



UTILIZATION OF COTTON FRUIT (*SANDORICUM KOETJAPE*) IN THE PRODUCTION OF FORTIFIED LONGGANISA

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ABSTRACT

The objectives of this study were to develop a healthier version of longganisa by incorporating a local fruit, assess its acceptability, and evaluate the finished product in terms of taste, texture, appearance, and general acceptability. Sensory evaluation was conducted by ten expert food panelists using a 5-point Hedonic Scale. Panelists completed evaluation sheets to provide comments, recommendations, and rankings for the various cotton fruit-fortified longganisa treatments. The collected data were tabulated and analyzed statistically using mean and standard deviation. Analysis of Variance (ANOVA) was employed to identify significant differences among treatments. The sensory evaluation results indicated that treatment II, which included 300 grams of cotton fruit and 450 grams of lean pork, was the most acceptable in terms of taste, texture, appearance, and overall acceptability, with an overall mean score of 3.78. The addition of cotton fruit as a fortification ingredient in longganisa received a rating of "like slightly." No significant differences in taste were observed among treatments I, II, and III. However, treatment IV, containing 400 grams of cotton fruit and 350 grams of pork lean, had a significant effect on taste. There was no significant effect of the treatments on texture. Regarding appearance, no significant differences were found among treatments I, III, and IV, while treatment II had a significant effect on appearance. All four treatments were significantly associated with the general acceptability of the fortified longganisa.

KEYWORDS: Cotton Fruit (*Sandoricum Koetjape*), Fortified Longganisa, Sensory Acceptability, Food Fortification, Product Development, Functional Food.

INTRODUCTION

Background of the Study

Cotton fruit (*Sandoricum koetjape*) is a tropical fruit widely grown in Southeast Asia, especially in the Philippines, Indonesia, Malaysia, and Thailand. It belongs to the Meliaceae, or mahogany, family and is known for its sweet-and-sour taste. People usually eat it fresh and value it for its health benefits and nutrition. Cotton fruit is rich in vitamin C, minerals like calcium, phosphorus, and iron, and dietary fiber (Specialty Produce, 2019). These nutrients help with digestion, lower disease risk, and support overall health. Antioxidants and other active compounds in cotton fruit may also make it useful in alternative medicine. Because of its high nutritional value and the many varieties found in tropical areas, cotton fruit has strong potential for new food products and innovation in the food industry.

Processed meat products are very popular in the Philippines because they are convenient, affordable, and have a unique taste. Longganisa, a traditional Filipino sausage, is one of the most common processed meats. It is usually made by mixing ground pork with spices, sugar, and preservatives to enhance flavor and extend shelf life. However, as people become more concerned about health, there is a growing demand for healthier processed meat options. Many health-conscious consumers want choices that still have the taste, texture, and look of traditional products.

Food fortification and ingredient substitution are widely used strategies in the food processing industry to enhance the nutritional composition and functionality of products. There is growing interest in food fortification and ingredient substitution as common approaches to improving the

nutritional value and functionality of food products. More people are interested in adding fruits and vegetables to meat products to boost fiber, vitamins, minerals, and antioxidants. Egbert and Payne (2009) found that replacing certain animal ingredients with plant-based alternatives can improve food products and make them more appealing to consumers. Other studies also show that adding plant ingredients to processed meats can reduce fat and improve both how the product functions and how it tastes. In longganisa, the naturally sweet and mildly acidic flavor of cotton fruit could add complexity to the product's taste profile. Moreover, the nutritional components of cotton fruit, including vitamins, minerals, and dietary fiber, may enhance the nutritional value of longganisa. Using locally grown fruits, such as cotton fruit, can also support the development of innovative and sustainable food products while promoting the use of indigenous natural resources.

Consumer preference is a key factor in whether a new food product succeeds in the market. Sensory qualities such as taste, texture, appearance, aroma, and overall appeal are typically evaluated during product development. McEwan and Sharp (2000) point out that people often see healthier foods as less appealing than traditional ones. Because of this, it is important to test how much consumers like healthier versions of longganisa that use fruit-based ingredients. This includes checking taste, texture, appearance, and overall acceptability.

