

Development and Acceptability of Kare-Kare Sushi: A Fusion of Filipino and Japanese Culinary Traditions

Charles Allen R. Martin*, Melanie Jane G. Pascual, Elmer James P. Sagun, John Kelvin SL. Pantaleon, and Rachel Ann S. Dumlao

Department of Hospitality Management, Tomas Claudio Colleges, Taghangin, Morong, Rizal, Philippines.
martincharles023@gmail.com, melaniejanepascual10@gmail.com, elmerjamessagun46@gmail.com,
johnkelvinpantaleon@ymail.com, itzel0423@gmail.com

*Corresponding author

Abstract: Kare-kare Sushi is a remarkable blend of Filipino and Japanese cuisines. Kare-Kare Sushi combines Filipino and Japanese ingredients with a nice, non-fishy peanut sauce dipping sauce that uniquely tastes the sushi roll. This study examined the development of Kare-Kare Sushi, its acceptability, and the expert evaluator's ideas for refining the research-based product. This study's outcome goal was defined using descriptive research. The researchers also used a formative research methodology to elicit responses and incorporate respondents' feedback to improve Kare-Kare Sushi. Ten professional assessors from Rizal culinary restaurants were purposefully selected as research responders. The respondents' responses were analyzed using weighted mean, rank distribution, and narrative documentation. The study highlighted the complicated process of making Kare-kare Sushi, which required extensive trial and error to discover a formula that combined traditional Kare-kare flavours with sushi-cooking techniques. Overall, the dish was very acceptable. Expert comments largely focused on taste improvement, demonstrating a solid foundation with room for growth. Trying different ingredient ratios and preparation methods to balance the flavours and textures, doing a nutritional analysis to determine health risks, and encouraging culinary innovation that honours Filipino and Japanese traditions in fusion cuisine are future recommendations.

Keywords: Kare-Kare Sushi; Development and Acceptability; Filipino and Japanese Cuisines; Rizal Province; Incorporate Local Ingredients and Flavors; Post-Pandemic Period; Domestic and Global Supply Chain.

Cite as: C. A. R. Martin, M. J. G. Pascual, E. J. P. Sagun, J. K. S. Pantaleon, and R. A. S. Dumlao, "Development and Acceptability of Kare-Kare Sushi: A Fusion of Filipino and Japanese Culinary Traditions," *AVE Trends In Intelligent Social Letters*, vol. 1, no. 4, pp. 214–221, 2024.

Journal Homepage: <https://avepubs.com/user/journals/details/ATISL>

Received on: 12/06/2024, **Revised on:** 29/08/2024, **Accepted on:** 02/10/2024, **Published on:** 07/12/2024

1. Introduction

Kare-kare is a savoury Philippine stew derived from curry with a thick peanut sauce. It is a popular Filipino dish traditionally served during special occasions or Filipino fiesta celebrations, which were only marked as complete with kare-kare recipe offerings in the food selection. The main ingredients included were oxtail, peanut sauce, vegetables, and bagoong. On the other hand, sushi is a Japanese dish made of vinegared rice mixed with sugar and salt and various ingredients such as vegetables and meat, most commonly seafood. Sushi is made from medium-grained white rice. Many varieties of sushi are vegetarian. It is commonly served with wasabi and soy sauce. Kare-kare is more than just a meal; it has cultural significance in Filipino society. It is frequently associated with holidays and special occasions, making it a popular comfort food. Kare-kare is frequently served at holiday celebrations and family gatherings. It is typically served with steamed rice and shrimp paste on the side, allowing diners to mix in the bagoong to their liking. Sushi is a traditional Japanese dish that has gained international popularity. It is

Copyright © 2024 C. A. R. Martin *et al.*, licensed to AVE Trends Publishing Company. This is an open access article distributed under [CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows unlimited use, distribution, and reproduction in any medium with proper attribution.

well-known for its distinct flavour and texture combinations, which frequently include vinegared rice and a variety of ingredients. Sushi is more than just a meal; it's a cultural experience. Traditional sushi-making focuses on craftsmanship and precision, and sushi chefs have frequently trained for years. Sushi dining can include rituals such as chopsticks and dipping sushi in soy sauce. While traditional sushi has deep roots in Japanese culture, many countries have created versions incorporating local ingredients and flavours.

