

DEVELOPMENT AND MARKET POTENTIAL OF SAGO (*METROXYLON SAGU ROTTB*) COOKIES: INPUT FOR SUSTAINABLE LOCAL LIVELIHOOD

PERLITA R. ISRAEL

College of Hospitality and Rural Resource Management
Aklan State University, Ibaday, Aklan
perlitaIsrael21@gmail.com

ABSTRACT

Customers' acceptability for product quality is essential in today's market environment. The purpose of this study is to determine the market potential of sago (Metroxylon sagu Rottb) cookies as a basis for sustainable local livelihood activity. The descriptive research design was used, involving 220 respondents. The survey was conducted at the Iloilo Convention Center in the Philippines during the 2023 National Science and Technology Week. The findings revealed that most respondents were young adult females and engaged in skills and semi-skilled work. The sensory qualities that most respondents liked in the cookies were: appearance, flavor, texture, aroma, and overall acceptability. In terms of market potential, the respondents perceived a very positive reaction to the quality, and they likely recommend cookies to others. The findings support the Stimulus-Response Theory (SRT), that if consumers have a positive reaction to a product, they tend to patronize it. Hence, local sago cookies have market potential. The conduct of a livelihood program in the community on the preparation and marketing of sago cookies is likely beneficial to the community. The findings of this investigation will be disseminated to the stakeholders through college research and extension in-house reviews and public assemblies.

KEYWORDS: entrepreneurship, innovation, sago (*MetroxylonSagu Rottb*) cookies, descriptive, Aklan community livelihood

INTRODUCTION

The second Sustainable Development Goal (SDG) established by the United Nations, Zero Hunger, aims to eradicate hunger by enhancing food security through various initiatives focusing on the four pillars: availability, access, utilization, and stability (United Nations, n.d.).

In the context of the Philippines, bread is a significant source of energy, particularly among working adults, as identified by Angeles (2020). This reliance on bread has led to substantial wheat flour consumption, with the Philippines importing 6.5 million tons of wheat from 2023 to 2024 to meet demand (Redy, 2023). To mitigate these high import rates, there is a pressing need to explore sustainable alternatives available locally.

One promising alternative is the sago palm, locally known as ambulong (*Metroxylon sagu Rottb*), which thrives in the lowland freshwater swamps of Aklan, Philippines (Lim, W. L., Chung, H.H., Hussain, H., and Bujang, K., 2019). Despite its abundance, ambulong remains underutilized as a flour substitute. Estimates suggest that 800,000 to 1.4 million hectares of harvestable ambulong are available nationwide. Recognizing its high starch content, a Sunstar article (2023) highlighted that ambulong could significantly improve rural living conditions and alleviate food shortages if utilized in baking.

Aligning with the research agenda on innovative food products and countryside development (DOST-HNRDA, 2017-2022), the preparation of cookies using ambulong starch is a step towards promoting agro-processing, utilization, and value addition of local resources. Specifically, this study focuses on the underutilized ambulong starch.

Aklan State University's Research and Development Services (RDS) conducted a study on the development and sensory analysis of ambulong cookies. The product's composition and process were registered with the Intellectual Property Office of the Philippines (IPOPHL), with certificate numbers 2-2018000120 and 2-2018000121. A local bakery in Aklan adopted this technology, producing ambulong cookies for sale as snacks and pasalubong items. The bakery received positive feedback and suggested expanding the market to further promote Aklan's local products, through a community livelihood program.

Conducting a consumer acceptability test for sago cookies is crucial. This evaluation will provide valuable information to manufacturers in making informed dietary and gastronomic choices that meet the specific needs of the consumers. Additionally, incorporating the evaluation results on product labels will further assist consumers in their purchasing decisions and consumption patterns. Hence, the study is significant in designing a livelihood community livelihood community program.

STATEMENT OF THE PROBLEM

The study aims to determine the consumers' acceptability of sago (*Metroxylon Sagu Rottb*) cookies for sustainable local livelihood activity

Specifically, it sought to answer the following questions:

1. What is the profile of the respondents in terms?
2. What is the consumer's level of acceptance of the sensory property of sago cookies in terms of:
3. How does the consumer perceive the sago cookies in terms of:
 - 3.1. first reaction to the product
 - 3.2. quality of the product
 - 3.3. innovativeness of the product?
4. How likely are consumers to recommend the product to their colleagues?
5. What livelihood activity can be proposed based on the results of the study?

OBJECTIVES

The main objective of this study is to develop an innovative local product and determine its consumers' acceptability. The result of the study will be used as a basis for designing a community livelihood activity.

Research Design

The study applied the descriptive method of research involving description, encoding, analysis, and interpretation of conditions that existed during the time of the investigation.

