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DEVELOPMENT AND SENSORY EVALUATION OF GLUTEN FREE AIR-DRIED COCONUT FLOUR (*COCOS NUCIFERA L.) AS DOUGH*

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ABSTRACT

Nowadays, some of us seeks for a healthier foods and coconut flour is a gluten-free alternative that offers high fiber content and unique functional properties, making it suitable for various culinary applications. This quantitative research aimed to develop and evaluate the air dried coconut flour as empanada dough specifically, to evaluate the dough's color, texture, aroma, and taste. The study identified 30 respondents using the stratified random sampling and the project was evaluated using a 4 point Likert-scale. Data were analyzed using mean, ANOVA or analysis of variance at 0.05 level of significance and descriptive analysis was used to interpret the data. Results of the study showed that the requirements and specifications on the development of the empanada dough to enhance the taste, aroma, appearance, and texture. Additionally, the empanada dough can be used as breading or coating for empanada as it was assessed as "Very Much Acceptable" along taste, aroma, appearance, and texture. Results further show that there is no significant difference in the evaluation of the students, teachers, and bakers on the empanada dough.

KEYWORDS: *Coconut, Dough, Evaluation, Respondents, Wheat*

INTRODUCTION

The prevalence of gluten-related disorders (GRDs) has become a significant global health issue, affecting individuals worldwide. These disorders encompass a range of conditions, including Celiac Disease (CD), dermatitis herpetiformis (DH), gluten ataxia (GA), wheat allergy (WA), and non-celiac gluten sensitivity (NCGS). Each of these conditions presents with diverse clinical symptoms and can lead to serious health complications if left untreated

Coconut plantations are a less desirable and profitable option than crops like palm oil, which frequently receive more care. This issue has serious ramifications, particularly because Brazil, Indonesia, the Philippines, India, Sri Lanka, and the Philippines are the world's top producers of coconuts. Coconut cultivation is a vital business that sustains rural economies in these countries. The demand for coconut goods is rising worldwide, but supply cannot keep up with demand. Farmers and other producers must change and get ready for the difficulties and rising demand that lie ahead. Notably, the Coconut Knowledge Center states that smallholders, who produce more than 98% of the coconuts in Southeast Asia, are in direct competition with the palm oil sector (Hani, 2024).

According to Coconut – Industry Strategic Science and Technology Plans (ISPs) Platform the coconut industry is an important sector of agriculture in the Philippines. With 69 out of 82 provinces in the country producing coconut, the industry has a total production area of 3.62 million hectares and provides an estimate of 2.5 million farmers with employment. Philippines has over 347 million fruit-bearing trees and a total production of 14.7 million in 2018. As of 2015, domestic consumption of coconut in copra terms was 0.835 million metric tons. The Philippines also remains the second-largest producer of coconut among the Association of Southeast Asian Nations (ASEAN), wherein it comprises almost 40% of ASEAN's total coconut production (FAO Stat, 2018). Major producers of coconut in the Philippines includethe regions of CALABARZON, Zamboanga Peninsula, Davao, and Northern Mindanao. Moreover, Coconut is a very important crop for millions of people in tropical countries. With coconut, in vitro culture protocols have been developed with two main objectives. the large-scale production of particular types of coconuts and the international exchange and conservation of coconut germplasm. The methods described in this chapter have been developed in the framework of collaborative activities between research institutes in CÃ´te d'Ivoire and France (Engelmann et al. 2010).

In the study of Koppe, (2024) Ilocos empanadas are a well-liked local delicacy, especially those from Batac and Vigan. But the preparation is time-consuming and labor-intensive; each day, fresh rice wrappers must be made and deep-fried until crisp. The laborious technique of making the traditional Ilocos empanada is thought to be excessively meticulous for what is essentially street cuisine, raising concerns about its preservation. There are noticeable variations in the nutritional value, texture, flavor, and cooking techniques when using air-dried coconut flour in place of regular wheat flour in empanada dough. In addition to accommodating

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dietary restrictions, these versions put a distinctive spin on a traditional dish, making them accessible to people looking for low-carb or gluten-free options without sacrificing the flavor of empanadas.
This study aimed to develop and evaluate the air dried coconut flour as empanada dough specifically, to evaluate the dough's color, texture, aroma, and taste. This research is part of a broader effort to innovate in food products by utilizing coconut flour, which is known for its nutritional benefits, including higher fiber and protein content compared to wheat flour, and its suitability for gluten-free diets.