The researchers created kare-kare sushi as a food fusion many consumers seek; most consumers are always looking for new or creative foods. With that, the researchers devised a combination of Filipino and Japanese cuisine: Kare-kare and Sushi, according to the Republic Act. No. 11293, also known as the Philippine Innovation Act, section 2A declares that: ... The State's development strategies should prioritize innovation, focusing on the country's strengths and possibilities in the regional and global markets. A clear and long-term set of objectives should direct these policies. This way, it will utilize innovation to aid the underprivileged and marginalized while allowing MSMEs to participate in local and international supply chains. Small and medium-sized enterprises (SMEs) will find it simpler to join local and international supply chains thanks to RA 11293, which will support economic growth. This will lead to better strategic planning for developing and using new goods. The relationship among these was rooted in innovation, adaptability, and the effective utilization of local resources to create benefits. Thus, Kare-kare Sushi solved the issue of vegetable waste for farmers and market vendors.

Vegetable waste will be decreased, and a more sustainable and just food system will be promoted by implementing strategies that improve sustainable production, streamline supply chain management, and increase consumer awareness [10]. Kare-kare Sushi will promote sustainable manufacturing and reduce vegetable waste while motivating customers to recognize the need to prevent vegetable waste. To address this issue and promote the consumption of the product, researchers developed Kare-kare Sushi, which will provide a way to sustain the issue of the farmers and market vendors to prevent vegetable waste. This Kare-kare Sushi research study was conducted in the Province of Rizal during the School Year 2024 – 2025. Rizal is one of the Philippines' first-class provinces that belongs to Region IV-A CALABARZON on the island of Luzon. The province enjoys the natural beauty of nature and is a perfect setting for investments, business establishments, and settlements. At present, under the territorial jurisdiction of the Province of Rizal, it has 13 Municipalities and one City, namely Angono, Baras, Binangonan, Cainta, Cardona, Jalajala, Morong, Pililla, Rodriguez, San Mateo, Teresa, Tanay and Taytay, and Antipolo. Baras, officially the Municipality of Baras, is a 4th class municipality in the province of Rizal, Philippines, located 49 kilometres from Manila, 12 kilometres from Ynares Center, Antipolo City, 14 kilometres from SM Taytay, 40 kilometres from NAIA, Pasay City, 47 kilometres from Alabang, Muntinlupa City, 25 kilometres from Pasig City and 20 kilometres from Sta. Maria, Laguna. Binangonan, officially the Municipality of Binangonan, is a 1st class urban municipality in Rizal, Philippines.

According to the 2020 census, it has a population of 313,631 people. Cardona, officially the Municipality of Cardona, is a 3rd class municipality in Rizal, Philippines. According to the 2020 census, it has a population of 50,143 people. Morong is a second-class municipality in the province of Rizal, Philippines. The town is also known for featuring the balaw-balaw side dish and for having education as its priority- "Una Ang Edukasyon" (Education first), which is why it became the centre of education during the early 1970s and early 1990s. Pililla is a first-class municipality in the Province of Rizal, also known as its Green Field town. Originally established as an agricultural lakeshore locality, Pililla later became known as the host of the Malaya Thermal Power Plant and Pilipinas Shell's Bitumen Plant. Natural resources and nature's allure have boosted Tanay's economy. Post-pandemic period, many restaurants popped up along the Marilaque Highway with majestic views of the Sierra Madre mountains and Laguna de Bay. Furthermore, the researchers decided to conduct the study in the Province of Rizal, namely in Baras, Binangonan, Cardona, Morong, Pililla, and Tanay, to evaluate the Kare-kare Sushi. Rizal Province was presently recognized for the growth of numerous dining places.

1.1. Statement of the Problem

This study aimed to measure the acceptability level of Kare-kare Sushi in the Province of Rizal. Specifically, it sought answers to the following research questions:

- How was the Kare-kare Sushi developed?
- What is the level of acceptability level of Kara-kare Sushi in terms of:
 - appearance;
 - aroma;
 - taste; and
 - Texture?
- What improvements were made based on the comments and suggestions of the experts on Kare-kare Sushi?

