Volume 4 | Issue 2 | Jul - Dec 2024
ISSN: 2984-9896

"Pasalubong ni JENA" Nutritional And Safety Profile Assesment of Peanut Candy With Cacao

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ABTRACT

Peanut, in the form of peanut candy, is a popular commodity in the Province of Cagayan. However, previous bakers have lacked comprehensive research on the nutritional value and food safety of peanut candy. The nutrition facts label helps consumers understand the nutritional content and safety profile of food. This study aimed to develop a new food product, including nutritional information and microbiological analysis, to ensure consumer safety. The product underwent tests like proximate composition for nutrition facts, antioxidant capacity using DPPH scavenging radical and microbial analysis. Sensory evaluation was utilized to determine the general acceptability of the developed food. Probability sampling was used, with 25 trained faculty and staff participating for sensory evaluation compared with the control. Proximate composition compared with control product have shown lower crude protein, fiber, fat, moisture, and ash content, compared to the peanut candy delight's 8.85% crude protein, 6.17% fiber, 15.15% crude fat, 7.87% moisture, and 1.57% ash. The Peanut Candy Delight with Cacao and control product was found out to be negative in yeast, molds, and salmonella. Computed nutrition facts of peanut candy has 6.0 number of servings per container, it has 50 grams of serving size. Peanut Candy has energy (kcal) 219, energy from fat (kcal) 68, total fat (g) 8 , total carbohydrates (g) 33, crude fiber (g) 3, and total protein (g) 4. The peanut candy delight with cacao, is comparable with control in terms of protein, fat, fiber, moisture, and ash, but has a significant sensory difference.

Keywords: *DPPH Scavenging Potential, Microbial analysis, Nutrition facts, Proximate composition*

INTRODUCTION

Maintaining safe and nutritious food is key to sustaining life and promoting good health. Peanut (Arachis hypogea) has been a popular crop in the Philippines since the Spanish era. It is one of the most important field legumes grown by farmers, but its yield has been low and erratic. Peanut, in the form of peanut candy, is a popular commodity in the Province of Cagayan.

According to Philippine Council for Agricultural, Forestry and Natural Resources Research and Development (PCARRD, 2020) among the provinces in the Philippines, Cagayan Valley region produced almost half of the country's total peanut production. Peanut candy became popular due to the unexpected taste sensation produced by combining peanuts and sweet flavors. The history of peanut brittle is tied to Tony Beaver (2020), a lumberjack folk hero. In the story, Tony Beaver creates peanut brittle when he stops a flood using peanuts and molasses. According to the history of peanut brittle candy, brittle was probably the first candy ever made.

Peanut candy is a classic sweet that is both nutritious and delectable, unlike the common peanut brittle. It also has a simple recipe to follow. However, previous bakers lacked comprehensive research on the nutritional value and food safety of peanut candy. Bakers produced a peanut candy last October by Michelle et al. (2012) but is lacking nutritional profile and safety and further test for general acceptability.

The nutrition facts label helps consumers understand the nutritional content and safety profile of food. The nutrition facts label is a valuable tool to help people become more informed about the nutritional content, which includes serving size, number of servings in the package, calories per serving, and the amount of various nutrients contained in the peanut candy. This information is useful in choosing healthier foods and reducing the risk of diet related chronic disease. Unsafe food containing food allergies, harmful bacteria, and chemical substances can pose a risk to consumers. The researchers wants to study these problems to protect bakers and consumers.

With this knowledge gap, this study aims to improve the previous peanut candy by adding cacao. Cacao is the niche product of Cagayan State University-Lasam Campus. The analysis of peanut candy with cacao's nutritional and safety profile can be very beneficial to customers and makers. Essentially, the product's nutrient features of note include the blend of peanuts, cacao, among others which may help individuals understand its worth in terms of diet.

The safety evaluation in terms of microbial analysis could highlight any possible risks from ingredients or ways of processing used for the candy causing accidents. This knowledge would then direct manufacturers how to go about ensuring their products conform to the required regulations as well as meeting customer needs.

On the whole, this research can support creation of a safe and healthy peanut candy with cacao and, at the same time, enhance consumer awareness and promote responsible production methods.

Objectives of the Study

Generally, the study aimed to determine the nutritional and safety profile of peanut candy delight.

Specifically, it sought to:

1. Determine the nutrition facts of peanut candy delight with cacao in terms of:
   a. Proximate Composition
   b. Serving Size and Nutrition Facts Determination
2. Determine the antioxidant potential of peanut candy delight with cacao:
3. Determine the level of microbial content in terms of:
   a. Yeast
   b. Aflatoxin
   c. Salmonella
4. Compare the developed product and the existing product in terms of:
   a. Appearance
   b. Aroma
   c. Taste
   d. Texture
   e. Mouthfeel
   f. General acceptability

MATERIALS AND METHODS

Research Design

The study utilized a descriptive-quantitative research design specifically for food product development. To ensure the food safety of the products, the peanut candy delight underwent a series of tests, including nutrition facts, microbial analysis, and proximate composition that determined the amount of crude protein, crude fiber, crude fat, moisture, and ash.

