International Journal of Multidisciplinary Research and Publications
ISSN (Online): 2581-6187

Organoleptic Satisfaction of Siomay Ikan Tenggiri Products as Various Levels of Addition of Seaweed Flour

Sinta Firanida[1], Thania Tiaraningsih[2], Kayla Zahira Saffanah[2*], Nadira Fatharani[2], Evi Liviawaty[3]
[1, 2]Undergraduate Student of Fisheries Study Program, Padjadjaran University, Jatinangor, Indonesia, +62
[3]Lecturer Staff of Fisheries Department, Padjadjaran University, Jatinangor, Indonesia, +62
*Email correspondence address: kayla21004@mail.unpad.ac.id

Abstract—*This study aims to determine the best concentration of the addition of seaweed flour in making siomay ikan tenggiri (mackerel dumpling) with its effect on the level of liking based on organoleptic tests. The research method used in this study is an experimental method that aims to obtain the best results of mackerel fish dumplings with the addition of seaweed flour there are 4 treatments, namely without the addition of seaweed flour (control treatment), with the addition of seaweed flour as much as 5 grams, 10 grams, and 15 grams of tapioca flour used in making mackerel fish dumplings. Organoleptic testing was carried out on mackerel fish dumplings using hedonic tests (appearance, aroma, texture, and taste) to determine the level of consumer preference for the mackerel fish dumplings produced. The scale used ranged from 1-9, namely 1 (very dislike), 3 (dislike), 5 (normal), 7 (like), and 9 (very like) using 15 semi-trained panelists. Data obtained from organoleptic testing of siomay ikan tenggiri (mackerel dumpling) from various levels of seaweed flour addition were analyzed descriptively. It can be hypothesized that the addition of seaweed flour with a percentage of 5 grams produces the most favorable organoleptic level of siomay ikan tenggiri (mackerel dumpling).*

Keywords— *Seaweed flour, Mackerel, Fish dumplings, Organoleptic, Favorability.*

I. INTRODUCTION

Siomay is a food that is in great demand by the people of Indonesia and is easily found in snack places or celebratory events, even though many people usually make siomay as their daily food as a side dish (Nessianti and Dewi 2015). Initially, the raw material for making siomay was minced pork, but the meat can be replaced with fresh fish meat, such as mackerel and shrimp, some even use chicken meat, and other ingredients in making siomay are starch and egg white (Nessianti and Dewi 2015). According to DKBM data (List of Food Ingredients Composition) in Indriyani and Frianto (2023) the nutritional content of one portion of siomay weighing 170 grams is 162 kcal calories; 7.5 grams of protein; 3.8 grams of fat; 24.4 grams of carbohydrates; 3.56 mg of calcium and 2.41 mg of iron.

Mackerel (*Scomberomorus commerson*) is a type of marine fish that is included in the pelagic marine fish species that is much favored by the community (Ambaryanti *et al.* 2022). Physically, mackerel has thick meat, but another advantage of mackerel is that it has a chewy and soft texture, does not contain many thorns, has a savory taste, and is able to cause a distinctive and not fishy aroma (Muthohar and Setyanova 2004). Therefore, mackerel meat is widely used in various preparations, one of which can be used to make fish dumplings. The soft and white meat of mackerel is very easy to process even without using a meat grinder. In addition, mackerel is one type of fish that has high nutritional value. Mackerel meat is rich in antioxidants, coenzyme Q10, and omega-3 fatty acids that can prevent cancer. Omega-3 contained in mackerel is very beneficial for the growth and development of the human brain (Purwanti *et al.* 2022).

Seaweed (*Eucheuma spinosum*) is one type from the Rhodophyceae class (red algae). Red algae are one of the marine organisms available in abundant quantities and easily cultivated. Red algae are the main source of halogenated compounds such as laurenterol, halomon, callicladol, and other compounds (Amaranggana and Wethoni 2017). Halogenated compounds play a role in antibacterial, antifungal, anti-inflammatory, ictyotoxic, cytotoxic, and insecticidal systems. In addition, terpenoids, polyethers, acetogenins, some amino acids, cycathymates, as well as nucleic acid derivatives, and acetatalgae are contained in red algae (Amaranggana and Wethoni 2017).