2. Review of Literature

As Black [3] shared, food serves as both a source of sustenance and a reflection of a society's socioeconomic and historical environment. Each culture has culinary traditions that reflect its beliefs, values, and customs. Food is often a symbol of identity and tradition, with a significant role in socializing and celebration. In many cultures, cooking and sharing food is fundamental to family and community life, and mealtimes allow people to bond and socialize. Geography, climate, religion, and history frequently influence various recipes' materials, flavours, and cooking methods. Based on Jiang et al. [6], the impact of cooking procedures on bioactive components is critical for increasing the health benefits of cooked seaweeds for consumers. As a result, choosing appropriate cooking methods is critical to reducing the loss of bioactive nutrients and quality during cooking. According to the findings of this study, blanching and boiling seem to be healthier.

In addition, Wallace [12] argues that taste or aroma does not only affect the perceived flavour as an independent modality; the combination of taste and aroma can also change the intensity and quality of the perceived flavour due to cross-modal association. The Kare-kare Sushi study proves food's cultural significance, health benefits, and sensory experiences. The article illustrates the integration of Filipino and Japanese culinary traditions while accommodating contemporary health considerations. The cooking techniques of blanching and boiling effectively preserve the nutritional value of ingredients and respect cultural practices. The interaction of taste and aroma significantly improves the dining experience, fostering greater appreciation for the dish. The study of Kare-kare Sushi highlights the complex characteristics of culinary practices, emphasizing the significance of cultural identity expression and health promotion. As coined by Nacua et al. [8], putting loads of vegetable waste in the trash bin was common when Filipinos prepared food in the kitchen. Vendors eliminate discarded vegetable wastes such as plant leaves, roots, and stems in the market. Specifically, in the case of Pechay, they cut the petiole with leaves and discarded the stem but did not realize it could be re-planted.

In addition, according to Mopera [7], 8.6% of the Philippines' GDP comes from agriculture. Agricultural products' bulk, low value, and high perishability are high. In most cases, these items go to waste as food is distributed around the supply chain. The intrinsic characteristics of the crop, the tropical location of the country, the absence of post-harvest facilities and infrastructure, the method of handling, and the complex distribution system all play a significant role in the enormous losses that occur. From harvesting to grading to packaging to transportation from the field to storage to distribution to consumers, high post-harvest losses of up to 50% were documented in the Philippines.

In addition, the food processing and manufacturing industry in the Philippines is poised for future expansion and success, according to Azarias et al. [1]. Companies should invest in innovation, technology, and sustainable practices to compete in the global market and take advantage of the opportunities given by the expanding demand for food goods. The Philippines' food processing and manufacturing sector might emerge as a worldwide powerhouse if the government maintains its current level of support and invests in building a strong and efficient infrastructure. Companies that can invest in innovation, technology, and sustainable practices and adapt to the changing market will have a good chance of succeeding.

Villar [11] discusses food production, distribution, and waste management in the Philippines. It highlights waste in Filipino kitchens, challenges in agriculture's GDP, and growth potential in the food manufacturing and processing industry. To suggest ways to improve efficiency and sustainability, requiring government support and efficient infrastructure. As Villar [11] illustrated, it was about the kare-kare dish originating in Pampanga. In Southeast Asia, there is also called 'Kari,' which is also known as Kare-Kare in the Philippines, and based on this study, the dish originated in the birthplace of their adversaries, but that didn't stop them from considering everything that didn't meet their high standards inferior due to their arrogant disposition.

Barrion et al. [2] also shared that the food industry is vital in reducing waste. Some identified recommendations are creating a weekly menu to avoid buying too much, storing food properly and strictly practising first-in-first-out to minimize spoilage, promoting food preservation processing to utilize and extend the shelf life of in-season fruits and vegetables, and reducing the serving sizes. In support of this, Distanont [4] stated that Consumers' demands keep changing over time. These changes range from basic considerations such as improving food safety, shelf life, and reducing wastage to demands for increasingly sophisticated foods with special nutritional value, palatability, and convenience. The above report argues that the food industry should focus on innovation and sustainability. To address sustainability concerns and meet consumer demand for healthy and convenient food options, researchers are looking into the origins of Kare-Kare, implementing waste reduction strategies, and improving food safety. After that, researchers are introducing new products, such as Kare-kare Sushi, to the market to make continuous improvements.

