



Received: 16-05-2023
Accepted: 26-06-2023

ISSN: 2583-049X

Addition of Catfish Meal (*Clarias* sp.) to the Level of Liking of Tapioca Rambak Crackers

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Abstract

This research aims to determine the right level of addition of catfish meat meal to the manufacture of tapioca rambak crackers so that the most preferred product is obtained by consumers (panelists). The research was conducted at the Fisheries Processing Technology Laboratory of Fisheries Sciences, Padjadjaran University, Indonesia. The research method used was experimental with 4 treatments, namely the rate of adding catfish meat meal 0% (without addition, as a control), 5%, 7.5% and 10% of the total wheat flour + tapioca used in making tapioca rambak crackers. The research procedure consists of two stages. The first stage of making tapioca crackers with the addition of catfish meat meal includes mixing ingredients, making dough, molding, drying and frying. The second stage is the observation of the degree of organoleptic liking of the resulting product. Variable observations were made on the level of appearance,

aroma, texture, and taste of tapioca rambak crackers. The favorability level test was carried out with a hedonic test with the following scale: very dislike (1), dislike (3), neutral (5), like (7), and very like (9). The panelists used were semi-trained panelists as many as 15 people. Data obtained from the results of organoleptic testing of tapioca rambak crackers from various treatments of the level of addition of catfish meat meal were analyzed in a comparative descriptive manner.

Based on the results of the research, it can be concluded that the right level of addition of catfish meat meal to obtain the tapioca rambak cracker product most preferred by consumers (panelists) is 7.5% of the total wheat flour + tapioca used. The average value of the appearance, aroma, taste and texture liking of the product was 7.2 respectively; 7.6; 8.1 and 7.3.

Keywords: Organoleptic, Descriptive, Taste, Panelist, Semi-Trained

Introduction

Crackers are a popular snack in Indonesian society and are commonly used to increase appetite. The name and type of crackers circulating in the community vary depending on the ingredients used, the manufacturing process and the origin of the manufacturing area. One type of cracker that is well known by the people of Indonesia is tapioca rambak crackers.

This tapioca rambak cracker is often consumed by the public and is usually sold in the market in the form of plastic packaging, both raw and cooked crackers. The production of tapioca rambak crackers is carried out by home industries and the scale of production for each producer is still limited. The nutritional content of tapioca crackers is mostly carbohydrates. Increasing the nutritional value of tapioca crackers is important to do, especially protein nutrition. Increasing protein nutrition in tapioca crackers can be done by adding fish meat meal in the formulation of its manufacture.

Fish meat that can be processed into flour form is catfish meat. Catfish meat has few thorns and thick. The nutritional composition of catfish meat contains protein (17.7%), fat (4.8%), minerals (1.2%), and water (76%) (Apriansyah *et al.*, 2021) [3]. According to Tamaroh *et al.* (2023) [11], the flagship of catfish meat compared to other animal products is rich in leucine and lysine. Leucine (C₆H₁₃NO₂) is an essential amino acid that is indispensable for children's growth and maintaining nitrogen balance. Leucine is also useful for the breakdown and formation of muscle proteins. Lisin is one of the 9 essential amino acids needed for tissue growth and repair. Lysine is an amino acid that is very important and needed once in the growth and development of children.

The addition of catfish meat meal to the manufacture of tapioca crackers can affect the level of consumer preference for the product. This research aims to determine the right level of addition of catfish meat meal to the manufacture of tapioca rambak

crackers so that the most preferred product is obtained by consumers (panelists).

Research Methods

The research was conducted at the Fisheries Processing Technology Laboratory of Fisheries Sciences, Padjadjaran University, Indonesia. The ingredients used in this study were catfish meat meal, water, tapioca flour, wheat flour, salt, coriander, ground pepper, garlic powder, baking soda, and cooking oil. The tools used are scales, basins, steamers, gas stoves, cutting boards, knives, baking sheets, plastic spatulas, spoons, pans, and oil filters.

The research method used was experimental with 4 treatments, namely the rate of adding catfish meat meal 0% (without addition, as a control), 5%, 7.5% and 10% of the total wheat flour + tapioca used in making tapioca rambak crackers.

The research procedure includes making crackers starting from mixing spices, raw materials, and adding catfish meat meal according to treatment. Once all is mixed, stir the dough thoroughly and mold it using a rectangular cracker mold. Then steam for 30 minutes, then kept in a room for 5 hours until the steamer results harden. Then it is ready to be cut using a knife of the desired thickness on each cracker. Then the crackers are dried in the sun with a flat baking sheet for 3-4 hours. Tapioca rambak crackers that has been dried is fried until cooked.

Variable observations were made on the level of appearance, aroma, texture, and taste of tapioca rambak crackers. The favorability level test was carried out with a hedonic test with the following scale: very dislike (1), dislike (3), neutral (5), like (7), and very like (9). The panelists used were semi-trained panelists as many as 15 people. Data obtained from the results of organoleptic testing of tapioca rambak crackers from various treatments of the level of addition of catfish meat meal were analyzed in a comparative descriptive manner.