Seaweed (*Eucheuma spinosum*) is one type of seaweed with high economic value in Indonesia that is still not widely utilized (Djelantik *et al.* 2016). Seaweed (*Eucheuma spinosum*) has a high nutritional value because it contains carbohydrates of 13.38% and low fat of 0.13%, and contains 66.4% fiber. Fiber has an important function in health to help facilitate the digestive system, so the addition of seaweed flour as fiber in mackerel siomay is one of the efforts that can be made to meet fiber needs in the body (Agusman *et al.* 2014). Based on the description above, this study aims to determine the best concentration of the addition of seaweed flour (*Eucheuma spinosum*) in making siomay ikan tenggiri (mackerel dumpling) with its effect on the level of liking based on the organoleptic test.

II. RESEARCH METHOD

The research was conducted at the Fishery Product Processing Laboratory, Faculty of Fisheries and Marine Science, Padjadjaran University. Research activities include

Sinta Firanida, Thania Tiaraningsih, Kayla Zahira Saffanah, Nadira Fatharani, Evi Liviawaty. "Organoleptic Satisfaction of Siomay Ikan Tenggiri Products as Various Levels of Addition of Seaweed Flour," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 6, Issue 6, pp. 73-76, 2023.

the preparation of tools and materials, research procedures, organoleptic tests, and analysis of research results. Mackerel (*Scomberomorus commerson*) is a type of marine fish that is included in the pelagic has thick meat. Still, another advantage of mackerel is that it has a chewy and soft texture, does not contain many thorns, has a savory taste, and is able to cause a distinctive and not fishy aroma (Muthohar and Setyanova 2004). Therefore, mackerel meat is widely used in various preparations, one of which can be used to make fish dumplings. The soft and white meat of mackerel is very easy to process even without using a meat grinder. In addition, mackerel is one type of fish that has high nutritional value. Mackerel meat is rich in antioxidants, coenzyme Q10, and omega-3 fatty acids that can prevent cancer. Omega-3 contained in mackerel is very beneficial for the growth and development of the human brain (Purwanti et al. 2022).

The tools used were scales, bowls, spoons, steamer, and stove. The ingredients used are based on the recipe used by Nessianti and Dewi (2015) in modification of making siomay ikan tenggiri (mackerel dumpling) including mackerel meat, seaweed flour, tapioca flour, eggs, salt, sugar, pepper, flavoring, water, shallots, garlic, and dumpling wrappers

The stages of making mackerel fish dumplings with the addition of seaweed flour must be done as follows:

1. Prepare tools and ingredients.
2. Prepare tools and ingredients. Wash 800g of mackerel meat.
3. Soak the fish meat with lime juice for 10 minutes until evenly distributed.
4. Fish meat is then mashed using a blender with a little ice water or ice cubes to taste. After smoothing, the fish meat is divided into four parts, each 200 g into a container.
5. Mix each piece of fish meat that has been mashed with 20 g of shallots and 7 g of garlic that has been mashed.
6. Add 75 g tapioca flour, 35 g egg white, 7 g salt, 2 g sugar, 0.5 g pepper, and 0.5 g flavoring to each mixture. Stir until evenly distributed.
7. Weigh the seaweed flour, and divide it into three parts, namely 5 grams, 10 grams, and 15 grams,
8. Mix the seaweed flour into the 3 doughs. Stir again until smooth.
9. Take 1 tablespoon of dumpling dough and wrap it in dumpling skin. Make sure all the dumplings have the same weight.
10. Steam the dumplings for 15 minutes until cooked. When cooked, the dumplings are ready to be served

Organoleptic testing was carried out on siomay ikan tenggiri (mackerel dumplings) using a hedonic test (appearance, aroma, texture, and taste) to determine the level of consumer preference for the siomay ikan tenggiri (mackerel dumplings) produced. The scale used ranged from 1-9, namely 1 (very dislike), 3 (dislike), 5 (normal), 7 (like), and 9 (very like) using 15 semi-trained panelists. Data obtained from organoleptic testing of mackerel siomay from various treatments of seaweed flour addition levels were analyzed descriptively comparative.

III. Result and Discussion

A. Appearance

Appearance is an important aspect for consumers to choose products. This is because if the impression of appearance is good and preferred, then panelists will see other organoleptic parameters such as aroma, texture, and taste (Rochima *et al.* 2015). Although appearance doesn't determine the level of consumer preference absolutely and entirely, appearance also affects consumer acceptance (Rochima *et al.* 2015).