Sampling Technique

The study utilized probability sampling. Out of fifty (50), random participants comprising twenty (25) trained faculty and staff became the sensory evaluators. Prior to the conduct of the study, an informed conset form was given to the participants. The faculty and staff are chosen as participants because many of them already have knowledge and experience in food sensory analysis in Lasam Insitute of Technology-TESDA at Nabannagan West, Lasam, Cagayan. Further, their comments and suggestions help our research to improve our product. The participants that answered the question that the researcher gave used the data analyzed by the researcher

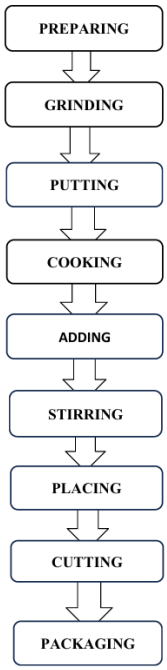
Locale of the study

The standardization of peanut candy delight that conducted at the CagayanStateUniversity-Lasam Campus. The materials that were utilized are purchased at CentroPublicMarket, and the preparation was conducted at the Cacao Food Processing Center of theUniversity. The evaluators was faculty and staff in Lasam Insitute of Technology-TESDA.

Formulation of the Product

The study used fresh peanut seed and cacao chocolate as the raw materials. The ingredients and materials was purchased at the public market. Then, the other materials was brought by the researchers. The following succeeding procedures was done for the conduct of the study: (1) preparing the tools and ingredient, (2) grinding the peanut in the electric food processor, and if the texture is fine, they are placed in a mixing bowl. (3) Putting the grinned peanuts in the pot, (4) cooking them over a medium-low fire. (5) Adding the condensed milk, sugar, and cacao powder. (6) Stirring well to avoid burning until the peanuts are cooked. (7) Placing on a baking sheet and kneaded to form a flat shape. (8) Cutting it into pieces of the same size, wrap it with baking paper, and (9) packaging it in container.

Flowchart of the Methodology :



Nutrition Facts Determination

One (1) glass of 300 grams peanut candy with cacao was sent to the SGS Regional Food Technology Development and Incubation Center. The proximate components of the sample were determined using established methods for crude protein, crude fiber, crude fat, moisture and ash. In addition, the serving size, number of servings per container, and nutrition facts for each sample were calculated.

Analysis of crude protein

The food material was weighed precisely and placed in a Kjeldahl flask. Acid and a catalyst were added to the flask to completely and clearly break down all organic materials.

Nonvolatile ammonium sulfate is formed when nitrogen and sulfuric acid react. The digest is diluted with 100 ml of water. Twenty grams (20g) of sodium thiosulfate, an alkali, is added to neutralize the sulfuric acid. The ammonia produced is distilled into a boric acid solution containing the indicators methylene blue and methyl red (AOAC Method 991.20). The borate anion is titrated with standardized HCl in proportion to its nitrogen content. A reagent blank was run to subtract reagent nitrogen from sample nitrogen. A factor is used to convert percent N to percent crude protein. Because proteins contain 13.31% nitrogen, the conversion factor is 7.51 (100/13.31=7.51).

Analysis of crude fiber and crude fat

Two fifty (250 grams) of the food product sample was grounded in a centrifugal mill with a 2mm screen or a cutter type (Wiley) mill with a 1mm screen. In the analysis, the filter bags were labeled with a solvent-resistant marker. The samples were weighed and recorded, beginning with the weight of each empty filter bag (W1) and ending with zeroing the balance. Serving Size and Nutrition facts Determination Based on the proximate composition result, the licensed technician assisted in the calculation of serving size and nutrifacts label at the Regional Food Technology Development and Incubation Center of the Department of Agriculture (DA) (RF02, Carig Sur, Tuguegarao City. The portion size was calculated using an analytical balance based on the number of servings per container.

DPPH ASSAY for Antioxidant Activity

In dark-colored flasks, 300 mL of 95% ethanol was combined with 100 grams of pulverized peanut candy delight with cacao before being kept at room temperature. The infusions were filtered through Whatman No. 1 filter paper after 24 hours, and the residue was then extracted again using the same amount of solvents. The procedure was repeated 48 hours later. Under vacuum and a temperature of 400C, combined supernatants were evaporated until dry. The obtained extracts were placed in sterile sample tubes and preserved at 4 0C in a refrigerator.

The 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay was used to evaluate the food product's capacity to neutralize DPPH free radicals with just modest modifications from the methods of Kurosamy et. al (2011) at the DOST-ITDI, Taguig City. By dissolving 0.1 to 0.5 g of extract in 100 mL of 95% ethanol, the stock solution of extract/s (20 mg/L) was created. Concentrations of 1023, 818, 614, 409, 205, 102, 41, 20, 10 and 5 µg /mL as ten dilutions were prepared in three trials with two duplicates to determine the trendline and concentration absorbance curve of antioxidant assay. A 1 mL ethanolic DPPH of concentration 1 mg/mL solution that different diluted solutions (each 1 mL) are added to. The concentration of the sample therein was analyzed by a UV-Vis spectrophotometer at 517 nm for 20 minutes in total darkness at room temperature. The only reagent not in the blank sample was extract.

Microbial Analysis

The food sample was also subjected for microbial assessment using Nissui Compact Dry Method at Regional Feed Chemical Analysis Departmet of Agriculture, Region-02.

