Business Fora: Business and Allied Industries International Journal
2025, Vol. 4, No.1, 30 – 38 | ISSN Online: 3028-1326 | ISSN Print: 3028-1334
DOI: https://doi.org/10.62718/vmca.bf-baiij.4.1.SC-0225-015

Level of Acceptability of Scallop (Pectinidae) Kropek

Article History:
Received: 20 February 2025
Accepted: 23 February 2025
Published: 12 March 2025

Franz Joseph Flores[1]
Brian P. Focbit[1], ORCID No. 0009-0006-7871-2595

[1]Master in Hospitality Management, Iloilo State University of Fisheries Science and Technology, Iloilo City, Philippines

Abstract

This experimental study aimed to determine the acceptability of scallop kropek as to aroma, color, flavor, texture and general acceptability as well as its acceptability in three formulations made up of 1/4 cup scallop paste and ¾ cup tapioca flour (Formulation A); ½ cup scallop paste and ½ cup tapioca flour (Formulation B; and, ¾ cup scallop paste and ¼ cup tapioca flour (Formulation C). It also aimed to determine the significant difference in three formulations as to aroma, color, flavor, texture and general acceptability. The respondents of this study were 15 HRM students, 15 Home makers and 15 Kropek vendors who responded in a sensory evaluation score sheet using a modified five-point hedonic scale as research instrument. The statistical tool used was mean and standard deviation to determine the level of sensory evaluation of scallop kropek as to aroma, color, flavor, texture and general acceptability. The Kruskal-Wallis test was used to determine the significant difference in the level of sensory evaluation of scallop kropek as to aroma, color, flavor, texture and general acceptability. Findings revealed that formulation A, B, and C are "Very Acceptable" as to aroma, color, flavor, texture and general acceptability. It was also found out that there is no significant difference in the level of acceptability of scallop kropek as to aroma, color, flavor, texture and general acceptability as to formulation A, B, and C.

Keywords: acceptability, scallop, kropek, food innovation, tapioca flour, Hedonic scale, Dumangas Iloilo

INTRODUCTION

Scallops (Pectinidae) are marine bivalve mollusks highly valued for their culinary and nutritional benefits. They inhabit various saltwater environments, ranging from shallow coastal areas to deep ocean floors, and have a lifespan of up to 20 years (NOAA Fisheries, 2024). Scientifically classified under the phylum Mollusca, scallops vary in size, with shell widths ranging from 1 to 6 inches, and their weight depends on the species (Kennedy, 2020). The most commonly consumed part of the scallop is the adductor muscle, which is tender, mildly sweet, and rich in essential nutrients. A 3.5-ounce (100-gram) serving of steamed or boiled scallops contains approximately 137 calories, 24 grams of protein, and significant amounts of selenium, zinc, and phosphorus (Healthline, 2018). Due to these attributes, scallops are widely used in global cuisine and are often incorporated into various seafood dishes.

In the Philippines, particularly in the province of Iloilo, scallops hold substantial economic and cultural significance. The Islas de Gigantes, located in the northern part of Carles, Iloilo, are known for their abundant scallop populations, contributing significantly to the local fisheries sector and providing livelihoods for coastal communities (University of the Philippines Visayas, 2022). Efforts to maximize the economic value of scallop harvesting have led to the development of processed seafood products such as scallop balls, nuggets, empanadas, and lumpia, offering additional income sources for fisherfolk (University of the Philippines Visayas, 2022).

Dumangas, a coastal municipality in Iloilo, is also recognized for its rich marine biodiversity and active aquaculture industry, particularly in the production of bangus (milkfish) and other seafood species (Ilonggo Traveler, 2024). Although there is limited data on scallop production in Dumangas, the town's favorable

coastal environment presents potential opportunities for scallop harvesting and processing. Given the increasing demand for value-added seafood products, exploring the feasibility of producing scallop kropek—a traditional Filipino cracker infused with scallop meat—could create new economic prospects for local fisherfolk and promote sustainable aquaculture practices.

