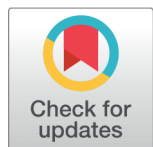


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Sustainable Start-Up of Local Food Products in Northern Iloilo: A One-Stop-Shop

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Abstract

Objectives: This study assessed the acceptability of selected local delicacies from 11 municipalities in Northern Iloilo, Philippines, focusing on product attributes such as appearance, packaging, smell, taste, content per pack/volume, and price. It also examined areas for product improvement to enhance marketability and support local livelihood initiatives. The study addresses the limited empirical evaluation of consumer acceptability and product competitiveness of Northern Iloilo delicacies. **Method:** The study employed a descriptive survey design using a researcher-made questionnaire. The respondents consisted of 31 evaluators, including culinary experts, Hospitality Management teachers and students, and local vendors. Selected delicacies from each municipality were assessed using a five-point acceptability scale covering appearance, packaging, smell, taste, content per pack/volume, and price. Data were analyzed using mean and standard deviation. The findings are limited to the perceptions of the selected respondents and products included in the study. **Findings:** Results showed that most products were rated "Highly Acceptable," particularly in taste, price, and content per pack/volume, with mean scores generally ranging from 4.24 to 4.77 on a five-point scale. Peanuts received ratings between 4.14 and 4.77, while egg pie obtained high scores in taste (M = 4.40), volume (M = 4.30), and price (M = 4.47). Buko juice received a lower rating for appearance (M = 3.93) but was rated highly in taste (M = 4.53). Overall, the findings indicate that local delicacies in Northern Iloilo are generally well accepted, although improvements in packaging, presentation, and product development are needed to strengthen market competitiveness. **Novelty:** The study provides empirical evidence on the acceptability and market potential of local delicacies in Northern Iloilo and identifies specific product attributes requiring improvement. The findings may inform local government units, MSMEs, and tourism stakeholders in developing strategies for product enhancement, marketing, and livelihood support initiatives.

Keywords: Local Products; Delicacies; Enhanced Quality; Packaging; Pricing; Northern Iloilo

1 Introduction

Buying local products supports community enterprises and contributes to livelihood development. In the Philippines, higher education institutions (HEIs), particularly state universities and colleges (SUCs), are increasingly expected to contribute to regional development through research, extension, innovation, and community engagement initiatives. However, studies have identified several barriers that limit the effectiveness of these initiatives, including weak institutional capacity, limited industry collaboration, inadequate funding, and regulatory constraints. Strengthening university-industry partnerships and innovation-driven programs is therefore necessary to enable SUCs to contribute more effectively to local economic development and the Sustainable Development Goals (SDGs)⁽¹⁾.

In response to these challenges, Northern Iloilo State University (NISU), the only HEI in the district, has implemented initiatives related to technology business incubation (TBI) to support innovation and community enterprise development. Technology Business Incubators aid not only in commercializing academic research outputs but also in supporting local communities through product development, training, marketing, and entrepreneurial support services⁽²⁾. Since 2022, NISU has developed several agri-fishery-based products, which have been introduced to local communities through extension and outreach programs. These initiatives reflect the growing role of HEIs in promoting local entrepreneurship and value-added product development.

Northern Iloilo is known for its tourist destinations, cultural heritage, and local delicacies, attracting both domestic and international visitors. Local food products, therefore, represent both cultural assets and economic opportunities for the region. The Philippine government's One Town One Product (OTOP) program, implemented through collaboration between the Department of Trade and Industry (DTI) and local government units (LGUs), promotes unique local products and community-based enterprises. Previous studies on OTOP initiatives have shown that local products can become competitive and marketable when supported by effective branding, product innovation, and community participation⁽³⁾. To confirm, the study evaluated the market viability and product competitiveness of SMEs participating in the OTOP Next Gen Program in Quezon Province. Using a quantitative descriptive-survey design, data were collected from SME owners, OTOP hubs, and consumers. The findings showed that OTOP products were generally perceived as competitive and marketable in both physical and digital markets⁽⁴⁾. However, studies also indicate persistent challenges related to digital promotion, marketing strategies, inventory management, and business sustainability, highlighting the need for continued training and institutional support for local entrepreneurs⁽⁵⁾. In addition, the study proposed a one-stop souvenir shop in Pagsanjan, Laguna, offering a range of local specialty products in a single, accessible location for tourists. Findings showed strong market demand, positive profitability potential, and the importance of promotional strategies and proper business management for sustainable growth⁽⁶⁾. Another study examined pasalubong centers in Sorsogon City and found that they sustain operations through local product sourcing, improved packaging, marketing, and customer service. Despite challenges such as competition, seasonality, and limited resources, these centers remain profitable by diversifying their product offerings, adjusting pricing, leveraging digital marketing, and forming partnerships. The study highlights the need for stronger support and training to further strengthen pasalubong centers⁽⁷⁾.