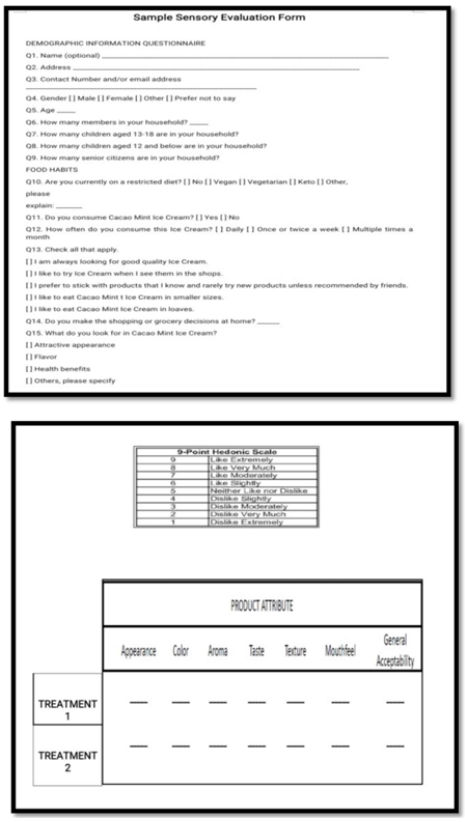
In homogeneous whole plates with nutrient agar specifically and separately for the growth of yeast and aflatoxin , two sets of two fifty (250) grams of each peanut candy delight 350 °C sample solution were incubated. The first set was incubated at 350°C for 2 hours. The plates were dyed with 1 mL of prepared tetrazolium salt solution after incubation. The presence of the microorganisms is indicated by the presence of red coloration.

The second set of peanut candy delight sample solutions were incubated for 32 hours at 24 hours in homogeneous whole plates with nutrient agar to test for the presence of Salmonella. The plates were dyed with one (1) mL of magenta-gal solution after incubation time. Values greater than 300 (>300) indicate

that the number of colony-forming units (CFUs) in the preparation dilution has exceeded the method detection limit. Values less than (1.0) indicate that the number of colony-forming units (CFUs) in the preparation dilution is below the method detection limit.

Data Gathering Procedure

Twenty-five (25) samples of products were sent for sensory evaluation. The evaluation of the characteristics of a food product as perceived by the five senses— appearance, aroma, taste, texture, mouthfeel, and general acceptability. Sensory evaluations based on aspect, appearance, texture, color, aroma, taste, mouthfeel an general acceptability were also be performed on each sample by a team of 50 untrained people using a hedonic scale from 9 to 1 on each sample (9, original characteristics ; 9 Like Extremely, 8 Like Very Much, 7 Like Moderately, 6 Like Slightly, 5 Neither Like nor Dislike, 4 Dislike Slightly, 3 Dislike Moderately, 2 Dislike Very Much, 1 Dislike Extremely.


Sample Sensory Evaluation Form

DEMOGRAPHIC INFORMATION QUESTIONNAIRE

Q1. Name (optional) _____

Q2. Address _____

Q3. Contact Number and/or email address _____

Q4. Gender [ ] Male [ ] Female [ ] Other [ ] Prefer not to say

Q5. Age _____

Q6. How many members in your household? _____

Q7. How many children aged 13-18 are in your household?

Q8. How many children aged 12 and below are in your household?

Q9. How many senior citizens are in your household?

FOOD HABITS

Q10. Are you currently on a restricted diet? [ ] No [ ] Vegan [ ] Vegetarian [ ] Keto [ ] Other, please explain: _____

Q11. Do you consume Cacao Mint Ice Cream? [ ] Yes [ ] No

Q12. How often do you consume this Ice Cream? [ ] Daily [ ] Once or twice a week [ ] Multiple times a month

Q13. Check all that apply.

[ ] I am always looking for good quality Ice Cream.

[ ] I like to try Ice Cream when I see them in the shops.

[ ] I prefer to stick with products that I know and rarely try new products unless recommended by friends.

[ ] I like to eat Cacao Mint t Ice Cream in smaller sizes.

[ ] I like to eat Cacao Mint Ice Cream in loaves.

Q14. Do you make the shopping or grocery decisions at home? _____

Q15. What do you look for in Cacao Mint Ice Cream?

[ ] Attractive appearance

[ ] Flavor

[ ] Health benefits

[ ] Others, please specify

9-Point Hedonic Scale

9	Like Extremely
8	Like Very Much
7	Like Moderately
6	Like Slightly
5	Neither Like nor Dislike
4	Dislike Slightly
3	Dislike Moderately
2	Dislike Very Much
1	Dislike Extremely

	PRODUCT ATTRIBUTE						
	Appearance	Color	Aroma	Taste	Texture	Mouthfeel	General Acceptability
TREATMENT 1	—	—	—	—	—	—	—
TREATMENT 2	—	—	—	—	—	—	—

Figure 2. Sensory Evaluation Form Adopted From Pacubat & Garcia (2020)

Analysis of the Data/ Statistical treatment

The scores from the sensory evaluation were tabulated and summarized. The mean, average, and standard deviation were calculated using SPSS version 20. An unpaired T-test of the average sensory scores was determined using the same calculator. The values are interpreted to see if there is a significant difference between the control and developed product at p = 0.01

RESULTS AND DISCUSSION

Control and Developed Product Formulation

Below is the table for the formulation of the control and experimental product. The control comprises of the following : 1000 grams of fresh peanut seeds, 250 grams of condensed milk, 120 grams of sugar, 20 grams of cacao powder, On the other hand, the developed comprises of the following : 1000 grams of peanut seeds, 25 grams water, 250 brown sugar, 120 grams butter, and 24 grams soda. These ingredients are also similar to the ingredients of McKee et al. (2003).