Statement of the Problem
This study aimed to develop and evaluate the air-dried coconut flour as empanada dough.
Specifically, this study aims to answer the following questions:
1. What are the specific requirements in making empanada dough?
2. What is the level of evaluation of the respondents of the empanada dough along: taste, aroma, appearance, and texture?
3. Are there any significant differences of the evaluation of the respondents of the empanada dough along: taste, aroma, appearance, and texture?

Null Hypothesis of the Study
There is no significant difference in the level of evaluation of the respondents along: taste, aroma, appearance and texture.

Significance of the Study
This research is beneficial to the following:

Bake Shops. They can expand their product offerings by introducing gluten-free empanadas, attracting health-conscious customers.

Coconut Palm Owner. Providing coconut palm owners with additional income streams through the sale of raw materials.

Consumers. Gain access to healthier food options, as coconut flour is rich in fiber and nutrients, supporting better dietary choices.

Department of Agriculture. It provides employment to millions, with 69 out of 82 provinces in the Philippines engaged in coconut production.

Future Researchers. Provides a basis for future research on alternative flours, gluten-free products, and their applications in various culinary contexts.

School. They can incorporate this study into educational programs about nutrition, promoting healthier eating habits among students.

Scope and Delimitation of the Study
This study focused in the development and evaluation of air-dried coconut flour as empanada dough. This study was conducted at Quirino General High School, Zamora, Cabarroguis, Quirino School Year 2024-2025. The thirty respondents which included: 10 TLE-H.E teachers, 10 TVL H.E major students, and 10 bakers serves as the respondents to determine the level of evaluation and significant difference on the empanada dough in terms of taste, aroma, color, and texture.

Furthermore, this study was delimited to the evaluation of the empanada dough in terms of taste, aroma, appearance, and texture. It was delimited to the use of air-dried coconut flour in making empanada dough.

THEORETICAL/CONCEPTUAL FRAMEWORK

Coconut flour is a byproduct of the coconut milk and oil business, coconut flour is created from the residual meal from processing coconuts. It is a great source of protein and dietary fiber, and its protein level (21.65%) is higher than that of wheat flour (9.90%). In addition, coconut flour has more fat (8.42%) and fiber (10.45%) than wheat flour (0.50% and 0.87%, respectively). Potential health benefits of coconut flour's fiber content include improved blood sugar control, calorie reduction, and healthy digestion. Conversely, wheat flour is a common ingredient in a lot of baked foods and is well-known for creating gluten, which helps give bread, cakes, and pastries their structure and texture. However, compared to coconut flour, wheat flour has less protein and fiber. Physically speaking, coconut flour absorbs more liquid than wheat flour, which might have an impact on baked items' moisture content and texture. Because of this, recipes calling for coconut flour might need to be modified to accommodate for the higher absorption of liquid. It has been possible to successfully use coconut flour into extruded goods, bakery goods, and classic confections including bread, crackers, and cookies. Additionally, it has been included into gluten-free goods including cookies and burfi, a customary Indian dessert (Karandeep et al. 2019).

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The conceptual framework is the IPO model which is the Input Process Output Model as shown in the diagram.

