Fisheries Journal, 14(3), 1409-1415 (2024)
http://doi.org/10.29303/jp.v14i3.961

LEVEL OF PREFERENCE KATTE TONG COOKIES WITH ADDITION PANGASIUS CATFISH MEAT FLOUR

Tingkat Kesukaan Kue Lidah Kucing dengan Penambahan Tepung Daging Ikan Patin

Irpan*, Junianto, Roffi Grandiosa Herman, Iis Rostini

Fisheries Study Program, Faculty of Fisheries and Marine Sciences, Padjadjaran University

Bandung Sumedang KM 21 Street, Hegarmanah, Jatinangor District, Sumedang Regency, West Java 45363

*Coresponding author: irpan20001@mail.unpad.ac.id

(Received June 18th 2024; Accepted September 24th 2024)

ABSTRACT

Pangasius catfish has the potential to be processed into flour because it has a high protein content in its meat. Food processing with the addition of pangasius catfish meat flour has not been widely done, so it is necessary to know the right concentration so that it can be accepted by consumers. This study aims to determine the level of addition of pangasius catfish meat flour concentration that is most preferred by consumers in katte tong cookies products. The method used is an experimental method with four treatments, namely 0%, 7.5%, 10%, and 12.5%. The results showed that the addition of pangasius catfish meat flour influenced the organoleptic test. The addition of 10% pangasius catfish meat flour is the best treatment for katte tong cookies with an appearance value of 7.4, aroma 7.0, texture 7.5, and taste 7.5.

Keywords: Pangasius Catfish, Meat Flour, Katte Tong Cookies, Organoleptic

ABSTRAK

Ikan patin memiliki potensi untuk diolah menjadi tepung karena memiliki kandungan protein yang tinggi pada dagingnya. Pengolahan makanan dengan penambahan tepung daging ikan patin belum banyak dilakukan, sehingga perlu diketahui konsentrasi yang tepat agar dapat diterima oleh konsumen. Penelitian ini bertujuan untuk mengetahui tingkat penambahan konsentrasi tepung daging ikan patin yang paling disukai oleh konsumen pada produk kue lidah kucing. Metode yang digunakan adalah metode eksperimental dengan empat perlakuan yaitu 0%, 7,5%, 10%, dan 12,5%. Hasil penelitian menunjukkan bahwa penambahan tepung daging ikan patin memberikan pengaruh terhadap uji organoleptik. Penambahan tepung daging ikan patin 10% merupakan perlakuan terbaik terhadap kue lidah kucing tepung daging ikan patin dengan nilai kenampakan 7,4, aroma 7,0, tekstur 7,5, dan rasa 7,5.

Kata Kunci: Patin, Tepung Daging Ikan, Kue Lidah Kucing, Organoleptik

INTRODUCTION

Catfish is a type of freshwater fish that is widely cultivated in Indonesia because it is

e-ISSN : 2622-1934, p-ISSN : 2302-6049

affordable for the community and also has a high nutritional content. According to data from the Ministry of Maritime Affairs and Fisheries (2022), the total production of catfish in Indonesia in 2022 reached 340,444.02 tons.

The increase in catfish production must be balanced with good post-harvest handling, namely by developing fishery product processing technology using catfish as raw material. This aims to increase public interest in consuming catfish. Efforts to increase fish consumption and increase nutrition, especially protein in food, can be done by diversifying fish processing which can be done by diversifying into various products through various processing processes, such as fish meal (Asih & Arsil, 2020). Fish meal is a solid product produced through the process of removing some of the water or fat from fish or fish waste (Mardiana & Fatmawati, 2014). Catfish has the potential to be processed into fish meal because it has a high nutritional content. Catfish meat flour contains 67.76% protein, 8.74% carbohydrates, 9.8% fat, 10.4% water and 3.3% ash (Aprilliana, 2010).

Research on the addition of fish meat flour to a fish processing product has been conducted by Nirmalasari (2017) who made sago cookies with the addition of catfish meat flour. Another study, namely Ningrum *et al*. (2017) made biscuits with the addition of catfish meat flour. Considering that catfish meat flour has potential in processing fishery products, further development is needed regarding the use of catfish meat flour in product development. One example is katte tong cookies.

