



ADDITION OF FLAVORED MACKAREL FISH HEAD FLAVOR TO STICK FAVORITE LEVEL

ChintyaChintaAprilia, Junianto, RuskyIntanPratama, IisRostini Fakultas Perikanan
dan Ilmu Kelautan Universitas Padjadjaran, Jatinangor Jalan Raya Bandung – Sumedang Km. 21
45363 Telepon/Fax: 022-8428888 email : chintyaaprilial106@gmail.com

ABSTRACT

This research aims to determine the percentage of the addition of the powder head fish flavor in the manufacture of stick snacks to the level of the favorite product produced. This research was conducted in September to November 2019 in the Fishery Technology Laboratory of Fisheries and Marine Science Faculty of Padjadjaran University. The method used in this research is an experimental method with 4 types of addition powder of the increase of fish head flavor, namely 0%, 2.5%, 5%, 7.5% by involving as many as 20 semi-trained panelists as a replay. Based on the results of research can be concluded that the addition of the fish head flavor powder in the stick all treatment is still received by panelist with the most preferred treatment is the treatment 2.5%. The highest value of test proximate stick from best treatment 2.5% and comparative treatment 0% is water content 0.84%, ash content 2.69%, protein content 8.33% and fat content 30.55%.

Keywords : Powder head of mackerel flavor, stick, preference level.

INTRODUCTION

Stick comes from the word absorption from English meaning stick (Lestari et al. 2016). Stick is a snack that is very popular by all circles. Stick the savory are very distinctive and the process of making a stick can be performed manually or or can also with the help of the machine. During this time, most of the products are circulating in the market ie cheese stick (cheese stick), stick that included cheese and there are also stick with the spice sprinkled flavor such as taste barbeque, flavor of corn, the flavor of the seaweed is usually the process Seasoning making using chemicals (Lekahena 2019). The use of chemicals in large quantities and repeatedly will cause irritation to the respiratory tract, irritation of the skin, irritation of the eye, impaired liver function and liver cancer (Febrianti et al. 2018). One way to increase the diversity of stick flavor naturally and harmless is to use the hydrolysis of sewage head of fish.

Indonesian people consume mackerel which is already in the form of fillet (without bones), so that the waste of mackerel like head, bones, scales, and skin is wasted. Problems of waste fish must be properly addressed, so as to reduce the amount of waste yield from Fisheries (Ramadhani 2015). The head of the mackerel fish has a distinctive aroma because inside the fish head of mackerel still have meat so it can be used in flavor making. The addition of a stick-head fish flavor will affect the favorite level. The

more ratio of addition powder to the head fish flavor will strengthen the flavor and aroma of the product. Therefore, the research needs to be done to obtain the best formulations of the stick with the addition of the powdered fish head flavor to the level of preference.

MATERIALS AND METHODS

MATERIALS AND TOOLS

The materials used in this research are powdered head of mackarel, wheat flour, blue triangle (Bogasari), egg, garlic, salt, oil (Fortune), butter (Blue band). While the tools used in this research are cutting boards, pots, stoves, strainers, stainless spoons, scales, stainless knives, stirrers, plastic solep, a set of cookware, sieve tyler 80 mesh, plastic basin, sonic electric digital scales with thoroughness 0.1 g, amphia, measuring cup.

RESEARCH METHODS

The method used in this research is an experimental method. The favorite level of the stick is analyzed by a statistical method of non parametric Friedman consisting of 4 treatments and 20 semi-trained panelists as a replay, as for the percentage of the addition of the powder head fish flavor of the base of flour Flour used is 0%, 2.5%, 5%, 7.5%. The observed parameter of the hedonic test includes the appearance, aroma, texture, and flavor.

MANUFACTURE OF MACKAREL FISH HEAD FLAVOR POWDER

Fish head of fresh mackarel (1840 g) cut and washed thoroughly, the head of the mackarel mixed with spices (shallots, garlic, pepper, turmeric and salt) and then added water. Comparison of the head of the fish and water (1:2). After the head of the fish, spices and water are mixed in a pan and boiled for 60 minutes with a boiling temperature of 85 ° C-100 ° c. The broth of the stew is filtered and administered by maltodextrin as much as 15% and then stir until homogeneous. The flavor broth is dried using an oven with a thickness of ± 0.25 mm for 1 hour with a temperature of 80 ° C. Dried flavor crushed using blender to flavor powder.