Studies conducted in other countries also demonstrate how investments in packaging, branding, presentation, and product innovation can improve the competitiveness of local products and strengthen tourism development⁽⁸⁾. Consumers who support local businesses contribute to community development because local enterprises often respond directly to local economic and social needs⁽⁹⁾. These findings suggest that enhancing the presentation and marketability of local delicacies may increase their competitiveness and tourism value in Northern Iloilo.

Despite growing interest in local product development, there have been limited efforts to establish sustainable, centralized retail systems for local delicacies in Northern Iloilo. Existing initiatives in municipalities such as San Dionisio and Estancia attempted to create one-stop shops for local products, but these efforts were constrained by limited financial and institutional support. Some traditional delicacies identified in previous studies, such as barikutsa and "Patotin filled with Valenciana" in Ajuy, are gradually declining because of insufficient support for local producers and the lack of younger generations continuing these food traditions⁽¹⁰⁾. These conditions raise concerns regarding the preservation, commercialization, and sustainability of local food heritage in the district.

The research gap this study addresses is the limited empirical literature on integrated, sustainable one-stop-shop models for local food enterprises in Northern Iloilo. Existing studies largely focus on individual product acceptability, MSME performance, or marketing strategies, with little attention given to collective retail systems that could improve market access, product visibility, and collaboration among local producers. Moreover, there is limited context-specific research examining how HEIs, LGUs, and MSMEs can collaborate to support the commercialization of local delicacies and sustainable enterprise development in rural communities.

This study, therefore, examines the acceptability and market potential of selected local delicacies from 11 municipalities in Northern Iloilo. Specifically, it evaluates product attributes such as appearance, packaging, smell, taste, content per pack

or volume, and price. The study also explores how product enhancement and centralized retail strategies may support local entrepreneurship, tourism promotion, and livelihood opportunities within the community.

2 Methods

2.1 Research Design

This study employed a descriptive survey design with a quantitative approach to assess the acceptability of selected local food products in Northern Iloilo, Philippines. The design is applicable for scientifically describing consumer insights across key product attributes. The study also incorporated elements of product development and evaluation, particularly in improving packaging and sensory qualities.

2.2 Dataset Description and Source

The dataset was generated from primary data collected through structured survey questionnaires administered to selected respondents. Data collection was conducted from December 2021 to December 2023 across various municipalities in Northern Iloilo. The sample included 31 respondents, selected through purposive sampling based on their expertise and familiarity with local food products.

The dataset consists of quantitative ratings on six parameters: appearance, packaging, smell, taste, content per pack/volume, and price. Each parameter was measured using a 5-point Likert scale. Due to ethical and confidentiality considerations, the dataset is not publicly hosted; however, it may be made available upon reasonable request to the researcher.

2.3 Research Instrument and Parameters

The study utilized a validated survey questionnaire, structured as a checklist to evaluate product acceptability. The selected parameters, appearance, packaging, smell, taste, content per pack/volume, and price, were adapted from established food product evaluation and consumer acceptability frameworks, ensuring content validity. This questionnaire underwent expert validation and pilot testing. The expert reviews the questionnaire for clarity and relevance. A small number of hospitality management students tested the questionnaire to identify needed improvements.

These parameters were chosen because they represent key dimensions influencing consumer purchasing decisions and product competitiveness. Expert validation was conducted prior to data collection to ensure the instrument's clarity, relevance, and reliability.

2.4 Respondents

The respondents served as evaluators of the selected products. They included culinary experts, Hospitality Management teachers, students, and local vendors, all of whom possess relevant knowledge in food evaluation and product development. This approach is valid since the results are intended as a general acceptability assessment rather than a specialized evaluation. Using mixed respondent groups can provide a broader perspective in preliminary product testing, but the study must clearly state that participants have different backgrounds and should not treat their combined results as a single expert judgment.