This study aimed to determine the acceptability of cotton fruit (*Sandoricum koetjape*) fortified longganisa in terms of taste, texture, appearance, and general acceptability. Specifically, the study sought to evaluate whether the incorporation of varying amounts of cotton fruit and pork lean could enhance the nutritional quality of longganisa while



maintaining desirable sensory properties acceptable to consumers.

Objectives of the Study

The study aimed to determine the acceptability of using cotton fruit (*Sandoricum koetjape*) as a fortifying ingredient in longganisa and to evaluate its acceptability among consumers. More specifically, the study aimed to:

1. Assess the acceptability of cotton fruit-fortified longganisa prepared with varying proportions of cotton fruit and pork lean: 250 grams of cotton fruit with 500 grams of pork lean, 300 grams with 450 grams, 350 grams with 400 grams, and 400 grams with 350 grams. The evaluation focused on taste, texture, appearance, and general acceptability.
2. Determine whether significant differences exist in the acceptability of cotton fruit-fortified longganisa prepared with 250 grams of cotton fruit and 500 grams of pork lean, 300 grams and 450 grams, 350 grams and 400 grams, and 400 grams and 350 grams, respectively, in terms of taste, texture, appearance, and general acceptability.

Statement of the Hypothesis

No significant differences exist in taste, texture, appearance, or general acceptability among cotton fruit-fortified longganisa samples prepared with varying amounts of cotton fruit and pork lean.

Significance of the Study

The findings of this study may benefit the following groups:

Students. The study may enhance students' understanding of healthier and innovative food products and serve as a guide for future experiments in food processing and product development.

Consumers. The study introduces a new processed meat product that incorporates additional nutrients from cotton fruit, while maintaining desirable taste and texture.

Food Industry. The study may assist the food industry in developing new, nutritious meat products utilizing local fruits as fortifying ingredients.

School Administrators. The study demonstrates institutional support for research and innovation in food technology and product development.

Future Researchers. The study may serve as a reference for subsequent research on meat product development and the application of cotton fruit in food processing.

Scope and Delimitation of the Study

This study investigated the incorporation of cotton fruit (*Sandoricum koetjape*) into longganisa. Product acceptability was evaluated in terms of taste, texture, appearance, and general acceptability, using varying amounts

of cotton fruit and pork lean. The research was conducted at Quirino State University, Diffun Campus.

Definition of Terms

Acceptability. It refers to the degree to which the evaluators liked the cotton fruit-fortified longganisa in terms of taste, texture, appearance, and general acceptability.

Appearance. It refers to the visual quality of the cotton fruit-fortified longganisa as evaluated by the respondents.

Cotton Fruit (*Sandoricum koetjape*). It refers to the fruit used as a fortifying ingredient in the preparation of longganisa in this study.

Evaluation. It refers to the process of assessing the quality and acceptability of the cotton fruit fortified longganisa.

Hedonic Scale. A scale used by evaluators to indicate their level of liking or disliking of the food product.

Longganisa. It refers to a Filipino sausage product fortified with cotton fruit, as used in this study.

Taste. It refers to the evaluators' flavor perception of the cotton fruit-fortified longganisa.

Texture. It refers to the mouthfeel and physical consistency of the cotton fruit fortified longganisa as perceived by the evaluators.

MATERIALS AND METHODS

Research Design

The study used an experimental research design to evaluate the acceptability of cotton fruit (*Sandoricum koetjape*)-fortified longganisa. This approach made it possible to change the independent variable and observe its effects on the dependent variable in a controlled setting. The researchers mixed different amounts of cotton fruit and pork lean into the longganisa to see how these changes affected taste, texture, appearance, and general acceptability.