MAKING STICK

Wheat flour, powdered fish head flavor powder based on the concentration of 0%, 2.5%, 5%, 7.5% and salt is mixed then the crushed garlic, eggs and butter inserted into the dough. After that, the dough is kneaded until not sticky. The dough is inserted on the amphia and is milled thin with a thickness of no. 4 and repeated 2-3 times until slippery. Afterwards, the dough is milled back on the flattened amphia. The dough is cut to a width of about 7-10 cm and fried in a heated oil in medium heat then stirring to get an even development stick. Frying channeled for ± 4 minute. The Stick is lifted to dry and brownish yellow.

HEDONIC TEST

Hedonic testing aims to determine the panelist's response to the stick product generated based on the favorite level of the product. The parameters used in the hedonic test are the appearance, aroma, texture and flavor. Hedonic tests were conducted with a panelist's assessment of each of the different product samples then the panelist gave an impression on the hedonic scale.

DATA ANALYSIS

Hedonic tests were analyzed using a two-way Friedman analysis If the result had a significant effect on the results of multiple advanced test Multiple Comparison tests while determining the best treatment with the Bayes method.

RESULTS AND DISCUSSION

A. APPERANCE STICK

It is an organoleptic parameter that is important to be assessed by panelists due to the appearance of good and well-liked, the panelist will see other organoleptic parameters (aroma, texture and flavor). The uniformity and wholeness of a product will certainly attract panelists and is more likely to be compared with a diverse and not intact product (Rochimaet al. 2015). The appraisal is done to know the acceptance of panelist against the appearance of the stick. The average result of a stick will be presented in Figure 1.

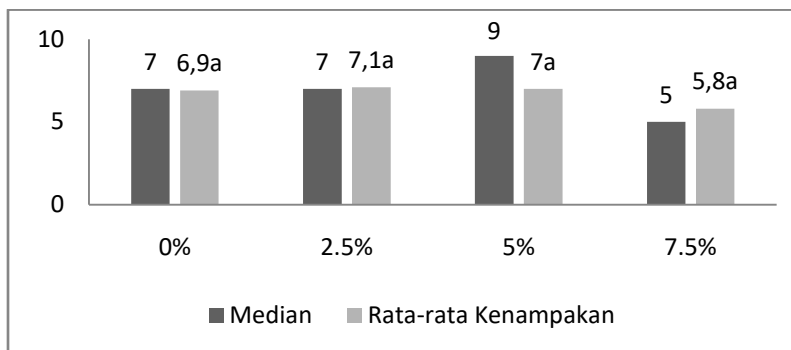


Figure 1. Average Appearance

Based on the assessment of panelists on the regular organoleptic stick is known to average values ranging between 5.8-7.1 which means that the stick will range from ordinary to panelist. The average value of the highest potency is found in the treatment of the addition of a powdered fish head flavor of the 2.5% with a value of 7.1 (like) with a golden yellow color, the shape intact and homogeneous and a flat surface, while the average value The lowest is at an addition treatment of 7% with a value of 5.8 (ordinary) with brownish color, intact shape, homogeneous and the surface is flat.

Based on Friedman's analysis with a 5% confidence degree seen that the X^2 count (6.85) < X^2 table (6.859), then H_0 accepted and the H_1 was rejected, meaning there was no influence over the addition of the fish head flavor powder to the stick's appearance. The brownish-yellow color on the stick can be caused by Maillard reaction during the frying process. Maillard reaction is a reaction that occurs between carbohydrates especially the primary amino acid reducing sugar contained in the material so that it will produce a brown-colored material called called (Bunta et al. 2013). Factors affecting maillard reaction are temperature, sugar concentration, amino concentration, pH and sugar type. With regard to temperature, Maillard reaction is rapid at 100°C but does not occur at 150°C and Maillard reaction affects taste, color and aroma (Arsa 2016).

B. AROMA STICK

The aroma assessment aims to determine the delicacy of the product based on the sense of smell (Aprilasani et al. 2014). This is due to the aroma of the product that is smell about the epithelial cells of the nose olfactory, then the stimulus is transmitted in the form of electrical impulses to the center of the nerve in the brain and causes a response to accept or reject the product. In general the scent received by the nose and brain more mixture of four main smell namely fragrant, sour, rancid and scorched (Iqbal et al. 2016). The average scent of stick with the addition of mackarel fish head flavor powder is presented in Figure 2.