The 31 respondents were purposively selected to ensure informed and credible assessments, thereby strengthening the reliability of the findings. Thus, since a small number of evaluators was utilized, the findings were interpreted as preliminary or exploratory rather than broadly generalizable. Then, further study will be facilitated upon publication of this study for future support.

2.5 Research Procedure

The researcher first identified the official products of eleven municipalities in Northern Iloilo. Producers and vendors were invited to participate, and their consent was secured prior to inclusion.

Following selection, the researcher collaborated with Food Technology graduates and Hospitality Management students from Northern Iloilo State University (NISU) to enhance the products through rebranding, focusing on improving taste, packaging, and overall market appeal. The enhanced products were then evaluated using the survey instrument.

To ensure consistency and reliability, standardized evaluation procedures were followed during data collection, including uniform instructions, controlled evaluation settings, and consistent rating scales.

2.6 Validation and Reliability Measures

To ensure validity and reproducibility, the study employed the following factors. First, the instrument is validated by subject-matter experts. Second, pilot testing to refine the questionnaire. Third, triangulation through the inclusion of diverse respondent groups. Fourth, the standardized evaluation criteria to minimize bias

Although no external “gold-standard” laboratory testing was used, the study aligns with established sensory evaluation practices in food research. Reliability was supported through consistent application of the instrument and statistical analysis of responses.

2.7 Statistical Analysis

Data were analyzed using a statistical tool. Descriptive statistics, including frequency counts, means, and standard deviations, were used to summarize the results. The mean scores were interpreted as follows: 4.21 – 5.00: Highly Acceptable; 3.41 – 4.20: Moderately Acceptable; 2.61 – 3.40: Fairly Acceptable; 1.81 – 2.60: Poorly Acceptable; and 1.00 – 1.80: Not Acceptable. These statistical measures provided a basis for evaluating product performance and comparing acceptability across different attributes.

2.8 Ethical Consideration

Ethical considerations are essential in ensuring that the study is conducted responsibly and in accordance with accepted research standards. Prior to data collection, institutional approval was obtained from the appropriate university office to ensure that the research design and procedures comply with institutional guidelines. Informed consent was also obtained from all respondents, with the study’s purpose, the voluntary nature of participation, and their right to withdraw at any time without penalty clearly explained. Respondents were assured of the confidentiality and anonymity of their responses, and all collected data should be used solely for academic purposes. By addressing these ethical requirements, the study ensures respect for participants’ rights and maintains the integrity and credibility of the research process.

3 Results and Discussion

Northern Iloilo is known for its diverse local food products, many of which are distinct from those found in other regions of the Philippines. However, due to limitations in raw material availability and producer consent, only selected products, peanuts, egg pie, buko juice, *langkuga*, *suman*, honey, chili garlic sauce, *bukayo*, *butong-butong*, and spicy dilis, were included in this study. These products are commonly sold on market days and in high-traffic areas such as schools and transport terminals, underscoring their accessibility and their role in local food culture.

Table 1 presents the acceptability ratings of peanuts from Balasan, Iloilo.

Table 1. The statistical results of Peanuts from the Municipality of Balasa, Iloilo

Properties	n	Mean	SD	Interpretation
Appearance	22	4.14	0.774	Moderately acceptable
Packaging	22	4.32	0.780	Highly acceptable
Smell	22	4.36	0.727	Highly acceptable
Taste	21	4.67	0.658	Highly acceptable
Content Per Pack/Volume	22	4.59	0.590	Highly acceptable
Price	22	4.77	0.612	Highly acceptable

The results indicate that most product attributes were rated in the “Highly Acceptable” range on the study’s established scale, with mean scores generally ranging from 4.32 to 4.77. However, appearance obtained a lower rating ($M = 4.14$), interpreted as “Moderately Acceptable,” suggesting that while the product is well-received in terms of taste, price, aroma, and quantity, its visual presentation requires improvement. This implies that consumer satisfaction is strongly driven by sensory and value-related factors, while aesthetic appeal remains a limiting aspect of market attractiveness.

In terms of interpretation, these findings suggest that the product is competitive in key functional dimensions but is not yet fully optimized in packaging and presentation. Similar studies on peanut acceptability also report high consumer approval, particularly due to taste and nutritional value, which supports the present findings. Peanuts are recognized as a nutrient-dense food high in protein, contributing to their strong market demand. However, literature also shows that improvements in packaging significantly enhance product preservation and shelf life; for instance, vacuum-sealed roasted peanuts stored in

tin cans have been found to remain stable for extended periods, indicating the importance of appropriate packaging systems in maintaining quality⁽¹¹⁾.

