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Quality and Consumers Acceptence of Shredded Rough Flathead Fish (*Grammoplites scaber*)

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ABSTRACT

Shredded fish is a type of processed fish that is seasoned, processed by boiling and frying. The resulting product has a soft shape, good taste, special smell, and has a relatively long shelf life. This study aims to find out the level of acceptance of panelists through organoleptic test, and find out the quality of Shredded fish products from rough flathead (Grammoplites scaber) through proximate tests. The method used in this study consists of three stages. The first stage is the stage of making shredded fish. The second stage is organoleptic testing. Next is the third stage of proximate testing. Organoleptic test results of shredded fish from rough flathead (Grammoplites scaber) is 9.00 appearance, smell 8.66, taste 8.48, and texture 8.48. And the proximate results of water content values of 12.20%, ash content of 6.93%, fat content of 19.01%, protein content of 22.93 %, and carbohydrate content of 9.06%.
Keyword: Organoleptic, Proximate, Rough flathead, Shredded fish

ABSTRAK

Abon ikan merupakan jenis olahan ikan yang diberi bumbu, diolah dengan cara perebusan dan penggorengan. Produk yang dihasilkan mempunyai bentuk lembut, rasa enak, bau khas, dan mempunyai daya simpan yang relatif lama. Penelitian ini bertujuan untuk mengetahui tingkat penerimaan panelis melalui uji organoleptik dan mengetahui mutu terhadap produk abon ikan baji-baji (*Grammoplites scaber*) melalui uji proksimat. Metode yang digunakan dalam penelitian ini terdiri dari tiga tahapan. Tahapan pertama merupakan tahap pembuatan abon. Tahapan kedua yaitu pengujian organoleptik. Selanjutnya tahapan ketiga pengujian proksimat. Hasil uji organoleptik abon ikan baji-baji (*Grammoplites scaber*) yaitu kenampakan 9,00, bau 8,66, rasa 8,48, dan tekstur 8,48. Dan hasil proksimat nilai kadar air 12,20%, kadar abu 6,93%, kadar lemak 19,01%, kadar protein 22,93% dan kadar karbohidrat 9,06%.
Keyword: Abon Ikan, Ikan Baji-baji Organoleptik, Proksimat

1. Introduction

The main potential of the fishing sector is supported by sea fishing in the form of catching fish, shellfish, and shrimp. According to The Central Statistics Data Tanjungbalai District (2017), the Tanjungbalai region is one of the largest fishing centers in North Sumatra, with marine fishery production of 34,643.70 tonnes, land (public water) 16.97 tonnes and aquaculture 107.20 tonnes. Most of the different species of fish and shrimp caught by Tanjung Balai fishermen are exported. About 12 tons of fish are exported every day. The fish exported are the highest quality fish: fullness, grind, sensual, pomfret, skin, pekkogerap, shrimp, and crab (Metro, 2017). In addition to commercially valuable fish species, there are also non-commercial fish caught by fishermen in the town of Tanjung Balai and sold only locally. Rough flathead fish (*Grammoplites scaber*) is a type of fish caught by local fishermen. This fish is commonly found in the city of Tanjungbalai in North Sumatra. According to observations at the Teluk Nibung market, which sells The Rough Flathead (*Grammoplites scaber*) in Tanjungbalai, the number of fish sold per day ranges from 70 kg to 100 kg. The Rough Flathead Fish (*Grammoplites scaber*) is priced at Rp 10,000 Rp 17,000 at Teluk Nibung Market. Nurjanah (2011) states that fish are an essential source of nutrients for human survival. Humans have used fish

as food for centuries. As a food, fish contains the most important nutrients in the form of proteins, fats, vitamins, and minerals.

The Rough Flathead (*Grammoplites scaber*) is one of the strategic raw materials to meet the needs of relatively inexpensive proteins. Fish play an important role in achieving food and life safety for people in developing countries (Diana & Lubis 2018). In Tanjungbalai, the Rough Flathead Fish (*Grammoplites scaber*) are not very popular and are rarely used for cooking food. So far, research on rough flathead (*Grammoplites scaber*) has been processed into hanpen fishcakes (Lubis, et al. 2020) and the by- products of wedge fish (*Grammoplites scaber*) have been used as nutritious flour based on. Research is also being conducted. Zero Waste Concept (Diana & Fikri 2019) and Increased Wedgefish Potential the rough flathead (*Grammoplites scaber*) and Share of Body Parts as a Source of Raw Materials (Diana & Lubis 2018). For this reason, it is necessary to diversify the *Grammoplites scaber*, which is the raw material for food processing. Shredder is one of the foods that can be processed from the raw materials of the rough flathead (*Grammoplites scaber*).

