The Acceptability of the Suliyog Cocktail as a Basis for Techno-Guide in Instruction, Community Extension, and Production

Dr. Madonna P. Melchor., Maecel M. Lat

Mindoro State University- Bongabong, Philippines

DOI: https://doi.org/10.47772/IJRISS.2026.10200028

Received: 05 February 2026; Accepted: 10 February 2026; Published: 22 February2026

ABSTRACT

This study examined the acceptability of the **SuliYog Cocktail**, a locally inspired beverage formulated from banana (*suli*) and coconut (*niyog*), as a foundation for a techno-guide intended for instruction, community extension, and small-scale production. The product was developed in response to the growing demand for sustainable, locally sourced food and beverage innovations that support agricultural utilization and community development. An experimental research design was employed, applying descriptive and inferential statistical methods to evaluate consumer responses to four cocktail treatments with varying ingredient formulations. Sensory evaluation was conducted using a nine-point hedonic scale by trained panelists, food and beverage practitioners, and selected consumers. The attributes assessed included taste, aroma, texture, and overall acceptability. Findings revealed that all treatments achieved acceptable sensory ratings across the evaluated attributes. Among the four formulations, Treatment B consistently obtained the highest mean scores for texture and overall acceptability, indicating a more balanced and cohesive sensory profile. One-way analysis of variance showed statistically significant differences among treatments in terms of texture and general acceptability, while no significant differences were observed for taste and aroma. The results emphasize the importance of texture and mouthfeel in shaping overall beverage preference once basic flavor quality is achieved. The study demonstrates that bananas and coconuts can be effectively utilized in beverage development without compromising consumer acceptance. Based on the findings, a techno-guide was formulated to serve as a practical reference for instructional use, community-based training, and production applications. The study contributes to sustainable food innovation by integrating sensory science, local resources, and applied product development.

Keywords: Acceptability, Aroma, Suliyog, Taste, Texture

INTRODUCTION

Agriculture remains a vital source of livelihood and food production in the Philippines, particularly in rural areas where coconut and banana are considered key crops. Agricultural commodities such as coconut and banana continue to play a significant role in Philippine agricultural output, contributing substantially to national crop production volume according to official statistics released by the Philippine Statistics Authority (2025).

In Oriental Mindoro, these crops contribute not only to household income but also support local enterprises by providing raw materials and opportunities for value-adding activities. Promoting the use of these crops in new food and beverage products advances the national goals of sustainable agricultural development and job creation for small producers (Department of Agriculture [DA], 2023).

The municipality of Bongabong, Oriental Mindoro, celebrates the Sulyog Festival, a cultural event that honors two local staples—suli (banana) and niyog (coconut). The term SuliYog represents the harmony between tradition and innovation, illustrating the intersection of agriculture and culture in rural communities (Provincial Tourism Office of Oriental Mindoro, 2024). Inspired by this heritage, the current study developed the SuliYog Cocktail, a beverage made from banana and coconut, to showcase local ingredients while reinforcing the goals of instruction, community extension, and production in higher education settings.

Recent literature indicates a growing consumer preference for natural, fruit-based beverages, driven by their appealing sensory characteristics, perceived nutritional benefits, and strong connection to local identity (Kim et al., 2025). At the same time, functional beverages—defined as drinks that provide health or physiological benefits beyond basic nutrition—have gained increasing prominence in the global food and beverage market (Rahman & Lee, 2024). The incorporation of banana and coconut in beverage product development offers notable nutritional value and commercial potential while promoting the sustainable utilization of locally available agricultural resources.

Studies on the utilization of indigenous root crops highlight their potential in food product development when appropriate processing techniques are applied. In a study by Melendrez and De Guzman (2024), *Dioscorea hispida* (nami) was incorporated into cookie production and evaluated through sensory analysis. The results indicated that the product was generally acceptable to consumers in terms of appearance, texture, taste, and overall acceptability. These findings suggest that underutilized local crops can be transformed into value-added food products without compromising consumer preference. This supports the present study's product development approach using suliyog, as both crops are locally available resources that can be innovatively processed to promote food sustainability and local agricultural utilization.

The development of the SuliYog Cocktail aligns with the United Nations Sustainable Development Goals (SDGs), specifically SDG 2 (Zero Hunger) and SDG 9 (Industry, Innovation, and Infrastructure). SDG 2 advocates for sustainable agriculture and enhanced food security through innovative production methods and product diversification (United Nations, 2024a). By utilizing locally available crops to create a functional beverage, this study contributes to food security, nutrition, and the enhancement of local livelihoods. In parallel, SDG 9 focuses on fostering inclusive innovation and small-scale industrialization, which this project embodies through community-driven production and technology transfer (United Nations, 2024b).