This study aimed to evaluate the feasibility of developing scallop kropek in Dumangas, Iloilo, by examining its potential impact on the local seafood industry, value chain, and community livelihood. The findings from this research provided insights into the diversification of scallop-based products, contributed to the economic empowerment of local fisherfolk, and supported sustainable marine resource utilization.

Statement of the Problem. This study aimed to find out the level of acceptability of scallop in making kropek. Specifically, it sought answers to the following questions:

1. What is the level of acceptability of scallop kropek as to aroma, color, flavor, texture and general acceptability in three formulations:
   1.1 A - ¼ cup scallop paste and ¾ cup tapioca flour;
   1.2 B - ½ cup scallop paste and ½ cup tapioca flour; and
   1.3 C - ¾ cup scallop paste and ¼ cup tapioca flour?

2. Is there significant difference in three formulations of scallop kropek as to aroma, color, flavor, texture and general acceptability?

Conceptual Framework. This study examines the level of acceptability of scallop kropek in three different formulations. The input consists of the varying formulations of scallop kropek, specifically: Formulation A (¼ cup scallop paste and ¾ cup tapioca flour), Formulation B (½ cup scallop paste and ½ cup tapioca flour), and Formulation C (¾ cup scallop paste and ¼ cup tapioca flour). The study evaluates these formulations based on five sensory attributes: aroma, color, flavor, texture, and general acceptability, aiming to determine the differences in acceptability among them.

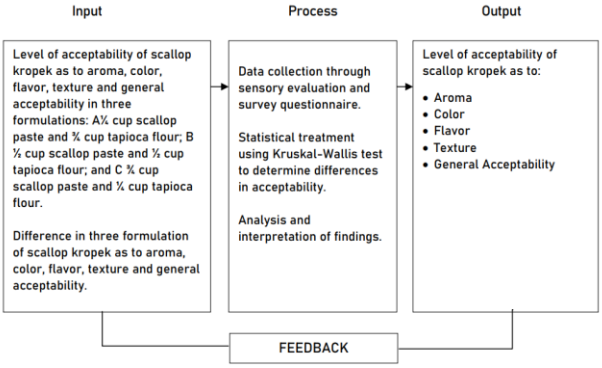

Figure 1
Conceptual Design Depicting the Relationship Between Variables.

The process involves data collection through sensory evaluation and a survey questionnaire, allowing participants to assess the different formulations. To analyze the results, the study employs the Kruskal-Wallis test, a non-parametric statistical tool used to determine if there are significant differences in acceptability across the three formulations. The data gathered will then be analyzed and interpreted to identify which formulation yields the highest level of acceptability based on sensory attributes. The output of this study will present findings on the level of acceptability of scallop kropek formulations in terms of aroma, color, flavor, texture, and general acceptability. Through this systematic approach, the study aims to identify the preferred formulation, providing valuable insights into the optimal ratio of scallop paste and tapioca flour for producing an acceptable and marketable scallop kropek.

LITERATURES

Scallops, belonging to the family Pectinidae, are bivalve mollusks known for their ability to swim by rapidly clapping their shells together, creating a jet-like propulsion. Unlike many other bivalves, scallops possess numerous short tentacles along the edge of their mantle, which function as sensory organs to detect chemical changes in their environment. Additionally, they have light-sensitive eyes that

help them respond to environmental stimuli (Rodriguez, 2019). Typically found in sand or fine gravel in clear water, scallops feed on microscopic plankton, using gill cilia and mucus to transport food particles to their mouth. Their reproductive process involves external fertilization, wherein eggs and sperm are released into the water. The resulting larvae, known as veligers, eventually settle onto the seafloor, attaching themselves to surfaces with a byssal gland. While some scallops remain attached throughout their lifespan, others detach and become free-swimming. Despite their adaptability, scallops are vulnerable to predators such as starfish, which use their tube feet to pry open the scallop's shell and consume its soft tissues.