Table 1. Control and Developed Product Formulation

Control Product	Developed Product
Peanut Seeds – 1000 grams	Peanut Seeds - 1000 grams
Water - 25 grams	Doreen Condensed Milk – 250 grams
Brown sugar – 250 grams	Brown Sugar- 120 grams
Butter – 120 grams	Cacao Powder- 20 grams
Soda - 24 grams	

Proximate Composition of Peanut Candy Delight with Cacao

Table 2. shows the result of proximate analysis of peanut candy for crude protein. The peanut candy with cacao has higher crude protein content, 8.85 % while the peanut sweet candy has 4.11 %. In comparison of 2018 RENI PDRI reference male adult requirement of 19-29 years old, this crude protein is relatively low.

Table 2. Percentage Composition of Crude Protein in Peanut Candy

Peanut Candy Sample	Crude Protein (% in grams)
Peanut candy delight with cacao	8.85
Peanut Sweet Candies (Michelle, 2018)	4.11

Table 3. shows the result of proximate analysis of peanut candy for crude fiber. The peanut candy has 6.17 % while the peanut sweet candy has 2.21 % of crude fiber. This higher amount of crude fiber of the developed product is attributed to the cacao being added in the peanut candy.

Table 3. Percentage Composition of Crude Fiber in Peanut Candy.

Peanut Candy Sample	Crude Fiber (% in grams)
Peanut candy delight with cacao	6.17
Peanut Sweet Candies (Michelle, 2018)	2.21

Table 4. shows the result of proximate analysis of peanut candy for crude fat. The peanut candy has 8.15 % while the twin topp's has 10.43 %. In comparison of 2018 RENI PDRI reference male adult requirement of 19-29 years old, this crude fat for both food samples is moderately low.

Table 4. Percentage Composition of Crude fat in Peanut Candy

Peanut Candy Sample	Crude Fat (% in grams)
Peanut candy delight with cacao	8.15
Peanut Sweet Candies (Michelle,2018)	10.43

Table 5. Moisture is an important component of food. The peanut candy has 3.87 %. While the twin topp's has 3.18 % of moisture. In comparison of 2018 RENI PDRI reference male adult requirement of 19-29 years old, this crude moisture is very low. Hence, both of the food samples are not prone to microbial growth because of the relatively low moisture content.

Table 5. Percentage Composition of Moisture in Peanut Candy

Peanut Candy Sample	Moisture (% in grams)
Peanut candy delight with cacao	3.87
Peanut Sweet Candies (Michelle, 2018)	3.18

Table 6. shows the result of proximate analysis of peanut candy delight for ash. Ash is the collective mineral content of food samples. The peanut candy has 2.57 % the peanut sweet candy has 1.84 % of ash. The higher amount of ash content of the developed product is also attributed to the addition of cacao. This is similar to the study of Pacubat (2022), where the researcher obtained a relatively higher mineral content of banana bread added with cacao as compared with ordinary banana bread.

Table 6. Percentage Composition of Ash in Peanut Candy.

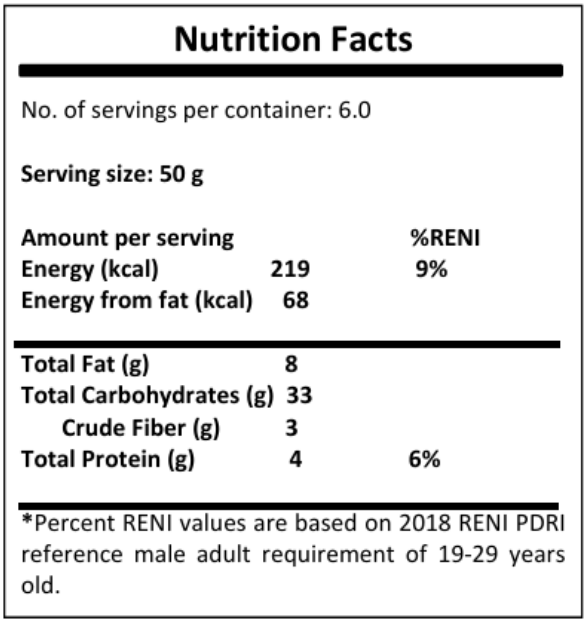
Peanut Candy Sample	Ash (% in grams)
Peanut candy delight with cacao	2.57
Peanut Sweet Candies (Michelle, 2018)	1.84

In summary, the proximate composition of the peanut candy delight with cacao samples can be gleaned on the table below.

Table 7. Summary of Proximate Composition in peanut candy delight.

Peanut Candy Sample	Crude Protein (%)	Crude Fiber (%)	Crude Fat (%)	Moisture (%)	Ash (%)
Peanut candy delight with cacao	8.85	6.17	15.15	7.87	1.57
Peanut Sweet Candies	4	1	1.8	1	1.84

Below is the calculated nutrition facts of peanut candy having 6.0 number of servings per container. It has 50 grams of serving size. Peanut Candy has energy (kcal) 219, energy from fat (kcal) 68, total fat (g) 8 , total carbohydrates (g) 33, crude fiber (g) 3, and total protein (g) 4.