The results of the organoleptic test on the appearance of 15 panelists obtained an average value of 6 to 8 while the median value was 5 to 9. The highest level of liking for appearance was obtained from the addition of 5 grams of seaweed flour, with an average value of 8. The lowest level of liking for appearance was obtained from the addition of 15 grams of seaweed flour with an average value of 5. The results of the assessment of the organoleptic test for the appearance of the siomay ikan tenggiri (mackerel dumpling) from each treatment are listed in TABLE I.

TABLE I. The average level of liking for the appearance of siomay ikan tenggiri (mackerel dumpling)

Seaweed Flour Treatment (g)	Median	Average
P (0)	7.0	7.3
P1 (5)	9.0	7.5
P2 (10)	7.0	6.0
P3 (15)	5.0	5.3

This shows that in terms of appearance, siomay ikan tenggiri (mackerel dumpling) with the addition of 5 grams of seaweed flour is the treatment most favored by panelists. The appearance of siomay ikan tenggiri (mackerel dumpling) obtained from the addition of 5 grams of seaweed flour produces a combination of bright white and yellow colors. Meanwhile, the appearance of siomay ikan tenggiri (mackerel dumpling) with the lowest level of preference, namely the addition of 15 grams of seaweed flour, has a combination of white and slightly brownish yellow. The difference in appearance is due to the basic color of seaweed flour which is yellowish white, so the more percentage of flour added, the resulting appearance becomes yellowish white (Apriany *et al.* 2015).

B. Aroma

The aroma in food products mostly comes from seasonings added at the time of kneading (Rochima *et al.* 2015). Aroma is one of the parameters in testing sensory properties (organoleptic) using the sense of smell.

The results of the organoleptic test on aroma from 15 panelists obtained an average value of 5 to 8 while the median value was 5 to 7. The highest level of liking for aroma was obtained from the addition of 5 grams of seaweed flour, with an average value of 8. The lowest level of liking for aroma was obtained at the level of addition of 15 grams of seaweed flour with an average value of 5. The results of the assessment of the organoleptic test for the aroma of siomay ikan tenggiri (mackerel dumpling) for each treatment are listed in TABEL II.

Sinta Firanida, Thania Tiaraningsih, Kayla Zahira Saffanah, Nadira Fatharani, Evi Liviawaty. "Organoleptic Satisfaction of Siomay Ikan Tenggiri Products as Various Levels of Addition of Seaweed Flour," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 6, Issue 6, pp. 73-76, 2023.

TABLE II. The average level of liking for the aroma of siomay ikan tenggiri (mackerel dumpling)

Seaweed Flour Treatment (g)	Median	Average
P (0)	7.0	7.0
P1 (5)	7.0	8.0
P2 (10)	7.0	6.0
P3 (15)	5.0	5.0

This shows that in terms of aroma, siomay ikan tenggiri (mackerel dumpling) with the addition of 5 grams of seaweed flour is the most preferred treatment by panelists. This means that the aroma of siomay ikan tenggiri (mackerel dumpling) in this treatment has a strong and product-specific aroma description. In addition, the addition of 5 grams of seaweed flour with mackerel is more balanced so that the aroma produced is specific and not too pungent. Meanwhile, siomay ikan tenggiri (mackerel dumpling) with the lowest level of aroma liking, namely the addition of 15 grams of seaweed flour, have a composition that is less balanced with mackerel so that the resulting aroma is too pungent and less favored by panelists. According to Kusmawati *et al.* (2000), aroma can be accepted if the material produced has a specific aroma.

C. Texture

Texture is a sensation of pressure that can be observed using the mouth or sense of touch using fingers (Hartati *et al*. 2021). According to Pertiwi *et al*. (2021), texture is the sensation of pressure that can be observed by mouth or by touching the surface of the skin against the thickness, hardness, or smoothness of the food surface. Texture is an important aspect for evaluating the quality of food products, especially in products that have a soft and hard texture because they can affect consumer acceptance of the products produced (Astutik *et al.* 2020). The results of the assessment of the level of favorability of the texture of siomay ikan mackerel dumpling from each treatment are listed in TABLE III.