3. Research Methodology

The study utilized descriptive and developmental methods of research. The descriptive method of research, as stated by Francisco [5], answers the needs of the study since the study attempted to characterize the profile of the respondents and

examine their safety and sanitation practices. Descriptive research aims to describe a population, situation, or phenomenon accurately and systematically. It can answer what, where, when, and how questions, but not why questions. A descriptive research design can use various research methods to investigate one or more variables. Developmental research design, cited by Rabadán et al. [9], is a design-based research approach that involves multiple cycles of design, implementation, analysis, and revision to develop instructional technology standards for educators. The study's primary purpose was to discuss the development process, measure the acceptability level, and discuss the expert respondents' inputs to improve Kare-kare Sushi; thus, descriptive and developmental research methodologies were utilized. A descriptive research design may be employed to examine one or more variables. Conversely, developmental research pursues a specific objective.

4. Analysis and Interpretation

The development of Kare-Kare Sushi represents an innovative fusion of Filipino and Japanese cuisines, combining the rich, savoury peanut sauce of Kare-Kare with the artistry of sushi preparation. The researchers incorporated all Kare-Kare ingredients into the sushi roll, with the peanut sauce and shrimp paste provided as dipping condiments, preserving the essence of the traditional Filipino dish while aligning it with the sushi's presentation. Initial trials faced challenges, such as thick rice layers and the absence of a seaweed wrap, compromising structural integrity. Adjustments were made through iterative refinement and expert advice, including increasing vegetable content, seasoning rice with salt and vinegar, and spreading it thinly. The use of raw peanuts for the sauce further enhanced authenticity. Following traditional sushi techniques, Kare-Kare Sushi was meticulously prepared by layering seaweed, thinly spread rice, and Kare-Kare ingredients, then rolling it tightly. Blanching vegetables ensured optimal taste and presentation. Expert evaluators praised the dish's uniqueness, acknowledging its successful blend of Filipino and Japanese flavours. The positive reception and iterative development process highlight the dish's potential to cater to diverse palates and establish a unique culinary identity in Rizal.

Table 1: Level of Acceptability of Kare-kare Sushi as Evaluated by the Experts concerning Aroma

Aroma The Kare-Kare Sushi, ...	Weighted Mean	Verbal Interpretation	Rank
Gives a delicate, subtle smell, and flavours combine.	4.50	Very Much Acceptable	3.5
Provides the senses with a delicious and fragrant experience.	4.30	Much Acceptable	5
Has a distinct peanut aroma in its sauce.	4.90	Very Much Acceptable	1
Has a fishy scent of shrimp paste.	4.60	Very Much Acceptable	2
Possesses a fragrant quality that gives the Kare-kare Sushi a pleasing, unique scent.	4.50	Very Much Acceptable	3.5
Overall Mean	4.38	Much Acceptable	

Table 1 presents the level of acceptability of Kare-Kare Sushi concerning aroma, as evaluated by experts. Statement 2, describing the dish as offering a “delicious and fragrant experience,” scored 4.30 and was classified as Much Acceptable. While the aroma was well-received, it was slightly less captivating compared to features like the distinct peanut scent. The findings suggest that the aroma is appealing and contributes to the dish's overall acceptability, with the potential for broad consumer appeal. Enhancing the fragrance's distinctiveness and addressing subtle concerns, such as a fishy smell, could further improve its marketability. Marketing strategies should emphasize the unique peanut aroma and fusion appeal to attract adventurous eaters and fans of Filipino and Japanese cuisines.