Table 2 exhibits the results of the egg pie brought from the Municipality of Ajuy.

Table 2. The results of the acceptability of egg pie from the Municipality of Ajuy

Properties	n	Mean	SD	Interpretation
Appearance	30	4.07	0.583	Moderately acceptable
Packaging	30	4.13	0.571	Moderately acceptable
Smell	30	4.10	0.712	Moderately acceptable
Taste	30	4.40	0.621	Highly acceptable
Content Per Pack/Volume	30	4.30	0.596	Highly acceptable
Price	30	4.47	0.629	Highly acceptable

The results indicate that egg pie was rated highly acceptable in terms of taste ($M = 4.40$), portion ($M = 4.30$), and price ($M = 4.47$), reflecting strong consumer satisfaction with flavor and perceived value. However, appearance, packaging, and smell were rated only as moderately acceptable, suggesting that these attributes remain key areas for improvement to enhance overall product appeal and market competitiveness. This implies that while the product performs well in core sensory and value dimensions, its market attractiveness could be further strengthened through improvements in presentation and packaging design.

These findings are consistent with related studies showing that egg-based pastry products generally achieve high consumer acceptability, particularly in taste and nutritional value. However, research also indicates that storage conditions can influence product quality; for example, frozen stored pies may undergo changes in texture and color over time, although consumer acceptance often remains high. This suggests that product stability and sensory consistency are important considerations for market expansion⁽¹²⁾.

Additionally, product innovation has been shown to enhance acceptability, for example, by incorporating functional ingredients such as *ampalaya* (bitter melon) into egg pie formulations. Studies on such modified versions report consumer ratings of taste, aroma, nutrition, and presentation that are acceptable, indicating that healthier product variations can still maintain market appeal⁽¹³⁾.

Thus, the results suggest that while egg pie is already well-accepted in key aspects, improvements in packaging, presentation, and potential product innovation could further enhance its competitiveness and broaden its consumer appeal.

Table 3 presents the acceptability results for *buko juice* from the Municipality of Sara.

Table 3. The results of the acceptability test of *buko juice* from the Municipality of Sara, Iloilo

Properties	n	Mean	SD	Interpretation
Appearance	30	3.93	0.640	Moderately acceptable
Packaging	30	4.13	0.629	Moderately acceptable
Smell	30	4.13	0.860	Moderately acceptable
Taste	30	4.53	0.730	Highly acceptable
Content Per Pack/Volume	30	4.67	0.661	Highly acceptable
Price	30	4.83	0.461	Highly acceptable

The results show that *buko juice* from the Municipality of Sara was rated “Moderately Acceptable” in terms of appearance ($M = 3.93$), packaging ($M = 4.13$), and smell ($M = 4.13$), indicating that while these attributes are satisfactory, they still require improvement to enhance overall product appeal. In contrast, taste ($M = 4.53$), content per pack/volume ($M = 4.67$), and price ($M = 4.83$) were rated “Highly Acceptable,” suggesting strong consumer satisfaction with its flavor, serving value, and affordability. The highest price rating indicates that consumers perceive the product as very reasonably priced, which strengthens its market competitiveness despite limitations in presentation.

These findings suggest that *buko juice* is well-accepted in core consumption dimensions, particularly taste and value, but its market attractiveness could be further enhanced through improvements in packaging design, visual presentation, and product handling. Related studies support this observation, showing that coconut water-based beverages generally maintain good sensory quality and consumer acceptability, even when processed or blended with coconut water at different maturity levels⁽¹⁴⁾. Additionally, research on fermented coconut water beverages indicates that improvements in formulation, such

as controlled fermentation using probiotic cultures, can enhance flavor, sweetness balance, and texture, resulting in higher consumer acceptance and product stability⁽¹⁵⁾.

Given that buko juice is a highly perishable beverage, proper handling, sanitation, and preservation techniques are essential to maintain quality and safety. Therefore, innovation in packaging and shelf-life extension methods is recommended to improve marketability and reduce contamination risks, thereby strengthening both local competitiveness and consumer trust.