Shredded fish is a type of processed fish that is seasoned, boiled, and fried. The resulting product has a soft shape, good taste, unique aroma, and relatively long shelf life (Suryani, 2007). Choosing shredded fish is another option for consumers who dislike eating fish. In addition, since fish contains highly nutritious protein, it can also be used as a protein source for meat. So far, the raw materials for producing shredded fish are generally pelagic fish such as tuna, mackerel, tuna, bonito and with coarse fiber (Suryani, 2007).

Finely chopped fish is a processed product in the form of fine, dry chunks of meat fiber. Shredded raw materials are usually made from beef, chicken, and lamb (Suryani, 2007). Processed minced meat is intended to increase the variety of foods, high quality, long shelf life, increase retail prices and improve the usability of raw materials. A sensory test was performed to determine the preferred level of shredded product.

A sensory test is a sensory test performed to determine the acceptability of a product at level panelists. This test is used to generate, measure, analyze, and interpret responses to foods and food properties perceived by sight, smell, taste, and touch using a specific scale. Based on the above, it is necessary to consider the quality inspection of shredded fish.

2. Metode

The main ingredients for making minced meat are coarse flathead fish (*Grammoplites scaber*) 1,100g and other additives 500g shallot, 250g garlic, 30g coriander, 350g galangal, 15g pepper, and lemongrass. 250g, 5 bay leaves, 5 lime leaves, 300g brown sugar, 65g salt, 1L cooking oil.

This survey was conducted in three stages. The first step is the production of shredded baji-baji fish, the second step is the sensory test, and the third step is the meticulous test.

The procedure to make a shredder according to (Kasmiati, et al. 2020). 1. Weed the fish, cut it into 3 pieces and wash with running water; 2. Next, soak in saltwater and lime juice; 3. Next, drain and steam for 15 minutes. 4. Next, separate from the bone and blend to puree; 5. Then make the spices puree, except for the bay and lime leaves; 6. Next, fry the spices for 15 minutes until the aroma comes out; 7. Then add the fish, then the salt and brown sugar; 8. Then mix well and leave for 15 minutes; 9. Then fry in oil and medium heat, stirring constantly until golden; 10. The subscription will be ejected in the centrifuge.

Sensory testing is a subjective test that uses human senses as the primary means of assessing food absorption. The sensory test performed on Rough flathead (*Grammoplites scaber*) products based on SNI 01.2346.2006 is a sensory test. The tested parameters include appearance, odor, taste, and texture.

According to the SNI 7690.1: 2013, the sensual rating scale for rough flathead fish (*Grammoplites scaber*) is 1 – 9. Sensual testing is a type of acceptance test that requires test participants to share their personal preferences. Or the opposite response. In this test with 45 participants.

SNI 01.23462006, the formula for calculating the panelist's preference level for a product is:

$$\overline{x} = \sum_{i}^{n} = 1^{\text{xi}}$$

$$S^2 = \frac{\sum_{i}^{n} = 1^{(xi-\overline{x})2}}{n}$$

$$P\ (\overline{x} - (1{,}96\ .s/\sqrt{n})) \leq \mu\ \leq (\overline{x} + (1{,}96.\ /\sqrt{n})) \cong 95\%$$

Information:
N : The panelist
S2 : Information on average quality value
1,96 : Standard deviation coefficient at 95%
$\overline{x}$: Average value
Xi : The quality value of panelists/ number of panelists
S : The standard deviation of standard values

Analysis of proximate is a test of water content, ash content, fat content, protein content, and carbohydrate content, based on SNI 01-2354-2006. Sensory test decisions were analyzed based on the researcher's assessment of the preferred level of sample being tested. The number of priority levels depends on the defined quality range. Hedonic test evaluations are calculated in numerical form, tabulated, and evaluated descriptively. All data were analyzed using Microsoft Excel 2010.

3. Result and Discussion

3.1. Sensory Test

The sensory test was conducted on a total of 45 background. Panelists were asked to evaluate the appearance, smell, taste, and texture of finely shredded rough flathead fish (*Grammoplites scaber*). Sensory test parameters were performed on finely shredded rough flathead fish (*Grammoplites scaber*) according to SNI 7690.1: 2013.

Table 1. Summarize the lower bound interval values for shredded wedge fish (*Grammoplites scaber*)

Texture	Odor	Taste	Appearance
8,48	8,66	8,48	9,00

3.2. Texture

One of the sensory test parameters is texture that can be felt through the skin or taste. Texture is one of the things that distinguishes minced meat from other marine products. That is, it is in the form of soft fibers (Sultoniyah et. al., 2013). Texture is a very important property in both fresh and processed foods (Mareta2019). The crispness of fried food is greatly affected by the freshness and quality of raw materials. When the texture of the material changes, the aroma and taste may change (Winarno, 2004). Based on the results of sensory tests on 45 untrained panelists, 38 shredded rough flathead fish (*Grammoplites scaber*) had a texture value of 9 (very similar) and 7 had a texture value of 7 (similar) was given. With a value of 8.48 according to SNI 7690.1: 2013, the quality and food safety requirements associated with the type of sensory test are a minimum of 7. Therefore, the sensory test can reach the texture value of shredded rough flathead fish (*Grammoplites scaber*). Accepted by consumers.) is acceptable to consumers.

