International Journal of Applied Research and Sustainable Sciences (IJARSS)
Vol. 1 No. 2, 2023: 65 - 72

Panelist Acceptance Level Based on Sensory Tests on Cakalang Fish Noodle Products

Jufrin Pagune[1], Asriani I. Laboko[2], Asniwati Zainuddin[3], Nurbanilah Ahaya[4*]
Universitas Ichsan Gorontalo
Corresponding Author: Nurbanilah Ahaya nilaahaya@gmail.com

A R T I C L E I N F O

Keywords: Noodles, Cakalang Fish, Skipjack Noodles, Sensory

Received : 05 August
Revised : 07 September
Accepted: 09 October

A B S T R A C T

The aim of the study was to determine the level of panelists' acceptance of skipjack noodle products by means of a sensory test by adding cakalang fish. The research was conducted using a sensory test with 50 panelists on noodle products with the addition of cakang fish. Observational parameters observed in this study are test regularly sensory in terms of color, aroma, taste, and texture. The results of the sensory test research show that the best results from the test color in sample 2 with a score of 50 (yellow), while in sample 1 with a score of 42 (bright white) and followed by a pale color with a score of 5 and (white and yellow) with a score of 3 in sample 1. The scent that the panelist likes the most in sample 1 (scent of flour) with a score of 50, while in sample 2 with a score of 30 (smell of spices), and followed by (scent of cakalang fish) with a score of 20. Taste test which was preferred by panelists in sample 1 with a score of 50 (taste of flour) and in sample 2 panelists chose more (taste of spices) with a score of 20 and (taste of flour) with a score of 15 and (taste of skipjack tuna) with a score of 15. Texture test on sample 1 with a score of 50 (noodle texture) and sample 2 with a score of 50 (noodle texture). The occurrence of panelists' preference for the texture of skipjack tuna noodles was caused by the gluten content

INTRODUCTION

Indonesia has a huge diversity of marine resources. And it is estimated that the area of Indonesia's marine waters is 5.9 million km2, which has a coastline of 82,000 km, and to produce a fairly large number of marine fisheries, namely 6.27 per ton, of course there are 17,509 island clusters. Indonesia has relatively large fisheries production potential(Hardjamulia, 2001).

Gorontalo Province has potential fish resources in three waters, namely Tomini Bay, Sulawesi Sea and the Indonesian Exclusive Economic Zone (ZEEI) \ Sulawesi Sea. These waters are used by fishermen covering several regions, namely fishermen from North Sulawesi, Central Sulawesi, Maluku and South Sulawesi. Conditions that cause fisheries resources to have difficulties in controlling the presence of inputs. There is no separation in the direction of access to fish resources, which causes excessive fishing and illegal fishing, so that the use of fish resources becomes inefficient, thus having a negative impact on the environment and the continuation of life, which mutually influence each other.(Provincial Fisheries and Maritime Servicei Gorontalo, 2019). Utilization of the potential of aquatic fish resources is not only used by fishermen in Gorontalo Province. To increase the economic value of skipjack tuna in Boalemo Regency, a new product has been created from skipjack tuna called skipjack fish noodle products. The product innovation aims to improve product quality and diversification so that products have competitiveness and increase product quality efficiency.

Based on the above, it is necessary to conduct research on skipjack tuna noodle products which are expected to be able to maintain the nutritional value of the noodles and increase the economic value of the fish and be accepted by the community.

LITERATURE REVIEW

Compared to other animal sources, sea fish has advantages in its composition of unsaturated fatty acids. In fish there are eleven dominant fatty acids, including myristic, capric, strata, soluble, linoleic, caprylic, eleic, decosahexanoic acid (DHA) and eicosappentanoic acid (EPA). Fatty acids are very supportive for saltwater (sea) fish, namely Oleic fatty acid which is said to be omega-9 and DHA and EPA which are best known as omega-3 fats which have advantages in preventing heart disease (Pakaya, 2015). So it is very suitable to be combined with skipjack tuna noodles.

Noodles are a food product that is popular in various parts of the world, one of which is Indonesia, although the ingredients, name, shape and processing methods for noodles are relatively different. Until now, noodles have become an alternative food product to replace carbohydrate sources such as rice which is widely consumed by the majority of all groups, from children to adults. This is because noodles have nutritional components that are relatively the same as the nutritional components of rice, more specifically carbohydrate nutrition which is used to increase daily energy needs, so consuming noodles is considered to be as filling as consuming rice (Dewi, Mulyadi, & Ikawati, 2015) . Dried noodles are fresh noodles that are dried in the oven or dried in the sun

until the water content reaches 10%. Dry noodles also have a relatively long shelf life, because dry noodles have a low water content (Astawan, 2005).