Mindoro State University (MinSU), as the host institution, plays a key role in bridging academic research and practical application through technological guide development. The university's tri-fold mandate—instruction, research, and extension—provides a framework for transforming laboratory-based innovations into livelihood technologies for local communities. Through MinSU's support, the SuliYog Cocktail serves as an example of how higher education institutions can advance sustainable product innovation, technology dissemination, and capacity building at the grassroots level.

Sensory science emphasizes that consumer preference is influenced not only by flavor but also by texture, aroma, and mouthfeel. According to Lawless and Heymann (2023), attributes like viscosity, smoothness, and tactile balance significantly impact overall acceptability, while Wolińska-Kennard et al. (2025) noted that mouthfeel perception plays a critical role in the enjoyment and success of a beverage. Based on these sensory principles, the SuliYog Cocktail was developed in two formulations, with variations in banana type, alcohol, and cocoa powder content.

This study was therefore conducted to evaluate the sensory characteristics of the SuliYog Cocktail and assess its potential as a techno-guide for instruction, community extension, and production. Also, to determine the consumer's degree of liking of the four treatments and to compare the quality attributes.

Aim of the Study

In general, this study's main goal is to determine the acceptability of the Suliyog Cocktail.

Specific Objectives

- To analyze the acceptability of the Suliyog cocktail in terms of taste, aroma, texture, and general acceptability;

- To test the differences of the four treatments;

- To propose a technological guide for instruction, extension, and production.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue II February 2026

LITERATURE REVIEW

Recent scholarship highlights the growing importance of cocktail and beverage product development as a strategic driver of consumer satisfaction and competitiveness in the food and beverage industry. As consumer preferences shift toward healthier and more sustainable options, beverage innovations increasingly emphasize the use of natural ingredients, local sourcing, and functional value. Manes et al. (2025) observed that beverage products incorporating sustainability-oriented practices and ingredient innovation are more likely to generate positive consumer responses and encourage repeat consumption, particularly among wellness-conscious customers.

Studies on healthy and functional beverages indicate that fruit-based and plant-derived ingredients enhance perceived product value by combining sensory appeal with nutritional benefits. Rahman and Lee (2024) noted that beverages formulated with natural components are often associated with improved health perception and stronger consumer trust. In the context of mixed drinks and cocktails, García Sánchez et al. (2025) reported that sustainable ingredient use and transparent formulation practices positively influence brand loyalty and customer engagement.

Creativity in cocktail formulation has also been identified as a key factor shaping consumer experience. Tsaur et al. (2024) emphasized that innovative beverage design—such as incorporating indigenous ingredients and novel flavor combinations—enhances experiential value and increases consumers' willingness to pay premium prices. Similarly, Sharma et al. (2024) highlighted that innovation in beverage product development enables firms to remain competitive by adapting to evolving consumer expectations related to health, authenticity, and quality.

Technological support in beverage development further contributes to product consistency and acceptability. Kokkhangplu et al. (2024) demonstrated that controlled formulation processes and customization technologies improve consumer satisfaction in beverage products. In addition, Zawisza et al. (2025) found that strong innovation capabilities in beverage design are associated with increased market performance, particularly for products aligned with plant-based and natural ingredient trends.

Theoretical Framework

This study is anchored in different theories that collectively explain how food and beverage products developed from local ingredients are evaluated and accepted by consumers.

Sensory Evaluation Theory provides the primary foundation of this study by emphasizing that consumer judgment of food and beverage products is based on sensory attributes perceived through the human senses. Sensory characteristics such as taste, aroma, texture, and mouthfeel significantly influence overall product acceptability and preference (Lawless & Heymann, 2023). In beverage development, these attributes determine the degree of consumer liking and form the basis for comparing different product formulations. This theory supports the evaluation of the SuliYog Cocktail by assessing consumer responses to its sensory properties across treatments.

Product Development Theory further supports this study by explaining the systematic process of transforming raw materials into value-added products that meet consumer expectations and quality standards. According to Ulrich and Eppinger (2020), effective product development involves formulation, testing, refinement, and evaluation to ensure product consistency, acceptability, and market viability. In the context of food and beverage innovation, this theory highlights the importance of utilizing locally available ingredients and applying appropriate processing techniques, guiding the development and comparison of the SuliYog Cocktail formulations.