Table 4 exhibits the statistical results of *langkuga* from the Municipality of Estancia, Iloilo.

Table 4. The results of *langkuga* from the Municipality of Estancia, Iloilo

Properties	n	Mean	SD	Interpretation
Appearance	30	4.57	0.504	Highly acceptable
Packaging	30	4.57	0.504	Highly acceptable
Smell	30	4.63	0.490	Highly acceptable
Taste	30	4.57	0.504	Highly acceptable
Content Per Pack/Volume	30	4.63	0.490	Highly acceptable
Price	17	4.24	0.437	Highly acceptable

Langkuga or *ginataang bilo-bilo* is a traditional Filipino dessert made of glutinous rice balls cooked in coconut milk, combined with ingredients such as sago, banana, sweet potato, ube, shredded coconut, and jackfruit. The results indicate that all evaluated attributes were rated “Highly Acceptable,” with mean scores ranging from 4.24 to 4.63, reflecting a consistently positive consumer perception across all product dimensions.

Specifically, appearance, packaging, and taste received high ratings, suggesting that the product is visually appealing, well-presented, and well-liked for its flavor. Smell and content per pack also obtained strong evaluations, indicating good sensory quality and satisfactory serving size. Although price was also rated “Highly Acceptable,” it had a lower mean than other attributes, suggesting it remains acceptable but is the least strong aspect of the product’s overall evaluation.

Hence, the findings suggest that *langkuga* or *ginataang bilo-bilo* is a well-accepted local delicacy with strong performance in quality, presentation, and consumer satisfaction, making it a competitive product in the local food market.

Table 5 presents Suman’s acceptability results from the Municipality of Barotac Viejo, Iloilo.

Table 5. The acceptability results of *suman* from the Municipality of Barotac Viejo, Iloilo

Properties	n	Mean	SD	Interpretation
Appearance	32	4.25	0.718	Highly acceptable
Packaging	32	4.13	0.907	Moderately acceptable
Smell	32	3.88	0.751	Moderately acceptable
Taste	32	4.13	0.492	Moderately acceptable
Content Per Pack/Volume	32	4.03	0.861	Moderately acceptable
Price	31	3.84	0.934	Moderately acceptable

Regarding suman, the results show that appearance received the highest rating and was rated “Highly Acceptable” ($M = 4.25$), while the other attributes received mean scores ranging from 3.84 to 4.13, interpreted as “Moderately Acceptable.” This suggests that while the product is visually appealing, there are aspects of taste, aroma, and overall sensory quality that may still be improved to enhance consumer satisfaction.

Expert suggestions indicate that product enhancement can be achieved through small but meaningful modifications, such as using muscovado sugar in appropriate proportions instead of brown sugar to improve flavor depth. The aroma may be enhanced by using pandan leaves during cooking, while additions such as calamansi zest can further enhance the fragrance. Coconut milk remains a key ingredient contributing to the product’s desirable taste profile. In terms of presentation and marketability, improvements in packaging and labeling are recommended, along with practical additions such as including a small utensil to enhance consumer convenience. Suman is a traditional rice cake wrapped in banana leaves and is often best paired with coffee or local chocolate, which may further enhance its appeal as a local delicacy.

Related studies support the viability and market potential of similar rice-based products. For instance, research on suman *kalabasa* in San Jose, Occidental Mindoro indicates that the product is financially viable, practical, and has strong market potential, suggesting that improved versions of suman can be successfully commercialized⁽¹⁶⁾. Additionally, variations of suman exist across the Philippines, including cassava- and pumpkin-based versions, as well as more innovative local adaptations, such

as pork-filled variants in Barotac Viejo, Iloilo. These examples highlight the adaptability of suman as a traditional product and its potential for further product innovation and market development.

Table 6 demonstrates the statistical results of honey from the Municipality of Ajuy.

Table 6. The statistical results of honey from the Municipality of Ajuy

Properties	n	Mean	SD	Interpretation
Appearance	30	3.97	0.809	Moderately acceptable
Packaging	30	4.20	0.761	Moderately acceptable
Smell	30	4.13	0.819	Moderately acceptable
Taste	30	4.17	0.699	Moderately acceptable
Content Per Pack/Volume	30	4.40	0.814	Highly acceptable
Price	30	4.30	0.837	Highly acceptable

The results indicate that honey was rated “Highly Acceptable” in terms of content per pack/volume ($M = 4.40$) and price ($M = 4.30$), suggesting that consumers are satisfied with the quantity provided and consider the product reasonably priced. These represent the strongest aspects of the product, reflecting good perceived value for money. In contrast, appearance ($M = 3.97$), packaging ($M = 4.20$), smell ($M = 4.13$), and taste ($M = 4.17$) were rated “Moderately Acceptable,” indicating that while the product is generally acceptable, there are still areas that require improvement to enhance its overall quality and consumer appeal.