Nutrition Facts

No. of servings per container: 6.0

Serving size: 50 g

Amount per serving		%RENI
Energy (kcal)	219	9%
Energy from fat (kcal)	68	
Total Fat (g)	8	
Total Carbohydrates (g)	33	
Crude Fiber (g)	3	
Total Protein (g)	4	6%

*Percent RENI values are based on 2018 RENI PDRI reference male adult requirement of 19-29 years old.

Figure 1. Nutrition Facts of Pasalubong ni JENA : Peanut Candy with Cacao

Antioxidant Potential of Peanut Candy with Cacao

Below is the concentration-absorbance curve of peanut candy with cacao. The curve follows a sigmoidal trend, hence the inhibition concentration 50 (IC50) can be computed. The antioxidant IC50 value of the sample can be gleaned on figure 2. This means that half of the DPPHradicals were scavenged at a concentration of 30.19 µg/mL. According to (Molyneux, 2004), a compound is classified as very strong when the IC50 value is 150 µg/mL. Accordingly, 30.19µg/mL is a low IC50 value, indicating that the peanut candy with cacao is a strong antioxidant as investigated in vitro. In general, the chart in figure 2 indicates that the specimen is rich in DPPH radicals which are typically found when there is an antioxidant. Comparing it with pure peanut (Arachis hypogea) extract, Alex et. al (2020) stated that the crude ethanolic extract has 42.8 µg/mL IC50. Hence, the peanut candy delight with cacao has a relatively lower and more potent antioxidant capability than peanut alone. The implication here is that such a specimen would serve well as a preventive measure for several chronic illnesses through prevention from inflammations caused by oxidation products.

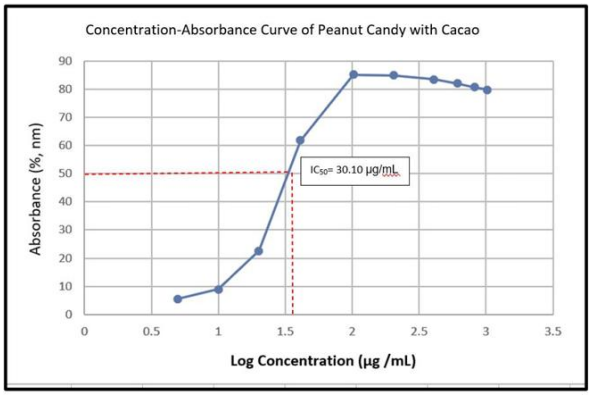


Figure 2. Inhibition Concentration (IC50) of Peanut Candy with Cacao

Microbial Assessment of Peanut Candy with Cacao

Table 8 shows the microbial assessment of peanut candy with cacao using Nissui Compact Dry. It can be gleaned on the table that yeast and aflatoxin was not detected on the samples. Further, Salmonella is said to be negative on the said samples. Based on the standard set by DA-RF02, values greater than 300 (>300) indicate that the number of colony forming units (CFU's) have exceeded the method detection limit for the prepared dilution while values less than one (<1.0) indicate that the number of colony-forming units (CFU's) are below the method detection limit for the prepared dilution. Hence, the developed food product is safe and hygienically prepared in terms of the said microbes.

Table 8. Microbial Assessment of Peanut Candy Delight with Cacao Sample

	Yeast	Aflatoxin	Salmonella
Peanut Candy with cacao	-	-	Negative

Sensory Evaluation of Peanut Candy Delight with Cacao

The appearance, color, aroma, taste, texture, mouthfeel and general acceptability was determined using a quality scoring designed by former researchers that is utilized in evaluating the peanut candy delight with cacao as

compared with control-peanut sweet candies. In terms of appearance, the developed product has higher rating, 7.7±1.14, than the control, 6.9±1.21. This trend can also be observed in color : 7.72±0.99, aroma : 8.16±0.93, taste : 8.4±0.75, texture : 7.62±1.08, mouthfeel : 8.08±1.0, and general acceptability : 8.18±0.94 of the peanut candy delight as compared with the control (color : 6.98±1.20, aroma : 6.62±1.32, taste : 6.2±1.66, texture : 6.74±1.38, mouthfeel : 6.3±1.83, and general acceptability : 6.56±1.84 respectively).

Table 9. Mean and Standard Deviation of Sensory Evaluation Parameters for Control and Developed Product

Product	Mean and SD						
	Appearance	Color	Aroma	Taste	Texture	Mouth Feel	General Acceptability
Peanut Candy Delight with Cacao	7.7±1.14	7.72±0.99	8.16±0.93	8.4±0.75	7.62±1.08	8.08±1.0	8.18±0.94
Peanut Sweet Candies	6.9±1.21	6.98±1.20	6.62±1.32	6.2±1.66	6.74±1.38	6.3±1.83	6.56±1.84

Table 10 shows the summary of the color, aroma, taste, texture, mouthfeel and general acceptability as determined using a quality score system adopted from Pacubat and Garcia (2020). A p-value of 0.01 was used to determine the T-test results for color, aroma, taste, texture, mouthfeel and general acceptability. The table shows that there is significant difference between the control and developed food product in terms of appearance (p=*0.000515735), color (p=*0.000561616), taste (p=*0.005795) and texture (p=*0.000306959). Hence, the developed food product is better in terms of said sensory criteria.

