



Flavored Tilapia Skin Chicharron

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Abstract

Original Research Article

Tilapia are naturally occurring in many tropical and subtropical African riverine and lacustrine environments; tilapia may also be found in brackish water estuaries and lagoons. Chicharron is a deep-fried pig belly or rind is the main ingredient of the Spanish and Central American delicacy known as chicharron, or crackling is served as a snack. The development of this product utilized the abundance of tilapia and promote local product in the food industry. This experimental study aimed to determine the flavor profile of flavored tilapia skin chicharron and determine the most preferred flavorings for tilapia skin chicharron. The treatment 1 used sour cream flavor, treatment 2 used cheese flavor, treatment 3 used barbecue flavor and treatment 4 used spicy flavor. The product was evaluated by thirty respondents and were selected through simple random sampling method. A sensory evaluation score sheet using a Likert scale was utilized to evaluate the treatment samples. Frequency count, and mode was used to determine the flavor profile of flavored tilapia skin chicharron and determine the most preferred flavorings for tilapia skin chicharron. Based on the results of the research study that treatment 2 (cheese) got the highest mean and rated as Very Good, and also the most preferred flavored of Tilapia skin chicharron. Thus, indicating that cheese flavor was preferable than sour cream, spicy, and barbecue flavor.

Keywords: chicharron, flavorings, flavor profile, sensory evaluation, tilapia.

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I. Introduction

Tilapia is a well-known fish species that was brought to the Philippines in 1950s from Africa and the Levant. Tilapia products provide North Cotabato farmers with a means of subsistence by generating income for their daily necessities. Kidapawan City is the biggest tilapia producer in North Cotabato according to Tabugoc (2023). Tilapia is used to make fish cakes, sausage, leather, gelatin, flour, vitamins, and collagen for use in cosmetics and medicine (Sayed, 2023). A chicharron made from tilapia skin is new variation of chicharron to create a halal product (Biol, 2022). Chicharron is very popular snack all over the Philippines which is originally made of pork skin (Gideon, 2021). Nutritionally, it has excellent source of collagen, high in protein, low

in carbs, and contains some beneficial fats choline and vitamin B12 (Krista, 2023). The typical flavor of chicharron is salty. However, humans are inclined to seek a variety of flavor because it ensures a diverse intake of nutrients and reduces the risk of deficiencies. Consuming a variety of flavors provides sensory stimulation that can be pleasurable and satisfying (Rolls, 2017). Moreover, people often seek different flavor to connect with their cultural context (Rozin, 2015). Dining with others or experiencing different involvements often exposes individuals to new flavors and encourages exploration of diverse culinary options (Hetherington & Rolls, 2017).

With the desire of tasting different flavors as mentioned above, the researcher was encouraged to



create new flavor to the all-time favorite snack which is chicharron. To respect other belief and culture, the researcher will use tilapia skin chicharron which is process for halal version of chicharron. The study sought to determine the flavor profile of flavored tilapia skin chicharron.

The general objective of the study was to develop flavored tilapia skin chicharron. Specifically, this study aimed to determine the flavor profile of flavored tilapia skin chicharron; and determine the most preferred flavorings for tilapia skin chicharron. The result of the study would serve as a reference and would be beneficial to the entrepreneur. This study would help entrepreneurs and small businesses create products from the flavored tilapia skin chicharron and use them to generate income. Also, Tilapia raiser benefit from this study especially fisheries because it would give them incomes. The student would also learn about this study through providing a reference who wants to learn more about flavored tilapia skin chicharron. Lastly, homemakers would also learn about this study and they would be able to prepare the flavored tilapia skin chicharron at their home.

II. Methodology

The study utilized developmental research design and experimental methods of research to find out the flavor profile and most preferred flavorings of flavored tilapia skin chicharon. The researcher conducted an experimental method to tilapia skin in making flavored tilapia skin chicharon which used 4 treatments which were T1 sour cream, T2 cheese, T3 barbecue, and T4 spicy and evaluated in 3 replications. The respondents of the study were thirty (30) 3rd year students of Bachelor of Technical-Vocational Teacher Education whom have undertaken Food Processing subject of University of Southern Mindanao Kidapawan City Campus. The researcher conducted an evaluation this 1st semester school year 2024-2025.

In this study, the sensory evaluation analytic method of quality test was used for determining the flavor profile of flavored tilapia skin chicharron and most preferred flavorings for tilapia skin chicharron. The score sheet contains a five (5) rating scale, where five (5) is the highest and one (1) is the lowest. Addition, the general acceptability of the product was also evaluated using score sheet.

Table A. Likert scale for Flavor Profile of Flavored Tilapia Skin Chicharron

Rate	Verbal Description	Interpretation
5	Excellent	The product has very recognizable pleasant taste of prescribed flavor (sour cream, barbecue, cheese, and spicy) without fishy lingering after taste.
4	Very Good	The product has recognizable pleasant taste of prescribed flavor without fishy lingering after taste.
3	Good	The product has slightly recognizable pleasant taste of prescribed flavor but there is fishy lingering taste after taste.
2	Fair	The product has barely recognizable pleasant taste of prescribed flavor and has noticeable fishy taste.
1	Poor	The product has no trace of taste of prescribed flavor and has no noticeable fishy taste.