The experimental method allowed the researchers to compare different versions of cotton fruit-fortified longganisa. They tested combinations such as 250 grams of cotton fruit with 500 grams of pork lean, 300 grams of cotton fruit with 450 grams of pork lean, 350 grams of cotton fruit with 400 grams of pork lean, and 400 grams of cotton fruit with 350 grams of pork lean. This helped them find out which recipe evaluators liked best based on taste, texture, appearance, and general acceptability.

Cook and Campbell (1979) explain that experimental research involves changing an independent variable to see how it affects dependent variables. This type of research is often used in food product development because it gives a structured way to test new foods. In this study, the independent variables were the amounts of lean pork and cotton fruit added to the longganisa, while the dependent variables were sensory qualities, including taste, texture, appearance, and general acceptance.

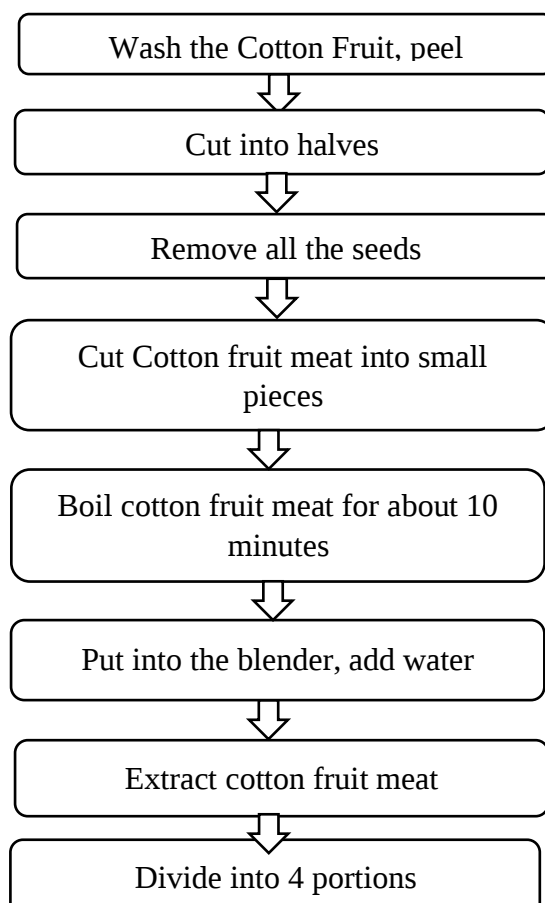


Ingredients:		
A. Non-Variable Ingredients		
Pork fat		250 grams
Salt		1 Tbsp
Curing Salt		½ Tsp
Phosphate		1 Tsp
Ascorbic Acid		¼ Tsp
Water		¼ Cup
Sugar		9-12 Tbsp or (3/4 Cup)
Black Pepper		1 Tsp
Garlic		2 Tbsp
Paprika Powder		1 Tsp
Soy Sauce		2 Tbsp
Anisado Wine		2 Tbsp
Pineapple Juice		2 Tbsp
B. Variable Ingredients		
Treatments		
Treatment I	250 grams Cotton fruit	500 grams Pork Lean
Treatment II	300 grams Cotton fruit	450 grams Pork Lean
Treatment III	350 grams Cotton fruit	400 grams Pork Lean
Treatment IV	400 grams Cotton fruit	350 grams Pork Lean

Materials

Chopping board	Food Turner	Measuring Cups
Knife	Gas Stove	Measuring Spoon
Mixing bowl	Frying Pan	Weighing Scale
Plastic gloves	Paperlyne	Serving plate
Strainer		

