table 5, there was a progressive increase in consumers of grasscutter intestinal digesta with advancing age and this was statistically significant ($p<0.001$). Females [91(64.08%); $p<0.001$]. these shows that female are more like to consume grass cutter intestinal digesta than their males. From the table, the youth were more likely to consume the digesta than the aged. the employed [99(62.66%); $p=0.03$] and those aware of grasscutter intestinal digesta [115(64.61%); $p<0.001$] were more likely to consume grasscutter intestinal digesta than those who were not aware. Those who said the aroma and taste of the grasscutter intestinal digesta-containing dish inform their decision [80(72.73%); $p<0.001$] were seen to consume more than those who said otherwise. These could be due to the fact that taste and aroma influences consumer preference for a particular product.

Table 4.5: Factors Influencing the Consumption of Grasscutter Intestinal Digesta

Parameter	No(N=187)	Yes (N=122)	Total(N=209)	P-value
Age Group				
18-30	58(59.18%)	40(40.82%)	98(100.00%)	<0.001
31-40	18(28.13%)	46(71.88%)	64(100.00%)	
41-50	9(26.47%)	25(73.53%)	34(100.00%)	
>50	2(15.38%)	11(84.62%)	13(100.00%)	
Sex				
Male	36(53.73%)	31(46.27%)	67(100.00%)	0.01
Female	51(35.92%)	91(64.08%)	142(100.00%)	
Marital Status				
Single	61(51.26%)	58(48.74%)	119(100.00%)	0.359
Married	26(29.55%)	62(70.45%)	88(100.00%)	
Separated	0(0.00%)	2(100.00%)	2(100.00%)	
Education				
Junior High	2(100.00%)	0(0.00)	2(100.00%)	0.15
Secondary	11(33.33%)	22(66.67%)	33(100.00%)	
Tertiary	74(42.53%)	100(57.47%)	174(100.00%)	
Occupation				
Employed	59(37.34%)	99(62.66%)	158(100.00%)	0.03
Unemployed	28(54.90)	23(45.10)	51(100.00%)	
Are you aware of the consumption of grasscutter intestinal digesta?				
No	24(77.42%)	7(22.58%)	31(100.00%)	<0.001
Yes	63(35.39%)	115(64.61%)	178(100.00%)	
Availability of the Grasscutter intestinal digesta				
High	13(28.26%)	33(71.74%)	46(100.00%)	<0.001
Low	22(28.57%)	55(71.43%)	77(100.00%)	
Moderate	9(30.00%)	21(70.00%)	30(100.00%)	
Affordability of the Grasscutter intestinal digesta				
High	13(39.39%)	20(60.61%)	33(100.00%)	<0.001
Low	18(29.51%)	43(70.49%)	61(100.00)	
Moderate	5(15.63%)	27(84.38%)	32(100.00%)	

Nutritional benefit of the Grasscutter intestinal digesta				
High	8(16.67%)	40(83.33%)	48(100.00%)	<0.001
Low	18(29.03%)	44(70.97%)	62(100.00%)	
Moderate	11(39.29%)	17(60.71%)	28(100.00%)	
Taste and aroma of the Grasscutter intestinal digesta				
High	30(27.27%)	80(72.73%)	110(100.00%)	<0.001
Low	12(30.00%)	28(70.00%)	40(100.00%)	
Moderate	5(41.67%)	7(58.33%)	12(100.00%)	

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Majority of the respondents were males in their active years. Higher percentage of the respondents were educated, and few of them were married. A large portion of the respondents were aware of grasscutter intestinal digesta consumption through friends, parents and the media.

Majority admitted to consuming grass cutter intestinal digester but do that occasionally at home and sometimes at the restaurant. Most of the participant believe grass cutter intestinal digesta has no nutritional value with few respondent admitting that there are essential nutrient like carbohydrate, protein, vitamins, fat and minerals. Majority believe that grasscutter intestinal digesta is safe for consumption. Others also believe that it add taste and aroma to food with some suggesting that more information on grass cutter intestinal digesta will encourage people to consume it. Factors like sex, education, marital status, availability and affordability influenced the consumption of grasscutter intestinal digesta.