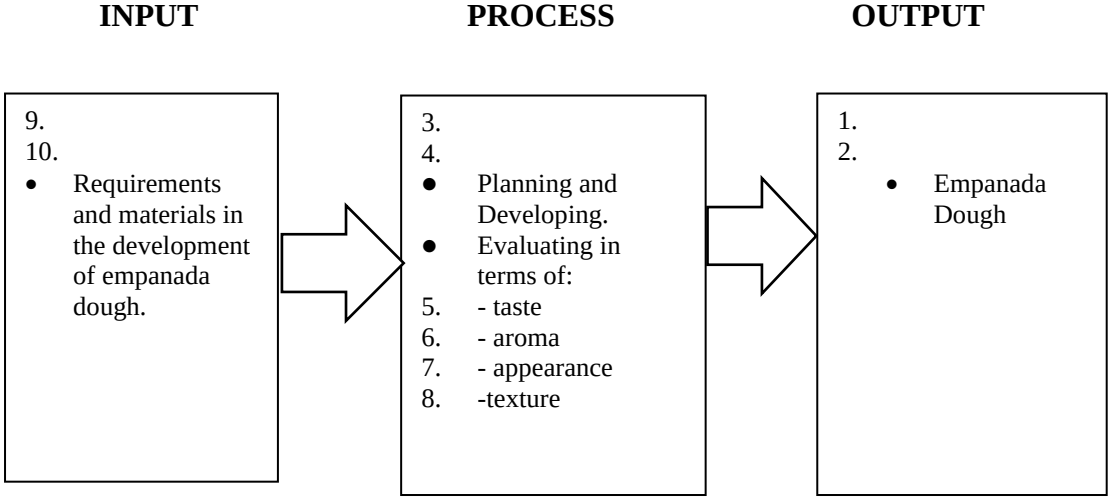


Figure 1. Research Paradigm

This study used the IPO model to better the development of air dried coconut flour as empanada dough. This involves a three-stage process.

The first stage is the input, which includes the requirements, and materials in the development of the empanada dough.

The second stage is the process, which involves the planning and developing, as well as evaluating the empanada dough in terms of taste, aroma, appearance, and texture. The result is the empanada dough.

RESEARCH METHODOLOGY

Research Design

This quantitative research aimed to test a theory or hypothesis depending on the findings, to either accept or reject it. When scientists want to comprehend data sets across time and spot trends, they employ quantitative data analysis. Usually, the domains of psychology, economics, sociology, and marketing employ this kind of study. A few essential processes are included in quantitative research approaches, as the image illustrates (Sreekumar, 2024).

Additionally, this study focused on development and evaluation of the empanada dough. Evaluators rated the following parameters namely: Taste, aroma, appearance, and texture using a 4-point Likert scale questionnaire. The researcher used the descriptive quantitative research design to quantify collected data and establish significant differences through statistical tools. Hence, the data obtained from the respondents through this design are by nature of comparing its result which can be represented numerically in the forms of table.

Research Environment

This study was conducted at Quirino General High School located in Zamora, Cabarroguis, Quirino.



Figure 2. Map of Quirino General High School

Respondents of the Study

The respondents of this is study is the 10 TLE-HE teachers, 10 TVL H.E major students, and 10 bakers in Cabarroguis.

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Table 1. Summary of Frequency and Percentage Distribution of Respondents

Respondents	Population	No. of Respondents	Percentage (%)
TVL H.E Major Students	40	10	33.33 %
TVL H.E Teachers	12	10	33.33 %
Bakers	17	10	33.33 %
Total	69	30	100 %

Table 1 presents the frequency and percentage distribution of respondents. Stratified random sampling will be employ in selecting the respondents. In this manner, from the total population of students enrolled in TVL-Home Economics major, out of 40 students enrolled in TVL Home economics, 10 students will be randomly selected to evaluate the improvised oven in terms of the set parameters. Moreover, out of 12 TVL H.E teachers, another 10 TLE teachers teaching home economics will be randomly selected, and out of 17 bakers, 10 of them were also part in the evaluation of the project with a total of 30 respondents.

Sampling Procedure

In this study the researcher used stratified sampling to select final participants from the several strata by branching off complete homogeneous groups or strata namely the students, teachers and bakers that were available during the conduct of the study. Respondents was randomly selected to complete the 10 respondents in each of the target participants. A population was separated into several subgroups, or strata, according to certain shared traits in stratified random sampling. Hence, the 10 respondents from each classification namely the students, teachers, and bakers was chosen randomly, merely by chance.

Research Instrument

This study used a structured questionnaire which was validated and checked by one language teacher one research expert and one statistician with a rating of 4.86, 5, and 4.72, respectively; with a mean evaluation of 4.86 and described as strongly agree. The questionnaire was composed of part I which is the classification of the respondents whether they are a student, teacher, or a baker. Moreover, the part II is the survey on the level of acceptability of empanada dough along taste, aroma, color, and texture, using the 4- point Likert scale.