Product Tasters/Participants

The tasters of the product, who participated in the study were composed of two hundred twenty (220) participants of the NSTW 2023. According to Stone and Sidel (1993), the increase in the number

of consumers compared to the laboratory test is necessary to counterbalance the expected increase in variability due to the inexperience of the consumer participants and the novelty situations. The tasters were recruited to participate in the evaluation in which most of them were intercepted at the exhibit area of ASU at the main S&T exhibit area at the ICON during the NSTW 2023. Purposive was employed in selecting the tasters.

Preparation of the Samples

The recipe for sago cookies was adopted from the composition and procedures of the ambulong cookies registered utility model for Aklan State University. The samples used were already analyzed at DOST VI-RSTL for proximate and nutritional facts. Below are the proximate analysis and nutritional facts of the cookies:

Parameter	Result (g/100g)
Moisture	1.97
Ash	1.51
Crude Protein	6.30
Total Fat	18.17
Carbohydrates	72.05
Total Sugars	28.01
Energy	477 kcal/100g
Sodium	253mg/100g

Proximate Analysis of Sagu (Ambulong) Cookies

Nutritional Facts of Sago (Ambulong) Cookies

Nutritional Facts	
Serving Size: 19 pieces (31g)	
No. of Serving per pack: about 4	
Amount per Serving	%RENI
Calories 150	6
Calories from Fat (kcal) 50	

After the cookies were done, it was then packed immediately in a plastic container weighing 34 grams/6 pcs per serving. It was then packed in a hard box, then sealed carefully to protect the samples from damage during transportation.

Data Gathering Procedures

Validated researcher-made survey questionnaires were used in the study. Content validation was conducted by five faculty members of ASU who are knowledgeable in marketing and product development.

Data Analysis

The data gathered were tallied and subjected to SPSS version 20 for analysis employing descriptive statistics such as frequency and percentage. Immanuel, A., Vimalnath, V., and Mrinalini, R. (2023) in their study, which identified and understood customer preferences in baked snacks, emphasized that analyzing customer feedback involves collecting data from various sources.

RESULTS AND DISCUSSIONS

A. Profile of the Tasters

In Category A, the results revealed that most of the tasters were female, 107 or 49%, while the male were 98 or 44%. The respondents were sampled indiscriminately.

Under Category B, the plurality of the tasters was aged 18-36 years old (younger adult), being 85 or 39%. Under Category C, it can be gleaned that a large number of the tasters belong to Class 2 occupation, 84 or 38%, persons who are engaged in skilled or semi-skilled work and not exposed to hazardous conditions. The data gathered indicate that the study utilized a diverse demographic in terms of gender, age, and occupation. This representation reflects the target consumers of the sago cookies.

B. Consumer's Level of Acceptance of the Sensory Quality of the Sago Cookies.

Appearance

Figure 1 presents the Consumer's Level of Acceptance of the sago cookies. First in figure 1 is the appearance of the cookies, it shows that a large percentage of the respondents expressed that they "like very much" the product, being 63 respondents or 29% of the sample.

Flavor

The next criteria is flavor, wherein most tasters rated the acceptability at "like very much", being 74 respondents or 34% of the sample. Next is "like moderately", being 58 or 26%. A small demographic expressed "dislike slightly", being 4 respondents or 2%.

Texture

When it comes to texture, the data reveals that a plurality of the tasters "like very much" the product, with 82 or 37% of them. This is followed by those who "like moderately", 60 or 27%. However, a minority of respondents "dislike slightly", 2 or 2%.

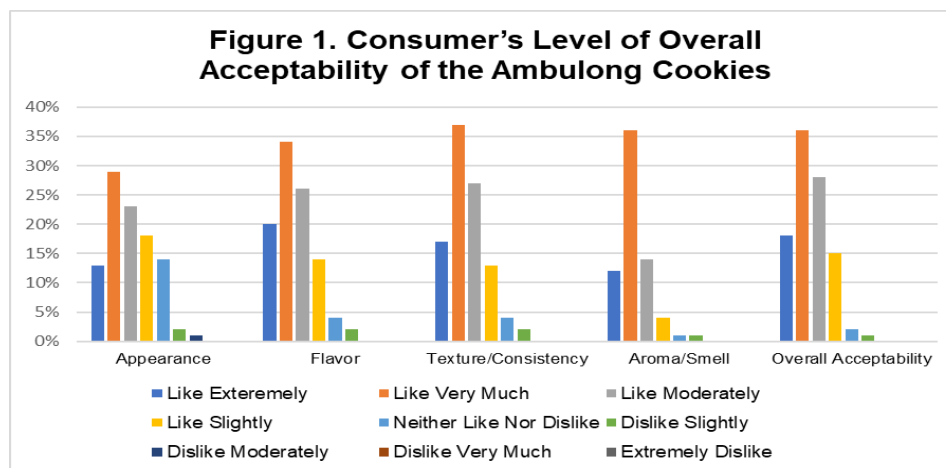
Aroma.