Table 2: Level of Acceptability of Kare-kare Sushi as Evaluated by the Experts Concerning Appearance

Appearance The Kare-Kare Sushi, ...	Weighted Mean	Verbal Interpretation	Rank
It is rolled into thin tubes and sliced into bite-sized pieces.	4.50	Very Much Acceptable	4
It is attractive, with the Kare-Kare adding a delicate touch.	4.20	Much Acceptable	5
The crispy and glossy seaweed wrap and fluffy cooked rice highlight it.	4.60	Very Much Acceptable	2.5
Features a tightly wrapped rice with kare-kare filling using seaweed wrap.	4.70	Very Much Acceptable	1
It is appealing and appetizing to the customer.	4.60	Very Much Acceptable	2.5
Overall Mean	4.52	Very Much Acceptable	

Table 2 shows the level of acceptability of Kare-Kare Sushi concerning appearance, with Statement 2 scoring 4.20 and categorized as Much Acceptable. While the dish was generally found visually appealing, it lacked the detailed descriptions and

visual impact of higher-rated statements, such as highlighting the tightly wrapped rice and crispy seaweed. The findings suggest that Kare-Kare Sushi's appearance is pleasing and has the potential to attract a broader audience. Enhancing the dish's visual presentation, such as emphasizing its vibrant colours, textures, and bite-sized portions, could further elevate its appeal and marketability.

Table 3: Level of Acceptability of Kare-kare Sushi as Evaluated by the Experts Concerning Taste

Taste The Kare-Kare Sushi, ...	Weighted Mean	Verbal Interpretation	Rank
Pleasures with sauces that perfectly match the whole flavour.	4.50	Very Much Acceptable	3
It is delicious, expertly mixing umami and aromatic qualities.	4.20	Much Acceptable	5
It has a unique flavour, and its kare-kare sauce and shrimp paste complement it well.	4.50	Very Much Acceptable	3
It is well-balanced (sweet, salty, and peanut) and complements each other.	4.50	Very Much Acceptable	3
It is pleasantly mild, and the sauces help to improve the flavours with each bite.	4.60	Very Much Acceptable	1
Overall Mean	4.46	Much Acceptable	

Table 3 presents the level of acceptability of Kare-Kare Sushi concerning taste. Statement 2, describing the dish as “delicious, excellently mixing umami and aromatic qualities,” scored 4.20 and is categorized as Much Acceptable. While positive, the statement lacked the detailed articulation of higher-rated evaluations, such as highlighting specific flavour combinations or the balance of sweet, salty, and peanut notes. The results suggest that Kare-Kare Sushi's taste is appealing and likely to satisfy a wider audience. The unique flavour combination and well-balanced profile identified by experts indicate strong market potential and should be emphasized in promotional efforts targeting consumers who appreciate innovative and flavorful cuisine.

Table 4: Level of Acceptability of Kare-kare Sushi as Evaluated by the Experts Concerning Texture

Texture The Kare-Kare Sushi, ...	Weighted Mean	Verbal Interpretation	Rank
1. is firmly and wonderfully substantial.	4.60	Very Much Acceptable	1
2. It is smooth on the outside and crunchy on the inside.	4.00	Much Acceptable	5
3. is sufficiently blended.	4.30	Much Acceptable	4
4. is delicately dry and crunchy.	4.40	Much Acceptable	3
5. is smooth and satisfying.	4.50	Very Much Acceptable	2
Overall Mean	4.40	Much Acceptable	

Table 4 presents the level of acceptability of Kare-Kare Sushi concerning texture. Statement 2, describing the texture as “smooth on the outside and crunchy on the inside,” scored 4.00 and is categorized as Much Acceptable. While positive, the description lacks the specificity of higher-rated evaluations. The results indicate that Kare-Kare Sushi's texture is generally appealing, offering a balance of firmness, smoothness, and crunchiness. This positive feedback highlights its market potential, particularly among consumers seeking unique culinary experiences. Texture significantly enhances food enjoyment, and the favourable expert evaluations suggest that Kare-Kare Sushi can attract a broad audience.

Table 5: Composite on the Level of Acceptability of Kare-kare Sushi as Evaluated by the Experts Concerning Different Aspects

Aspect	Overall Mean	Verbal Interpretation	Rank
Aroma	4.38	Much Acceptable	4
Appearance	4.52	Very Much Acceptable	1
Taste	4.46	Much Acceptable	2
Texture	4.40	Much Acceptable	3
Composite Mean	4.44	Much Acceptable	

Table 5 presents the composite acceptability of Kare-Kare Sushi across different aspects. Aroma scored 4.38 (Much Acceptable), indicating a generally favourable but less distinctive impression than appearance, ranking highest with 4.52 (Very Acceptable).