Consumer Acceptance Theory explains how consumers form preferences and acceptance decisions based on their overall perception of product quality. Cardello (2003) emphasized that acceptance is influenced by the combined evaluation of sensory attributes rather than isolated characteristics. This theory provides the basis for

measuring consumer liking of the SuliYog Cocktail in terms of taste, aroma, texture, and overall acceptability, and for determining significant differences among treatments.

The integration of these three theories provides a comprehensive framework for understanding how sensory attributes and formulation variations influence consumer acceptability. Together, they guide the evaluation of the SuliYog Cocktail and support the development of a technological guide for instruction, extension, and production.

METHODOLOGY

This study utilized the experimental technique, using descriptive and statistical analyses for data processing. This approach aimed to determine which of the four treatments with varying yields of coconut milk, sugar syrup, cocoa powder, and brandy would offer superior quality in color, taste, flavor, and texture deemed acceptable by customers, as represented by panelists. The samples were designated with a single-digit code on the score sheet, corresponding to the code numbers of the highball glasses, before sensory evaluation. The acceptance assessment will be performed by qualified panelists who are specialists in food innovation, as well as consumers and proprietors of food and beverage service facilities in the municipality of Bongabong. The nine-point Hedonic rating scale scores were aggregated and analyzed to ascertain the mean sensory characteristic for each product in the program.

The data collected from the sensory evaluation performed by experts, consumers, and owners was statistically evaluated using the following methods: 1) Arithmetic Mean; 2) Weighted Average; and 3) Analysis of Variance (ANOVA). The acceptance was assessed through sensory evaluation conducted by expert panelists and general consumers. The collected data were categorized, quantified, calculated, analyzed, and interpreted employing statistical methods. The output constitutes the advancement of food product innovation as a technical reference for teaching, extension, and production.

RESULTS AND DISCUSSIONS

Acceptability of the Suliyog Cocktail

All four cocktail treatments received positive sensory ratings, indicating that the formulations were acceptable to panelists. Among them, Treatment B had the highest mean scores for taste, texture, and general acceptability, suggesting that this sample achieved the most favorable balance of sensory attributes. Treatments C and D followed closely behind, while Treatment A consistently registered the lowest means.

The standard deviations ranging from 0.66 to 0.83 suggest moderate variability among respondents, indicating general consensus despite minor individual differences. This aligns with previous research, which indicates that individual taste preferences, past experiences, and sensitivity levels play a significant role in hedonic evaluations (Zhou et al., 2024). The clustering of mean values above 3.0 on the hedonic scale further supports that the cocktails met the sensory acceptability criteria typically expected for consumer-ready beverages.

The consistently higher scores for Treatment B suggest that it offered a smoother mouthfeel, balanced flavor integration, and a more cohesive sensory experience than the other treatments. This result aligns with emerging beverage research identifying texture and mouthfeel as decisive factors in consumer satisfaction. According to Wolińska-Kennard et al. (2025), tactile properties such as viscosity and smoothness influence the release of aroma compounds and the perception of sweetness, ultimately enhancing overall liking. Similarly, Lee et al. (2025) found that multisensory balance among tactile, gustatory, and visual cues predicted consumer acceptance more effectively than sweetness intensity alone.

In practical terms, these findings emphasize that improvements in textural harmony—achieved through ingredient ratio adjustments, blending control, or precise dilution—can elevate consumer preference even when taste and aroma remain constant. Beverage developers increasingly regard texture as a differentiating factor that transforms acceptable drinks into highly preferred products (Beverage Daily, 2024). Thus, the descriptive

analysis underscores that the advantage of Treatment B stems not from a stronger flavor but from improved integration among sensory cues, producing a more unified and enjoyable mouthfeel.

Differences among the four treatments of the Suliyog Cocktail

The one-way ANOVA results confirm that differences among the four treatments were statistically significant for texture and general acceptability, but not for taste or aroma. This means that panelists perceived the samples as similar in flavor and aroma composition, yet distinguished them based on tactile and overall sensory integration.

The moderate effect sizes (η^2 between 0.066 and 0.093) demonstrate that formulation differences contributed meaningfully to the observed variation in texture and general liking. These findings reinforce the growing recognition that mouthfeel exerts a strong influence on beverage enjoyment once basic flavor quality is optimized (Bazán-Plasencia et al., 2025; Wolińska-Kennard et al., 2025).

