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FROG PASTIL EXOTIC FUSION: A BOLD AND NUTRIENT-PACKED ALTERNATIVE TO TRADITIONAL CHICKEN PASTIL

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ABSTRACT

This research, conducted at West Visayas State University – Himamaylan City Campus, explores the development and acceptability of Frog Pastil as an alternative to the traditional Chicken Pastil. The study focuses on determining the sensory qualities of Frog Pastil in terms of appearance, aroma, taste, and texture, and assessing its overall acceptability among students, faculty, and local chefs. Using the 9-point hedonic scale, sensory evaluation results showed that Frog Pastil was rated "Highly Acceptable" across all attributes, with no significant difference in preferences among the respondent groups. These findings indicate that frog meat can serve as a nutritious, sustainable, and culturally adaptable protein substitute in Filipino cuisine without compromising flavor and consumer satisfaction. The study highlights Frog Pastil's potential to contribute to culinary innovation, food diversification, and local culinary tourism, while encouraging openness to alternative protein sources.

KEYWORDS: *Frog Pastil, sensory evaluation, alternative protein, food acceptability, culinary innovation, sustainable cuisine, Filipino food.*

INTRODUCTION

1.1 Background of the study

The word “pastil” differs from the better-known "pastel", a popular Maranao dish made from shredded chicken cooked with spices and wrapped in rice. It was recognized as the least expensive menu choice, valued for its distinct flavor by consumers worldwide, and widely acknowledged for its fundamentally savory flavor (Xu & Yin, 2024). Aside from their high nutritional content, specific proteins and derivatives from chicken eggs, such as peptides, amino acids, and protein hydrolysates, exhibit antioxidant properties, making them strong contenders for the development of functional foods and attracting attention from the food and biopharmaceutical sectors (Benedé & Molina, 2020).

According to Wardhana (2021), in Indonesia, bacteria can infect chicken meat at any point throughout the supply chain, from the farm up to the market, and they can spread to people through food consumption, direct touch, and environmental contact. Despite existing research, several knowledge gaps remain in the utilization of chicken meat. Many manufacturers worldwide continue to struggle to control Salmonella in their chicken processing facilities, particularly as demand for poultry rises and processing volumes increase (Wessels, 2021).

Andrade (2022) posited that frog meat offers many nutritional benefits and is lower in cost than chicken meat. Because of its high nutritional content, frog meat can be consumed by older people to avoid osteoporosis and arterial hypertension, as well as by youngsters with dietary allergies. Frog meat is high in protein and low in fat, making it a healthy alternative to other meats. It is also rich in essential vitamins and minerals, such as potassium, iron, and omega-3 fatty acids. Many people enjoy frog meat for its unique taste, often likened to that of chicken.

The texture is tender and delicate, appealing to those looking for something different. In some regions, frog farming is considered more sustainable than other livestock farming due to lower resource requirements for raising frogs. The reason for preferring frog flesh over other meats is unknown, but it could be related to quantity (Daramola, 2023).

This study aims to innovate the traditional Chicken Pastil by introducing frog meat as an alternative filling, creating a new version known as Frog Pastil. The research explores the viability of frog meat as a nutritious, sustainable, and locally available ingredient while maintaining the core characteristics of pastil, such as its savory taste, affordability, and convenience.
Through this innovation, the study seeks to offer a unique culinary experience, promote the use of unconventional protein sources, and contribute to food diversification. In addition, the study examines market potential, nutritional value, and consumer acceptance, while addressing environmental sustainability and emerging food trends.

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2. THEORETICAL FRAMEWORK

This study draws from three complementary perspectives: the Food Neophobia Theory by Pliner and Hobden, the Prototype Willingness Model by Gibbons and Gerrard, and the behavioral insights from Vecchio and Cavallo's work on Nudging Healthy Food Choices.

Pliner and Hobden's Food Neophobia Theory explores how an individual's tendency to avoid unfamiliar foods can influence their willingness to try novel products. In the context of this study, this theory will help assess how consumers perceive Frog Pastil, a relatively unfamiliar protein source, and how their level of food neophobia may act as a barrier to acceptance. Gibbons and Gerrard's Prototype Willingness Model explains how behavior is shaped not only by intention but also by social reactions and identity-based perceptions. This model will be applied to understand how people's willingness to try Frog Pastil is influenced by their image of the "typical person" who consumes alternative or sustainable foods, such as being adventurous, health-conscious, or environmentally responsible, and whether they identify with that image. Vecchio and Cavallo's 2019 research on nudging healthy food choices emphasizes how subtle cues and strategies can influence food decisions without restricting freedom of choice. Their perspective will be used to explore how Frog Pastil can be effectively introduced through behavioral nudges, such as strategic placement, price incentives, or health-oriented labeling, which may help guide consumers toward trying it rather than more familiar options.