Numerical Scale	Range	Qualitative Description	Level of Acceptability
4	3.50-4.00	Strongly Agree	Very Much Acceptable
3	2.50-3.49	Agree	Acceptable
2	1.50-2.49	Disagree	Unacceptable
1	1.00-1.49	Strongly Disagree	Very Much Unacceptable

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Data Gathering Procedure

The following served as the procedure in the development and evaluation of the empanada dough.

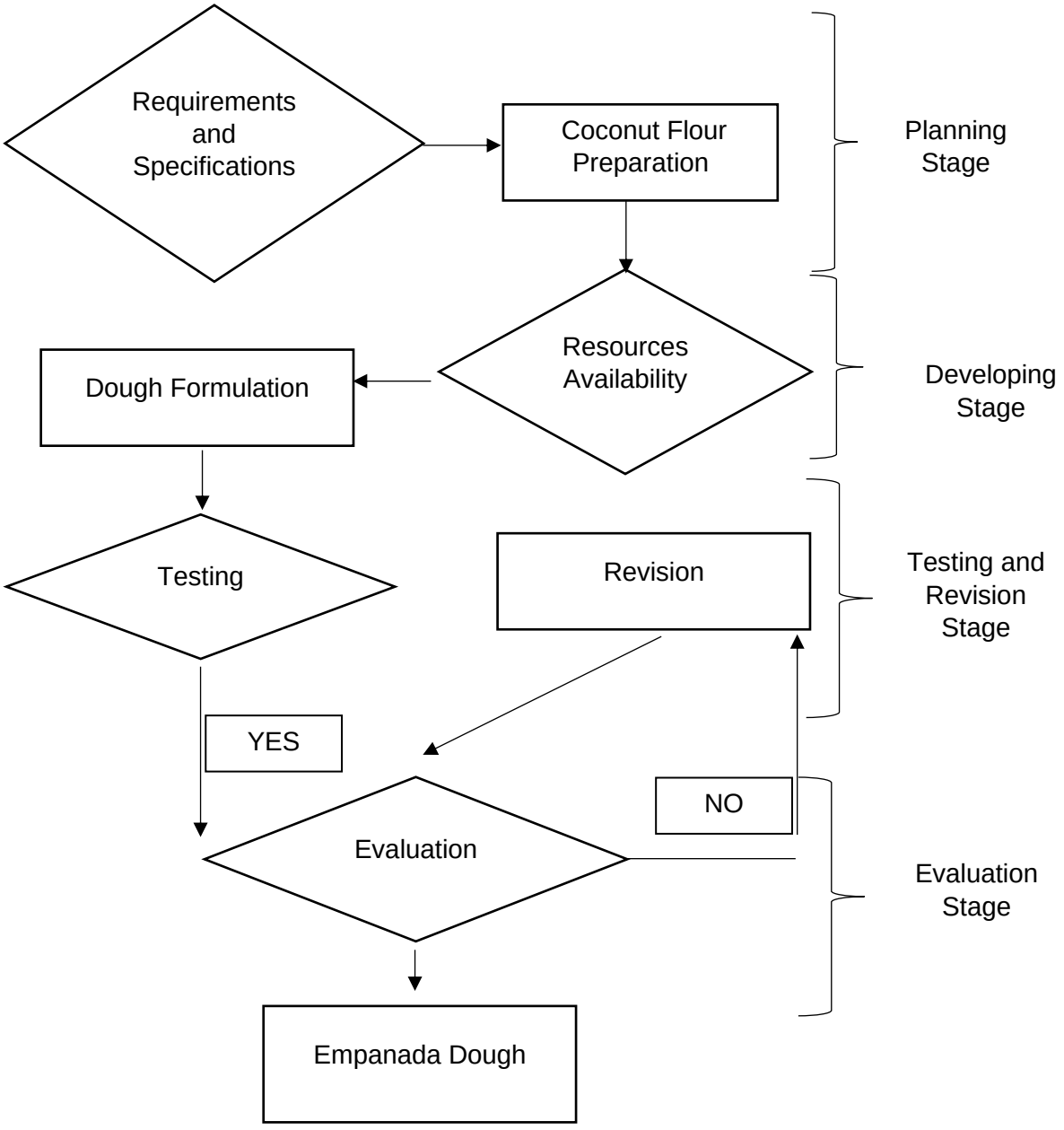


Figure 3. Product Development and Evaluation Method

This study adapted the Stage-gate type of Product Development method which generally follows sequential process to develop and launch the project. Each process is generally executed only after the end of its prior process with the established quality checks between processes. This study included the development, testing and evaluation to discover and eventually contribute to the body of knowledge thus providing facts in relation to the foregoing findings, studies, and theories (Ottoson, 2006).

1. Planning and Developing Stage. Based on the review of related literature and studies as well as the idea of the researcher and the pressing issue of the wastage of residual coconut meat. The researcher conceptualized the development of the empanada dough, and used the planning, development, testing and revising as well as the evaluation of empanada dough using the parameters namely the taste, aroma, appearance, and texture.
2. Developing Stage. All the materials, tools, and equipment needed in the coconut flour preparation and dough formulation were prepared in this stage.

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3. Evaluating Stage. Every feedback, idea, and advice was taken into consideration to enhance the final product. If the dough for the empanada needs to be revised, the entire process of creating the product was thought to have produced the desired results. The products taste, aroma, appearance, and texture will all be considered in its evaluation.
4. Revising Stage. The final result was improved in response to input from the first round of consultations, which included teachers, students, and bakers as the evaluators.

Lastly, the output of the study was developed which is the empanada dough.