In this study, the researcher used a simple random sampling in selecting respondents. The researcher utilized fish bowl method where all the names of students were listed in a piece of paper rolled. This method gave an equal chance to the all-target

population. The researcher selected the thirty (30) 3rd year students of Bachelor of Technical Vocational Teacher Education of University of Southern Mindanao Kidapawan City Campus.

Moreover, the descriptive statistic such as frequency distribution, percentage count, average mean, and mode were used to determine the flavor profile of flavored tilapia skin chicharron and the most preferred flavorings.

III. Results and Discussions

Flavor Profile of Flavored Tilapia Skin Chicharon

Table 1 presents the flavor profile of flavored tilapia skin chicharon across four treatments: T1 (sour cream), T2 (cheese), T3 (barbecue), and T4 (spicy). The data shows that treatments 1, 3, and 4 were rated "Very Good," with mean scores of 110, 130, 105, and 106, respectively, and a mode of 4.0. This indicates that the products had a recognizable, pleasant taste of the intended flavor without any lingering fishy aftertaste. While, T2 (cheese) received the highest mean score of 130 and rated "Excellent" with the mode of 5.0. This means that the product has very recognizable pleasant taste of cheese flavor without lingering after taste. These results suggest that the cheese flavor was the most favorable among the treatments, providing a more pleasing taste for the chicharron. Guinee (2017)

conforms that the flavor of cheese is crucial, particularly when highlighted through the use of mature cheeses and cheese products. These include processed cheeses, cheese powders, and cheese sauces, which often contain highly concentrated cheese flavor preparations, such as enzyme-modified cheeses and enzyme-hydrolyzed dairy ingredients. These intense cheese flavors are commonly utilized in a variety of food applications, including ready-to-eat meals, snacks, soups, and sauces.

In addition, Dang (2017) stated that a "flavor profile" refers to the combination and balance of various flavors, such as sweet, salty, sour, bitter, umami, and other taste elements. Flavorings not only enhance the taste of food but also help create an authentic and distinctive flavor profile. They can stimulate olfactory (smell), gustatory (taste), and trigeminal (nervous) sensations. Moreover, flavorings play a critical role in ensuring consumer acceptance and satisfaction (Wang, 2019). Flavors are crucial in the food processing industry, as they help mask undesirable odors in some products, enhancing both food quality and consumer acceptance (Aggarwal, 2018)

Table 1. Flavor Profile of Flavored Tilapia Skin Chicharon

Treatment	R1	R2	R3	Mean Score	Mode	Verbal Description
T1 (sour cream)	105	106	120	110	4.0	Very Good
T2 (cheese)	127	129	135	130	5.0	Excellent
T3 (barbecue)	103	105	106	105	4.0	Very Good
T4 (spicy)	106	102	111	106	4.0	Very Good

Legend:

Score	Rating	Verbal Description
124-150	5	Excellent
93-123	4	Very Good
62-92	3	Good
31-61	2	Fair
1-30	1	Poor

Most Preferred Flavorings for Tilapia Skin Chicharon

The data presented in Table 2 shows the most preferred flavorings for tilapia skin chicharon across four treatments: T1 (sour cream), T2 (cheese), T3 (barbecue), and T4 (spicy). According to the results, 16% to 18% of respondents preferred the sour cream flavor (T1), 20% to 22% preferred the spicy flavor (T4), 24% to 26% preferred the barbecue flavor (T3), and 30% to 33% preferred the cheese flavor (T2). These findings indicate that cheese (T2) is the most favored flavor among respondents, ranking first overall. This suggests that cheese is the most suitable flavor for tilapia skin chicharron, based on the preferences of the respondents. According to Drake (2020), flavor plays a crucial role in consumer

choice. Cheese, in particular, provides rich aromatics and enhances the savory taste of a variety of dishes, including breakfast items, baked goods, fruits, appetizers, sandwiches, salads, cooked meals, and even desserts (Edvin, 2021).

According to Odeh (2019), chicharon is a popular and delicious snack in the Philippines, known for its crispy texture and savory flavor. Flavorings, whether natural or synthetic, are crafted from aromatic compounds that may occur in nature or be artificially created. The primary goal of flavorings is to enhance the taste of a product, either by accentuating a desired flavor or masking an undesirable one, ultimately improving the overall acceptability of the finished product by stimulating both the nose and the palate (Link, 2023).

Table 2. The Most Preferred Flavorings for Tilapia Skin Chicharron

Treatment	f	%	Rank
T1 (sour cream)	16	18%	4
T2 (cheese)	30	33%	1
T3 (barbecue)	24	26%	2
T4 (spicy)	20	22%	3

IV. Conclusion

The researcher concluded that tilapia skin chicharon can be flavored with different flavorings like sour cream, cheese, barbecue, and spicy. It is also concluded that the cheese flavor is the most favored flavorings use to enhance the taste and aroma factor of the Tilapia Skin Chicharon. Further, it is concluded that most of the respondents love cheese flavorings.

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