Process Flow



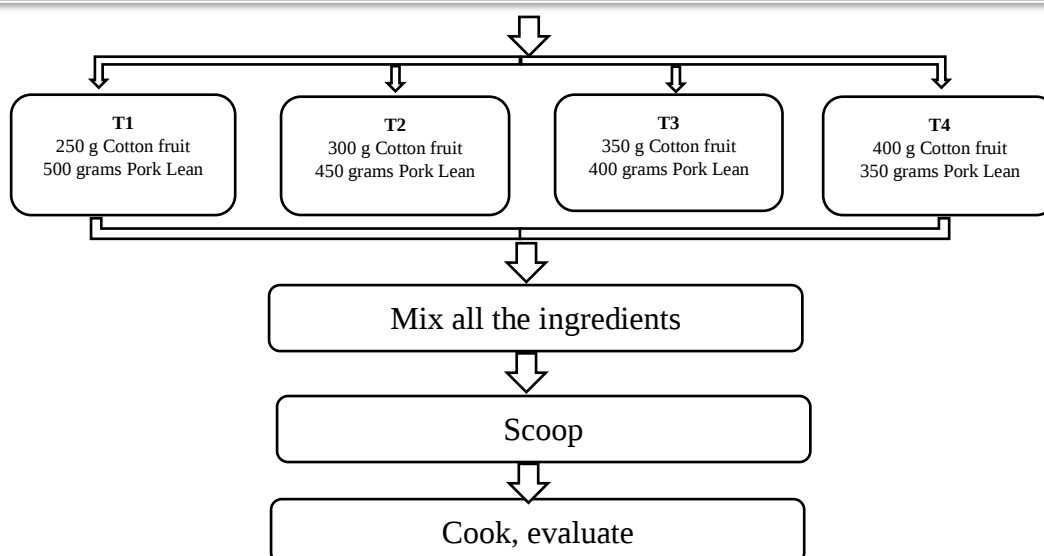


Figure 1. Schematic Diagram for the Preparation of Cotton Fruit Fortified Longganisa

Sensory Evaluators

An expert sampling technique was employed to select the sensory evaluators for this study. Expert sampling involves the selection of individuals with substantial knowledge, experience, and expertise in a specific field. According to The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation (2018), this method is effective for obtaining reliable judgments and valuable insights from individuals who are well-versed in the subject under investigation.

Ten faculty members from the Bachelor of Science in Hospitality Management (BSHM) and Bachelor of Science in Nutrition and Dietetics (BSND) programs at Quirino State University, Diffun Campus, were selected as evaluators. These individuals were considered knowledgeable and experienced in food preparation, food processing, and sensory evaluation. The evaluators assessed the acceptability of cotton fruit-fortified longganisa based on taste, texture, appearance, and general acceptability.

Data Gathering Instrument

A sensory evaluation sheet served as the primary research instrument for data collection. This instrument was designed to assess the acceptability of cotton fruit-fortified longganisa prepared with varying proportions: 250 grams of cotton fruit with 500 grams of pork lean, 300 grams of cotton fruit with 450 grams of pork lean, 350 grams of cotton fruit with 400 grams of pork lean, and 400 grams of cotton fruit with 350 grams of pork lean.

Sensory characteristics of the product were assessed using an instrument that included indicators for taste, texture, appearance, and general acceptability. To ensure validity and reliability, the evaluation sheet was modeled on the widely used

5-point Hedonic scale for food sensory evaluations, allowing evaluators to rate products based on their degree of liking or disliking for each characteristic.

Statistical Treatment of Data

Upon completion of the sensory evaluation sheets, data were tabulated, analyzed, and interpreted using appropriate statistical tools. The Statistical Package for the Social Sciences (SPSS) was employed to process the collected data.

The following statistical methods were applied in the study:

Mean and standard deviation were calculated to determine the level of acceptability of cotton fruit (*Sandoricum koetjape*)-fortified longganisa prepared with varying proportions: 250 grams of cotton fruit with 500 grams of pork lean, 300 grams of cotton fruit with 450 grams of pork lean, 350 grams of cotton fruit with 400 grams of pork lean, and 400 grams of cotton fruit with 350 grams of pork lean. These metrics were assessed in terms of taste, texture, appearance, and general acceptability.

Analysis of Variance (ANOVA) was conducted to determine whether significant differences existed among the treatments of cotton fruit-fortified longganisa in terms of taste, texture, appearance, and general acceptability. A significance level of 0.05 was applied.