Scallops have been an essential part of human consumption for centuries. Primitive societies used both their meat and shells, and during medieval times in Europe, the shell of Pecten jacobaeus, also known as the pilgrim's scallop, became a symbol of religious devotion associated with St. James. Today, scallops are highly valued as a seafood product, with their large adductor muscle being the most commonly consumed part (Rodriguez, 2019). The most productive scallop fishing grounds are located in the northeastern part of Georges Bank, off the coast of Massachusetts, and the Bay of Fundy between New Brunswick and Nova Scotia. The sea scallop (Placopecten magellanicus) is the dominant species harvested in New England and eastern Canada, while the bay scallop (Aequipecten irradians) is also abundant in these waters. In the British Isles, Aequipecten opercularis is widely sought after, both for culinary purposes and as bait for commercial fishing (Rodriguez, 2019). Given the global demand for scallops due to their nutritional value and culinary versatility, researchers are continually exploring new ways to incorporate them into various food products.

One such food product is kropek, a deep-fried snack commonly known as prawn crackers or shrimp chips. Kropek is known by different names worldwide, such as "keropok" in Malaysia, "kroepoek" in the Netherlands, "xiapian" in China, "bánh phồng tôm" in Vietnam, and "Krabbenchips" in Germany (Jainey, 2020). Traditionally, kropek is made from ground rice mixed with seafood, such as shrimp or fish. The production process involves soaking and grinding rice and seafood into a uniform mixture, adding salt and lime, steaming, cutting into thin pieces, and drying under the sun or using solar drying to achieve a brittle texture. The final step is deep frying, which causes the kropek to expand and develop its characteristic crispiness. To enhance its nutritional profile, fish protein concentrate (FPC) is sometimes added, increasing its protein content and balancing its high carbohydrate levels. The quality of kropek is largely determined by its brittleness and crispiness, making proper preparation and storage crucial to maintaining its texture and flavor (Bacasejos, 2022).

Food pairing is an essential aspect of culinary innovation, as certain ingredient combinations enhance the overall taste and appeal of a product. While shrimp and fish have traditionally been used as primary flavors in kropek, the potential for incorporating scallops as a flavor enhancer presents a new opportunity. Although scallops share the same seafood profile as shrimp and fish, they possess a denser texture and a distinct umami flavor, which could elevate the taste profile of kropek. Scallop-infused kropek has the potential to offer a richer, more complex flavor while providing nutritional benefits, such as high protein content and essential minerals (Bergen et al., 2022).

Several local studies have explored the nutritional and economic advantages of seafood-based kropek. Deluao and Arcelon (2022) investigated fish-based kropek using mackerel as the primary ingredient, highlighting the presence of omega-3 fatty acids that contribute to improved heart health, cognitive function, and immune system support. While their study focused on fish-based kropek, the current research aims to explore the use of scallops as the main ingredient. Additionally, Ambol and Caybay (2022) emphasized the high protein content and antioxidant properties of scallops, which contribute to their potential as

a healthier alternative to shrimp-based kropek. Research by Doyohoy and Tachado (2022) examined the commercial production of scallops, stressing the importance of aquaculture in meeting the growing demand for seafood. While wild scallop harvesting has been the conventional method, aquaculture offers a more sustainable approach, ensuring a steady supply of scallops for food production.

Another critical factor affecting scallop production is seasonal availability. Pavillar and Solar (2022) noted that scallops reach peak availability during late fall and winter, though they can be sourced year-round. Understanding these seasonal fluctuations is essential for maintaining a consistent supply of raw materials for scallop-based kropek production. On a global scale, foreign studies have examined the environmental and economic implications of scallop farming. Yang et al. (2021) analyzed the impact of intensive scallop farming on coastal ecosystems in China's North Yellow Sea, revealing that excessive scallop farming could lead to ecological imbalances, such as bottom-water hypoxia and disruptions in nutrient cycles. However, the study also emphasized that sustainable aquaculture practices could mitigate these environmental concerns. Similarly, Mi et al. (2021) investigated disease resistance in farmed Yesso scallops (Patinopecten yessoensis), one of China's most economically significant bivalves, highlighting the importance of improved disease management strategies for maintaining production efficiency.