Texture encompasses sensory sensations such as smoothness, body, and viscosity, which interact with gustatory and olfactory stimuli to shape the holistic perception of a drink. Kim et al. (2025) demonstrated that manipulating protein structures and ingredient interactions in liquid beverages can significantly alter texture perception and, by extension, consumer preference. The significant variation in texture in this study suggests that Treatment B achieved a more desirable viscosity and smoothness, possibly due to its formulation ratio or blending precision.

Furthermore, the significant difference in general acceptability indicates that panelists' overall judgments were primarily influenced by mouthfeel. This supports recent studies highlighting those consumers increasingly equate "quality" with tactile harmony and drinkability rather than sheer flavor intensity (Lee et al., 2025; BeverageDaily, 2024). The results suggest that optimizing the physical characteristics of the beverage matrix—such as dilution level, mixing technique, and ingredient stability—can substantially improve sensory appeal without altering the core flavor profile.

From a product development perspective, the findings demonstrate that texture acts as a functional driver of consumer liking. Beverage designers aiming for higher market success should focus on rheological consistency and smooth integration of flavors. Future studies could incorporate instrumental texture analysis and time–intensity methods to quantify the sensory impact of formulation variables, following protocols used in recent multi-attribute sensory research (Wolińska-Kennard et al., 2025; Zhou et al., 2024).

Overall, the inferential results strengthen the conclusion that while taste and aroma were adequately standardized, the sensory dimension of texture was the key determinant of overall cocktail preference. This positions Treatment B as the most promising formulation, underscoring the growing relevance of texture optimization in modern beverage innovation.

CONCLUSION

The study explored the sensory acceptability and potential of the SuliYog Cocktail, a beverage made from banana and coconut, as a techno-guide for instruction, community extension, and production. Sensory evaluations showed that all four treatments were acceptable, with Treatment B being the most favored due to its superior taste, texture, and overall acceptability. Compared to the other treatments, Treatment B stood out for its better balance of sensory attributes, particularly texture and mouthfeel.

This highlights the importance of these factors in consumer preference. The use of locally sourced bananas and coconuts offers nutritional benefits while supporting sustainable agricultural practices and small-scale industrialization in rural communities. The development of the cocktail as a techno-guide provides a practical framework for transforming academic research into community-based applications, offering educational and livelihood opportunities.

To enhance the SuliYog Cocktail further, Treatment B will be refined to improve texture and mouthfeel, making it more appealing to a broader consumer base. Adjustments in ingredient ratios and blending techniques will

support this. Expanding the sensory evaluation to a more diverse group of panelists will help understand how demographic factors influence beverage preferences. Long-term consumer satisfaction studies will also help evaluate repeat consumption behaviors. The output of the techno-guide for instruction, extension, and production will include a step-by-step production process for the SuliYog Cocktail, focusing on clear guidelines for sourcing ingredients, preparation methods, blending techniques, and packaging. This guide will be designed to empower small-scale producers in rural areas to consistently produce high-quality beverages.

Additionally, the techno-guide will help integrate educational strategies for instruction in academic settings and provide a framework for community extension to foster local entrepreneurship. Further research will explore the market potential of the SuliYog Cocktail, focusing on pricing, packaging, and distribution strategies to ensure its success in both local and international markets. Implementing these recommendations will allow the SuliYog Cocktail to become a model for sustainable food and beverage production, benefiting local communities and promoting innovation.

ACKNOWLEDGEMENT

The researchers would like to acknowledge the participation of the selected respondents in the Mindoro State University-Bongabong Campus. Their responses contributed to the completion of the study.