Katte tong cookies are snacks that are often consumed by the Indonesian people. This cookies is included in the category of cookies made from basic ingredients of wheat flour, egg white, sugar, and margarine. Katte tong cookies have a shape that resembles a cat's tongue, which is long and thin, and originates from the Netherlands (Setianingsih *et al*., 2022). Katte tong cookies have a low protein content because they are made from wheat flour which has a low gluten-forming protein content, while catfish meat flour has a high protein content. This can be a development in the utilization of fishery products, especially catfish meat flour in katte tong cookie products.

The percentage of catfish meat flour that will be added to the katte tong cookie dough must have an addition limit so that it is still liked by consumers. According to Viliantina *et al*. (2023), the level of fish meat flour addition in making cookies must have a limit because it affects the organoleptic characteristics of acceptability. Based on this, research is needed on the right percentage of catfish meat flour addition to produce katte tong cookies that are acceptable to panelists in terms of organoleptic. This research aims to determine the percentage of catfish meat flour addition in making katte tong cookies that are most preferred by panelists in terms of organoleptic.

METHODS

Place and Time

This research was conducted from February to March 2024 at the Laboratory of Fisheries Product Processing Technology, Joint Building of Fisheries and Agriculture, Faculty of Agriculture, Padjadjaran University.

Tools and Materials

The tools and materials used in this research are scales, katte tong cookies molds, mixers, spatulas, basins, electric ovens, sieves and triangular plastic. The materials used in making katte tong cookies are catfish meat flour, wheat flour, eggs, margarine, powdered sugar, powdered milk and vanilla powder.

e-ISSN : 2622-1934, p-ISSN : 2302-6049

Research Method

The research method used is an experimental method consisting of four treatments of adding catfish meat flour to katte tong cookies products. The level of acceptance of katte tong cookies was analyzed using non-parametric statistical methods. The treatments were:

A : Addition of 0% catfish meat flour
B : Addition of 7.5% catfish meat flour
C : Addition of 10% catfish meat flour
D : Addition of 12.5% catfish meat flour

Research Procedure

Making Catfish Meat Flour

The process of making catfish meat flour modified from Mardiana & Fatmawati (2014). The catfish is washed clean, the innards are removed, and drained. The clean fish is then steamed at a temperature of 100℃ for 20 minutes until soft. After steaming, the fish meat is taken and squeezed using a filter cloth to remove the water content. The squeezed fish meat is dried in an oven at a temperature of 125℃ for 4 hours. After that, the dried fish meat is ground using a grinder until it becomes powder. The powder is then first sieved with a 60 mesh sieve to produce fish meat flour, and then sieved again with a 100 mesh sieve to obtain a finer flour.

Making Katte Tong Cookies

The process of making katte tong cookies modified from the research of Setianingsih *et al*. (2022) Margarine and powdered sugar are beaten until smooth, then egg white is added and beaten again. Wheat flour, catfish meat flour (with a concentration of 0%, 7.5%, 10%, or 12.5%), milk powder, and vanilla powder are sieved into the dough, then beaten until evenly mixed. This dough is then put into a triangular plastic and molded into a katte tong cookies mold that has been smeared with margarine. The oven is preheated for 10 minutes, then the molded dough is baked in the oven at a temperature of 120 ℃ for 35 minutes. The formulation for making katte tong cookies with the addition of catfish meat flour can be seen in Table 1.

Table 1. Formulation of Katte Tong Cookies with the Addition of Catfish Meat Flour

Ingredients	Treatment			
	A	B	C	D
Wheat flour (g)	250	250	250	250
Fish meal (g)	0	18.75	25	31.25
Margarine (g)	180	180	180	180
Refined sugar (g)	150	150	150	150
Egg white (g)	100	100	100	100
Milk powder (g)	20	20	20	20
Cornstarch (g)	50	50	50	50
Vanilla powder (g)	3	3	3	3

Data Analysis

The parameters to be observed in katte tong cookies products are the level of organoleptic preference, which includes appearance, aroma, taste and texture. Organoleptic testing was carried out by 20 semi-trained panelists. Data obtained from organoleptic observations were analyzed using non-parametric statistics, the Friedman test. If the addition of catfish meat flour affects the organoleptic of katte tong cookies, then the analysis is continued with the Multiple Comparison test.

e-ISSN : 2622-1934, p-ISSN : 2302-6049

RESULT

Organoleptic Test Results of Katte Tong Cookies

1. Color

The results of the organoleptic test on the color of katte tong cookies with the addition of fish meat flour showed an average value in the range of 6.7-7.0. The average color value of katte tong cookies with the addition of catfish meat flour from all treatments can be seen in Table 2.