Consumer preferences play a crucial role in the food industry, particularly in product development and market acceptance. Wang et al. (2021) explored the influence of flavor and variety on consumer choices, finding that consumers are more inclined to purchase products with diverse flavor options. This finding supports the potential for developing scallop-flavored kropek as a novel and appealing snack. By introducing scallops as a primary ingredient, food manufacturers can cater to evolving consumer preferences while offering the nutritional benefits associated with scallops.

METHODOLOGY

Research Design. This study employed an experimental research design, which was widely used in scientific investigations to determine causal relationships between variables. Experimental research was characterized by the deliberate manipulation of an independent variable while controlling other factors to observe its effects on a dependent variable under scientifically controlled conditions. The strength of this method lay in its ability to establish a clear cause-and-effect relationship by ensuring that any observed changes in the dependent variable were solely attributable to the manipulation of the independent variable (Bhaskaran, 2022).

Ingredients. The following ingredients were used in the preparation of the developed scallop kropek in three different formulations:

Primary Base: Scallop paste and tapioca flour (varying ratios: Formulation A – ¼ cup scallop paste and ¾ cup tapioca flour; Formulation B – ½ cup scallop paste and ½ cup tapioca flour; Formulation C – ¾ cup scallop paste and ¼ cup tapioca flour)
Flavor Enhancers: Salt, pepper, and optional seasonings
Binding Agent: Egg whites (to enhance crispiness and texture)
Liquid Component: Water (adjusted based on the consistency of the mixture)
Additional Ingredients: Cooking oil (for frying)

Materials and Equipment. The materials and equipment used in the experiment included:

Mixing Tools: Measuring cups, mixing bowls, rubber spatula, and wooden spoon
Drying Equipment: Food dehydrator or oven (for pre-drying the kropek before frying)
Frying Tools: Deep fryer or heavy-bottomed pan, wire skimmer, and oil thermometer
Measuring Instruments: Digital weighing scale, timer, and pH meter (to ensure consistency in texture and flavor)

The experiment was conducted at the HRM Food Laboratory in Iloilo State University of Fisheries

Science and Technology. This is a controlled food laboratory setting to ensure uniformity in the preparation and sensory evaluation of the scallop kropek.

Cooking Procedures. The preparation and cooking procedures followed a standardized process:

Step 1. Ingredient Preparation

1. Measure all ingredients based on the specified formulations.
2. Prepare the scallop paste by grinding fresh scallops into a smooth consistency.

Step 2. Dough Preparation

1. Combine the scallop paste, tapioca flour, salt, and seasonings in a mixing bowl.
2. Gradually add water while kneading the mixture until a firm and pliable dough was achieved.

Step 3. Shaping and Drying

1. Roll out the dough into thin sheets and cut them into uniform pieces.
2. Pre-dry the kropek using a food dehydrator or oven at a low temperature to reduce moisture content.

Step 4. Frying Process

1. Heat the cooking oil to 180°C (ensuring optimal frying conditions).
2. Deep-fry the pre-dried kropek until they puffed up and turned golden brown.
3. Remove the fried kropek and drain excess oil using a paper towel.

Final Presentation and Evaluation. Allowed the scallop kropek to cool before serving. Respondents evaluated the product's aroma, color, flavor, texture, and general acceptability through sensory evaluation and survey questionnaires. Data collected were statistically analyzed using the Kruskal-Wallis test to determine differences in acceptability across the three formulations.

Population, Setting, and Sampling Technique. This study was conducted to assess the level of acceptability of scallop kropek in different formulations. The research was carried out in a controlled food laboratory setting for standardized preparation and evaluation and involved selected respondents from relevant backgrounds to ensure reliable feedback. The respondents comprised 15 HRM students from Iloilo State University of Fisheries Science and Technology, 15 Home Makers and 15 kropek vendors selected from the municipality of Dumangas Iloilo. These groups were chosen based on their familiarity with food preparation, sensory evaluation, and consumer acceptability.