METHODOLOGY

A. Tools and materials

The tools used in this research were: sieve, container, pan, tray, large spoon, drain, mold, stove, knife, scissors, teaspoon, plastic pan, measuring cup, erlenmeyer, petri dish, oven, press, paper scales , analytical scales, digital scales, test tubes, porcelain crucibles, porcelain crucibles, furnaces, crucible clamps, digestion flasks, Soxhlet extraction details, potrelium solvents, bottles and water heating.

The ingredients used in this research were: 1 large fresh skipjack tuna, 500 g wheat flour, 2 chicken egg yolks, 10 g table salt (Nac1), 180 ml water, 1 small bottle of cooking oil, food coloring and additional spices. -spices such as: salt 15 g, shallots 15 g, garlic 5 g, pepper 5 g, red chilies 10 g, candlenuts 5 g, turmeric powder 10 g, lime 2 pieces, soy sauce 1 small bottle, tomato sauce 1 bottle small, 1 small packet of flavoring, and 5 g celery in a grinder.

B. Research procedure

The raw material used in this research was 1 fresh skipjack tuna (Katsuwonus pelamis) with an average weight of 3 kg/fish located at the Tilamuta Traditional market. All the raw materials that have been prepared include fresh skipjack tuna, 500 g wheat flour, 2 chicken egg yolks, 10 g table salt (NaCL), 180 ml water, 1 small bottle of cooking oil, food coloring. Add spices to skipjack fish noodles such as: salt 15 g, shallots 15 g, garlic 5 g, pepper 5 g, red chilies 10 g, candlenuts 5 g, turmeric powder 10 g, lime 2 pieces, soy sauce 1 small bottle , 1 small bottle of tomato sauce, 1 small package of flavoring, and 5 g of celery in a grinder. After that, mix the spices and skipjack tuna in a frying pan, then sauté at 115OC for 10 minutes. The raw materials that have been combined are stirred until the dough is smooth. After the dough comes together and forms a solid, the next step is printing using a sheet rolling machine (I) starting with a size of 2.5 mm and repeating once again with a size of 3.5 mm and 5.5 mm. The second cloth strip (II) was also repeated three times with sizes 3.5 mm, 2.5 mm and 1.5 mm. The sheets that have been formed are then printed or cut with a printing machine. The length of the noodle pieces is usually around 20-30 cm and then the noodle pieces are combined together, sprinkled with a little cooking oil while stirring, so they don't stick to each other. Noodles that have been steamed, removed, drained and spread in a large and clean place. Next, sprinkle with approximately 200CC of cooking oil, while stirring until evenly distributed. Next, boil it in boiling water for 5 – 10 minutes. The noodles that have gone through the cooking process are then dried in the sun for 2 days or dried for 7 hours. Then packaged using plastic (PP) to the desired size.

C. Research Parameters

The parameters used in this research were sensory tests using 50 panelists. This sensory test aims to determine the suitability of the product using a human sensory assessment system. The aspects that will be tested on the product are in terms of color, aroma, taste and texture.

RESEARCH RESULT

A. Color

According to Pagune et al, (2023), determining the quality of food ingredients in general is very dependent on several factors including color, aroma, taste, texture, but the appearance color factor comes first and is very determining based on sensory tests of color, pale, bright white, white yellow, yellow for skipjack fish noodle products. The number of panelists' liking for color can be seen in Table 1.

Sample	COLOR			
	Pale	Bright White	White Yellow	Yellow
1	5	42	3	0
2	0	0	0	50

Table 1. Color sensory test results for skipjack tuna noodles

Based on Table 1, the data obtained from the sensory test results show that the level of preference for the color of skipjack tuna noodles that is most liked by the panelists is in sample 2 with a score of 50 (yellow), while in sample 1 with a score of 42 (bright white) and in followed by (pale color) with a score of 5 and (white and yellow) with a score of 3 in sample 1. This is because the noodles are white and yellow like the color of noodles in general. According to research(Ketaren, 2005), the level of color intensity depends on the drying time and temperature and also the chemical composition on the outer surface of the food. According to(Wibowo, 2000)The longer the time spent in drying causes the oxidation process in the noodles to increase, as a result the color change in the noodles becomes pale and white to yellow which will affect the color of the drying results..The cause of the color change in skipjack tuna noodles is due to the addition of eggs and turmeric, so that the noodlesyellow. For the process of making skipjack fish noodles, the basic ingredients are wheat flour which is added with natural coloring in the form of turmeric juice or artificial yellow coloring with the aim of giving a brighter yellow color. The panelists liked sample 2 because the color of the skipjack tuna noodles was attractive in itself.