1. Coconut Flour Preparation. All the materials that we will be using in this study is prepared such as 1 kilo of residual ground coconut meat to produce a sufficient amount for flour, using a tray for spreading the coconut to dry, leave the pulp to air dry in a cool, dry place for 72 hours or more until completely dry, once the ground coconut is completely dry and cooled, transfer it to a blender or food processor. Blend for 2-3 minutes until it reaches a fine powder consistency. If necessary, sift the flour to remove larger particles and blend again.
2. Formulation of Empanada Dough. To formulate air-dried coconut flour as empanada dough, we need 6 cups of coconut flour (air-dried) 200 grams' butter (unsalted) and 1/4 teaspoon of salt (rock salt). In a mixing bowl, combine the dry ingredients, mix well to ensure even distribution. Once the dough is combined, knead it gently with your hands until it becomes smooth and pliable.
3. Administration of the Evaluation Questionnaire. The survey questionnaire on the empanada dough was administered to the 30 respondents specifically the Grade 11 TVL students, TLE H.E teachers, and bakers. Specifically, the questionnaire will determine the level of evaluation of the empanada along taste, aroma, appearance, and texture.

Statistical Treatment of Data
Cronbach Alpha. This was used to assess the reliability of the survey questionnaires along the 4 parameters by comparing the amount of shared variance, or covariance, among the items making up an instrument to the amount of overall variance.

Weighted Mean. The weighted mean or average responses of the respondents (students, teachers and vendors) was used to determine the level of evaluation of the empanada dough along taste, aroma, appearance, and texture.

ANOVA. The ANOVA or Analysis of variance with a significance alpha level of 0.05 was used to determine significant differences on the evaluation of the empanada dough when grouped by students, teachers, and bakers.

RESULTS AND DISCUSSION

This chapter presents the data, findings, and discussion of the study titled, "Development and Evaluation of Air-Dried Coconut Flour (Cocos Nucifera L.) as Empanada Dough".

Problem 1: What are the specific requirements in making the empanada dough?