Scoring and Data Interpretation

A 5-point hedonic scale was used to determine the acceptability of cotton fruit-fortified longganisa. Evaluator responses were summed, tabulated, and analyzed using mean and standard deviation to provide a descriptive interpretation of the product's acceptability.



RESULTS AND DISCUSSIONS

Qualitative description	Hedonic Scale	Mean ranges
Appearance, taste, texture, and general acceptability		
Like Extremely	5	4.50-5.0
Like Slightly	4	3.50-4.49
Neither like nor Dislike	3	2.50-3.49
Dislike Slightly	2	1.50-2.49
Dislike Extremely	1	1.0-1.49

Level of Acceptability

This study evaluated the acceptability of Cotton Fruit Fortified Longganisa using different cotton fruit to pork lean

ratios: 250g:500g, 300g:450g, 350g:400g, and 400g:350g. The evaluation considered taste, texture, appearance, and overall acceptability.

Table 1. Level of Acceptability of Cotton Fruit Fortified Longganisa using 250 grams of cotton fruit with 500 grams of pork lean in terms of Taste, Texture, Appearance, and General Acceptability.

Acceptability, 250 grams of cotton fruit with 500 grams of pork lean	Mean	Std. Deviation	Qualitative Description
Taste	2.70	1.059	Dislike Slightly
Texture	3.70	0.823	Like Slightly
Appearance	3.60	0.843	Like Slightly
General Acceptability	2.90	0.568	Neither like nor Dislike
Overall Mean	3.23	0.823	Neither like nor Dislike

Legend:

- 5 - Like Extremely
- 4 - Like Slightly
- 3 - Neither like nor Dislike
- 2 - Dislike Slightly
- 1 - Dislike Extremely

Table 1 shows the acceptability ratings for longganisa fortified with 250 grams of cotton fruit and 500 grams of pork lean, evaluated by taste, texture, appearance, and general acceptability. Texture and appearance were rated as “Like

Slightly,” general acceptability as “*Neither like nor Dislike*,” and taste as “*Dislike Slightly*.”

The overall mean score of 3.23 indicates that the product’s acceptability was rated as “*Neither like nor Dislike*.”

Table 2. Level of Acceptability of Cotton Fruit Fortified Longganisa using 300 grams of cotton fruit with 450 grams of pork lean in terms of Taste, Texture, Appearance, and General Acceptability.

Acceptability, 300 grams of cotton fruit with 450 grams of pork lean	Mean	Std. Deviation	Qualitative Description
Taste	3.70	0.949	Like Slightly
Texture	4.00	0.943	Like Slightly
Appearance	3.90	0.738	Like Slightly
General Acceptability	3.50	0.850	Like Slightly
Overall Mean	3.78	0.870	Like Slightly

Legend:

- 5 - Like Extremely
- 4 - Like Slightly
- 3 - Neither like nor Dislike
- 2 - Dislike Slightly
- 1 - Dislike Extremely

Table 2 presents the acceptability of cotton fruit fortified longganisa made with 300 grams of cotton fruit and 450 grams of pork lean in terms of taste, texture, appearance, and general acceptability. All these attributes were rated as “*Like Slightly*.”

The overall mean of 3.78 indicates that the acceptability of cotton fruit fortified longganisa with 300 grams of cotton fruit and 450 grams of pork lean was rated “*Like Slightly*” for taste, texture, appearance, and general acceptability



Table 3. Level of Acceptability of Cotton Fruit Fortified Longganisa using 350 grams of cotton fruit with 400 grams of pork lean in terms of Taste, Texture, Appearance, and General Acceptability.

