

“A Descriptive Study on the Process Product, Sensory Attributes, Acceptability, and Marketability of Kaong (*Sugar palm fruit*) con Calamansi (*Citrus microcarpa*) Dessert”

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Abstract

This descriptive research focused on the process of producing a Kaong Con Calamansi, a skin-based product that mixes the sourness and sweetness of kaong (*sugar palm fruit*) with the taste of calamansi (*Citrus microcarpa*), that utilizes locally available resources. and to determine its sensory qualities, physical appearance, acceptability and marketability among consumers. The descriptive research methodology was utilized to gather requisite data from the information source. The questionnaire was the main tool used to get important information about the subject. After gathering the data, it was analyzed using appropriate statistical procedures, the mean and standard deviation. The results showed that the Kaong (*sugar palm fruit*) con Calamansi (*Citrus microcarpa*), Dessert was acceptable and marketable, which means that the product fits the standards of the respondents and has a good chance of being sold. Moreover, the product can serve as a livelihood opportunity that promotes local market competitiveness and zero-waste utilization of resources and supports sustainable community development. Ultimately, it is recommended that the developed product innovation be transferred to nearby communities, associations, government agency and educational institution programs/projects for adoption as a dessert product likewise for implementation as a livelihood project or program to generate profit. And as this not only benefits local stakeholders but also strengthens institutional research initiatives while promoting opportunities in both domestic and international markets.

Keywords: kaong (*sugar palm fruit*); calamansi (*Citrus microcarpa*); marketability; process product; acceptability, sensory attributes

INTRODUCTION

The Philippines is abundant in indigenous fruits such as Kaong (*Arenga Pinnata*) Fruit and Calamansi (*Citrus Microcarpa*) that can develop to a desert. Kaong (*Arenga Pinnata*), plant produces a large amount of fruit, both young and matured. Hence, utilization of the palm fruit was limited. This tree/plant plenty mostly in the country side because of its size. as Kaong (*Arenga Pinnata*), fruit was smooth in texture with chewy into the mouth, and Calamansi (*Citrus Microcarpa*, aromatic juice that combine sweetness and sour in taste. Calamansi, skin with green in color instinctively bitter and slightly tangy taste. It can be used as codiments, beverages and ingredients in some recipe. One of the Village based on the study of Azhar (2019), that commonly harvested sugar palm (*Arenga pinnata*) is a male flower called nira and usually consumed as sweet drink and palm sugar while female lower processed into a sweet palm fruit. Individuals who create new ideas are essential for sharing knowledge about items, as they must know how to protect their innovations. Numerous processed goods, including sugar, beverages, and vinegar, can enhance food security while bioethanol serves as an alternative energy source. Therefore, the rise of palm sugar holds promising prospects for the near future (Harahap, 2019).

The Intellectual Property Office (IPOPHL) in the Philippines is an agency dedicated to safeguarding

the intellectual property of registered works. This agency is responsible for protecting the interests of investors, innovators, and industrial designers. IPOPHIL provides a range of services, encompassing patents, utility models, trademarks, copyrights, industrial designs, and many connected services. In today's world intellectual property rights (IPRs) importantly know the significant of the intellectual creation. (Choudhury, 2022). According to Ilyas et al. (2023), that transfer of knowledge in the community is essential.

To describe the process to describe the process, evaluate the products characteristics, determine its sensory characteristics, acceptability and marketability of Kaong (*Arenga Pinnata*) Fruit and Calamansi (*Citrus Microcarpa*) Dessert. And also evaluated Kaong Con Calamansi, a skin-based product that mixes the sourness and sweetness of kaong (*sugar palm fruit*) with the taste in the skin of calamansi. The community benefits from institutional research and gear toward domestic and foreign markets.

METHODOLOGY

This study used the descriptive research design, particularly descriptive evaluative method, to describe the process, evaluate the products characteristics, determine its sensory characteristics, acceptability and marketability. To process of producing kaong (*arenga pinnata*) fruit and calamansi (*citrus microcarpa*) dessert (a descriptive study on the production and quality characteristics) the following phase developed first, preparation stage: ingredients were selected among kaong (*arenga pinnata*), calamansi, sugar and pandan; secondly, production process: washing the calamansi, squeezing the fruit, soaking the calamansi (*citrus microcarpa*), washing the soaked skin, boiling it in water, letting it to cool, soaking the kaong (*arenga pinnata*) fruit, washing the fresh kaong (*arenga pinnata*) fruit, boiling it in water, gradually adding sugar, allow it to cool, placing one kaong (*arenga pinnata*) fruit inside each calamansi (*citrus microcarpa*) skin, incorporating sugar into the mixture, and packaging the final product. Lastly, the evaluation stage: finished product was evaluated by respondents using a descriptive rating scale to record sensory impressions. The product was evaluated by selected respondents using a 5-point Likert scale questionnaire focusing on taste, acceptability, and marketability. The results were analyzed using descriptive statistics (mean and weighted mean) to determine the status and level of sensory taste, acceptability and marketability of the product. Only one (1) set of questionnaires issued to actual 30 selected respondents including students, faculty, and local community were distributed face to face. The data was analyzed according to the objective of the study and tabulated in a series of figures and tables. They were asked to evaluate the dessert based on sensory attributes: appearance, aroma, flavor, mouthfeel, overall marketability and acceptability.