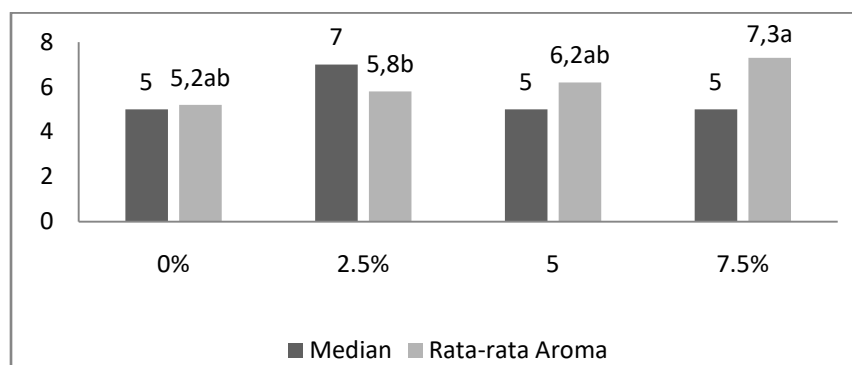


Figure 2. Average Aroma

Based on a panelist's assessment of the scent of sticks, the average value ranged from 5.2 to 7.3 which means that the scent of stick ranges from ordinary to panelists. The average value of the highest aroma is found in the addition of fish head flavor powder 7.5% with a value of 7.3 (like) produces a aroma characteristic of mackarel fish while the average value of the lowest aroma is in the treatment 0% with 5.2 value (ordinary) with a normal stick scent.

Based on the advanced test showed that the addition of powder fish head flavour flavor treatment on the stick gives a noticeable effect on the scent level. The concentration of addition powder of the fish head flavor of mackarel 2.5% has not affected the scent of stick because the distance between the treatment 0% and 2.5% is not too far. The above 2.5% increase in the aroma of the stick to be somewhat flavorful, this is due to the Mackarel fish head flavor powder has a fishy aroma typical of fish. Aroma in the test is more complex and more difficult to be assessed compared with the color because until now there is no uniformity of opinion in determining the kinds of aroma (Susanti et al. 2008).

C. TEXTURE STICK

Texture is the hallmark material as a result of combination of several physical properties that include the size, shape, quantity, and elements of material formation that can be felt by the sense of taste and taste, the sense of mouth and vision (Midayanto et al. 2014) . The texture of the stick product is related to the crunch, solidarity, and drought factors, thereby affecting the product's appearance (Lekahena 2019). The average result of a stick texture is in Figure 3.

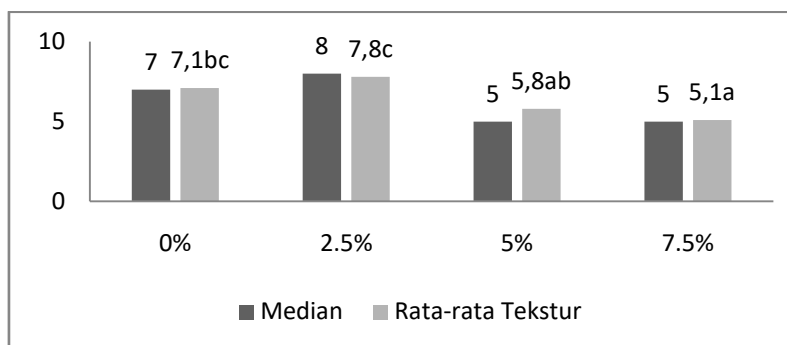


Figure 3. Average Texture

Based on a panelist's assessment of the stick texture it is known that the average value ranges from 5.1-7.8 which means that the stick texture ranges from ordinary to panelists. The average value of the highest textures is found in the addition of the fish head flavor powder, which is 2.5% with a value of 7.8 (like) while the lowest average texture rate is at 7.5% with a value of 5.1.

Based on further tests showed that the addition of the fish head flavor powder to the stick affects the favorite level of texture parameters. The entire treatment Stick is still accepted by a panelist with a median value range of 5 to 8 which means it belongs to the ordinary category until it is liked. The treatment of 0% and 2.5% did not have any noticeable effect on the treatment of 5% and 7.5% but the 2.5% treatment was significantly different to the treatment of 5% and 7.5%. Stick with the addition of the powder head flavor fish heads up to 2.5% can increase the level of the favorite stick, but with further additions as in the treatment of 5% and 7.5% will reduce the level of the stick's delight. The higher the addition of the fish head flavor powder, the harder the texture on the stick. The increase in the concentration of maltodextrin, which will lead to a decrease in the crackers. Maltodextrin is hygroscopic, thus increasing moisture content in crackers. High water content in food products can inhibit the process of product development so that the resulting texture becomes less dry and not crispy (Nurainy et al. 2015).