Acceptability, 350 grams of cotton fruit with 400 grams of pork lean	Mean	Std. Deviation	Qualitative Description
Taste	3.20	0.789	Neither like nor Dislike
Texture	4.10	0.568	Like Slightly
Appearance	3.80	0.789	Like Slightly
General Acceptability	3.20	0.919	Neither like nor Dislike
Overall Mean	3.58	0.766	Like Slightly

Legend:

- 5 - Like Extremely
- 4 - Like Slightly
- 3 - Neither like nor Dislike
- 2 - Dislike Slightly
- 1 - Dislike Extremely

Table 3 shows the acceptability of longganisa fortified with 350 grams of cotton fruit and 400 grams of pork lean, evaluated by taste, texture, appearance, and overall acceptability. Texture and appearance were rated as “Like

Slightly,” while taste and general acceptability were rated as “Neither like nor Dislike.”

The overall mean score of 3.58 indicates that the product was generally rated as “Like Slightly.”

Table 4. Level of Acceptability of Cotton Fruit Fortified Longganisa using 400 grams of cotton fruit with 350 grams of pork lean in terms of Taste, Texture, Appearance, and General Acceptability.

Acceptability, 400 grams of cotton fruit with 350 grams of pork lean	Mean	Std. Deviation	Qualitative Description
Taste	3.40	0.966	Neither like nor Dislike
Texture	3.90	1.101	Like Slightly
Appearance	3.80	0.919	Like Slightly
General Acceptability	3.70	0.675	Like Slightly
Overall Mean	3.70	0.675	Like Slightly

Legend:

- 5 - Like Extremely
- 4 - Like Slightly
- 3 - Neither like nor Dislike
- 2 - Dislike Slightly
- 1 - Dislike Extremely

Table 4 shows the acceptability of cotton fruit fortified longganisa made with 400 grams of cotton fruit and 350 grams of pork lean, evaluated for taste, texture, appearance, and overall acceptability. Texture, appearance, and general acceptability were rated as *Like Slightly*, while taste was rated as *Neither Like nor Dislike*.

The overall mean score of 3.70 indicates that the product was generally rated as *Like Slightly* across all evaluated attributes.

Comparison of Cotton Fruit Fortified Longganisa According to Taste, Texture, Appearance, and General Acceptability

The following sections compare cotton fruit-fortified longganisa samples. Each sample contains varying ratios of cotton fruit and pork lean: 250 grams cotton fruit with 500 grams pork lean, 300 grams cotton fruit with 450 grams pork lean, 350 grams cotton fruit with 400 grams pork lean, and 400 grams cotton fruit with 350 grams pork lean. These samples are evaluated based on taste, texture, appearance, and general acceptability.



Table 5. Comparison of Cotton Fruit Fortified Longganisa Containing a Certain Amount of Cotton Fruit and Pork Lean According to Taste.

Taste		df	Mean Square	Computed F-value	Significance Level
TI-250 grams of cotton fruit with 500 grams of pork lean	Between Groups	9	1.122	1.02	0.41
	Within Groups	1			
	Total	10			
TII-300 grams of cotton fruit with 450 grams of pork lean	Between Groups	9	0.900	1.44	0.18
	Within Groups	1			
	Total	10			
TIII-350 grams of cotton fruit with 400 grams of pork lean	Between Groups	9	0.622	0.45	0.17
	Within Groups	1			
	Total	10			
TIV-400 grams of cotton fruit with 350 grams of pork lean	Between Groups	9	0.933	1.45	0.04
	Within Groups	1			
	Total	10			

Table 5 compares the taste of cotton fruit fortified longganisa with varying amounts of cotton fruit and pork lean. The sample containing 400 grams of cotton fruit and 350 grams of pork lean showed a significant difference in taste ($F=1.45$, $p>0.05$), indicating that this formulation had a notable effect on flavor.

In contrast, no significant taste differences were observed among samples containing 250 grams of cotton fruit with 500 grams of pork lean (TI), 300 grams of cotton fruit with 450 grams of pork lean (TII, $F=1.44$, $p>0.05$), and 350 grams of cotton fruit with 400 grams of pork lean (TIII, $F=0.45$, $p>0.05$). These formulations did not significantly affect the taste of the fortified longganisa.