Much Acceptable). Taste followed closely, showcasing well-balanced flavours. The findings highlight appearance as the most accepted aspect, while aroma ranked lowest, suggesting room for improvement by enhancing its fragrance. Overall, Kare-Kare Sushi shows strong market potential, with appearance as a key strength. Prioritizing visual appeal and refining aroma can further boost consumer appeal and product quality.

Table 6: Improvements made based on the Comments and Suggestions of the Experts on Kare-kare Sushi

Aspects	Comments and Suggestions	Improvements Done
Aroma	The shrimp paste does not smell fishy.	The researchers used aromatics like garlic, onions, or citrus zest to remove the fishy smell.
Appearance	Add more vegetables, as they give a highlight inside. The dish was quite good and unique in terms of combining the two cuisines Make the peanut sauce filling to add colour inside	The researchers add more vegetables to enhance the appearance of the Kare-kare Sushi. The researchers also tried the peanut sauce filling inside, but it would ruin the crispiness of the pork.
Taste	Make a unique peanut sauce, make it from scratch Add more salt and vinegar to the rice Blanched the vegetables well to strengthen the taste of the vegetable	The researchers add more vinegar and salt to the rice to make it more tasty The vegetables are blanched to maintain the crispiness of the vegetables
Texture	It's better if the pork is crispy. The vegetable is overcooked to maintain the crispiness	The researchers marinated the pork and deep-fried it to achieve the crispiness of the pork The vegetables are blanched to maintain their crispiness.

Table 6 outlines expert suggestions for enhancing Kare-kare Sushi. Adding garlic or citrus zest to improve aroma can enhance fragrance and eliminate any fishy smell. For appearance, incorporating more green vegetables and using a unique homemade peanut sauce could elevate visual and flavour appeal while avoiding peanut sauce filling inside, preserving the pork's crispiness. To ensure a delightful texture, experts recommend proper marination and frying for crispy pork and blanching vegetables to maintain their crunch. Implementing these improvements can elevate Kare-kare Sushi as a unique fusion dish blending culinary traditions.

5. Findings

5.1. Development Process of Kare-Kare Sushi

The development of Kare-Kare Sushi successfully combines Filipino and Japanese culinary elements, blending the savoury peanut sauce of Kare-Kare with Sushi's artistic presentation. Despite initial challenges with thick rice layers and the lack of a seaweed wrap, the dish was refined through expert feedback and adjustments. These included increasing vegetable content, seasoning rice with salt and vinegar, and enhancing the peanut sauce with raw peanuts for authenticity. Following traditional sushi techniques, Kare-Kare Sushi was carefully prepared by layering seaweed, spreading rice thinly, and incorporating Kare-Kare ingredients. Blanching vegetables ensured optimal taste and texture. Expert evaluators praised the dish for its innovative fusion of flavours, indicating its potential to appeal to diverse tastes and establish a unique culinary identity in Rizal.

5.2. Level of Acceptability of Kare-Kare Sushi as Evaluated by the Experts concerning Appearance, Smell, Taste, and Texture

The evaluation of Kare-Kare Sushi across various aspects highlights its strong market potential with some areas for improvement. In terms of aroma, the dish scored 4.30 (Much Acceptable). The aroma was generally well-received but lacked the distinctiveness of other features, such as the peanut scent. Expert suggestions to enhance the fragrance, including adding garlic or citrus zest and addressing any fishy smell, could further elevate its appeal. Regarding appearance, Kare-Kare Sushi scored 4.20 (Much Acceptable), indicating a generally positive visual impression. However, it could benefit from more detailed descriptions of its vibrant colours, textures, and bite-sized portions. These enhancements would make the dish more visually striking and could attract a broader audience. For taste, the dish also scored 4.20 (Much Acceptable), with experts praising its well-balanced flavours. While the taste description could have been more detailed, the unique combination of umami, sweet, salty, and peanut notes suggests strong market potential, especially for consumers seeking innovative and flavorful culinary experiences. The texture of Kare-Kare Sushi, with a score of 4.00 (Much Acceptable), was positively reviewed for its balance of smoothness and crunch. However, the description lacked specificity in higher-rated evaluations, indicating that further refinement could enhance its appeal, particularly for consumers who prioritize texture in their food enjoyment.