RESULTS AND DISCUSSION

This chapter discusses the results and discussion of data. It presents the data gathered about the status of Kaong con Calamansi Dessert in terms of sensory taste, acceptability and marketability. In particular, the study sought to address the following:

Table 1. Status of **Kaong (*Arenga Pinnata*) Fruit con Calamansi (*citrus microcarpa*) Dessert** in Terms of Sensory Taste

	TASTE	Mean	SD	V.I.
1.	Appearance	4.36	0.48	A
2.	Aroma	4.20	0.53	A
3.	Flavor	4.30	0.68	A
4.	Mouthfeel	4.44	0.50	A
5.	Overall, the taste if the product is satisfying	4.26	0.53	A
Overall Mean = 4.31				
Standard Deviation = 0.55				
Verbal Interpretation = Acceptable				

Legend: V.I.= Verbal Interpretation. The mean is interpreted as follows:

4.45 – 5.00 = Highly Acceptable (HA), 3.45 – 4.44 = Acceptable (A), 2.45 – 3.44 = Neither Acceptable, 1.45 – 2.44 = Not Acceptable, 1.00 – 1.44 = Very Not Acceptable

The study revealed below table shown that respondents had similar sensory taste evaluations of Kaong (*Arenga Pinnata*) Fruit con Calamansi (*citrus microcarpa*) Dessert, as shown by their relatively small changeability. According to the mean evaluation, respondents thought the product tasted appealing and consistently rated it. This suggests that Kaong (*Arenga Pinnata*) Fruit con Calamansi (*citrus microcarpa*) Dessert fits consumer expectations and is acceptable for wider usage. The finding suggests the product could be well-received in the market, especially as flavor is a major factor in food product preferences.

Table 2. Level of Acceptability of Kaong (*Arenga Pinnata*) Fruit con Calamansi (*citrus microcarpa*) Dessert

	Indicator	Mean	SD	V.I.
1.	Overall quality of the product.	4.46	0.54	HA
2.	Expectations on the product.	4.00	0.73	A
3.	Willing to eat the product again.	4.50	0.51	A
4.	Promote this product.	4.46	0.58	HA
5.	Overall, I find it highly acceptability	4.46	0.58	HA

Overall Mean = 4.38

Standard Deviation = 0.64

Verbal Interpretation = Acceptable

Legend: V.I.= Verbal Interpretation. The mean is interpreted as follows:

4.45 – 5.00 = Highly Acceptable (HA), 3.45 – 4.44 = Acceptable (A), 2.45 – 3.44 = Neither Acceptable, 1.45 – 2.44 = Not Acceptable, 1.00 – 1.44 = Very Not Acceptable

Table 3 showed the level of acceptability of Kaong Fruit Con Calamansi Desert in terms of food quality. All of the factors were rated as acceptable for the Kaong Fruit con Calamansi Dessert by the respondents. The product was good quality and lived up to their expectations. Many of the respondents who took part in the study said that would buy the product again. Most of the respondents answered also thought the product was worth advertising, which shows that it may sell well. Overall, responses show that respondents like the Kaong Fruit con Calamansi Desert because of how it smells and tastes and how appealing it is to others.

Table 3. Level of Marketability of Kaong (*Arenga Pinnata*) Fruit con Calamansi (*citrus microcarpa*) Dessert

	Indicator	Mean	SD	V.I.
1.	The product has an attractive appearance/packaging.	4.48	0.55	HM
2.	The product's taste and quality meet consumer expectations.	4.46	0.57	HM
3.	The product has a unique quality compared to similar items in the market.	4.34	0.65	M
4.	The product has potential demand in the local	4.42	0.57	M

market.

5. Overall, the product has strong market potential.	4.54	0.59	HM
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Overall Mean = 4.45

Standard Deviation = 0.29

Verbal Interpretation = High Marketable

Legend: V.I.= Verbal Interpretation. The mean is interpreted as follows:

4.45 – 5.00 = Highly Marketable (HA), 3.45 – 4.44 = Marketable (A), 2.45 – 3.44 = Neither Marketable, 1.45 – 2.44 = Not Marketable, 1.00 – 1.44 = Very Not Marketable

The results shown that the respondents who answered the survey thought the Kaong con Calamansi could be sold. The product's look and packaging were attractive, which made it more desirable to buy. Respondents thought that the taste and quality were in line with what customers expected, which made it more acceptable as a food product. Respondents said that it has unique features compared to similar goods, which makes it stand out and maybe competitive. The product has a lot of demand in the local market, which shows that target market was willing to try it and buy it. The answers show that Kaong con Calamansi has a lot of market potential and might be a profitable business product.

CONCLUSIONS AND RECOMMENDATIONS

The study's findings shown that the Kaong con Calamansi Dessert is both acceptable and marketable suggesting significant sales potentials. Sensory evaluations revealed that the taste of the Kaong Fruit and Calamansi skin combination was especially attractive to consumers. The product may also great deal on competitive value-added food innovation from local raw materials and support the promotion on zero-waste utilization on harvests. Furthermore, it can help startup community owners or businesses in generating revenue and strengthen local agriculture by utilizing food in a manner that minimizes waste. it is recommended to transfer the developed technology to students and the community with product as dessert, as this not only benefits local stakeholders but also strengthens institutional research initiatives while promoting opportunities in both domestic and international markets. The product as dessert maybe integrated in other associations, government agency and educational institution programs/projects for sustainable livelihood initiative that can produce small-scale enterprise. Further studies may undertake look on the shelf life and packaging's innovation for more consistency, safety and efficient product quality.

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