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Acceptability of turmeric-flavored smoked pressurized milkfish

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Abstract
This study was conducted to determine the acceptability of turmeric flavored smoked pressurized milkfish on the different level of concentration of turmeric powder. Specifically, the study aimed to determine the quality attributes of turmeric flavored smoked pressurized milkfish in terms of color, taste, aroma, texture, and overall appearance; acceptability of turmeric flavored smoked pressurized, milkfish in terms of color, taste, aroma, texture, and overall appearance; of the finished product.
One kilogram fresh turmeric was boiled for 15-20 minutes then sun dried for 7-10 days. The dried turmeric was then crushed into powder and sieved. Milkfish was washed, cleaned, and split into butterfly fillet and the turmeric powder was applied directly on the meat surface of the fish. The fish was pressure-cooked for 90 minutes and was drained using bamboo trays. It was then smoked for 2 hours or until the golden brown color is attained.
The Hedonic scale was used for organoleptic test on the acceptability of turmeric flavored smoked pressurized milkfish. The traditional 5-point Likert scale used to the overall quality attributes and acceptability of the turmeric flavored smoked pressurized milkfish in terms of; color, aroma, texture and overall acceptability of turmeric flavored smoked pressurized milkfish of the different treatments were evaluated by fifty (50) respondents.
The result showed that Turmeric flavored smoked pressurized milkfish in Treatment II have a good quality attributes in terms of color, aroma, taste, texture and overall appearance. The overall acceptability as agreed upon by the respondents was observed on Treatment II with a descriptive rating of like moderately having a mean rating of 3.62 of the finished product. It was concluded that addition of turmeric powder when mixed on the pressurized smoked milkfish was found out to be effective in delaying the spoilage process of the finished product.

Keywords: Smoked pressurized milkfish, turmeric-flavored, organoleptic test

1. Introduction

Smoking of food like ham, sausages and other meat products, fish and fish products and some cheese products has been used for centuries in many countries including the Philippines. Originally, the purpose was to preserve the food, partly by drying and partly by adding antimicrobial constituents like phenols from the smoke to the food.
Smoking is primarily used to achieve the characteristics taste and appearance of smoked food and to a minor degree to obtain preservation. The traditional smoking process can be conducted in several ways, to give different food products, both from an organoleptic point of view and in the light of health aspects.
Use of synthetic smoke flavorings produced by mixing chemically defined flavoring substances has been introduced in many countries. Synthetic smoke flavoring may give rise to health problems for the smoked products consumers (Piggot, G.M., 2006). There are substances or chemicals that the smoke flavorings may contain that may danger to health.
Turmeric (*Curcuma* spp.), locally known as “luyang dilaw” is extensively used as a spice, food preservative and coloring material in India, China, and South East Asia (www.thepowerhour.com/curcumin/Turmeric.pdf).

It has been used in traditional medicine as a household remedy for various diseases, including biliary disorders, anorexia, cough, diabetic wounds, hepatic disorders, rheumatism and sinusitis.

Milkfish (*Chanos chanos*) or "Bangus" sometimes pronounced as "Bangos" is the main aquaculture product of the Philippines. It is the most popular seafood dish among Filipinos. Its best characteristic is its adaptability to its environment. It can survive in confined fresh or brackish water fish pens and marine cages. The Bangus is a tough and sturdy fish species making it suitable for aquaculture and cultivation.

To improve food safety specifically in smoked fish, this study which aims to use turmeric powder as flavor and color enhancer for smoked milkfish is being conducted.

2. Methodology

All materials and ingredients were prepared first before the conduct of the study. The materials and equipment used are as follows: turmeric, milkfish, salt, wood dust, knife, chopping board, electric weighing scale, colander, bamboo strainer, measuring spoons, pressure cooker, styrophore, aluminum foil, gas stove and smoke house.