Table 2. Requirements and Specification on the Development of the Empanada Dough

Requirements and Specification				
Qty	**Unit**	**Material**	**Description**	**Cost (Php)**
6	Cups	Coconut Flour	Air-Dried	10.00
200	Grams	Butter	Unsalted	70.00
1/4	Tsp	Salt	Rock Salt	.33
		Total		80.33

Table 2 shows the requirements and specification on the development of the empanada dough: 6 cups of coconut flour (air-dried) amounting to 10.00 pesos, 200 grams' butter (unsalted) amounting to 70.00 pesos, and 1/4 teaspoon of salt (rock salt). Overall, the total expenses in producing 50 pcs of empanada dough is 80.33 pesos.
According to the requirements, the recipe highlights the use of high-quality products at an affordable cost. Unsalted butter and coconut flour indicate a focus on dietary or health-conscious results, which may appeal to customers seeking low-carb or gluten-free solutions. The careful ingredient selection and measurement demonstrate a desire to produce a finished product that is tasty and well-balanced.

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Problem 2: What is the level of evaluation of the respondents of the empanada dough along: taste, aroma, appearance, and texture?

Table 3. Summary of Respondents' Evaluation of the Empanada Dough in terms of Texture, Aroma, Appearance, and Texture.

Parameters	Bakers	Teachers	Students	Overall Mean
Taste	3.84 Very Much Acceptable	3.62 Very Much Acceptable	3.74 Very Much Acceptable	3.73 Very Much Acceptable
Aroma	3.9 Very Much Acceptable	3.8 Very Much Acceptable	3.76 Very Much Acceptable	3.82 Very Much Acceptable
Appearance	3.76 Very Much Acceptable	3.8 Very Much Acceptable	3.84 Very Much Acceptable	3.8 Very Much Acceptable
Texture	3.8 Very Much Acceptable	3.74 Very Much Acceptable	3.72 Very Much Acceptable	3.75 Very Much Acceptable
Overall Mean	3.83 Very Much Acceptable	3.74 Very Much Acceptable	3.77 Very Much Acceptable	3.78 Very Much Acceptable

Table 3 presents the summary of the respondents' evaluation on the empanada dough in terms of taste, aroma, texture and appearance. The table shows that the grand mean for each of the following parameters are: 3.73 for taste; 3.82 along aroma; 3.75 along texture; and 3.8 along appearance.

Meanwhile, the overall grand mean of bakers is 3.83, teachers is 3.74, and students is 3.78, which are all explained as "very much acceptable".

In summary, the respondent's evaluation on the empanada dough along taste, aroma, texture and appearance is very much acceptable.

Taste. It was concluded from the result that the respondents assessed the taste of empanada dough as "very much acceptable".

This suggest that the taste of empanada dough using air-dried coconut flour is pleasant and enjoyable to eat. The results also indicate the acceptance of the taste as a part of the development of the empanada dough.

Similarly, the result is similar to the study of Syahputri and Faridah (2023) that the method (X3) that they conducted which is the air- dried coconut flour had the best taste quality, scoring 3.73. According to this score, the respondents classified the taste as "savory" or "delicious". Also, this is also relevant to the study of Sari et al. (2024) the respondents gave the cookies made with a 25% desiccated coconut to 75% wheat flour ratio a taste score of 4.36, indicating a strong preference. This rating indicates that the cookies' flavor profile was well-liked and well-received. Lastly, the researcher evaluated the flavor of donuts prepared with varying amounts of coconut residue powder (CRP) in place of wheat flour. The control donut, lacking any CRP, achieved the top taste score, showing it was the most favored choice among the respondents (Eadmusik et al., 2022).

Aroma. The result indicates that all respondents rated the aroma of empanada dough as "very much acceptable". The entire sensory experience of this well-loved dish is greatly influenced by the aroma of the empanada dough. In addition to heightening the sense of anticipation for the meal, the aroma also serves as a reflection of the ingredients and cooking techniques.

Similarly, the sensory and functional qualities of empanada dough, especially its aroma, are greatly influenced by the addition of air-dried coconut flour (Ordoñez 2019). In the study of Makinde and Eyitayo (2019) shows that using coconut flour improves baked goods' overall sensory profile and adds to its desirable qualities, including texture, moisture retention, and scent.

Appearance. The result illustrates that all respondents assessed the appearance of empanada dough as "very much acceptable". One important factor that adds to the appeal of the dough is the way the dough for empanadas looks. The type of dough used and the preparation technique can affect the visual qualities, however there are a few common elements that determine its appearance.