Consumer's Level of Acceptance of the Aroma of the sago Cookies, the level of "like very much" was expressed by most tasters, being 80 or 36

Overall Acceptability

Lastly, when it comes to the overall acceptability of the sago cookies, most of the tasters rated "like very much", being 80 or 36%.

Fig. 1. Consumer's Level of Acceptability of the Sago Cookies



C. Perception of Consumers on Sago Cookies

First Reaction on the quality of sago cookies exhibits the primary impression of the tasters upon encountering the product. A majority of the tasters had a very positive reaction, 120 or 55% of the sample.

Perception on the quality of the sago cookies, majority of the tasters expressed that they perceive the cookies as being “high quality”, 130 or 59%. This is then followed by a perception of “very high quality”, being 70 or 32

Assessment of the innovativeness of the sago cookies takes into consideration the innovativeness of the product. A majority of the tasters said that the product was very innovative, 128 or 58% of the sample. Second are those who expressed that the product was extremely innovative, being 72 or 33%.

D. Likelihood to Recommend Sago Cookies

Likelihood to Recommend Sago cookies, it can be seen that a majority of the tasters are very likely to recommend sago cookies to their peers and family, being 120 or 54% of the sample. The findings support the theory of reason action by Martin Fishbern and Ajzen as cited by Israel, P.R. (2022) that consumers act based on the intention to create or receive a particular outcome.

E. Proposed Livelihood Activity

The study unfolded that sago cookies have market potential. Considering that sago (ambulong) is abundant in the local community, a capability building on sago cookie preparations, packaging and marketing is a practical approach to be implemented to meet the needs of the partner community towards generating income. The Aklan State University has an engagement with the Peace Development Community (PDC), Cabugao, Ibajay, Aklan, The PDC is a community of rebel returnees, who started their integration into the communities and to be transformed into productive citizens and groups.

CONCLUSIONS

After performing the study, the gathered data shows that the 220 tasters exhibited overall acceptability or “like very much” when it comes to the sago cookies. This is gathered from their insights on the product in terms of appearance, flavor, texture, and aroma, wherein they expressed a high acceptability rating of “like very much” in all of the mentioned characteristics. When it comes to the perception of tasters on sago cookies, the respondents shared that most of them eat cookies at an average of three (3) times a week. In terms of their first reaction to the quality of the sago cookies, the majority of the sample inputted a “very positive” reaction. This initial impression is followed by their perception of the quality of the cookies post-consumption, wherein a vast majority recorded a rating of “high quality.” Likewise, a majority indicated that they viewed the product to be “very innovative.” Generally, sago cookies have market potential and can be a possible livelihood activity that can be implemented in the local community.

RECOMMENDATIONS

- This research produced a proposed community livelihood activity, thus the college may utilize this proposal in establishing partnership /engagement with the community in dire need of livelihood activity.
- Sago cookies must be subjected to toxicity and other related allergic reaction tests.
- 3. The conduct of cost analysis of the product in terms of Return of Working Capital may be done.
- 4. Further study along this line is recommended.

REFERENCES

Angeles, I. (2020). *Food Sources and nutrient intakes of Filipino working adults*. MDPI. Retrieved May 29, 2024, from <https://www.mdpi.com/2072-6643/12/4/1009>

Department of Science and Technology -HNRDA,2017-2022

Editorial: Food insecurity.(2023). Sunstar.https://www.sunstar.com.ph/cebu/opinion/editorial-food-insecurity#google_vignette

Fishbein, M. and Ajzen, I. (1977). Theory of reason action (TRA). Retrieved November 11, 2019 from <https://phipapers.org>

Immanuel, A Vilmalnath, V. and Mrinalini, R.(2023) Identifying and understanding customer preferences in baked products.International Journal of Research Publication and Reviews, Vol 4 no 7,pp 720-723 July 2023.www.ijrpr.com ISSN 2582-7421

Israel, P.R. (2022). Consumers acceptance testing of nipa (*Nypa fruticans*).marmalade filled roll (NMFR) for product development,*International Journal of Entrenuership and Sustainability Studies*.Vol.2,Issue 2.DOI:<https://doi.org/10-31098/jjeass.0212>

Lim, Whye Kit Leonard & Lim, Kit & Chung, Hung Hui & Hussain, Hasnain & Bujang, Kopli. (2019). Sago Palm (*Metroxylon sagu* Rottb.): Now and beyond. *Pertanika Journal of Tropical Agricultural Science*. 42. 435-451.

Philippine development plan 2017-2022-Abridge Version. National Economic Development Authority .www.neda.gov.ph

Redy, S. (2023). Focus on the Philippines. World-Grain. <https://www.world-grain.com/articles/18922-focus-on-the-philippines>

Stone, H. and Sidel, J. L. (1993). Affective testing in sensory evaluation practices. 2nd edition. Academic Press New York.

United Nations. (n.d.). The 17 Goals. United Nations. <https://sdgs.un.org/goals>