On the other hand, an observed no significant differences was seen on aroma (p=0.91396), mouthfeel (p=2.19817) and general acceptability (p=2.19). Hence, the developed product and existing product is the same based on the said sensory criteria.

Table 10. Summary of P-Values and Interpretation of Control and Developed Food Product on the Seven Sensory Criterion

Sensory Criterion	P-Value	Interpretation
1. Appearance	*0.000515735	There is a significant difference between the two products
2. Color	*0.000561616	There is a significant difference between the two products
3. Aroma	0.91396	There is no significant difference between the two products
4. Taste	*0.005795	There significant difference between the two products
5. Texture	*0.000306959	There is a significant difference between the two products
6. Mouth feel	2.19817	There is no significant difference between the two products
7. General acceptability	0.000234	There is a significant difference between the two products

** significant at a p<0.01*

CONCLUSIONS

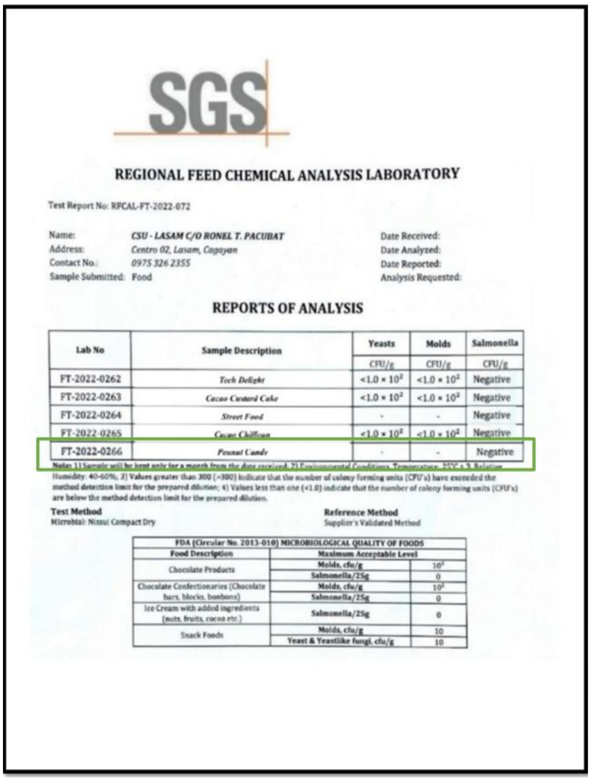
Based on the findings and series of tests, the innovative product is comparable to the established Peanut sweet candies. Peanut candy delight with cacao improved the proximate composition in terms of protein, fat, fiber, moisture, and ash. Microbial testing revealed that the innovative product is negative for yeast, aflatoxin, and salmonella. However, sensory evaluation of the products reveals a significant difference between the two criteria.

RECOMMENDATIONS

After conducting the study, the following recommendation can be done :

a. The researchers recommend that the developed product must have shelf-life analysis.
b. The researchers recommend that the product must have suitable and presentable packaging.
c. The researchers recommend to future researchers that they may improve the ingredients for catering different market segments.
d. The researchers recommend that the product must have reference range of sugar for kids, adults, and senior citizen.

Appendices



SGS

REGIONAL FEED CHEMICAL ANALYSIS LABORATORY

Test Report No: RFCAL-FT-2022-072

Name: *CSU - LASAM C/O RONEL T. PACUBAT*
Address: *Centro 02, Lasam, Cagayan*
Contact No.: *0975 326 2355*
Sample Submitted: Food

Date Received:
Date Analyzed:
Date Reported:
Analysis Requested:

REPORTS OF ANALYSIS

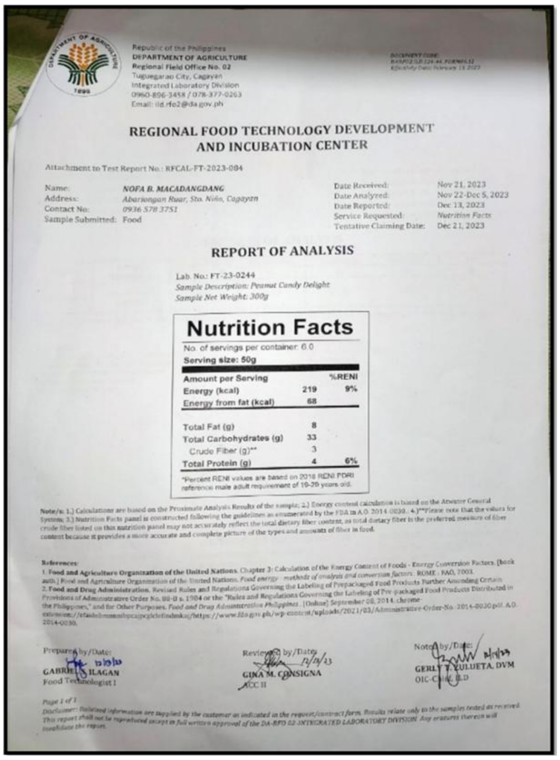
Lab No	Sample Description	Yeasts	Molds	Salmonella
		CFU/g	CFU/g	CFU/g
FT-2022-0262	*Tech Delight*	$<1.0 \times 10^2$	$<1.0 \times 10^2$	Negative
FT-2022-0263	*Cacao Custard Cake*	$<1.0 \times 10^2$	$<1.0 \times 10^2$	Negative
FT-2022-0264	*Street Food*	-	-	Negative
FT-2022-0265	*Cacao Chiffon*	$<1.0 \times 10^2$	$<1.0 \times 10^2$	Negative
FT-2022-0266	*Peanut Candy*	-	-	Negative

Note: 1) Sample will be kept only for a month from the date received; 2) Environmental Conditions: Temperature: 25°C ± 3, Relative Humidity: 40-60%; 3) Values greater than 300 (>300) indicate that the number of colony forming units (CFU's) have exceeded the method detection limit for the prepared dilution; 4) Values less than one (<1.0) indicate that the number of colony forming units (CFU's) are below the method detection limit for the prepared dilution.