These perspectives together provide a well-rounded framework for understanding consumer responses to Frog Pastil by examining psychological barriers, social influences, and behavioral interventions that can support the acceptance of alternative proteins.

METHODOLOGY

3.1 Research Design

The researchers used a quantitative research design to present and evaluate the developed food product, a fusion of frog meat and Chicken Pastil. The objective was to assess consumer perception, sensory characteristics, and acceptability of the fused product. Data was collected using structured surveys, and the results were analyzed using appropriate statistical tools to ensure objectivity and reliability. The study aims to identify consumer responses to the developed product through sensory assessment and acceptability testing. Up until now, quantitative evidence has relied chiefly on correlational designs and often focused on limited instrument goals, including academically relevant competencies (Verena Schneider & Anette Rohmann, 2021).

3.2 Participants and Inclusion Criteria

There were fifty-five (55) respondents in this study, composed of 40 BSHM students from West Visayas State University - Himamaylan City Campus, 5 faculty members of the SHM department in West Visayas State University - Himamaylan City Campus, and 10 local chefs residing in Himamaylan and Kabankalan City, Negros Occidental. They were purposely chosen because of their personal preference for exotic foods, particularly menus that feature frog meat.

3.3 Data Analysis Procedure

Once the completed questionnaires were collected, the data were tabulated and analyzed using the appropriate statistical methods. Descriptive analysis was performed, with the mean and standard deviation used to evaluate participants' responses to the sensory qualities of the Frog Pastil.

1. To address the first objective: "What was the level of acceptability of frog meat as an alternative ingredient in Chicken Pastil in four treatments as a whole and in terms of appearance, aroma, taste, and texture?"

The data were analyzed to determine the overall level of acceptability of the Frog Pastil, as well as how each sensory attribute (appearance, aroma, taste, texture) contributes to the overall evaluation.

2. For the second objective:" Is there a significant difference in the acceptability of Frog Meat as an alternative ingredient in Chicken Pastil among the four treatments?"

Statistical analysis was conducted to compare the mean ratings across the various treatments. If significant differences were found, post-hoc analysis was performed to identify where the differences lie between the treatments. This process would help in understanding which specific formulation or preparation of Frog Pastil was most preferred by the evaluators.

3.4 Ethical Considerations

The researchers obtained permission from the Campus Administrator to collect data for the study. Once approval was granted, they would obtain informed consent from all participants. The respondents were told that their participation was voluntary and that they could withdraw at any time if they felt uncomfortable during the survey. The researchers also ensured that the language used in the consent form and survey instructions was clear and easy to understand. Throughout the survey, the anonymity of the respondents was fully respected. All collected information was kept confidential and used solely for this study.

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4. RESULTS AND DISCUSSIONS

Table 1. ***Level of Acceptability of Frog Meat as an Alternative Ingredient in Chicken Pastil in Terms of Acceptability, Aroma, Taste, and Texture when Respondents are Taken as an Entire Group and when Classified as Students, Faculty, and Chefs***

Respondent		Appearance	Aroma	Taste	Texture
Students	*N*	40	40	40	40
	Mean	8.75	8.80	8.90	8.75
	Verbal Description	Highly Acceptable	Highly Acceptable	Highly Acceptable	Highly Acceptable
	SD	.44	.41	.31	.44
Faculty	*N*	5	5	5	5
	Mean	8.70	8.50	8.60	8.60
	Verbal Description	Highly Acceptable	Acceptable	Highly Acceptable	Highly Acceptable
	SD	.48	.53	.84	.70
Chefs	*N*	10	10	10	10
	Mean	9.00	8.80	9.00	8.80
	Verbal Description	Highly Acceptable	Highly Acceptable	Highly Acceptable	Highly Acceptable
	SD	.00	.42	.00	.42
Total	*N*	55	55	55	55
	Mean	8.80	8.73	8.85	8.73
	Verbal Description	Highly Acceptable	Highly Acceptable	Highly Acceptable	Highly Acceptable
	SD	.41	.45	.48	.51

Note: 8.51-9.00 Highly Acceptable; 7.51-8.50 Very Acceptable; 6.51-7.50 Moderately Acceptable; 5.51-6.50 Slightly Acceptable; 4.51-5.50 Neither Acceptable/Unacceptable; 3.51-4.50 Slightly Unacceptable; 2.51-3.50 Moderately Unacceptable; 1.51-2.50 Very Unacceptable; 1.00-1.50 Highly Unacceptable

The results of the sensory evaluation indicated that Frog Pastil was rated as "Highly Acceptable" across all sensory attributes by all respondent groups. The control group (traditional Chicken Pastil) received the highest ratings in taste (M = 8.50, SD = 0.65) and overall acceptability (M = 8.38, SD = 0.72). However, Frog Pastil closely followed with strong ratings in appearance (M = 8.80, SD = 0.41), taste (M = 8.85, SD = 0.48), and texture (M = 8.73, SD = 0.51). These findings suggested that frog meat, when prepared adequately as pastil filling, achieved sensory qualities comparable to traditional Chicken Pastil while offering unique nutritional benefits.