Totally, the findings suggest that honey is moderately to highly accepted, with strong performance in value and quantity but weaker ratings in sensory and presentation-related attributes. This implies that improvements in packaging design, product presentation, and sensory refinement could further strengthen its market competitiveness and consumer satisfaction.

Honey is a natural biological product produced by bees from floral nectar. It is widely recognized for its therapeutic and nutritional properties, with studies highlighting its potential benefits in managing conditions such as diabetes mellitus, respiratory and gastrointestinal disorders, cardiovascular diseases, and certain nervous system conditions. Additionally, honey contains various antioxidants that contribute to its potential role in supporting cancer-related health outcomes⁽¹⁷⁾.

Table 7 reveals the statistical results of chili garlic sauce from the Municipality of Estancia.

Table 7. The statistical results of chili garlic sauce made in the Municipality of Estancia

Properties	n	Mean	SD	Interpretation
Appearance	31	4.52	0.508	Highly acceptable
Packaging	31	4.48	0.677	Highly acceptable
Smell	31	3.90	0.539	Moderately acceptable
Taste	31	4.74	0.514	Highly acceptable
Content Per Pack/Volume	31	4.06	0.442	Moderately acceptable
Price	31	4.19	0.477	Moderately acceptable

The results for chili garlic sauce across the six evaluated categories ranged from “Moderately Acceptable” ($M = 3.90$ – 4.19) to “Highly Acceptable” ($M = 4.48$ – 4.74), indicating an overall positive but slightly variable consumer perception. The findings suggest that while the product demonstrates strong potential in certain aspects, improvements are still needed in content per pack, price, and smell, which are critical factors influencing consumer preference and market competitiveness. These areas are particularly important because they directly affect perceived value, product appeal, and repeat purchase intention.

Overall, the results indicate that chili garlic sauce is a viable and marketable product, especially given its growing demand alongside imported sauces. Garlic (*Allium sativum* L.), a key ingredient in the product, is known for its natural antimicrobial properties, which can help extend the shelf life of food products. This supports its potential use as a natural preservative alternative to synthetic additives in food processing. Previous studies also suggest that the acceptability of chili garlic sauce is influenced by formulation factors, particularly the amount of garlic used, which affects both flavor intensity and consumer preference⁽¹⁸⁾.

Table 8 shows the acceptability of *bukayo* in the Municipality of Ajuy.

In terms of *bukayo*, two attributes, smell and price, were rated “Moderately Acceptable,” both with a mean score of 4.19. This suggests that, while these aspects remain acceptable to consumers, they may not be as strong as other product dimensions. In contrast, the remaining four attributes were rated “Highly Acceptable,” with mean scores ranging from 4.32 to 4.45, indicating a generally positive evaluation of the product’s overall quality, presentation, and consumer satisfaction.

Table 8. The acceptability of *bukayo* in the Municipality of San Rafael

Properties	n	Mean	SD	Interpretation
Appearance	31	4.32	0.909	Highly acceptable
Packaging	31	4.45	0.624	Highly acceptable
Smell	31	4.19	0.833	Moderately acceptable
Taste	30	4.43	0.626	Highly acceptable
Content Per Pack/Volume	31	4.32	0.599	Highly acceptable
Price	31	4.19	0.873	Moderately acceptable

Generally, the results imply that *bukayo* is a well-accepted local delicacy in Northern Iloilo, with strong consumer approval across most attributes. Its continued popularity can be attributed to the abundance of coconuts in the area, which has made it a traditional, accessible homemade delicacy among local communities. *Bukayo* also exists in various forms within the district, including versions with added coloring or those coated simply with muscovado sugar, reflecting local innovation and variation in its preparation while maintaining its traditional identity.

Table 9 presents the results of the acceptability of *butong-butong* made in the Municipality of Lemery.

