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POLICY BRIEF

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Strengthening the Safety of Processed Corn Ice Cream

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Key Findings and Policy Implications

- The Corn-based ice cream underwent microbial and sensory evaluation to ensure its safety and quality. Results showed that the product is microbiologically safe, with total plate counts well within acceptable limits and no harmful microorganisms detected. Over a 90-day period, no significant changes were observed in color, odor, sweetness, or flavor, proving its stability and shelf-life. Consumers rated the product from moderately acceptable to very much acceptable.
- The findings support the safe and stable quality of corn-based ice cream, making it a viable product for local livelihood initiatives. Policymakers are encouraged to promote its commercialization by supporting community-based production, providing food safety training, and ensuring adherence to standards like GMP and HACCP. With proper guidance and certification, corn ice cream can boost local entrepreneurship and add value to corn harvests.

Background

Corn is a staple crop in many Filipino communities and plays a vital role in local livelihoods. To make better use of this abundant resource, a unique product—corn-based ice cream—was developed as a nutritious and affordable treat. This innovation not only offers a new way to enjoy corn but also opens opportunities for small-scale businesses. Ensuring its safety and quality through proper testing is key to helping local producers bring it to market and turn it into a sustainable source of income.

Figure 1. Dr. Alfiler, the project proponent, scrapes Sweet Pearl F1 corn as a key ingredient for the ice cream.

Figure 2. Dr. Natividad, project member, assisting in the ice cream making process.

Research Objective

The rising demand for safe, healthy, and innovative food products challenges us to make better use of local crops. Corn, as one of the country's staple harvests, holds great promise for creating value-added products that not only support farmers but also promote sustainable livelihoods. By turning this staple into Sweet Pearl F1 corn ice cream, the study explored a unique and marketable product that could blend nutrition, innovation, and entrepreneurship.

The research looked into how long the formulated corn ice cream could remain safe and appealing for consumption as a basis for possible commercialization. It examined the product's microbial safety and evaluated its sensory qualities—appearance, color, odor, texture, sweetness, and its distinct corn-and-cream flavor—to determine its overall acceptability to consumers.

Methodology

The corn-based ice cream was prepared using locally sourced ingredients. It underwent laboratory testing to assess microbial safety and sensory stability. Microbial analysis included total plate count and detection of harmful bacteria such as coliforms, Salmonella, Staphylococcus aureus, and Listeria monocytogenes. Sensory evaluation was conducted over 90 days to observe changes in color, odor, sweetness, and flavor. Panelists also rated overall acceptability.

Below is a simplified visual of the process:

Table 1. Process Flow of ice cream Product Development.

Fomulation	• Corn ice cream prepared using local corn standard recipe
Microbial Testing	Total plate count, coliform, Salmonella, S. aureus, Listeria
Sensory Evaluation	Monitored for changes in color, odor, sweetness, flavor over 90 days
Acceptabliity Rating	Panelists scored product from moderate to very much acceptable.

Key Findings

The study found that Sweet Pearl F1 corn ice cream is safe to eat, enjoyable in taste and texture, and well-liked by consumers.

Figure 3. Key findings on the safety, taste, and consumer acceptability of Sweet Pearl F1 corn ice cream.

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Recommendations

1. Regulatory Approval- Seek certification from food safety regulatory agencies (FDA, DOST- FNRI, BFAD).

2. Product Commercialization- Partner with local and national food manufacturers to scale up production.

3. Market Expansion- Introduce the product into retail and institutional markets such as school and restaurants.

4. Ongoing Quality Monitoring- Establish a post- market surveillance system to ensure sustained product safety and quality.

Conclusions

The microbial analysis and sensory evaluation confirm that the formulated corn-based ice cream meets food safety standards and maintains its quality over a 90-day shelf-life period. With proper regulatory approval, the product is ready for commercial launch, offering new opportunity for local food entrepreneurs and corn farmers.

Regulatory and Legislative Agencies/ Organizations Benefiting from the Results

Figure 4. Packed Sweet Pearl F1 corn ice cream in cups, displayed at the Sarabo Booth in Andrews during the University Celebration

Figure 5. The OIC President of CSU and the CEO of Andrews Campus with the researchers.

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References

Christina T. Alfiler and Cristina B. Natividad (2024) Microbial analysis of corn-based ice cream; IJB,V25,N5,November,P27-37; https://innspub.net/microbial-analysis-of-corn-based-ice-cream/

Figure 6. Youth clients enjoying the Sweet Pearl F1 corn ice cream.

Figure 7. Packaged Sweet Pearl F1 corn ice cream on display during the University Celebration, ready to be enjoyed.

Figure 8. Flyers presenting the study and key details about the Sweet Pearl F1 corn ice cream.

EDITOR'S NOTE

This policy brief is based on results of the CSU-funded project "Microbial analysis of corn-based ice cream" The project was implemented by the Cagayan State University - Andrews Campus, Special Order number OP -5005-50-2003-02-892. The researchers are Dr. Christina Alfiler and Dr. Cristina Natividad.

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