Table 6. Comparison of Cotton Fruit Fortified Longganisa Containing a Certain Amount of Cotton Fruit and Pork Lean According to Texture.

Texture		Df	Mean Square	Computed F-value	Significance Level
TI-250 grams of cotton fruit with 500 grams of pork lean	Between Groups	9	0.678	1.16	0.32
	Within Groups	1			
	Total	10			
TII-300 grams of cotton fruit with 450 grams of pork lean	Between Groups	9	0.889	1.08	0.37
	Within Groups	1			
	Total	10			
TIII-350 grams of cotton fruit with 400 grams of pork lean	Between Groups	9	0.322	1.77	0.08
	Within Groups	1			
	Total	10			
TIV-400 grams of cotton fruit with 350 grams of pork lean	Between Groups	9	1.211	1.09	0.36
	Within Groups	1			
	Total	10			

Table 6 compares the texture of cotton fruit fortified longganisa with varying amounts of cotton fruit and pork lean. There were no significant differences among the treatments: TI (250 grams cotton fruit, 500 grams pork lean, $F=1.16$, $p>0.05$), TII (300 grams cotton fruit, 450 grams pork lean, $F=1.08$, $p>0.05$), TIII (350 grams cotton fruit, 400 grams pork lean,

$F=1.77$, $p>0.05$), and TIV (400 grams cotton fruit, 350 grams pork lean, $F=1.09$, $p>0.05$).

These results indicate that varying the proportions of cotton fruit and pork lean in longganisa does not significantly affect its texture.



Table 7. Comparison of Cotton Fruit Fortified Longganisa Containing a Certain Amount of Cotton Fruit and Pork Lean According to Appearance.

Appearance		df	Mean Square	Computed F-value	Sig.
TI-250 grams of cotton fruit with 500 grams of pork lean	Between Groups	9	0.711	2.24	0.10
	Within Groups	1			
	Total	10			
TII-300 grams of cotton fruit with 450 grams of pork lean	Between Groups	9	0.544	3.83*	0.02
	Within Groups	1			
	Total	10			
TIII-350 grams of cotton fruit with 400 grams of pork lean	Between Groups	9	0.622	2.06	0.13
	Within Groups	1			
	Total	10			
TIV-400 grams of cotton fruit with 350 grams of pork lean	Between Groups	9	0.844	2.06	0.13
	Within Groups	1			
	Total	10			

Table 7 compares the appearance of cotton fruit fortified longganisa with varying amounts of cotton fruit and pork lean. Fortified longganisa containing 300 grams of cotton fruit and 450 grams of pork lean showed a significant difference in taste ($F=3.83$, $p<0.05$) and appearance.

In contrast, longganisa containing 250 grams of cotton fruit with 500 grams of pork lean (TI, $F=2.24$, $p>0.05$), 350 grams of cotton fruit with 400 grams of pork lean (TIII, $F=2.06$, $p>0.05$), and 400 grams of cotton fruit with 350 grams of pork lean (TIV, $F=2.06$, $p>0.05$) showed no significant differences in appearance.

Table 8. Comparison of Cotton Fruit Fortified Longganisa Containing a Certain Amount of Cotton Fruit and Pork Lean According to General Acceptability.

General Acceptability		df	Mean Square	Computed F-value	Sig.
TI-250 grams of cotton fruit with 500 grams of pork lean	Between Groups	9	0.322	3.43*	0.03
	Within Groups	1			
	Total	10			
TII-300 grams of cotton fruit with 450 grams of pork lean	Between Groups	9	0.722	3.77*	0.02
	Within Groups	1			
	Total	10			
TIII-350 grams of cotton fruit with 400 grams of pork lean	Between Groups	9	0.844	4.90*	0.00
	Within Groups	1			
	Total	10			
TIV-400 grams of cotton fruit with 350 grams of pork lean	Between Groups	9	0.456	4.73*	0.01
	Within Groups	1			
	Total	10			

Table 8 compares the general acceptability of cotton fruit-fortified longganisa with varying amounts of cotton fruit and pork lean. Significant differences were observed among the treatments: TI (250 grams cotton fruit, 500 grams pork lean; $F=3.43$, $p<0.05$), TII (300 grams cotton fruit, 450 grams pork lean; $F=3.77$, $p<0.05$), TIII (350 grams cotton fruit, 400 grams pork lean; $F=4.90$, $p<0.05$), and TIV (400 grams cotton fruit, 350 grams pork lean; $F=4.73$, $p<0.05$).