REFERENCES

1. Bazán-Plasencia, J., Mejía-Vásquez, A., Bracamonte, G. H., Anali Ponce-Ramirez, J., Ortecho-Llanos, R., Hurtado-Soria, B. Z., Villanueva, E., & Aguirre, E. (2025). Development of a citrus drink using mixture design: Sensory evaluation, total polyphenols, and vitamin C. Beverages, 11(2), 51. https://doi.org/10.3390/beverages11020051
2. BeverageDaily. (2024, September 25). Texture: The next frontier in beverage innovation. BeverageDaily. Retrieved from https://www.beveragedaily.com/Article/2024/09/25/texture-the-next-frontier-in-beverage-innovation
3. Cardello, A. V. (2003). Consumer concerns and expectations about novel food processing technologies: Effects on product liking. Appetite, 40(3), 217–233. https://doi.org/10.1016/S0195-6663(03)00008-4
4. Department of Agriculture. (2023). Philippine Banana Industry Roadmap (2021–2025). Retrieved from https://bit.ly/3lFONgl
5. García Sánchez, I. M., Rodríguez Ariza, L., & Frías Aceituno, J. V. (2025). Sustainable food and beverage innovation and brand loyalty in hospitality. International Journal of Hospitality Management, 112, 103475. https://doi.org/10.1016/j.ijhm.2024.103475
6. Kim, M. S., Park, Y. H., & Cho, H. Y. (2025). Investigating consumer preference for natural fruit-based beverages: Sensory appeal and health perception. Food Quality and Preference, 118, 105310. https://doi.org/10.1016/j.foodqual.2025.105310
7. Kokkhangplu, A., Wongtada, N., & Kullada, S. (2024). Technology-driven customization and consumer satisfaction in beverage services. Journal of Hospitality and Tourism Technology, 15(1), 45–59. https://doi.org/10.1108/JHTT-06-2023-0187
8. Lawless, H. T., & Heymann, H. (2023). Sensory evaluation of food: Principles and practices (3rd ed.). Springer. https://doi.org/10.1007/978-3-030-28078-0
9. Lee, Y. J., Park, H. S., & Cho, J. E. (2025). Associations between a three-dimensional perception model and consumer acceptability of ready-to-drink beverages. Food Quality and Preference, 118, 105310. https://doi.org/10.1016/j.foodqual.2025.105310
10. Manes, E., Ricci, F., & Coluccia, B. (2025). Sustainability-driven innovation and consumer behavior in food and beverage services. Sustainability, 17(3), 1189. https://doi.org/10.3390/su17031189
11. Melendrez, M. S. P., & De Guzman, R. B. (2024). Acceptability of cookies with Dioscorea hispida as local pastry. American Journal of Tourism and Hospitality, 2(1), 73–79. https://journals.e-palli.com/home/index.php/ajth/article/view/3405
12. Philippine Statistics Authority. (2025). Major crop production statistics of the Philippines. https://psa.gov.ph/statistics/agriculture

13. Provincial Tourism Office of Oriental Mindoro. (2024). Sulyog Festival: Honoring local crops and culture. Retrieved from https://bit.ly/3NJ0wK5
14. Rahman, M. S., & Lee, J. S. (2024). Functional beverages and consumer perception: A systematic review. Journal of Food Science and Nutrition, 12(1), 33–47. https://doi.org/10.1080/21662517.2023.2290041
15. Sharma, P., Singh, R., & Jain, V. (2024). Entrepreneurial innovation and competitive advantage in the food and beverage sector. Journal of Business Research, 168, 114003. https://doi.org/10.1016/j.jbusres.2023.114003
16. Tsaur, S. H., Wang, Y. C., & Liu, S. F. (2024). Restaurant innovativeness, experiential value, and customer willingness to pay. International Journal of Contemporary Hospitality Management, 36(2), 620–638. https://doi.org/10.1108/IJCHM-03-2023-0351
17. Ulrich, K. T., & Eppinger, S. D. (2020). Product design and development (7th ed.). McGraw-Hill Education. https://www.mheducation.com/highered/product/product-design-development-ulrich/M9781260042877.html
18. United Nations. (n.d.). Goal 2: Zero Hunger – end hunger, achieve food security and improved nutrition, and promote sustainable agriculture. United Nations Sustainable Development. https://www.un.org/sustainabledevelopment/hunger/
19. United Nations. (2024b). Sustainable Development Goal 9: Industry, Innovation and Infrastructure. Retrieved from https://www.un.org/sustainabledevelopment/infrastructure-industrialization/
20. Wolińska-Kennard, K., Schönberger, C., Fenton, A., & Şahin, A. W. (2025). Mouthfeel of food and beverages: A comprehensive review of physiology, biochemistry, and key sensory compounds. Comprehensive Reviews in Food Science and Food Safety, 24(4), e70223. https://doi.org/10.1111/1541-4337.70223
21. Zawisza, M., Nowak, P., & Lewandowska, A. (2025). Innovation capability and market performance in the beverage industry. British Food Journal, 127(4), 1423–1441. https://doi.org/10.1108/BFJ-07-2024-0628
22. Zhou, L., Han, S., & Bae, Y. R. (2024). Multisensory evaluation of novel functional beverages: Linking instrumental texture analysis and consumer perception. Journal of Sensory Studies, 39(3), e13025. https://doi.org/10.1111/joss.13025