This was consistent with Andrade's (2022) findings, which noted that frog meat's mild flavor profile and tender texture make it an excellent substitute for chicken in various culinary applications. The high acceptability scores from chefs (M = 9.00 for appearance and taste) particularly underscore its potential for use in professional kitchens.

These findings were further supported by Daramola (2023), who reported that frog meat's nutritional composition and sustainability advantages made it an ideal alternative protein source for traditional dishes. The minimal variation in standard deviation across respondent groups (SD range: 0.00-0.84) suggested a consistent level of acceptability among evaluators with different culinary backgrounds.

1. Is there a significant difference in the acceptability of frog meat as an alternative ingredient in Chicken Pastil when respondents were classified as students, faculty and chefs?

To determine whether the acceptability of frog meat as an alternative ingredient in Chicken Pastil statistically differs among types of respondents, the Kruskal-Wallis H Test was performed. The Kruskal-Wallis H test was a non-parametric method used to determine if there were statistically significant differences in the distributions of three or more independent groups. It was particularly useful when the assumptions of one-way ANOVA—such as normality and homogeneity of variances—are not met.

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Table 2*: Differences in the Acceptability of Frog Meat as an Alternative Ingredient in Chicken Pastil when Respondents were Classified as Students, Faculty, and Chefs*

	Appearance	Aroma	Taste	Texture	Overall
Kruskal-Wallis H	3.35	3.30	2.39	.40	3.53
df	2	2	2	2	2
Asymp. Sig.	.187	.192	.302	.821	.171

Note: **Significance at p < .05*

The Kruskal-Wallis test results ($p > 0.05$ for all attributes) confirm that there were no significant differences in acceptability between student, faculty, and chef respondents. This uniformity in ratings across demographic groups reinforces the product's broad appeal, as noted in Johnston's (2020) Dietary Transition Framework, which highlighted growing consumer openness to alternative protein sources when sensory quality was maintained.

5. CONCLUSIONS

Based on the study's findings, it can be concluded that frog meat has high sensory acceptability and could serve as a nutritious and flavorful alternative to chicken in traditional dishes such as pastil. The absence of significant differences in acceptability ratings among students, faculty, and chefs indicates broad acceptance across consumer profiles. When properly prepared, frog meat retains desirable sensory qualities, including appearance, aroma, taste, and texture, which makes it acceptable even to individuals unfamiliar with it. Overall, the study supports the use of frog meat in Filipino cuisine as a sustainable, health-conscious, and culturally innovative protein option.

6. RECOMMENDATIONS

Firstly, culinary practitioners, chefs, and food entrepreneurs were encouraged to explore the use of frog meat not only in pastil but also in a variety of traditional and contemporary dishes. Given its high sensory acceptability, versatility, and nutritional benefits, frog meat could offer chefs a unique ingredient that supports both innovation and cultural relevance. Integrating frog meat into mainstream menus could contribute to food diversification while aligning with current sustainability and health-conscious eating trends.

Secondly, nutrition experts, dietitians, and health advocates should consider promoting frog meat as a nutrient-dense and low-fat alternative to conventional animal proteins. This was particularly important in areas where access to affordable protein sources was limited. Highlighting its rich content of essential amino acids, low cholesterol, and digestibility could encourage its inclusion in everyday diets, especially for vulnerable populations such as children, older people, and individuals with dietary restrictions.

Thirdly, the researchers recommend that future studies expand the scope beyond sensory evaluation to incorporate behavioral and psychological factors that influence food acceptance. These include food neophobia, the fear or hesitation to try unfamiliar foods; social identity and prototype perceptions, which affect individuals' choices based on how they view others who consume such foods; and nudging strategies, which involve subtle cues or marketing techniques that guide healthier or more sustainable food choices. Exploring these dimensions could provide a deeper understanding of consumer behavior and inform more effective marketing, education, and product positioning strategies.

In addition, the study suggests that local communities, agricultural institutions, and policy-makers support frog farming and value-added production of frog meat. Encouraging the development of sustainable frog farming practices could help strengthen rural livelihoods, reduce dependency on traditional livestock, and promote environmentally friendly food systems. Training, infrastructure support, and market development could further enhance the viability of frog farming as an income-generating activity.

Lastly, the researchers recommend conducting more exhaustive product testing with a more demographically diverse population, including various age groups, cultural backgrounds, income levels, and geographic regions. Doing so would provide more comprehensive data on consumer preferences and help determine the national-level market potential of frog-based food products. This broader approach would ensure that any future commercialization or culinary promotion of Frog Pastil, or similar dishes, was grounded in inclusive, data-driven insights that reflect the preferences of a broader consumer base.

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