One kilogram fresh turmeric was boiled for 15-20 minutes or until the water became golden brown in color. It was sun dried for 7-10 days. The dried turmeric was then crushed into powder using a blender or food processor. Afterwards, the powdered turmeric was sieved using a strainer.

Four (4) kilograms of milkfish were used in this study have an average weight of 250 grams per piece. Milkfish was washed and cleaned, then was split into butterfly fillet. Turmeric powder was applied directly on the meat surface of the fish on the different treatment.

Three treatments were used in this study. Each treatment has been mixed with the same ingredients and only differs on the amount of turmeric powder added as follows: milkfish with no turmeric powder (Control); Treatment I with ¼ teaspoon of turmeric powder; treatment II with ½ teaspoon of turmeric powder; and treatment III mixed with 1 teaspoon of turmeric powder.

There were fifty (50) respondents composed of ten (10) faculty and staff from Bataan Peninsula State University (BPSU), eighteen (18) restaurant cooks, five (5) college students, five (5) high school students, and twelve (12) housewives.

The quality attributes in terms of color, taste, aroma, texture and overall appearance of turmeric flavored smoked pressurized milkfish of the different treatments using Semantic Scale was sensory evaluated by fifty (50) respondents.

The Hedonic scale was used to measure the acceptability of the turmeric flavored smoked pressurized milkfish in terms of; color, aroma, texture and overall acceptability of turmeric flavored smoked pressurized milkfish of the different treatments were evaluated by fifty (50) respondents.

The traditional 5-point Likert scale used to the overall quality attributes and acceptability of the turmeric flavored smoked pressurized milkfish in terms of; color, aroma, texture and overall acceptability of turmeric flavored smoked pressurized milkfish of the different treatments were evaluated by fifty (50) respondents.

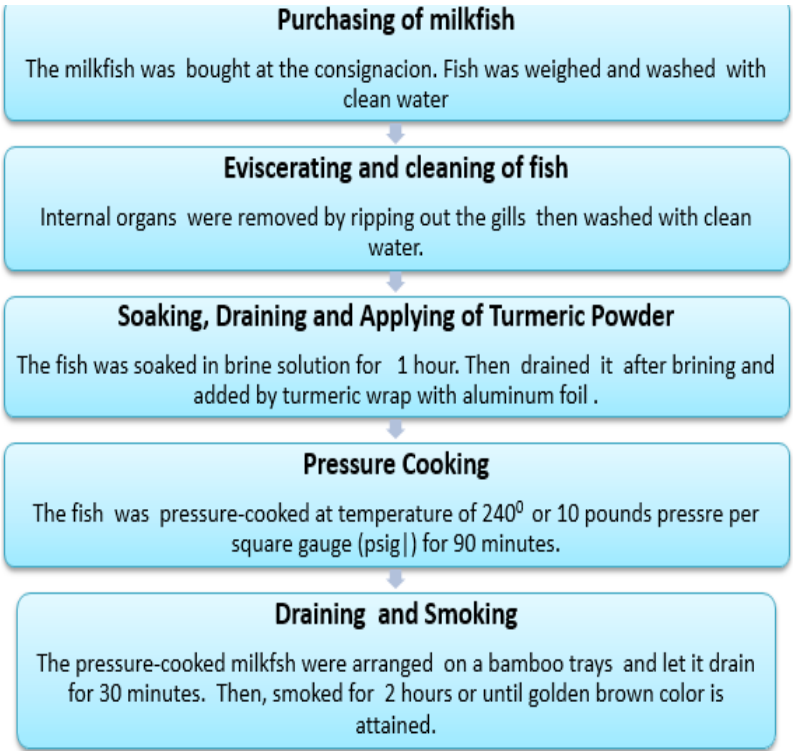

Fig 1: Steps/process of turmeric-flavored smoked pressurized milkfish preparation

3. Results and Discussion

The quality attributes on color, Treatment I has a mean rating of 3.6 which mean that the finished product is neither null nor vibrant, moderately vibrant with a mean rating of 3.78 in Treatment II, and a mean rating of 4.28 with a vibrant color. The result showed that Treatment III that contains the highest amount of turmeric powder had a vibrant color.