3.3. Odor

The smell of food generally represents the delicacy of the food and has many implications for the sense of smell. The scent reaches the sensory tissue of the nostrils along with the air (Winarno, 2008).

In general, the odors picked up by the nose and brain are mostly different components or a mixture of four major odors: scent, acidity, stink, and brown (Winarno, 2002). The aroma of food is mainly derived from the spices added to the dough (Soekarto, 2002). The type of fish and the composition of the ground spices can affect the flavor of the prepared subscription (Huthaimah et al., 2017). Based on the results of sensory tests on 45 untrained panelists, 41 finely shredded rough flathead fish (*Grammoplites scaber*) had a flavor value of 9 (very) and 4 had a flavor value of 7 (like). I evaluated it. If the value of quality and food safety requirements

according to SNI 7690.1: 2013 is 8.66, the minimum requirement is 7. Therefore, the scent of the sensory test rough flathead fish (*Grammoplites scaber*) is as follows. Accepted by consumers.

3.4. Taste

The taste is absorbed by the tongue. There are four main flavors, sweetness, bitterness, acidity, and saltiness, and if you change it, it will be more responsive. According to Winarno (2002), high level of fat content gives minced meat a flavorful taste. This savory taste is consistent with the statement (Ketaren, 1986) that part of the oil enters the food during frying and fills the cavities that were originally filled with water. The acceptance of a product by a panelist is strongly influenced by the taste, although other parameters are good, if the taste is not liked, the product is rejected (Soekarto, 2002).

Taste plays a very important role in determining the acceptability and quality of food ingredients. Taste is a sensation created by the combination of the composition of the ingredients that make up a food that is enthusiastic about taste. Therefore, the taste is a major factor in the final decision on whether a product will be accepted. The color, aroma, and texture of the product are good, but if it doesn't taste good, consumers usually reject it.

Based on the results of sensory tests on 45 untrained panelists, 38 shredded rough flathead fish (*Grammoplites scaber*) had a taste value of 9 (very similar) and 7 (similar). According to SNI 7690.1: 2013, the score is 8.48 and the quality and food safety requirements for the type of sensory test are at least 7. That way, consumers can accept the taste sensory test values of the shredder Rough flathead fish (*Grammoplites scaber*).

3.5. Appearance

Based on the consumer acceptance table of sensory test results, the appearance values of shredded rough flathead fish (*Grammoplites scaber*) were accepted by 45 panelists with a score of 9 (very very similar). According to SNI 7690.1: 2013, if the score is 9.00, the quality and food safety requirements related to the type of sensory test are at least 7. Therefore, the appearance of the sensory test of shredded rough flathead fish (*Grammoplites scaber*) is acceptable to consumers.

The appearance criteria are a fairly important sensory parameter for judges to judge. This is because when the impression is good and pleasing, the taster sees other sensual parameters (aroma, texture, taste). Appearance also affects consumer perception, but appearance does not determine the absolute level of consumer preference. Product uniformity and integrity certainly attract panelists and is preferred over diverse and incomplete products (Soekarto, 2002).

Whether the food ingredient is acceptable to consumers, as visual value has a strong impact on vision, and high-quality foods (tasting, nutritious, textured) are not always preferred by consumers. It is one of the indicators to judge. Consumers (Winarno, 2004) if the appearance of the food material has an unusual appearance that is pleasing to the consumer. Along with taste, texture, and nutritional value, color is one of the parameters that determine a consumer's perception of food ingredients. Consumer preferences are often determined by the appearance of the food. Bright food coloring enhances consumer appeal (Sulthoniyah et al., 2012). The longer the fried food, the more than the finely chopped color will be (Fajriyati, 2012). Factors that affect the color produced depend on temperature and frying time. The longer the frying time, the more the product will oxidize and darken, affecting the color of the fried food. Among the properties of food, color is the factor that gives the impression that it is the most noticed, most liked, or disliked by consumers (Soekarto, 2002).

3.6. Proximate

Table 2., shows the approximate test results obtained with the percent (%) protein content, fat content, water content, ash content, and carbohydrates.