A purposive sampling technique was employed to select the participants. As defined by Cardonigara (2002), purposive sampling involves selecting individuals based on specific criteria relevant to the study, allowing researchers to use their judgment in identifying participants who can provide meaningful and reliable data. This approach ensured that the respondents had relevant experiences and backgrounds necessary for evaluating the aroma, color, flavor, texture, and general acceptability of the scallop kropek formulations.

Survey Instrument. To assess the acceptability of the scallop kropek, the study utilized a sensory evaluation score sheet based on a modified five-point Hedonic Scale. This scale is widely adopted in experimental research focusing on consumer preference and product acceptability. According to Meilgaard, Civille, and Carr (2016), the Hedonic Scale is a commonly used tool in sensory evaluation research, allowing panelists to rate their degree of liking or disliking of a product based on specific attributes such as appearance, texture, taste, aroma, and overall acceptability. The use of this standardized instrument ensured objective data collection and facilitated the statistical analysis of consumer perception regarding the different formulations of scallop kropek.

In this study, the scale was modified to include descriptive anchors for each numerical rating, ensuring clarity and consistency in responses. The ratings and corresponding descriptions were as follows (Table 1):

Table 1
Modified five-point Hedonic Scale

Scale	Range	Responses
5	4.21 – 5.00	Extremely Acceptable (EA)
4	3.41 – 4.20	Very Acceptable (VA)
3	2.61 – 3.40	Moderately Acceptable (MA)
2	1.81 – 2.60	Slightly Acceptable (SA)
1	1.00 – 1.80	Not Acceptable (NA)

The instrument was content validated by a panel of experts, consisting of four members, who reviewed the items for clarity, relevance, and appropriateness to the study's objectives. Their feedback and suggestions were incorporated into the revised version of the instrument. Following the content validation, the instrument was pilot tested in three respondent categories (15 HRM students, 15, Home Makers and 15 kropek Vendors) within the study area to assess its construct validity and reliability. Factor analysis was conducted using the Statistical Package for Social Sciences (SPSS) software to evaluate the scale's validity.

Data Analyses. The data gathered were analyzed using appropriate quantitative statistical tools to ensure accurate interpretation of results. Mean was used to determine the level of acceptability of scallop kropek based on specific attributes when respondents were grouped into HRM students, home makers, and kropek vendors. This provided an overall measure of acceptability across different respondent categories.

To determine the significant difference in the level of acceptability of scallop kropek with varying proportions of scallop paste and tapioca flour (25% scallop paste and 75% tapioca flour; 50% scallop paste and 50% tapioca flour; and 75% scallop paste and 25% tapioca flour), the Kruskal-Wallis H test was employed. This non-parametric statistical test assessed whether there were significant variations in the responses among the three groups (students, homemakers, and kropek vendors). The Kruskal-Wallis test was chosen as it effectively compares ranked data across multiple independent groups, making it suitable for analyzing differences in sensory perceptions when the assumption of normality is not met.

These statistical methods were applied using SPSS to process and interpret the results systematically, ensuring accuracy and reliability in data analysis.

RESULTS AND DISCUSSION

Level of Acceptability of Scallop Kropek in certain categories in three formulations. Table 2 shows the Level of Acceptability of Scallop Kropekin terms of Color, Aroma, Texture, Flavor and General Acceptability as to three Formulations. In general, the result of the evaluation revealed that treatment A is "Very Acceptable". Treatment A have an aroma that is "Very Acceptable" with the mean of 3.80, Color is "Very Acceptable" with the mean of 3.97, Flavor is "Very Acceptable" with the mean of 3.53, Texture is "Very Acceptable" with the mean of 3.50 and General Acceptability with the mean of 3.87. The evaluation also revealed that treatment B is "Very Acceptable".

Treatment B have an aroma that is "Very Acceptable" with the mean of 4.03, Color is "Very Acceptable" with the mean of 4.07, Flavor is "Very Acceptable" with the mean of 3.70, Texture is "Very Acceptable" with the mean of 3.83 and General Acceptability with the mean of 4.03.

Lastly, the evaluation also revealed that treatment C is "Very Acceptable". Treatment C have an aroma that is "Very Acceptable" with the mean of 4.07, Color is "Very Acceptable" with the mean of 4.10, Flavor is "Very Acceptable" with the mean of 3.73, Texture is "Very Acceptable" with the mean of 3.77 and General Acceptability with the mean of 3.80.