On the quality attributes in terms of aroma, all Treatments have a descriptive rating of moderately mild. It can be concluded that turmeric flavored smoked pressured milkfish

contributes a good aroma to the finished product.

Furthermore, on the taste of the finished product, a descriptive rating of moderately tasty was observed on all the Treatments.

For the texture attributes, Treatment I and Treatment II got the same descriptive rating of moderately smooth texture, while Treatment III obtained a rating of neither rough nor smooth.

For the overall appearance of the finished product, a descriptive rating for Treatment I and Treatment III was concealed by the respondents having a good overall appearance and a mean rating of 3.62 with a descriptive rating of very good overall appearance.

On the acceptability of turmeric-flavored smoked pressurized milkfish in terms of color, aroma, taste, texture and overall acceptability:

For the color acceptability, a mean rating of 7.18 was noted on Treatment I and treatment II with 7.22 mean rating was both noted on the two treatments with the same descriptive rating of like moderately while a descriptive rating of like very much was observed on Treatment III with the mean rating of 7.52. It was noticed that Treatment III was like very much by the respondents when it comes to color acceptability.

For the aroma acceptability, Treatment I got a mean rating of 7.28; Treatment II with the mean rating of 7.48; and for Treatment III obtained the mean rating of 7.50. Both Treatments I and II have a descriptive rating of like moderately while Treatment III got a descriptive rating of like very much. Among three treatments, Treatment III (containing the highest amount of turmeric powder) got the highest acceptability in terms of aroma.

For the acceptability of taste, Treatment I got a mean rating of 7.56; Treatment II the mean rating is 7.68, and for Treatment III the mean rating is 7.60. All treatments have been observed with a descriptive rating of like very much as rated by the respondents.

On the texture acceptability, Treatment I got a mean rating of 7.20; Treatment II with a mean rating of 7.10; and for Treatment III the mean rating is 7.52. Treatments I and II have both descriptive rating of like moderately while Treatment III was rated with a descriptive rating of like very much by the respondents. Among three treatments, Treatment III (that contained the highest amount of turmeric powder) got the highest acceptability in terms of texture attributes.

For the overall acceptability, the mean rating was noted with 2.96 in Treatment I and 3.30 in Treatment III. It was concluded that both treatments had a descriptive rating with dislike slightly. Among the three treatments, it was found out that Treatment II obtained a mean rating of 3.62 and a descriptive rating of like moderately by the fifty (50) respondents on the overall acceptability of the fished product.

Table 1: Mean and descriptive rating of turmeric-flavored smoked pressurized milkfish on overall appearance

Treatment	Overall Appearance	
	Mean Rating	Descriptive Rating
I	3.04	Good
II	3.62	Very Good
III	3.22	Good

Table 2: Mean and descriptive rating of turmeric-flavored smoked pressurized milkfish on overall Acceptability

Treatment	Overall Acceptability	
	Mean Rating	Descriptive Rating
I	2.96	Dislike slightly
II	3.62	Like moderately
III	3.30	Dislike slightly

4. Conclusion and Recommendation

Based on the findings of the study, the following conclusions are drawn

1. Turmeric flavored smoked pressurized milkfish in Treatment II have a good quality attribute in terms of color, aroma, taste, texture and overall appearance,
2. The overall acceptability as agreed upon by the respondents was observed on Treatment II with a descriptive rating of like moderately having a mean rating of 3.62 of the finished products.
3. Additional turmeric powder when mixed on the pressurized smoked milkfish was found out to be effective.

Based on the results of the study the following are recommended

1. Another study should be conducted on the nutrient content of the finished product.
2. For marketing purpose packaging material of the product is recommended.
3. The product is also recommended for marketable purposes.

4. References

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