Table 9. The results of the acceptability of *butong-butong* made from the Municipality of Lemery

Properties	n	Mean	SD	Interpretation
Appearance	31	4.13	0.341	Moderately acceptable
Packaging	31	4.32	0.475	Highly acceptable
Smell	31	4.29	0.461	Highly acceptable
Taste	31	4.48	0.508	Highly acceptable
Content Per Pack/Volume	31	4.13	0.341	Moderately acceptable
Price	31	4.06	0.250	Moderately acceptable

Butong-butong is a traditional sugar-based local candy in the Municipality of Lemery. The results show that packaging ($M = 4.32$), smell ($M = 4.29$), and taste ($M = 4.48$) were rated as “Highly Acceptable,” indicating strong consumer satisfaction with its sensory qualities and presentation. In contrast, appearance ($M = 4.13$), content per pack/volume ($M = 4.13$), and price ($M = 4.06$) were rated “Moderately Acceptable,” suggesting that these aspects remain satisfactory but may require improvement to enhance overall market appeal and value perception.

Totally, the findings indicate that *butong-butong* remains a well-accepted local delicacy, particularly among younger consumers who enjoy it as a snack during free time or after meals. However, the product’s sustainability is at risk, as there is currently only one remaining producer in the municipality. This highlights the need for stronger support from local government units (LGUs) to help preserve and promote the product. Sustaining such traditional delicacies is important not only for economic purposes but also for safeguarding cultural heritage and ensuring that local food traditions are passed on to future generations.

Table 10 reveals the statistical results of *spicy dilis* from the Municipality of Concepcion.

Table 10. Statistical results for *spicy dilis* from the Municipality of Concepcion

Properties	n	Mean	SD	Interpretation
Appearance	30	4.13	0.507	Moderately acceptable
Packaging	30	4.50	0.682	Highly acceptable
Smell	30	4.47	0.681	Highly acceptable
Taste	30	4.13	0.776	Moderately acceptable
Content Per Pack/Volume	29	4.41	0.733	Highly acceptable
Price	30	4.17	0.950	Moderately acceptable

The results for *spicy dilis* indicate that packaging ($M = 4.50$), smell ($M = 4.47$), and content per pack/volume ($M = 4.41$) were rated as “Highly Acceptable,” suggesting strong consumer satisfaction in terms of presentation, aroma, and serving quantity. In contrast, appearance ($M = 4.13$), taste ($M = 4.13$), and price ($M = 4.17$) were rated as “Moderately Acceptable,” indicating

that these aspects are still satisfactory but may benefit from further improvement to enhance overall product appeal and competitiveness.

Generally, the findings suggest that spicy dilis has strong market potential, particularly due to its good packaging and sensory appeal. Its availability is also supported by the abundance of dilis in Northern Iloilo, which is influenced by the district's proximity to the Visayan Sea, making it a naturally rich source of this marine product. To further enhance its marketability, product innovation may be explored, such as developing new recipes or integrating spicy dilis into alternative culinary offerings, which could help increase consumer interest and expand its use as a local delicacy.

Figure 1 exhibits some of the products enhanced in NISU-QUINTO-TBI.



Fig 1. Some of the products are enhanced in NISU-QUINTO-TBI

The nine selected local delicacies from municipalities in Northern Iloilo were evaluated and enhanced to improve their appeal to consumers. While some of these products are also available in other parts of the country, what distinguishes Northern Iloilo's versions is the use of locally abundant ingredients and materials, which contribute to their distinct flavor and cultural identity. Visitors often recognize and appreciate the unique taste of Iloilo delicacies, which reflects the region's rich culinary heritage and strong sense of place. Compared to traditional presentations, the improved versions emphasize a more appealing appearance, enhanced flavor, improved aroma, and more competitive pricing, making the products more attractive to consumers. However, further studies are still recommended to continuously refine and validate these improvements.

The findings highlight Iloilo's diverse food culture as a reflection of its history, identity, and traditions. This supports proposals for developing a food guide to promote culinary tourism, preserve cultural heritage, and encourage sustainable development,

positioning Iloilo as a potential UNESCO-recognized culinary destination⁽¹⁹⁾. Despite this potential, farm tourism in Iloilo remains underdeveloped, with only a few sites demonstrating sustainable operations. Financial constraints continue to hinder growth, underscoring the need for stronger support from both the government and the private sector to sustain and expand farm tourism initiatives⁽²⁰⁾. These challenges underscore the importance of coordinated efforts among government agencies and stakeholders to strengthen local enterprises and create employment opportunities.