5.2 Recommendation

Based on the data obtained, the following recommendations were made

Appropriate stateholder institutions should invest effort and resource to analyse the nutritional and microbial content of grasscutter intestinal digesta.

Further work should be done on how to process grasscutter intestinal digesta for easy handling and better storage life.

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APPENDIX 1: QUESTIONNAIRE FOR DATA COLLECTION

KOFORIDUA TECHNICAL UNIVERSITY

FACULTY OF APPLIED SCIENCE AND TECHNOLOGY

DEPARTMENT OF FOOD AND POSTHARVEST TECHNOLOGY

I am Abena Abaka Frimpongmaa, a student of the Department of Food and Postharvest Technology of the Koforidua Technical University. I have the pleasure to invite to participate in a research that seeks to determine consumer knowledge, perception and level of consumption of grasscutter intestinal digesta. The outcome of this study has the potential to provide baseline information for future studies to ascertain the nutritional quality and safety of grasscutter intestinal digesta. This activity is purely for academic and research purposes only, and any information you provide would be treated with all confidentiality and would not be used for other purposes other than research work.

Name of Respondent……... Date……

Questionnaire code ……..…… Telephone number ……

SECTION A- DEMOGRAPHIC INFORMATION

1. Gender: 1. Male [ ] 2. Female [ ]
2. Age range (years); 1. < 18 [ ] 2. 18- 30 [ ] 3. 31-40 [ ] 4. 40-50 [ ]

   5. > 50 [ ]
3. Marital status: 1. Single [ ] 2. Married [ ] 3. Divorced [ ]

   4.Widow/widower [ ]
4. Occupation: 1. Employed [ ] 2. Unemployed [ ]
5. Educational level: 1. None [ ] 2.Basic [ ] 3. Secondary [ ]

   6. Tertiary [ ]

SECTION B – AWARENESS LEVEL AND CONSUMPTION OF GRASSCUTTER INTESTINAL DIGESTA

6. Are you aware of the consumption of grasscutter intestinal digesta?

   1. Yes [ ] 2. No [ ]
7. If YES, how did you know about it? (Tick as many boxes as necessary)

   1. Newspaper [ ] 3. Tv/ Radio [ ] 3. Friend [ ] 4. Parent [ ]

   5. Others [ ], please specify ……
8. Do you consume grasscutter intestinal digeata? 1. Yes [ ] 2. No [ ]

   If YES, answer Q8

9. How often do you consume grasscutter intestinal digesta?

   1. Daily [ ] 2. Weekly [ ] 3. Occasionally [ ] 4. Infrequent [ ]

10. Where do you normally consume it? 1. Home [ ] 2. Chop bar/ restaurant [ ]

    3. Others [ ], Specify …….

11. In what food types do you get grasscutter intestinal digesta to consume?

    1. Soup [ ] 2. Stew [ ] 3. Others [ ] (specify) …….

SECTION C – KNOWLEDGE ABOUT HEALTH BENEFIT AND SAFETY OF GRASSCUTTER INTESTINAL DIGESTA

12. Do you know of any nutrient found in grasscutter intestinal digesta?

    1. Yes [ ] 2. No [ ]

13. If yes, list any three nutrients you know.

    1……...

    2……

    3……

14. Do you have any idea if grasscutter intestinal digesta offers any health benefits?

    1. Yes [ ] 2. No [ ]

15. If yes, state any three of these health benefits

    1……..

    2…….

16. Rate your level of agreement with each statement

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Grasscutter intestinal digesta is safe for consumption					
Grasscutter intestinal digesta adds good taste and aroma to food					
More information on grasscutter intestinal digesta will promote its consumption					
A lot of people consume grasscutter intestinal digesta					

17. What informs your choice of food containing grasscutter intestinal digesta? Use the numbers to rank these factors, where 5 = Highest, 4 = High, 3 = Moderate, 2 = Low, 1 = Lowest

ITEM	**TICK**	**RANK**
Affordability		
Availability		
Nutritional benefits		
Taste and aroma		

18. Any other comment(s):

…….....……

……

……...……

APPENDIX 2: PICTURES FROM THE FIELD SURVEY

Plate 1: Interrogating a Respondent

Plate 2: Administring a Quetionnaire