B. Aroma

Aroma is the most important factor in determining the level of consumer acceptance of an ingredient, aroma determines the deliciousness of a food ingredient, usually someone can judge whether a food ingredient is delicious or not from the aroma it produces.(Pagune et al, 2023). Apart from shape and

color, smell or aroma will have an influence and be the main concern. After the smell is received, the next determination is the taste as well as the texture(Hasan, 2021). The heating treatment will cause changes in texture, taste and nutritional value. Softening of the texture and loss of tissue/cell integrity as a result of damage from heating so that the chemical substances in the material will react and cause changes in color, flavor and nutritional value. Flavor changes occur due to a lack of flavor substances. The results of sensory tests on aroma parameters can be seen in Table 2.

Sample	AROMA			
	Flour	Skipjack Fish	Spice	Noodles
1	50	0	0	0
2	0	20	30	0

Table 2. Aroma sensory test results on skipjack tuna noodles

Based on Table 2, the data obtained from the sensory test results show that the level of preference for the aroma of skipjack fish noodles that is most liked by the panelists is in sample 1 with a score of 50 (flour aroma) and in sample 2 with a score of 30 (spiced aroma) and followed by (the aroma of skipjack tuna) with a score of 20. The increase in panelists' preference for the aroma of skipjack tuna noodles in sample 1 (flour aroma) with a score of 50 was caused by the starch content, which is a complex carbohydrate and will not dissolve in water, whereas in sample 2 because the ingredients in spices have a smell and taste (flavor). Which is combined with salt and other spices which creates a distinctive smell in the final product(Suhan, 2014), The formation of aroma in skipjack fish noodle products is due to the presence of phenol compounds with medium points and the aroma is more influenced by the sense of smell. This aroma is also known as long-distance tasting because humans can recognize the taste of food that is not yet visible just by smelling it from a distance.(Soekarto, 2010). According to(Wibowo, 2000), the panelists liked skipjack tuna because skipjack tuna has a source of animal protein and attracts consumers' attention and explains the existence of skipjack tuna.

C. Flavor

Taste is the response of the taste buds to nervous stimulation, such as sweet, bitter, sour and salty. Taste is the second factor that consumers pay attention to after color. According to(Sulthoniyah, M TS, Sulistiyati, DT, Supriyanto, 2012), taste is influenced by several factors, namely chemical compounds, temperature, concentration and interactions with other taste components. An increase in temperature will increase the stimulation of sweet tastes but will reduce the stimulation of salty and bitter tastes. The results of the sensory test on taste parameters can be seen in Table 3.

Sample	FLAVOR			
	Flour	Skipjack Fish	Spice	Noodles
1	50	0	0	0
2	15	15	20	0

Table 3. Taste sensory test results for skipjack tuna noodles

Based on table 3, the data obtained from the results of the sensory test shows that the level of preference for the taste of skipjack fish noodles is most liked by the panelists, namely in sample 1 with a score of 50 (flour taste) and in sample 2 the panelists prefer the seasoning taste with a score of (20). and the taste of flour with a score of (15) and the taste of skipjack fish with a score of (15). This is because the taste is influenced by heating or processing, resulting in degradation of the taste constituents and physical properties of food ingredients. According to(Herlian, 2008), The degree of change is related to the sensitivity of the food to heat. Heat treatment that is too high for a long time will damage the taste and texture of the food. The consistency of food texture is also a component that also determines the taste of food because the sensitivity of the sense of taste is influenced by the concentration of the sense of taste which is influenced by the consistency of the food. Food that is thick or thick will stimulate our senses more slowly.

D. Texture

Each food has its own texture properties depending on its physical condition, size and shape. Assessment of texture can change in hardness, elasticity, lightness, stickiness and so on. Texture is the biggest determinant of taste quality(Pagune et al, 2023). The texture of food products is one of the components assessed in sensory tests. Based on sensory tests on hard, soft, soft and watery textures. The results of sensory tests on texture parameters can be seen in Table 4

Sample	TEXTURE			
	Hard	Soft	Mushy	Juicy
1	0	30	20	0
2	0	28	22	0

Table 4. Texture sensory test results for skipjack tuna noodles

Based on Table 4, the data obtained from the sensory test results show that the level of preference for the texture of skipjack fish noodles that is most liked by the panelists is in sample 1 with a score of 30 (soft texture) and followed by (soft texture) with a score of 20, while in sample 2 with a score 28 (soft texture) and followed by (soft texture) with a score of 22. The level of panelists' preference for the soft texture of skipjack tuna noodles in sample 1 was caused by the gluten content. Gluten has properties that can produce chewy noodles(Zubaidah, 2015). This is also supported by research(Bela, 2013)that the

addition of wheat flour in making noodles will make the texture of the noodles brittle and break easily when cooked because the protein content decreases and the amylose content in the dough increases. Low protein content makes the noodle texture softer and high amylose content makes the dough unable to absorb water to form a strong noodle texture. When making dry noodles by substituting wheat flour, the gluten protein content in the noodle dough is reduced due to a decrease in the amount of wheat flour used.(Rithiruangdej, 2011). The panelists liked sample 2 because of the protein content which has an influence on the texture because heat treatment in the noodle processing process causes the protein to denature, making the noodles rigid. The lower the gluten protein content in the noodles, the resulting noodles will be soft and break easily, so the panelists tend to prefer them.