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This is relevant to the study of Manikantan et al. (2016) at ideal moisture levels (about 4%), air-dried coconut flour shows better flow ability than greater moisture contents, which raise cohesion and the energy needed for flow. Similarly, in the study of Jongyingcharoen et al. (2019) their study discusses that the coconut residue looked much better after the drying process, and the flour was whiter than in the fresh samples. The overall quality of the air-dried coconut flour was improved by shorter drying times brought about by higher drying temperatures and thinner thicknesses.

Problem 3: Are there any significant differences of the evaluation of the respondents of the empanada dough along: taste, aroma, appearance, and texture?

The summary of results on the significant differences in the evaluation of the respondents on the empanada dough along taste, aroma, appearance, and texture is shown on the table.

Table 4. Summary of Computation on the Differences in the Evaluation of the

Component/ Variable	Groupings	Mean	Computed F-value	p-value	Remarks
Taste	Students	3.62	1.27461	0.326	Not Significant
	Teachers	3.74			
	Bakers	3.84			
Aroma	Students	3.80	0.65659	0.551	Not Significant
	Teachers	3.76			
	Bakers	3.90			
Appearance	Students	3.80	0.7792	0.559	Not Significant
	Teachers	3.84			
	Bakers	3.76			
Texture	Students	3.74	0.82529	0.593	Not Significant
	Teachers	3.72			
	Bakers	3.80			

Legend: p-value lower than .05 Reject Ho (Significant); p-value higher than .05 Accept Ho (Not Significant)

Table 4 illustrates the summary of computation on the differences in the evaluation of the respondents. The table indicates that all parameters presented a p-value higher than .05 level of significant. This means that the result is not significant. The results further show that there are no significant differences in the evaluation of the respondents on the empanada dough along taste, aroma, texture, and appearance.Thus, the null hypothesis is accepted.

Taste. Respondents rated the taste of the empanada dough as very much acceptable. Particularly, bakers gave the highest rating of evaluation with a 3.84 weighted mean, followed by teachers with a 3.74 weighted mean, and lastly, students with a 3.62 weighted mean, which indicates that there is no difference in the level of evaluation. Furthermore, the computed p-value is 0.326, which is higher than the .05 level of significance, this implies that it is not significant.

This could mean that the bakers and teachers have a higher level of evaluation compared to those students along the taste of the empanada dough.

Aroma. The satisfaction level of the respondents on the empanada dough along aroma is very much acceptable. Students and bakers gave the highest rating of evaluation along the aroma of empanada dough with a weighted mean 3.80 and 3.90, while the teachers have 3.76 weighted mean rating, which shows that there is no difference in the level of evaluation. Meanwhile, the computed p-value is 0.551 which is higher than .05 level of significance.

As a result, students and bakers are more satisfied in terms of aroma of the empanada dough than the teachers.

Appearance. The appearance was assessed as very much acceptable by the respondents. Teachers gave the highest rating of evaluation with a 3.84 weighted mean, followed by students with a 3.80 weighted mean, and lastly, bakers with a 3.76 weighted mean, which implies that there is no difference in the level of evaluation. In addition, the computed p-value is 0.559, which is higher than the .05 level of significance, this implies that it is not significant.

Generally, the teachers and students have a higher level of evaluation compared to those bakers along the appearance of the empanada dough.

Texture. The respondents found the texture of the empanada dough as very much acceptable; Although, teachers gave a lower evaluation with a 3.72 weighted mean, followed by students with a 3.74 weighted mean and bakers with a 3.80 weighted mean. On the other hand, the computed p-value is 0.593 which is higher than the .05 level of significance.

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The result means that there is no difference in the evaluation of the respondents on the empanada dough along texture. As a result, the null hypothesis is accepted.

SUMMARY, CONCLUSIONS, AND RECCOMENDATIONS

Summary of Findings

1. Specific requirements in producing empanada dough

Based on the findings, to develop a delicious, nourishing, and well-balanced product can be seen in the precise ingredient selection and measuring. By emphasizing premium, healthful ingredients like unsalted butter and air-dried coconut flour, this recipe appeals to consumers seeking low-carb or gluten-free options while maintaining cost. This calculated tactic makes the empanada dough a desirable option for people who are health-conscious without sacrificing taste or quality.