D. TASTE STICK

Flavor is an important factor to determine whether or not the food product is acceptable, although all parameters are normal, but not followed by a good flavor, the food will not be accepted by the consumer. More flavor involved the sense of taster (Widayatsih et al. 2017). The flavor of a foodstuff is influenced by several factors, such as chemical compounds, temperature, and interactions with other flavor components (Iqbal et al. 2016). The attributes of the flavor consist of salty, sweet, sour and bitter flavors also influenced by the formulations used (Haryadi 2011). The average result of the stick is in Figure 4.

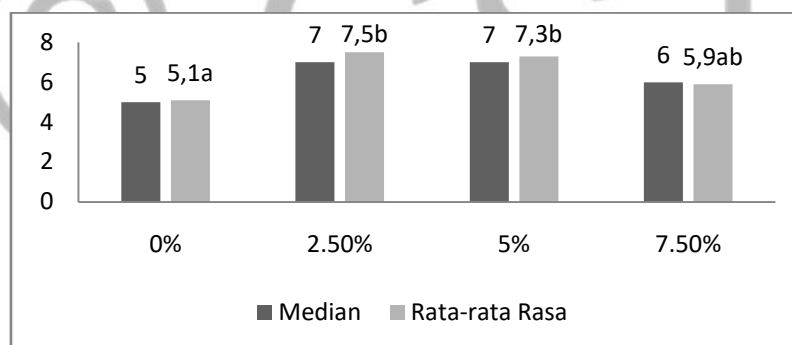


Figure 4. Average Taste Stick

Based on a panelist's assessment of the stick's flavor is known to average value ranging from 5.1-7.5 which means that the stick flavor ranges from ordinary to panelists. The average highest taste value is at 2.5% treatment with a 7.5 (like) value, while the average taste value is lowest at 0% treatment with a value of 5.1 (ordinary). Stick with the addition of 2.5% have a taste of the panelist liked because of the savory flavor and the taste of powder head fish flavor is not too strong.

Based on the advanced test showed that the addition of powder fish head flavor in the stick has an influence on the level of taste. Addition of the powder head fish flavor to 5% can increase the flavor of the stick, but with further additions such as the 7.5% treatment will reduce the level of taste of the stick. Research on Damuringrum (2002) about studying the characteristics of tilapia meatballs with the addition of flavor powder from the extract of the Windu shrimp head stated that the higher concentrations of flavor powder added to the Tilapia fish meatballs give the flavor Different. The powder head of a Mackarel fish flavor is a compound composition of non-volatile extractive components that contain nitrogen as free

amino acids will also be instrumental in the provision of the flavor of fishery products (Pratamaet al. 2013).

DECISION MAKING WITH BAYES METHOD

The best stick decision making is done by Bayes method. Bayes method is one of the techniques that can be used to conduct analysis in the best decision making from a number of alternative with the aim of producing optimal difference. Calculation results in determining the best treatment using Bayes method by considering the criteria of the appearance, aroma, texture and flavor of stick with the addition of the powder head of the fish heads flavor in Table 1.

Table 1. Decision Matrix Valuation Stick Powder Flavour Head Mackarel Fish With Bayes Method

Flavour Powder Concentration (%)	Appearance Value	Aroma Value	Texture Value	Taste Value
0	6,9a	5,2 a	7,1 bc	5,1 a
2,5	7,1 a	5,8 a	7,8c	7,5b
5	7 a	6,2ab	5,8ab	7,3 b
7,5	5,8a	7,3b	5,1a	5,9ab

Based on the analysis of the hedonic test conducted, it can be seen that the addition of the fish head flavor powder on the stick treatment 0% to 7.5% can still be received by panelists, but the treatment of 2.5% is the most liked treatment by Panelist in terms of the appearance, aroma, texture and flavor, therefore the 2.5% treatment has the highest alternative value of 7.81.

CONCLUSION

Based on the results of the research can be concluded that the addition of fish head flavor powder in the stick all treatment is still received by panelist with the most preferred treatment is the 2.5% treatment that has a favorite level value in The appearance, aroma, texture, and flavor are 7 (liked) and the texture is 8 (liked).

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