DISCUSSION

This section allows you to describe your research findings academically. You may not enter figures related to your statistical tests here; instead, you should explain those numbers here. You should structure your discussion with academic support for your studies and a good explanation according to the specific area you are investigating.

CONCLUSIONS

Based on the research results, it can be concluded that the level of panelist acceptance of the sensory test on skipjack tuna noodles was more liked by panelists in terms of color, aroma, taste and texture in sample 2 with the addition of skipjack tuna.

ADVANCED RESEARCH

It would be advisable to conduct further research regarding protein, carbohydrate and water content in skipjack fish noodle products.

REFERENCES

Bela, R. dan. (2013). *Kualitas Ikan Cakalang Segar Pasca Pendaratn di PPILPPA SINJAI Sampai Pemasaran Akhir Dikabupaten Sinjai. Skripsi Ilmu Kelautan dan Perikanan. Makasar: Universitas Hasanudin.*

Fahrurrozi, M., & Kompiang, S. (2019). Antioxidant activity and controlled release analysis of red ginger oleoresin (Zingiber officinale var rubrum) encapsulated in chitosan cross-linked by glutaraldehyde saturated toluene. *Sustainable Chemistry and Pharmacy*, *12*(January), 100132. https://doi.org/10.1016/j.scp.2019.100132

Gorontalo, D. P. dan K. P. (2019). *Potensi Ikan di Provinsi Gorontalo*. https://www.gorontaloprov.co.id

Hardjamulia, N. dan P. (2001). *Potensi Pemanfaatan dan Pengolahan sumber Daya Perikanan. Forum Perikanan Sukabumi*. *1*(2), 65.

Hasan, N. Y. (2021). *Pengaruh berbagai kosentrasi ikan roa asap(Hemirhampus far) terhadap pembuatan mie kering*. Universitas Ichsan Gorontalo.

Herlian, L. (2008). *Teknologi Pengawetan Pangan.* Alfabeta.

Ketaren. (2005). *Pengantar Teknologi Minyak dan Lemak Pangan*. Univerista Indonesia Press.

Pagune, J., Laboko, A.L., and Zainuddin, A.(2023)" Formulasi Ekstrak Jahe Merah (Zingiber Officinale Var.Rubrum) Pada Pembuatan Susu KedelaiBubuk",*Jurnal : Agricultural Review, 2(1), pp. 1-9. doi :10.37195/arview.v2i1.354*

Pagune, J., Laboko, A.L., and Taguge, M.(2023).Formulation of goroho banana (Musa acuminafe, sp) wheat flour and tapioca flour in the making of wheel cakes. *International Journal of integrated science and technology, 1(2),* 107-116. https://doi.org/10.59890/ijist.v1i2374

Pagune, J., Laboko, A.L., Anto, A., dan Pou, M. (2023). Karakteristik fisikokimia dan hedonik terhadap pembuatan minuman herbal binahong (Anredera Cordifolia) dengan Penambahan Kayu Manis. Jurnal : Agricultural review, 2(2), 21-32. https://doi.org/10.37195/arview.v2i2.652

Rithiruangdej. (2011). *Aktivitas Air dan Perannya Dalam Pengawetan Pangan. Jakarta: UI. Press.*

Suhan, R. M. (2014). *Pengaruh Lama Pengorengan Terhadap Uji Organoleptik Dan Kandungan Albumin Ikan Gabus (Ophiocephalus striatus*. Fakultas UIN Alauddin Makassar.

Sulthoniyah, M T. S., Sulistiyati, D. T., Supriyanto, E. (2012). Pengaruh Suhu Pengukusan Terhadap Kandungan Gizi Dan Organleptik Abon Ikan Gabus (Ophiocephalus striatus). PS Teknologi Hasil Perikanan, Fakultas Perikanan dan Ilmu Kelautan, Universitas Brawijaya. *Journal Vol. 1 No.1 Pp 33-45. Received 29 November 2012. Accepted 15May 2013.*

Wibowo. (2000). *Industri Pengolahan Pisang*. Penetapan Swadaya. Jakarta.

Zubaidah, L. (2015). *Formulasi Opak Beratul Padi (Kajian Penambahan Bekatul dan Proposi Tepung Ketan Putih:Terigu).* FTP: Universitas Brawijaya.