Table 2
Level of Acceptability of Scallop Kropek in terms of Aroma, Color, Texture, Flavor and General Acceptability as to three formulations

Category	Formulation A ()			Formulation B()			Formulation C()		
	Mean	SD	Desc.	Mean	SD	Desc.	Mean	SD	Desc.
Aroma	3.80	1.064	VA	4.03	.928	VA	4.07	.944	VA
Color	3.97	.890	VA	4.07	.785	VA	4.10	.803	VA
Flavor	3.53	.900	VA	3.70	1.055	VA	3.73	.980	VA
Texture	3.50	1.042	VA	3.83	.747	VA	3.77	.817	VA
GA	3.87	1.074	VA	4.03	.890	VA	3.80	.961	VA
GM	3.73	.799	VA	3.93	.655	VA	3.89	.692	VA

Differences in the Three Formulations of Scallop Kropek in terms of Aroma, Color, Flavor, Texture and General Acceptability. Kruskal-Wallis test results, as shown in Table 3, showed no significant differences in the three formulations of Scallop Kropek in terms Aroma of X22 = 1.096, p = .578, Color X22 =.333, p=.847, Flavor X22 = .867, p = .648, Texture X22 = 1.802, p=.406 and general acceptability X22 = .795, p =.672 respectively. The two-tailed probabilities of .578, .847, .648, .406 and .672aregreater than the set significance level of .01 alpha. The results further revealed that the level of acceptability of scallop kropek do not differ in three formulations in terms of aroma, color, flavor, texture and general acceptability.

Table 3
Kruskal-Wallis Test of the Three Formulations of Scallop Kropek in terms of Aroma, Color, Flavor, Texture and General Acceptability

Sources of Variances	df	Mean Rank	X^2_{value}	Sig. (2-tailed)	Interpretation
Aroma					
Formulation A		41.67			
Formulation B	2	46.90	1.096	.578	Not Significant
Formulation C		47.93			
Color					
Formulation A		43.63			
Formulation B	2	45.80	.333	.847	Not Significant
Formulation C		47.07			
Flavor					
Formulation A		42.03			
Formulation B	2	47.32	.867	.648	Not Significant
Formulation C		47.15			
Texture					
Formulation A		40.65			
Formulation B	2	48.78	1.802	.406	Not Significant
Formulation C		47.07			
General Acceptability					
Formulation A		44.98			
Formulation B	2	48.57	.795	.672	Not Significant
Formulation C		42.95			

p>.01 alpha

Conclusion. Based on the findings, the following conclusions were drawn:

The results of this study, where all three formulations of scallop kropek were rated as "Very Acceptable" across all sensory attributes (aroma, color, flavor, texture, and general acceptability), could be attributed to several key factors. Firstly, the sensory attributes of the scallop kropek formulations—aroma, color, flavor, and texture—were fundamental in determining the acceptability of the food products. In this study, all formulations exhibited similar scores in these categories, indicating that the differences in the percentage of scallop paste and tapioca flour did not significantly impact the sensory qualities that consumers considered when evaluating food products. This suggested that, within the proportions tested (25%, 50%, and 75% scallop paste), the balance of ingredients was sufficient to maintain the desired characteristics of aroma, flavor, and texture that consumers found appealing. The consistency in the sensory attributes across formulations could also have been a reflection of the compatibility of the scallop paste with tapioca flour, ensuring a high-quality end product regardless of the varying ratios.

Secondly, the Kruskal-Wallis test, which was used to analyze the differences in acceptability across the three formulations, revealed no significant statistical differences ($p > .01$). This result suggested that the proportion changes in scallop paste and tapioca flour did not lead to meaningful differences in how the formulations were perceived by the respondents. The p-values above the alpha level of 0.01 indicated that there was no statistically significant effect of the variation in ingredient proportions on the overall acceptability of the product, supporting the conclusion that all formulations were equally acceptable to the respondents.