TABLE III. The average level of liking for the texture of siomay ikan tenggiri (mackerel dumpling)

Seaweed Flour Treatment (g)	Median	Average
P (0)	7.0	7.3
P1 (5)	9.0	7.9
P2 (10)	7.0	6.9
P3 (15)	7.0	6.6

The results of the organoleptic test of the texture of 15 panelists showed that the level of preference for the texture of siomay ikan tenggiri (mackerel dumpling) has the media ranged from 7-9 and average ranged from 6.6-7.9. The highest level namely the addition of 5 grams of seaweed flour with an average value of 7.9 and the lowest level of preference, is the addition of 15 grams of seaweed flour with an average value of 7.9. Dumpling (siomay) is a steam product (a product that is processed by steaming) and is classified as a product that requires a gel formation specification that is compact, not soft, non-aqueous, and not too hard (Astutik *et al.* 2020). The level of addition of Seaweed flour can improve texture, particularly increased hardness, and chewiness (Widatia *et al.* 2021). These were caused by carrageenan in seaweed that possesses good water-binding properties and thus strengthens the gel matrix in heat-induced meat (Purnomo 2012).

D. Taste

Taste is a critical parameter for consumers to determine whether to accept or reject a product. Although other parameters are considered quite good, if a product has a bad taste, then the product will not be accepted by consumers (Justitie *et al.* 2019). The results of assessing the level of favorability of the taste of the siomay ikan tenggiri (mackerel dumpling) from each treatment are listed in TABLE IV.

TABLE IV. The average level of liking for the taste of siomay ikan tenggiri (mackerel dumpling)

Seaweed Flour Treatment (g)	Median	Average
P (0)	7.0	7.1
P1 (5)	7.0	7.3
P2 (10)	7.0	6.9
P3 (15)	5.0	5.5

The results of the organoleptic test of the taste of 15 panelists showed that the level of preference for the taste of siomay ikan tenggiri (*Mackerel dumpling*) has a median of 5-7 and the average ranged from 5.5-7.1. The highest level namely the addition of 5 grams of seaweed flour with an average value of 7.3 and the lowest level of preference, that is the addition of 15 grams of seaweed flour with an average value of 5.5. Taste parameter values in this study showed that these have almost the same taste, namely the specific characteristics of the types of fish used as raw materials, besides the taste of the spices added is also sufficient and not excessive. The use of spices, particularly garlic can affect the flavor produced because it has bioactive components such as alisin (Astutik *et al.* 2020). Just like other phenolic compounds, this compound can increase the taste in food ingredients (Ardianti *et al.* 2014).

IV. CONCLUSION

Based on the results of the study, it can be concluded that the level of addition of seaweed flour to siomay ikan tenggiri (mackerel dumpling) that produces the most preferred organoleptic level is the level of addition of 5 grams. The description of mackerel fish dumplings produced has a bright white and yellow color, product-specific taste, product-specific aroma a balance between seaweed flour and mackerel fish, and a chewy texture.

REFERENCES

[1] Agusman, Apriani, S. N. K., and Murdinah. "Penggunaan Tepung Rumput Laut *Eucheuma cottonii* pada Pembuatan Beras Analog dari Tepung Modified Cassava Flour (MOCAF)," *Jurnal Pascapanen dan Bioteknologi Kelautan dan Perikanan*. vol.9, issue 1, pp 1-10, 2014.

[2] Ambaryanti, D., Kandriasari, A., and Ngurah, I.G.A.S "Pengaruh Penambahan Tepung Tulang Ikan Tenggiri (*Scomberomorus commerson*) pada Pembuatan *Crackers* Sayur terhadap Daya Terima Konsumen," *Jurnal Sosial dan Teknologi (SOSTECH)*, vol. 2, issue 8, pp 785-791, 2022.

[3] Amaranggana, L. and Wathoni, N. "Manfaat Alga Merah (Rhodopyta) sebagai Sumber Obat dari Bahan Alam," *Majalah Farmasetika*, 2017.

[4] Apriany, A., Sari, I., and Dahlia. "Karakteristik Mutu Kulit Dim Sum Hakau yang Difortifikasi dengan Tepung Rumput Laut (*Eucheuma spinosum*) Berbeda," *Jurnal Online Mahasiswa*. 2015.