Table 2. Average Color of Katte Tong Cookies with the Addition of Catfish Meat Flour

Addition of Catfish Meat Meal (%)	Average Color
0	7.0 a
7.5	7.0 a
10	7.4 a
12.5	6.7 a

Description: The average treatment figures followed by the same letter show no significant difference according to the multiple comparison test at a 95% confidence level.

2. Aroma

The results of the organoleptic test of the aroma of katte tong cookies with the addition of fish meat flour showed an average value in the range of 6.7-7.4. The average value of the aroma of katte tong cookies with the addition of catfish meat flour from all treatments can be seen in Table 3.

Table 3. Average Aroma of Katte Tong Cookies with the Addition of Catfish Meat Flour

Addition of Catfish Meat Meal (%)	Average Aroma
0	7.4 a
7.5	7.2 a
10	7.0 a
12.5	6.7 a

Description: Numbers followed by the same letter indicate no significant difference according to the comparison test with a 95% confidence level.

3. Texture

The results of the organoleptic test of the texture of katte tong cookies with the addition of fish meat flour showed an average value in the range of 5.6-7.5. The average value of the texture of katte tong cookies with the addition of catfish meat flour from all treatments can be seen in Table 4.

Table 4. Average Texture of Katte Tong Cookies with the Addition of Catfish Meat Flour

Addition of Catfish Meat Meal (%)	Average Texture
0	7.2 ab
7.5	7.2 ab
10	7.5 b
12.5	5.6 a

Description: Numbers followed by the same letter indicate no significant difference according to the comparison test with a 95% confidence level.

e-ISSN : 2622-1934, p-ISSN : 2302-6049

4. Taste

The results of the organoleptic test of the taste of katte tong cookies with the addition of fish meat flour showed an average value in the range of 5.0-7.5. The average taste value of katte tong cookies with the addition of catfish meat flour from all treatments can be seen in Table 5.

Table 5. Average Taste of Katte Tong Cookies with the Addition of Catfish Meat Flour

Addition of Catfish Meat Meal (%)	Average Taste
0	6.7 b
7.5	7.2 b
10	7.5 b
12.5	5.0 a

Description: Numbers followed by the same letter indicate no significant difference according to a comparison test with a 95% confidence level.

DISCUSSION

The addition of catfish flour to katte tong cookies did not affect the level of color preference. Katte tong cookies with the addition of 10% catfish flour had the highest average value of 7.4, producing katte tong cookies with a golden yellow color. The level of preference for the color of katte tong cookies decreased with increasing concentration of catfish flour. These results are in line with research conducted by Ernisti *et al*. (2019) and Ningrum *et al*. (2017) which stated that the addition of higher concentrations of catfish flour would decrease the color preference of biscuits. The appearance of the color of katte tong cookies became brownish with the addition of catfish flour and the baking process. According to Sulistiyati & Mawwadah (2021) the baking process can affect the color of cookies. The baking process of katte tong cookies will cause browning on the surface of the katte tong cookies. This browning occurs due to the reaction of amino groups and hydroxyl groups from sugars derived from carbohydrates (Bernadeta, 2012). According to Nilmalasari & Asih (2017), increasing protein levels cause the color of the cookies produced to become increasingly brownish. This is related to the Maillard reaction that occurs during the cookie making process.

Aroma is an important aspect in food products because it can affect the assessment of the quality of the product (Trisyani & Syahlan, 2022). The addition of catfish meat flour to katte tong cookies does not affect the level of aroma preference. The 0% treatment produced the highest average value of 7.4 with the aroma of katte tong cookies that was smelled being the aroma of margarine. The research results show that the addition of more catfish meat flour will result in a decrease in the level of acceptance of the aroma. This is due to the increase in the increasingly strong fishy aroma. According to Listiana (2016), increasing the addition of high fish meat flour will result in a decrease in the acceptance of the aroma due to the distinctive fishy smell of fish. The results of this research are also in accordance with research related to the addition of sepat fish meat flour to biscuit products, where consumer acceptance decreases with increasing concentration of fish meat flour (Sari *et al*., 2017). According to Sidabutar *et al*. (2021) the aroma of a food product will be detected when the volatile substances in the product are inhaled by the sense of smell. The fishy aroma produced by fish is a characteristic caused by nitrogen components, such as guanidine, trimethylamine oxide (TMAO), and imidazole derivatives (Mukti *et al*., 2023).