In summary, the similarity in the sensory attributes and the lack of significant differences between the formulations in terms of statistical analysis implied that all three formulations of scallop kropek were equally viable. Despite slight variations in the proportions of scallop paste and tapioca flour, these formulations did not significantly alter the product's sensory qualities, which made them all suitable candidates for further development and commercialization. The consistency across formulations highlighted the robustness of the product, suggesting that small adjustments in the recipe did not compromise its overall quality.

REFERENCES

.

Ambol, R., & Caybay, P. (2022). Nutritional benefits of scallops in seafood-based products. Journal of Aquatic Food Studies, 12(3), 145–160.

Bacasejos, M. (2022). Kropek production and its nutritional enhancement through fish protein concentrate (FPC). Philippine Journal of Food Science, 18(2), 75–90.

Bergen, L., Smith, J., & Thompson, M. (2022). Seafood flavor integration in processed snack foods: A study on umami-rich ingredients. International Journal of Food Innovation, 24(1), 101–117.

Collins. (2022). Aroma. Collins Dictionary. Retrieved from https://www.collinsdictionary.com/dictionary/english/aroma

Deluao, S., & Arcelon, G. (2022). Omega-3 fatty acids in fish-based kropek: A health-focused approach to snack production. Philippine Journal of Nutrition Research, 27(4), 200–215.

Doyohoy, K., & Tachado, L. (2022). Scallop aquaculture and its economic viability in the Philippines. Asian Journal of Fisheries Economics, 19(1), 55–72.

Ilonggo Traveler. (2024, March 15). Dumangas, Iloilo: A hub for seafood and aquaculture. Facebook. Retrieved from https://www.facebook.com/ilonggotraveler/posts/dumangas-iloilo-is-not-only-known-for-its-seafood-restaurants-but-also-for-its-t/954584666033882/

Jainey, P. (2020). The global evolution of kropek: From Southeast Asia to international markets. Journal of Cultural Food Studies, 15(2), 90–108.

Kennedy, V. S. (2020). Biology of scallops: Ecology, life history, and fisheries management. Elsevier.

Mi, S., Zhao, Y., & Liu, H. (2021). Disease resistance in farmed Yesso scallops (Patinopecten yessoensis): Genetic and environmental factors affecting production. Aquaculture Science & Technology, 30(5), 310–325.

NOAA Fisheries. (2024, December 17). Atlantic sea scallop. National Oceanic and Atmospheric Administration. Retrieved from https://www.fisheries.noaa.gov/species/atlantic-sea-scallop

Pavillar, T., & Solar, N. (2022). Seasonal availability and market trends in scallop fisheries. Philippine Marine Resources Journal, 25(3), 120–135.

Rodriguez, A. (2019). Biological and ecological characteristics of scallops: An overview. Marine Biology Review, 22(4), 189–205.

Wang, X., Lee, J., & Park, H. (2021). Consumer preferences in seafood-based snacks: The role of flavor and variety in purchasing decisions. International Journal of Consumer Studies, 35(2), 75–91.

Yang, J., Chen, L., & Zhao, R. (2021). Environmental impact of scallop aquaculture in China's North Yellow Sea: Ecological consequences and mitigation strategies. Journal of Marine Ecosystem Studies, 29(4), 215–230.

Streit, J. (2018, June 20). Are scallops safe to eat? Nutrition, benefits and more. Healthline. Retrieved from https://www.healthline.com/nutrition/scallops

University of the Philippines Visayas. (2022, March 24). CFOS-IFPT trains Iloilo island fisherfolks on value addition and good manufacturing practices for scallops. University of the Philippines Visayas. Retrieved from https://www.upv.edu.ph/index.php/news

/cfos-ifpt-trains-iloilo-island-fisherfolks-on-value-addition-and-good-manufacturing-practices-for-scallops

Meilgaard, M., Civille, G. V., & Carr, B. T. (2006). Sensory Evaluation Techniques (4th ed.). CRC Press. https://doi.org/10.1201/b16452

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. Ethnobotany Research and Applications, 5, 147–158.