Test Method
Microbial: Nissui Compact Dry

Reference Method
Supplier's Validated Method

FDA (Circular No. 2013-010) MICROBIOLOGICAL QUALITY OF FOODS		
Food Description	Maximum Acceptable Level	
Chocolate Products	Molds, cfu/g	10^2
	Salmonella/25g	0
Chocolate Confectionaries (Chocolate bars, blocks, bonbons)	Molds, cfu/g	10^2
	Salmonella/25g	0
Ice Cream with added ingredients (nuts, fruits, cocoa etc.)	Salmonella/25g	0
Snack Foods	Molds, cfu/g	10
	Yeast & Yeastlike fungi, cfu/g	10



Republic of the Philippines
DEPARTMENT OF AGRICULTURE
Regional Field Office No. 02
Tuguegarao City, Cagayan
Integrated Laboratory Division
0960-896-3458 / 078-377-0263
Email: ild.rfo2@da.gov.ph

REGIONAL FOOD TECHNOLOGY DEVELOPMENT AND INCUBATION CENTER

Attachment to Test Report No.: RFCAL-FT-2023-084

Name: *NOFA B. MACADANGDANG*
Address: *Abariongan Ruar, Sto. Niño, Cagayan*
Contact No: *0936 578 3751*
Sample Submitted: Food

Date Received: Nov 21, 2023
Date Analyzed: Nov 22-Dec 5, 2023
Date Reported: Dec 13, 2023
Service Requested: *Nutrition Facts*
Tentative Claiming Date: Dec 21, 2023

REPORT OF ANALYSIS

Lab. No.: FT-23-0244
Sample Description: Peanut Candy Delight
Sample Net Weight: 300g

Nutrition Facts

No. of servings per container: 6.0
Serving size: 50g

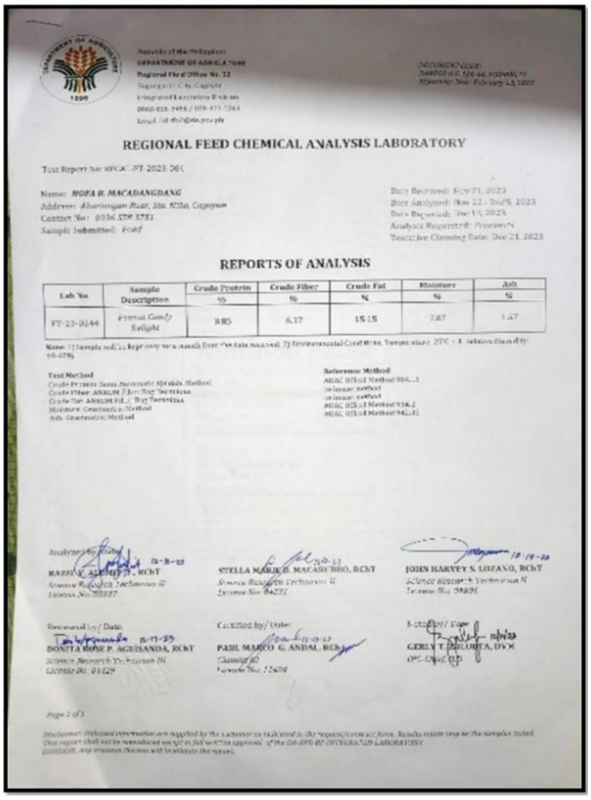
Amount per Serving		%RENI
Energy (kcal)	219	9%
Energy from fat (kcal)	68	
Total Fat (g)	8	
Total Carbohydrates (g)	33	
Crude Fiber (g)**	3	
Total Protein (g)	4	6%

*Percent RENI values are based on 2018 RENI PDRI reference male adult requirement of 19-29 years old.

Note/s: 1.) Calculations are based on the Proximate Analysis Results of the sample; 2.) Energy content calculation is based on the Atwater General System; 3.) Nutrition Facts panel is constructed following the guidelines as enumerated by the FDA in A.O. 2014-0030.; 4.) **Please note that the values for crude fiber listed on this nutrition panel may not accurately reflect the total dietary fiber content, as total dietary fiber is the preferred measure of fiber content because it provides a more accurate and complete picture of the types and amounts of fiber in food.