Furthermore, studies show that gastronomy plays a significant role in attracting tourists, enhancing visitor satisfaction, and contributing to local economic development. Emphasis on sustainable practices, community participation, and the use of locally sourced ingredients strengthens the tourism value of destinations such as Iloilo. Integrating gastronomy into tourism development strategies can enhance competitiveness and promote inclusive growth⁽²¹⁾. Additional research confirms that regional food experiences enhance tourism by strengthening place identity and influencing visitor motivations and satisfaction⁽²²⁾. Local cuisine has also been identified as a key factor in attracting tourists and showcasing cultural identity, further supporting its role in tourism-driven economic development⁽²³⁾. Thus, beyond its natural attractions such as beaches and marine resources, Northern Iloilo also offers rich gastronomic experiences that can attract both local and international tourists.

In terms of economic impact, improving these local products also benefits micro, small, and medium enterprises (MSMEs) in Northern Iloilo by encouraging innovation in product development, packaging, pricing, and marketing. Support from local government units and national agencies is essential in sustaining these initiatives through financial assistance, digital upskilling, and workforce development. Studies show that MSMEs in Iloilo have increasingly adopted digital tools after the pandemic, improving customer reach and operational efficiency despite ongoing challenges in finance and infrastructure⁽²⁴⁾.

4 Conclusion

The study found that local food products in Northern Iloilo were generally rated from moderately to highly acceptable, with mean scores ranging approximately from 3.84 to 4.77 across key attributes such as appearance, packaging, smell, taste, content per pack/volume, and price. Several products, including peanuts, langkuga, chili garlic sauce, bukayo, and butong-butong, consistently received high acceptability ratings, particularly for taste ($M \approx 4.40$ – 4.77) and perceived value, indicating strong consumer preference and potential market demand. However, attributes such as appearance, packaging, and smell frequently received only moderate ratings ($M \approx 3.90$ – 4.20), suggesting that these aspects remain key areas for improvement that influence overall product competitiveness and consumer appeal. These findings indicate that while the sensory quality, especially taste, of Northern Iloilo delicacies, is already strong, their market performance is limited by weaknesses in presentation, packaging design, and product standardization. The study also highlights the reliance of these products on locally available agricultural and marine resources, which reflects both their cultural significance and their sensitivity to supply and production constraints. The novelty of this study lies in its multi-municipality evaluation of local food products in Northern Iloilo, integrating both sensory and market-oriented indicators, including taste, appearance, packaging, volume, and price. Unlike previous studies that focus mainly on individual product attributes, this research provides a more comprehensive assessment of consumer acceptability and product competitiveness across different delicacies and locations. In terms of implications, the results suggest the need for targeted improvements in packaging, product presentation, sensory enhancement (particularly aroma and visual appeal), pricing strategies, and production support systems. Strengthening these areas, in coordination with Local Government Units (LGUs), academic institutions, and local producers, may improve product quality and market competitiveness. Future initiatives may also consider aligning product development with health-conscious, sustainability-oriented market trends to broaden the potential consumer reach. However, conclusions regarding broader socioeconomic impacts, such as poverty reduction and job creation through a one-stop-shop model, are not directly supported by the current study design and should therefore be treated as potential outcomes rather than established findings. Further research is recommended to examine the feasibility and impact of such enterprise models. Generally, enhancing these key product attributes is essential not only for improving consumer satisfaction and competitiveness, but also for preserving local culinary heritage and supporting the long-term development of Northern Iloilo's food industry.

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6 Conflict of Interest

The authors have declared no conflict of interest.

7 Authors Contributions

Fernan Peniero Tupas: Conceptualization, funding acquisition, creating the comic strips, validation, formal analysis, writing—original draft preparation, writing—review and editing, project administration

Ma. Socorro Dorothy A. Ambros: In charge of consolidating all local products in Northern Iloilo, reviewing and editing

Leony Grace V. Delima: creating methodology, validation of the data, and providing resources

Rene June B. Belgica: Validation of paper, instruments, and other materials

Madelyn R. Gumarac: Methodology, Statistical Analysis, Review, and editing

Renette A. Valderama: Formal analysis, methodology, and editing of the manuscript

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