The results indicate that all formulations, ranging from 250 to 400 grams of cotton fruit combined with 500 to 350 grams of pork lean, showed significant differences in general acceptability.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study aimed to develop a healthier longganisa by incorporating a local fruit and to assess its acceptability. Specifically, it evaluated the product's taste, texture, appearance, and general acceptability.

The study focused on modifying existing products and procedures, with particular attention to sensory acceptance.

Ten faculty members from the Bachelor of Science in Hospitality Management and Bachelor of Science in Nutrition and Dietetics at Quirino State University-Diffun Campus, all experienced in food preparation and sensory evaluation, served as evaluators. They completed sensory evaluation sheets,



providing comments, recommendations, and rankings for the different cotton fruit-fortified longganisa treatments.

Data from the sensory evaluation sheets were analyzed using mean and standard deviation to identify the most acceptable treatment in terms of taste, texture, appearance, and overall acceptability. Analysis of Variance (ANOVA) determined significant differences among treatments.

The results of the study are as follows:

1. The level of acceptability of fortified longganisa containing 250 grams of cotton fruit with 500 grams of lean pork was rated as neither liked nor disliked. Variants with 300, 350, and 400 grams of cotton fruit (paired with 450, 400, and 350 grams of lean pork, respectively) were rated as slightly liked in terms of taste, texture, appearance, and general acceptability. The 500 grams of lean pork, 300 grams of cotton fruit with 450 grams of lean pork, and 350 grams of cotton fruit with 400 grams of lean pork had no significant effect on the fortified longganisa in terms of taste. However, the use of 400 grams of cotton fruit with 350 grams of lean pork had a significant effect on the fortified longganisa in terms of taste. There was no significant effect among the treatments in terms of texture. In terms of appearance, the results showed that the fortified longganisa containing 250 grams of cotton fruit with 500 grams of lean pork, 350 grams of cotton fruit with 400 grams of lean pork, and 400 grams of cotton fruit with 350 grams of lean pork had no significant effect on the fortified longganisa, while the use of 300 grams of cotton fruit with 450 grams of lean pork had a significant effect on the fortified longganisa in terms of appearance. Furthermore, the four treatments were found to be significantly associated with the fortified longganisa in terms of general acceptability.

Conclusions

Based on the results, the following conclusions were drawn:

1. Treatment II, with 300 grams of cotton fruit and 450 grams of lean pork, was the most acceptable in terms of taste, texture, appearance, and general acceptability, with an overall mean score of 3.78.
2. The use of cotton fruit as a fortification ingredient in longganisa was rated "like slightly."
3. No significant differences in taste were observed among treatments I, II, and III. However, treatment IV, with 400 grams of cotton fruit and 350 grams of lean pork, had a significant effect on taste.
4. No significant differences in appearance were observed among treatments I, III, and IV. Treatment II, with 300 grams of cotton fruit and 450 grams of lean pork, had a significant effect on appearance. This was observed with the fortified longganisa in terms of general acceptability.

Recommendations

1. It is recommended to use 300 grams of cotton fruit with 450 grams of lean pork when preparing cotton fruit-fortified longganisa.
2. Proper ingredient measurements should be followed to ensure desirable taste, texture, and appearance.

3. Longganisa may also be enriched with other fruits and vegetables, provided their effects on taste, texture, appearance, and general acceptability are considered.
4. Future researchers are encouraged to conduct additional trials to further improve fortified longganisa.

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