The composite evaluation revealed that the appearance of Kare-Kare Sushi was the most accepted aspect, scoring 4.52 (Very Much Acceptable), while aroma ranked the lowest. This suggests that, while the dish has strong visual appeal and a well-balanced flavour profile, improving the fragrance could help align all aspects for a more consistent product. Experts also provided several suggestions for improvement. To improve aroma, they recommended incorporating garlic or citrus zest. For appearance, adding more green vegetables and using a unique homemade peanut sauce were advised to elevate the visual and flavour appeal. Additionally, avoiding peanut sauce filling inside would preserve the crispiness of the pork, and refining the marination and frying process could further enhance texture. While Kare-Kare Sushi demonstrates significant potential in flavour and presentation, there are opportunities to improve its aroma and texture, enhancing its marketability and consumer appeal.

5.3. Improvement made based on the Comments and Suggestions of the Expert-Evaluators on Kare-Kare Sushi

The expert suggestions for improving Kare-Kare Sushi highlight key areas for refinement to enhance its overall appeal. Experts recommended adding garlic or citrus zest to enhance the fragrance and eliminate any undesirable fishy smell to improve the aroma. For the appearance, incorporating more green vegetables and using a unique homemade peanut sauce were suggested to elevate the visual and flavour appeal while avoiding the inclusion of peanut sauce filling inside the sushi to maintain the pork's crispiness. For the texture, experts emphasized the importance of proper marination and frying to achieve crispy pork and blanching vegetables to preserve their crunch. Implementing these adjustments, Kare-Kare Sushi can be further elevated, offering a more enjoyable and balanced sensory experience. These refinements will help solidify the dish as a unique fusion of Filipino and Japanese culinary traditions, enhancing its marketability and consumer acceptance.

6. Implication

- Kare-Kare Sushi's development demonstrates the potential of blending Filipino and Japanese flavours with successful refinements like improved rice texture and enhanced peanut sauce. The positive expert feedback indicates strong market potential, suggesting the dish can appeal to diverse consumers and establish a unique culinary identity.
- Kare-Kare Sushi shows strong market potential, with experts praising its appearance and taste. However, improvements in aroma and texture could enhance its overall appeal. Suggestions to refine the fragrance, such as adding garlic or citrus zest and enhancing the visual appeal with green vegetables and homemade peanut sauce, could elevate the dish further. It will improve its marketability and consumer satisfaction by addressing texture issues, particularly in pork and vegetable preparation.
- The expert suggestions provide clear guidance for enhancing Kare-Kare Sushi. Improving the aroma with garlic or citrus zest, enhancing the appearance of green vegetables and homemade peanut sauce, and refining texture through proper marination and frying will elevate the dish's overall quality. These adjustments address specific areas of improvement and help solidify Kare-Kare Sushi as a distinctive fusion dish, enhancing its marketability and appeal to a broader audience.

7. Conclusion

Kare-Kare Sushi blends Filipino and Japanese culinary traditions, offering a unique fusion dish with strong market potential. Expert evaluations of the dish's aroma, appearance, taste, and texture highlight its overall acceptability, though there are areas for improvement, particularly in aroma and texture. The suggestions provided, including enhancing the fragrance with garlic or citrus zest, improving the visual appeal with green vegetables and homemade peanut sauce, and refining the texture through proper marination and frying, offer clear pathways for elevating the dish. Implementing these improvements can further enhance its appeal, making Kare-Kare sushi a standout culinary creation that attracts both adventurous eaters and fans of Filipino and Japanese cuisines. With these refinements, Kare-Kare Sushi can establish a unique identity in the food market, offering a delightful sensory experience and strengthening its potential for success.

Acknowledgment: We would like to express our sincere gratitude to the participants for their valuable insights and contributions to the study of Kare-Kare Sushi. We also extend our thanks to our colleagues and institutions for their continuous support throughout this research process.