Results and Discussion

Testing related to the level of organoleptic preference in a food product is very important to obtain information on whether or not the product is accepted by consumers (Amir *et al.*, 2018) ^[1]. Organoleptic tests are very fast to obtain results compared to chemical tests. Aroma, taste, texture and color are organoleptic parameters used to determine the level of consumer liking or acceptance. Consumers will express great likes, likes, somewhat likes or dislikes of the product by looking at these parameters. Assessment of the level of organoleptic preference for tapioca rambak cracker products from the addition of catfish meat meal is found in Table 1.

Table 1: Average Organoleptic Preferences of Tapioca Rambak Crackers of Various Levels Adding Catfish Meat Meal

Treatment	Specifications			
	Appearance	Aroma	Taste	Texture
A (0%)	5,5	6,2	6,3	5
B (5%)	5,2	7,1	6,3	7,6
C (7,5%)	7,2	7,6	8,1	7,3
D (10%)	6,1	7,4	7	6,5

Appearance

Appearance is the first characteristic seen, assessed, preferred by consumers in choosing or consuming a product

(Puni *et al.*, 2020) ^[8]. Appearance also affects consumer acceptance, although appearance does not determine the absolute level of consumer liking. The uniformity and integrity of a product will certainly attract panelists and is preferred when compared to diverse and incomplete products (Rinaldo, 2018) ^[9]. Based on Table 1, there are various average values of appearance obtained, the highest average value of the appearance of tapioca rambak crackers is in the treatment of 7.5%, which is 7.2 and the lowest average value of the appearance oftapioca rambak crackers is in the treatment of 5%, which is 5.2.

Aroma

Scent is defined as a material that can be observed with the sense of smell. In the food industry, testing of aromas is considered important because it can provide the results of an assessment of the product about whether or not a product is accepted. Scent is an odor generated by chemical stimuli smelled by olfactory nerves in the nasal cavity. Aroma largely determines the palatability of food and affects its reception. Foods whose aromais less liked will reduce their acceptance (Azrimaidaliza and Purnakarya, 2011) ^[4]. Most of the aroma of food products comes from the spices added at the time of dough. Based on Table 1, there are various average values of appearance obtained, the highest average value of tapioca rambak cracker aromaat 7.5% treatment is 7.6 and the lowest average value of rambak cracker appearance is at 0% treatment, which is 6.2. From the values that have been averaged, it can be concluded that the panelists like the aroma in each treatment.

Taste

One of the very important sensory characteristics of a food product is taste. The sensory character of taste is a determinant for consumers in food selection (Nurwati and Hasdar, 2021) ^[7]. Taste is a form of organoleptic instrument that uses the five senses in the form of the human tongue to determine the sour, bitter, salty and sweet taste of food products (Ekayati and Fitriani, 2020) ^[5]. Taste is an important parameter in the level of consumer acceptance of a food product and to determine the decision for consumers to accept or reject a food (Tarwendah, 2017) ^[12].

Based on Table 1, there are various average values of taste obtained, the highest average value of tapioca rambak cracker taste is at 7.5% treatment of 8.1. While the lowest average value of tapioca cracker taste is at 0% and 5% treatment with 6.3 point each of it. From the value that has been obtained, it can be concluded that the panelists like the taste of rambak crackers in every treatment. Panelists' liking for the taste of crackers will increase as the composition of catfish meat meal is added. This is because with the addition of fish, it will cause a savory taste in crackers. This savory taste is caused by the protein content contained in crackers so that in the steaming process, the protein will be hydrolyzed into amino acids and one of the amino acids, namely glutamic acid, can cause a delicious taste (Chandra, 2018). The higher the addition of catfish meat meal, the higher the panelists' favorability, and fish crackers with the right amount of protein will give the preferred taste (Fitrawati *et al.*, 2018) ^[6].

Texture

Texture is everything related to mechanics, taste, touch, vision which includes assessment of wetness, dry, hard,

smooth, rough and oily (Talib and Marlana, 2015) ^[10]. Texture factors include palpation by hand, tenderness and easy chewing. According to Anwar *et al.* (2022) ^[2], changes in the texture of an ingredient can change its aroma and taste. This is because texture will affect the speed of stimulation of olfactory cells and salivary glands.

Based on Table 1, there are various average values of texture obtained, the highest average value of rambak cracker texture is at 5% treatment of 7.6. While the lowest average value of the taste of rambak crackers is at 0% treatment with 5 which means neutral. From the averaged values, it can be concluded that the panelists liked the texture of the rambak crackers in the order of 5%, 7.5%, and 10% and neutral in the 0% treatment.

Conclusion

Based on the results of the research, it can be concluded that the right level of addition of catfish meat meal to obtain the tapioca rambak cracker product most preferred by consumers (panelists) is 7.5% of the total wheat flour + tapioca used. The average value of the appearance, aroma, taste and texture liking of the product was 7.2 respectively; 7.6; 8.1 and 7.3.

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