Table 2. The proximate result of shredded rough flathead fish (*Grammoplites scaber*)

Protein (%)	Fat (%)	Water (%)	Ash (%)	Carbohyd rate (%)
22.93	19.01	12,20	6.93	9.06

3.7. Protein

Changes in the value of fish protein were caused by processing, especially heat. The protein content can be reduced by treatment and the protein is denatured during heating (Swastawati et al., 2012). Denatured proteins

coagulate when heated above 50 °C. Analysis of protein content in foods is aimed at determining protein content in food ingredients.

The protein content of the shredded rough flathead fish (*Grammoplites scaber*) was 22.93%. The protein content results for this study were close to the SNI 7690.1.2013 standard, which is the protein content of at least 30%. However, this study is far superior to the study by Anwar et al. At a value of 13.48%.

3.8. Fat Content

An increase in fat content at high drying temperatures can be caused by a decrease in water content, resulting in an increase fat content. High-fat content can occur as a result of lipolysis due to relatively high drying temperatures. Fat is a compound formed as a result of the esterification reaction between glycerol and fatty acids. When fat is heated to high temperatures, the fat double bonds are broken and the fat is broken down into glycerol and fatty acids (Zuhra et al., 2012). Since fat is one of the main components of foods along with carbohydrates and proteins, fat plays a very important role in determining the characteristics of food ingredients (Aditya et al.). 2016).

Analysis of the fat content of products is aimed at determining the fat content of foods. As a result, the fat content of the shredded rough flathead fish (*Grammoplites scaber*) was 19.01%. The high fat content of minced meat is also caused by the low water content of minced meat. This is consistent with the statement by Ronpon (2002) that the lower the water content of the fish, the higher the fat content and vice versa. Compared to existing standards, this Survey met the shredded requirements set by SNI. According to SNI 0137071995 for minced meat, the maximum fat content of minced meat is 30%.

3.9. Water Content

Water is an important ingredient in foods as it can affect food acceptability, appearance, freshness, texture, and taste (Aditya et al. 2016). (Table 2) The survey results show that the water content of shredded rough flathead fish (*Grammoplites scaber*) is 12.20%.

This study meets the minced meat requirements set by SNI. According to SNI7690.1: 2013 on fish shredders, the water content of fish shredders is up to 15%. Moisture content is one of the factors that determine the quality of minced meat. High water content provides high water activity as a suitable vehicle for the activity of spoilage microorganisms, especially fungi.

The moisture content of a product also affects the appearance, texture, and taste of the product. Moisture content is an important indicator of dried products, as increased water content and the growth of spoilage microorganisms due to chemical reactions can lead to poor quality.

3.10. Ash Content

Ash in food indicates the amount of inorganic matter remaining after the destruction of organic matter (Aditya et al. 2016). Ash is a mixture of inorganic or mineral ingredients found in food ingredients. Foods are composed of 96 kinds of inorganic substances and water, and the rest are mineral components. Elements are also called organic matter or ash. The ashes can indicate the total mineral content in food. Organic matter burns during the burning process, but organic matter does not. This is the reason why it is called ash. Total ash measurement aims to know the type of material used and to determine if the treatment has taken place as a determinant of the nutritional parameters of the food.

Ash is an inorganic substance left over from the burning of organic matter. Determining the ash content is closely related to the mineral content of the material, the purity, and the cleanliness of the manufactured material. The ash content of the shredded rough flathead fish (*Grammoplites scaber*) was 6.93%. The value is still within the limits required by SNI0137071995 (BSN, 1995). The maximum ash content is 7%. Thus, the ash content of the shredded rough flathead fish (*Grammoplites scaber*) meets the criteria.

Ash content indicates the content of inorganic matter remaining after the destruction of organic matter and is affected by the type of material and the method of ashing. High ash content represents the abundance of non-burnable minerals in non- evaporable substances.

3.11. Carbohydrate

The results of carbohydrate level analysis were influenced because it takes a high temperature, and a long time due to a major impact on the level of carbohydrate shredded rough flathead fish (*Grammoplites scaber*). As the description (Mottadi and AyustaningWarno, 2010). By reducing the water content, the food is a high

concentration at high concentrations of transformation such as carbohydrates, proteins, and minerals, but vitamin vitamins and dyes are generally damaged or decreased. The carbohydrate level (*Grammoplites scaber*) is 9.06% as the requirements carbohydrate level of shredded (BSN 1995).

4. Conclusion

In this study, it can be concluded that shredded rough flathead fish (*Grammoplites scaber*) are acceptable at the panelist acceptance level and also as the quality requirements of shredded fish according to SNI7690.1.2013. To summarize the low interval values, consumer acceptance of rough flathead fish (*Grammoplites scaber*) is very similar to the score 8.65, but is an approximation of rough flathead Fish (*Grammoplites scaber*). Proximate est results: fat content 19.01%, protein content 22.93%, water content 12.20%, ash content 6.93%, carbohydrate content 9.06%.

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