Data Availability Statement: The data supporting the findings of this study are available upon request from the corresponding author. Due to confidentiality and ethical considerations, access to the data will be provided in compliance with institutional guidelines and relevant privacy regulations. Researchers and interested parties may contact the corresponding author directly to inquire about the data and any conditions under which it may be shared.

Funding Statement: This research was conducted without any external financial support. All aspects of the study, including data collection, analysis, and reporting, were solely funded by the researchers themselves. We acknowledge that the absence of external funding did not influence the design or outcomes of the study, ensuring its impartiality and independence throughout the research process.

Conflicts of Interest Statement: The authors hereby declare that there are no conflicts of interest associated with this study. All authors have disclosed any potential personal, financial, or professional interests that could have influenced the research process or outcomes. This statement affirms that the authors' objectivity, research integrity, and the conclusions drawn from the study were not influenced by any external or competing interests.

Ethics and Consent Statement: This study was conducted in full compliance with ethical standards, ensuring the protection of participants' rights and well-being. Prior to participation, informed consent was obtained from all participants, who were made aware of the study's purpose, procedures, and any potential risks. The research maintained the highest levels of confidentiality and anonymity throughout the process, with all personal identifiers removed to safeguard privacy. Ethical approval for the study was granted by the relevant institutional review board, ensuring that the research adhered to all applicable guidelines and regulations for conducting studies involving human participants.

Reference

1. S. R. Azarias, A. F. Garcia, and V. G. Garlejo, "Heirloom Food Preservation Techniques and Languages of the Indigenous Peoples of Cervantes, Ilocos Sur, Philippines," *Journal of Humanities and Social Sciences Studies*, vol. 4, no. 1, pp. 262-269, 2022.
2. A. Barrion, J. Calayag, M. Nguyen-Orca, and M. Melo-Rijik, "Food loss and waste in the Philippines: a literature review," *Food Research*, vol. 7, no. 6, pp. 278-289, 2023.
3. D. Black, "Keeping culture alive through food," *Dope Black*, May 16, 2023. [Online]. Available: <https://dopeblack.org/keeping-culture-alive-through-food/>. [Accessed by 04/01/2024]
4. A. Distanont, "The role of innovation in creating a competitive advantage," *Kasetsart Journal of Social Sciences*, vol. 41, no. 1, pp. 15-21, 2020.
5. L. Francisco, "The Food Manufacturing and Processing Industry," *CreditBPO*. [Online]. Available: <https://www.creditbpo.com/blog/the-food-manufacturing-and-processing-industry>, 2023. [Accessed by 04/01/2024]
6. S. Jiang, M. Yu, Y. Wang, W. Yin, "Traditional Cooking Methods Affect Color, Texture and Bioactive Nutrients of *Undaria pinnatifida*," *Foods*, vol. 11, no. 8, p. 1078, 2022.
7. L. E. Mopera, "Food loss in the food value chain: The Philippine Agriculture Scenario," *Journal of Developments in Sustainable Agriculture*, vol. 11, no. 1, pp. 8-16, 2016.
8. A. E. Nacua, M. C. R. Macer, and A. B. M. Pascual, "Urban Farming Using Upcycling Technique of *Brassica rapa* L. Cv (Pechay Tagalog) in Ermita, Manila, Philippines," *Crimsonpublishers*. [Online]. Available: <https://crimsonpublishers.com/mcda/fulltext/MCDA.000587.php>, 2019. [Accessed by 04/01/2024]
9. A. Rabadán, R. Nieto, and R. B. Cañete, "Food innovation as a means of developing healthier and more sustainable foods," *Foods*, vol. 10, no. 9, p.2069, 2021.
10. C. Spence, "The influence of food presentation on taste perception and consumer behavior," *International Journal of Gastronomy and Food Science*, vol. 1, no. 1, pp. 1-5, 2015.
11. R. Villar, "The fascinating history of Kare-kare," *Esquiremag.ph*, Aug. 2, 2019. [Online]. Available: <https://www.esquiremag.ph/long-reads/features/the-fascinating-history-of-kare-kare-a2386-20190802-lfrm2>. [Accessed by 04/01/2024]
12. M. T. Wallace, "Multisensory perception: The building of flavor representations," *Current Biology*, vol. 25, no. 20, pp. R986-R988, 2015.