The addition of catfish meat flour to katte tong cookies affects the level of texture preference, where the 0%, 7.5% treatments did not significantly affect the 10% and 12.5% treatments, but the 10% treatment significantly affected the 12.5% treatment. The addition of more fish meat flour in the 10% treatment had a texture that was preferred by the panelists with an average value of 7.5. The texture of katte tong cookies with the addition of catfish meat

e-ISSN : 2622-1934, p-ISSN : 2302-6049

flour in the 12.5% treatment experienced a decrease in panelist preference because it had a less crispy and brittle texture. This is in line with the research of Ernisti *et al*. (2019) which stated that panelists liked the texture of biscuits with the addition of 10% catfish meat flour because these biscuits have a soft crunchy texture and an increase in the addition of high catfish meat flour in the biscuit formulation, the level of panelist acceptance of the biscuit texture tends to decrease. According to Sari *et al*. (2017) the addition of high sepat siam meat flour will reduce the acceptance of the biscuit texture. The texture of katte tong cookies is influenced by the sugar and fat content in margarine. According to Pratama *et al*. (2014) the fat and sugar content will affect the development of biscuits. In dough that lacks fat and sugar, gluten will form and expand when baked. The low levels of gluten in the dough cause the water absorption capacity of the dough to be low, so the dough does not contain much water (Koswara, 2009).

The panelists' preference level for the taste of katte tong cookies ranges from neutral to liking. The addition of catfish meat flour to katte tong cookies affects the level of taste preference, where the treatments 0%, 7.5% and 10% do not have significant differences between treatments. However, the 12.5% treatment has a significant difference to the other treatments. The highest preference level for the taste of katte tong cookies is in the 10% treatment, which has an average value of 7.5. Panelists like katte tong cookies from a concentration of 0% to the addition of catfish meat flour with a concentration of 10%. This is in line with research by Ernisti *et al*. (2019) that panelists like the taste of biscuits with the addition of 10% catfish meat flour because the resulting biscuits have a taste that is not too strong in the typical fish flavor. According to Ramli (2014) from the panelists' perspective, this is because fish biscuit products are not widely available in the community, even though fish biscuits have a high protein content. According to Winarno (2004), the taste of food is an important factor that influences consumer acceptance. This taste is influenced by various factors, including chemical compounds, temperature, concentration, and interactions with other flavor components and flavor-producing ingredients.

CONCLUSION

Based on the research results of katte tong cookies with the addition of catfish meat flour, all treatments were still preferred by the panelists. Katte tong cookies with a percentage of catfish meat flour addition of 10% was the treatment most preferred by the panelists with an appearance value of 7.4, aroma 7.0, texture 7.5, and taste 7.5.

ACKNOWLEDGEMENT

The author realizes that this research involves many parties. The author would like to thank the supervisor, colleagues, and all parties who cannot be mentioned one by one who have provided support in completing this journal article.

REFERENCES

Aprilliana, I. S. (2010). Fortifikasi Tepung Ikan Patin (*Pangasius hypopthalmus*) pada Pembuatan Cone Es Krim.*Skripsi.* Teknologi Hasil Perairan. Institut Pertanian Bogor. Bogor.

Asih, E. R., & Arsil, Y. (2020). Tingkat Kesukaan Choux Pastry Kering Dengan Substitusi Tepung Ikan Gabus. *Jurnal GIZIDO*, *12*(1), 36–44.

Bernadeta, P. A. (2012). Penentuan kondisi optimum hidrolisat protein dari limbah ikan ekor kuning (*Caesio cuning*) berdasarkan karakteristik organoleptik. *Jurnal Kimia Khatulistiwa*, *1*(1).

Dewita., Syahrul., & Isnaini. (2011). Pemanfaatan Konsentrat Protein Ikan Patin (*Pangasius hypopthalmus*) Untuk Pembuatan Biskuit Dan Snack. *Jurnal Pengolahan Hasil Perikanan Indonesia*, *XIV*(1), 30–34.

e-ISSN : 2622-1934, p-ISSN : 2302-6049

Ernisti, W., Riyadi, S., & Jaya, F. M. (2019). Karakteristik Biskuit (Crackers) Yang Difortifikasi Dengan Konsentrasi Penambahan Tepung Ikan Patin Siam (*Pangasius hypophthalmus*) Berbeda. *Jurnal Ilmu-Ilmu Perikanan Dan Budidaya Perairan*, *13*(2). https://doi.org/10.31851/jipbp.v13i2.2855

Kementerian Kelautan dan Perikanan. 2022. Produksi Perikanan. Data Volume Produksi Perikanan Budidaya Pembesaran Komoditas Patin per Provinsi (Ton) Statistik KKP. https://statistik.kkp.go.id

Koswara, S. (2009). Teknologi pengolahan roti. *Ebookpangan. Com.* Jakarta.