[5] Ardianti, Y., Widyastuti, S., Rosmilawati, S.W., and Handito, D. "Pengaruh Penambahan Karagenan Terhadap Sifat Fisik dan Organoleptik Bakso Ikan Tongkol (*Euthynnus affinis*)," *Agroteksos*, vol. 24, issue 3, pp 159-166, 2014.
[6] Astutik, D.M., L. Sulmartiwi, E. Saputra, D. Y., and Pujiastuti. "The Effect Addition of Kappa Carrageenan Flour to The Level of Gel Strength and Acceptability of Dumpling from Threadfin Bream Fish (*Nemipterus nematophorus*) Surimi," *IOP Conf. Series: Earth and Environmental Science*, vol. 441, issue 1, pp 1-9, 2020.
[7] Djelantik, N.P.A., Suter, I.K., and Sugitha, I.M. "Kajian Penggunaan Rumput Laut *Eucheuma spinosum* sebagai Bahan Pengisi terhadap Sifat Kimia, Fisik dan Sensori Es Krim," *Jurnal Ilmu dan Teknologi Pangan (ITEPA)*, vol. 5, issue 1, pp 1-10, 2016.
[8] Hartati, E., and G.A.Y. Lestari. "Ketahanan dan Keamanan Pakan Ternak Ruminansia di Lahan Kering," *Uwais Inspirasi Indonesia*, Ponorogo, 2021.
[9] Indriyani, W., and Frianto, D. "Kandungan Protein pada Siomay yang Beredar di Desa Sindangsari dan Pemanfaatannya Sebagai Media Pembelajaran," *Abdima Jurnal Pengabdian Mahasiswa*, vol. 2, issue 1, pp 3940-3947, 2023.
[10] Justitie, D., Suddin, A., and Widajanti, E. "Analisis Pengaruh Kualitas Produk, Cita Rasa, dan Harga Terhadap Loyalitas Pelanggan Waffelio Franchise di Surakarta," *Jurnal Manajemen Sumber Daya Manusia*, vol. 13, Special Edition, pp 243 – 253, 2019.
[11] Kusmawati, A, Ujang, H., and Evi, E. "Dasar-Dasar Pengolahan Hasil Pertanian I," *Central Grafika*, Jakarta, 2000.
[12] Muthohar and Setyanova. "Pemanfaatan Ikan menjadi Makanan Olahan akan Meningkatkan Daya Jual Hasil Perikanan Secara Langsung," Penebar Swadaya, Jakarta, 2004.
[13] Nessianti, A., dan Dewi, R. "Pengaruh Penambahan Puree Labu Siam (*Sechium edule)* terhadap Sifat Organoleptik Siomay Ikan Tenggiri (*Scomberomorus commersoni),*" *E-Journal Boga*, vol. 4 issue 3, pp 79-84, 2015.
[14] Pertiwi, H.B., Nurul, F., and Yuli, H.H. "Daya Terima Konsumen Terhadap Telur Gabus Ikan Nila (*Oreochormis niloticus*)," *Jurnal Ilmiah Mahasiswa Pendidikan Kesejahteraan Keluarga*, vol. 5, issue 2, pp 61-64, 2021.
[15] Purnomo, H. "Teknologi pengolahan dan pengawetan daging," *Universitas Brawijaya Press*, Malang, 2012.
[16] Purwanti, N., Masniar, Mardlyah, U., Basri, L., and Ichwan, S. "Pelatihan Pengolahan Ikan Tengiri menjadi Bakso Ikan di Masyarakat Kampung Baingkete Distrik Makbon Kabupaten Sorong," *JOMPA ABDI: Jurnal Pengabdian Masyarakat*, vol. 1 issue 3, pp 61-66, 2022.
[17] Rochima, E., Pratama, R.I, and Suhara, O. "Chemical and Organoleptic Characterization of Pempek Which Addition of Bone Fish Flour from Cirata Reservoir," *Jurnal Akuatika*, vol. 6, issue 1, pp 79-86, 2015.
[18] Wardani, M. L. A., and Indrawati, V. Pengaruh Proporsi Tepung Maizena dan Puree Rumput Laut terhadap Kualitas Produk Siomay Ikan Gabus (*Opiocephalus stiatus). E-journal Boga*, vol. 5, issue 1, pp 148-158, 2016.
[19] Widati, A.S., Rosyidib, D., Radiati, L.E., and Nursyam, H. "The Effect of Seaweed (*Eucheuma cottonii*) Flour Addition on Physicochemical and Sensory Characteristics of anIndonesian-Style Beef Meatball," *International Journal of Food Studies*, vol. 10, pp SI112-SI120, 2021.