- 6 Cups air-dried coconut flour worth 10.00 Php
- 200 grams unsalted butter for 70.00 Php
- ¼ teaspoon rock salt worth .33 Php

This can produce 50 pcs of empanada dough for a total of 80.33 Php

2. Level of evaluation of respondents along taste, texture, aroma, and appearance.

The respondents made up of three sectors; students, teachers, and bakers. Meanwhile, the parameters of the evaluation of respondents includes 4 components:

2.1. In terms of taste, it gathered 3.73, which has a weighted mean interpretation of “Very Much Acceptable”.
2.2. In terms of aroma, it gathered 3.82, which has a weighted mean interpretation of “Very Much Acceptable”.
2.3. In terms of appearance, it gathered 3.8, which has a weighted mean interpretation of “Very Much Acceptable”.
2.4. In terms of texture, it gathered 3.75, which has a weighted mean interpretation of “Very Much Acceptable”.

The overall weighted mean is 3.78 which can be interpreted as “Very Much Acceptable”.

3. Significant difference of the level of evaluation of respondent difference along taste, aroma, appearance, and texture.

The respondents were divided into three groups: teachers, students, and bakers. On the other hand, the participants' evaluation criteria consist of four components:

3.1. In terms of taste, having the p-value of 0.326, with a remark of “Not Significant”.
3.2. In terms of aroma, having the p-value of 0.551, with a remark of “Not Significant”.
3.3. In terms of appearance, having the p-value of 0.559, with a remark of “Not Significant”.
3.4. In terms of aroma, having the p-value of 0.593, with a remark of “Not Significant”.

CONCLUSION

Based on the statement of the problems and summary of the findings the following conclusions are presented.

1. The specific requirements on the development of empanada dough in various features to enhance the taste, aroma, appearance, and texture. Using air-dried coconut flour to make the dough for empanadas is a considerate way to produce a tasty and healthy product. The parameters listed demonstrate the thorough selection of premium components, which include 200 grams of unsalted butter, 6 cups of coconut flour, and a little quantity of rock salt. The total cost of production for 50 pieces of empanada dough is 80.33 pesos.
2. The results of the study indicate that the finished product is really pleasant and appealing to the senses of the responders. It's very likely that the sensory taste, aroma, appearance, and texture are all satisfied.
3. The analysis of the differences in the evaluation of the empanada dough among respondents’ bakers, teachers, and students revealed that all parameters (taste, aroma, texture, and appearance) presented p-values higher than the 0.05 level of significance. This indicates that there are no significant differences in the evaluations across these groups, leading to the acceptance of the null hypothesis.

RECOMMENDATIONS

1. Using air-dried coconut flour to make empanada dough offers a great chance to produce a tasty and nourishing product that satisfies consumers' increasing desire for healthier food options. The recipe successfully satisfies customers looking for low-carb and gluten-free substitutes by emphasizing premium components like coconut flour and unsalted butter. Highlighted the significance of cost control, consumer education, product variety, sensory testing, and ingredient quality. By putting these tactics into practice, the empanada dough's overall quality and flavor profile will be improved, and its marketability among a variety of customer groups will also be increased.
2. The favorable comments emphasize the dough's pleasing flavor profile, enticing aroma, eye-catching look, and filling texture—all of which enhance the gastronomic pleasure. The regularity of these assessments indicates that using premium products, including unsalted butter and air-dried coconut flour, successfully satisfies the needs of health-conscious customers looking for low-carb and gluten-free solutions.

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3. The empanada dough's acceptability indicates that it successfully satisfies customer expectations in a number of sensory aspects, making it a promising product in the market. The encouraging comments demonstrate how air-dried coconut flour may be used to make a tasty and healthy substitute for regular empanada dough.
4. Nutrient analysis is the most favorable recommendation for checking the composition of food by determining the amounts of various nutrients, and benefits of the product. Moreover, this information is crucial for accurate food labeling, ensuring food safety, optimizing food production, developing balanced diets, and assist us in making informed choices about our food.

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