Prepared by/Date: GABRIEL S. ILAGAN, Food Technologist I
Reviewed by/Date: GINA M. CONSIGNA, ACC II
Noted by/Date: GERLY T. ZULUETA, DVM, OIC-Chief, ILD

Page 1 of 1



REGIONAL FEED CHEMICAL ANALYSIS LABORATORY

Name: *NOFA B. MACADANGDANG*
Sample Submitted: *Food*

Date Received: Nov 21, 2023
Date Analyzed: Nov 22 - Dec 5, 2023
Date Reported: Dec 13, 2023
Analysis Requested: Proximate
Tentative Claiming Date: Dec 21, 2023

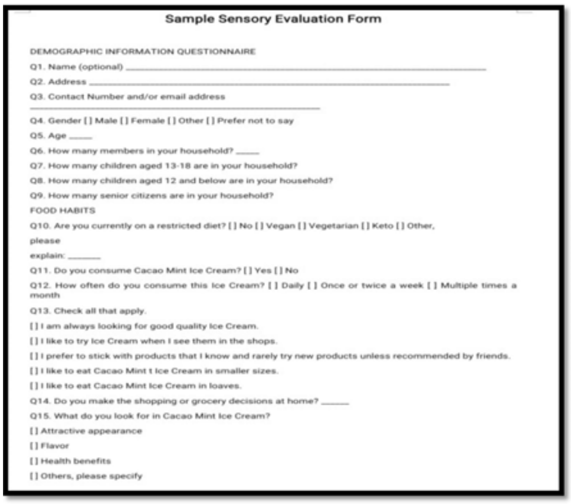
REPORTS OF ANALYSIS

Lab No	Sample Description	Crude Protein	Crude Fiber	Crude Fat	Moisture	Ash
		%	%	%	%	%
FT-23-0244	Peanut Candy Delight	8.85	6.17	15.15	7.87	1.57

Test Method

Reference Method

STELLA MARIE B. MACARUBBO, RChT
JOHN HARVEY S. LOZANO, RChT
DONITA ROSE P. AGUISANDA, RChT
PAUL MARCO G. ANDAL
GERLY T. ZULUETA, DVM



Sample Sensory Evaluation Form

DEMOGRAPHIC INFORMATION QUESTIONNAIRE

Q1. Name (optional) ____________________

Q2. Address ____________________

Q3. Contact Number and/or email address
____

Q4. Gender [ ] Male [ ] Female [ ] Other [ ] Prefer not to say

Q5. Age _____

Q6. How many members in your household? _____

Q7. How many children aged 13-18 are in your household?

Q8. How many children aged 12 and below are in your household?

Q9. How many senior citizens are in your household?

FOOD HABITS

Q10. Are you currently on a restricted diet? [ ] No [ ] Vegan [ ] Vegetarian [ ] Keto [ ] Other, please explain: _______

Q11. Do you consume Cacao Mint Ice Cream? [ ] Yes [ ] No

Q12. How often do you consume this Ice Cream? [ ] Daily [ ] Once or twice a week [ ] Multiple times a month

Q13. Check all that apply.

[ ] I am always looking for good quality Ice Cream.

[ ] I like to try Ice Cream when I see them in the shops.

[ ] I prefer to stick with products that I know and rarely try new products unless recommended by friends.

[ ] I like to eat Cacao Mint t Ice Cream in smaller sizes.

[ ] I like to eat Cacao Mint Ice Cream in loaves.

Q14. Do you make the shopping or grocery decisions at home? ______

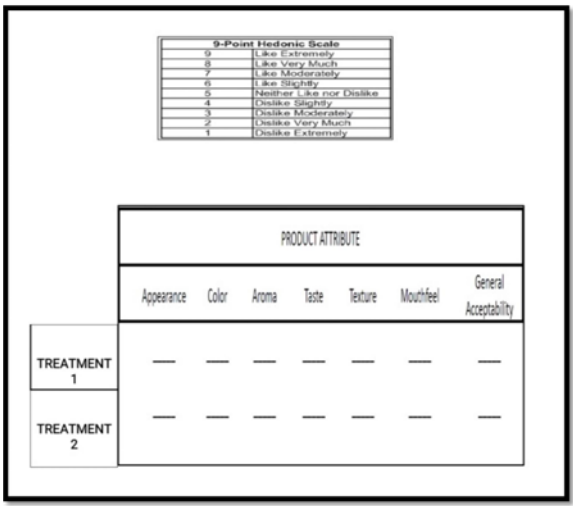
Q15. What do you look for in Cacao Mint Ice Cream?

[ ] Attractive appearance

[ ] Flavor

[ ] Health benefits

[ ] Others, please specify



9-Point Hedonic Scale	
9	Like Extremely
8	Like Very Much
7	Like Moderately
6	Like Slightly
5	Neither Like nor Dislike
4	Dislike Slightly
3	Dislike Moderately
2	Dislike Very Much
1	Dislike Extremely

	PRODUCT ATTRIBUTE						
	Appearance	Color	Aroma	Taste	Texture	Mouthfeel	General Acceptability
TREATMENT 1	—	—	—	—	—	—	—
TREATMENT 2	—	—	—	—	—	—	—

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ACKNOWLEDGEMENT

The researchers would like to thank those who contributed to the completion of this research. First and foremost, we would like to thank the CSU-Lasam and CSU ANDREWS for giving us this learning opportunity that helped us develop valuable life lessons of patience, perseverance, teamwork, and most of all, the endless pursuit of knowledge. We would also like to express our sincere gratitude to the following for extending and sharing their time in preparation for the study. To the Product Development Training Center, Campus Executive Officer Florante Victor M. Balatico, PhD and Ronel T. Pacubat, PhD, John Carlo L. Banan, MST, and to the faculty and staff of Cagayan State University Lasam Campus and Western Cagayan School of Arts and Trade, and to our dearest parents for their endless love and support