Listiana, L. (2016). Pengaruh Substitusi Tepung Ikan Tongkol terhadap Kadar Protein, Kekerasan dan Daya Terima Biskuit. *Skripsi*. Ilmu Gizi. Universitas Muhammadiyah Surakarta.

Mardiana, & Fatmawati. (2014). Analisa Tepung Ikan Gabus sebagai Sumber Protein. *Octopus: Jurnal Ilmu Perikanan*, *4*(1), 235–243.

Mukti, A. E., Hidayati, L., & Issutarti. (2023). Pengaruh Substitusi Tepung Daging Ikan Kuniran (*Upeneus moluccensis*) Terhadap Sifat Organoleptik Kastengel. *Jurnal Sains Boga*, *6*(1), 20–27.

Nilmalasari, M., & Asih, E. R. (2017). Daya Terima Kue Kering Sagu Dengan Substitusi Tepung Ikan Patin (*Pangasius hypopthalmus*). *JPK: Jurnal Proteksi Kesehatan*, *6*(1).

Ningrum, A., Suhartatik, N., & Kurniawati, L. (2017). Karakteristik Biskuit Dengan Substitusi Tepung Ikan Patin (*Pangasius* sp) Dan Penambahan Ekstrak Jahe Gajah (*Zingiber officinale var. Roscoe*). *Jurnal Teknologi Dan Industri Pangan*, *2*(1), 53–60.

Pratama, R. I., Rostini, I., & Liviawaty, E. (2014). Karakteristik Biskuit dengan Penambahan Tepung Tulang Ikan Jangilus. *Jurnal Akuatika*.

Ramli. (2014). Karakteristik Organoleptik Biskuit Dengan Fortifikasi Abon Ikan Salmon (*Oncorhynchus nerka*). *Samakia: Jurnal Ilmu Perikanan*, *5*(2), 73–79. http://samakia.aperiki.ac.id

Sari, D. P., Nopianti, R., & Baehaki, A. (2017). Karakteristik Sensori dan Fisiko-Kimia Crackers dengan Penambahan Tepung Ikan Sepat Siam (*Trichogaster pectoralis*). *Jurnal FishtecH*, *6*(2), 115–125.

Setianingsih, A., Normawati, Z. F., Panjaitan, D. A., Muflihati, Suhendriani, S., & Ujianti, R. M. D. (2022). Perbandingan karakteristik biskuit lidah kucing dengan substitusi jenis cangkang telur yang berbeda. *Jurnal Inovasi Bahan Lokal dan Pemberdayaan Masyarakat*, *01*(02), 1–9.

Sidabutar, L. M., Aritonang, E., & Jumirah. (2021). Analisa Kandungan Gizi Dan Daya Terima Crackers Dengan Pemanfaatan Tepung Daun Kelor Dan Tepung Ikan Lele. *Jurnal Inovasi Penelitian*, *1*(0.1101/2021.02.25.432866), 1–15.

Sulistiyati, T. D., & Mawwadah, O. (2021). an Tepung Tulang Ikan Lele Terhadap Kadar Kalsium Dan Organoleptik Cookies Ubi Jalar Kuning. *JFMR-Journal of Fisheries and Marine Research*, *5*(2). https://doi.org/10.21776/ub.jfmr.2021.005.02.5

Trisyani, N., & Syahlan, Q. (2022). Karakteristik Organoleptik, Sifat Kimia dan Fisik Cookies yang di Substitusi dengan Tepung Daging Kerang Bambu (*Solen* sp.). *Jurnal Agribisnis Perikanan*, *15*(1), 188–196.

Viliantina, R. W., Rohmawati, N., & Antika, R. B. (2023). Analisis Protein dan Daya Terima Cookies Biji Nangka dengan Penambahan Tepung Ikan Gabus. *Nutriture Journal*, *2*(2), 107. https://doi.org/10.31290/nj.v2i2.3910

Winarno, F. G. (2004). *Kimia pangan dan gizi*. PT Gramedia Pustaka Utama. Jakarta.

e-ISSN : 2622-1934, p-ISSN : 2302-6049