



Nutritional Analysis and Acceptability of Cookies Made from Pontianak Taro Flour (*Colocasia esculenta* L. Schott) with the Addition of Kepok Banana Flour (*Musa paradisiaca* forma typica) as a Snack for School Children

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Abstrak

School-aged children are generally in a period of rapid growth and high activity, making nutrition a crucial factor in their physical development and cognitive intelligence. Inadequate nutrition can hinder physical growth, mental development, and thinking ability. Nutritional intake can be obtained from daily food consumption, including snacks. Snacks are widely favored across all age groups, from children to adults, and are typically provided in small portions, contributing around 10%–20% of daily energy needs. One popular and easy-to-make snack for children is cookies. This study aims to analyze the nutritional content and acceptability of cookies made from Pontianak taro flour (*Colocasia esculenta* L. Schott) with the addition of Kepok banana flour (*Musa paradisiaca* forma typica) as a snack for school children. The research method used is experimental. The treatments applied were variations in taro and banana flour proportions: F1 (75% : 25%), F2 (50% : 50%), and F3 (25% : 75%). The tests conducted included organoleptic tests to assess consumer preference and chemical analysis to determine nutrient content. The organoleptic test results—covering color, aroma, taste, and texture—showed that the F3 formulation (25% Kepok banana flour and 75% Pontianak taro flour) received the highest total score of 236. The chemical analysis per 100 grams of the F3 formulation showed protein content of 5.535%, fat 28.214%, carbohydrates 10.635%, ash content 1.451%, and moisture content 4.470%. In conclusion, among the three formulations, F3 was the most preferred in terms of acceptability, with favorable nutrient content suitable for a school children's snack.

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1. INTRODUCTION

Nutrition remains one of the major public health concerns in Indonesia, especially among school-aged children. This group is in a period of rapid physical growth and high activity levels, thus requiring well-regulated and nutritious food intake. Proper nutrition plays a vital role in children's growth and intelligence. Good nutritional status in children needs special attention, as poor nutrition can negatively affect physical growth, mental development, and cognitive abilities (Santoso, Devi, & Kurniawan, 2014). Common nutritional issues among school children include undernutrition and overnutrition. If these issues are not addressed early, they can have long-term health consequences (Octaviani, Izhar, & Amir, 2018).

Nutritional intake required by the body is primarily obtained through the consumption of food. One approach to addressing nutritional problems is by consuming healthy and nutritious foods. Snacks are food items enjoyed by a wide range of age groups, from children to adults. Typically served in small portions, snacks are expected to provide about 10%–20% of daily energy needs. One popular and nutritious snack option is cookies. Cookies are dry baked products made from dough composed primarily of wheat flour and fats. They are typically small in size, sweet in flavor, and have a crunchy texture (Kaahoa, Herawati, & Ayu, 2017). The aim of this study is to increase the appeal of banana and taro to children by processing them into cookies as a nutritious snack.

The use of local flours is becoming an increasingly attractive alternative for the food industry due to the abundant availability of local raw materials. Local flour can serve as a substitute for wheat flour, supporting food diversification efforts and encouraging innovation in utilizing non-wheat local flours (Putri, Pranata, & Swasti, 2019). Two local food sources that can be processed into flour are Kepok bananas and taro.

Bananas are rich in potassium, which plays a role in regulating nerve and muscle function (including the heart) and maintaining fluid balance in the body. Kepok bananas also contain vitamin A, which is essential for children's eye health. Kepok bananas are considered one of the best banana varieties for flour production due to their whiter flour color and higher starch and carbohydrate content compared to other banana types (Putri et al., 2019). Taro flour is also a viable alternative to wheat flour in producing cakes, cookies, and other processed foods. Taro tubers are a good source of carbohydrates and protein, containing a high starch content of about 70%–80%. This study aims to analyze the nutritional content and acceptability of cookies made from Pontianak taro flour with the addition of Kepok banana flour as a snack for school-aged children.

2. METHOD

This study employed an experimental research design. The tests conducted included organoleptic evaluations by a panel of assessors to determine the acceptability of cookies made from Pontianak taro flour with the addition of Kepok banana flour. The attributes evaluated were color, aroma, taste, and texture. In addition, nutritional content analysis was carried out to measure levels of protein, fat, carbohydrates, ash, and moisture in the cookie samples.

The organoleptic testing was conducted at the Food Technology Laboratory, Department of Nutrition, Poltekkes Pontianak, while the nutritional analysis was performed at the Laboratory of Politeknik Negeri Pontianak. The research was carried out in July 2020.

Nutrient analysis included tests for protein, fat, carbohydrates, ash content, and moisture content. The collected data were grouped and tabulated, and subsequently analyzed statistically using the Friedman test refined by Conover, processed with the aid of computer software.

3. RESULTS AND DISCUSSION

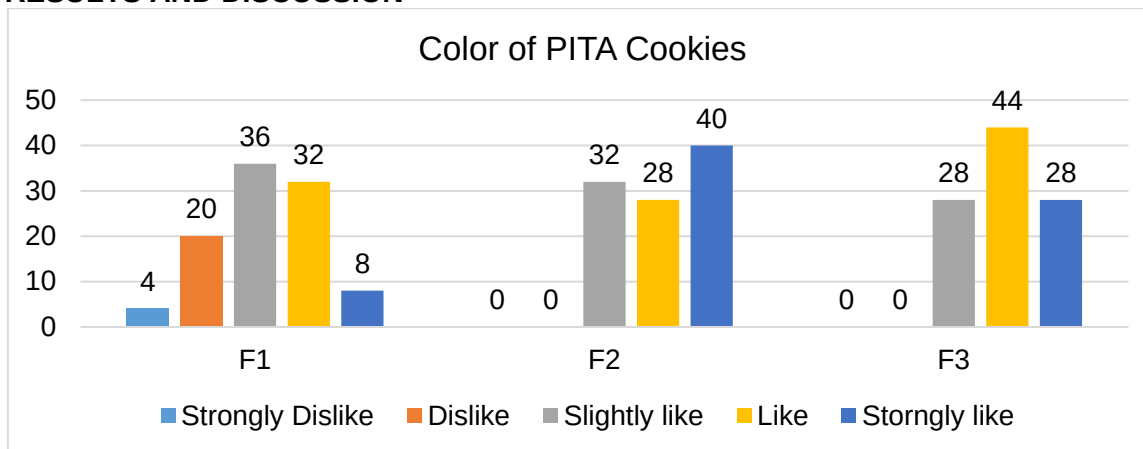


Figure 1. Organoleptic Test Results Based on Color of PITA Cookies

Figure 1 shows the results of the organoleptic test on the color of PITA cookies. In the first formulation, the highest percentage fell into the "slightly like" category at 36%. In the second formulation, the highest percentage was in the "strongly like" category at 40%, while in the third formulation, the highest percentage was in the "like" category at 44%. Among the three treatments, the most preferred by the panelists was formulation 3, which consisted of 25% Kepok banana flour and 75% taro flour. This formulation was favored due to its lighter brown color, as the lower proportion of banana flour resulted in a more appealing visual appearance. In contrast, formulation 1, with 75% banana flour and 25% taro flour, produced a darker brown cookie. Thus, among the three formulations, formulation 3 (25:75) received the highest percentage (44%) in the "like" category based on color evaluation.

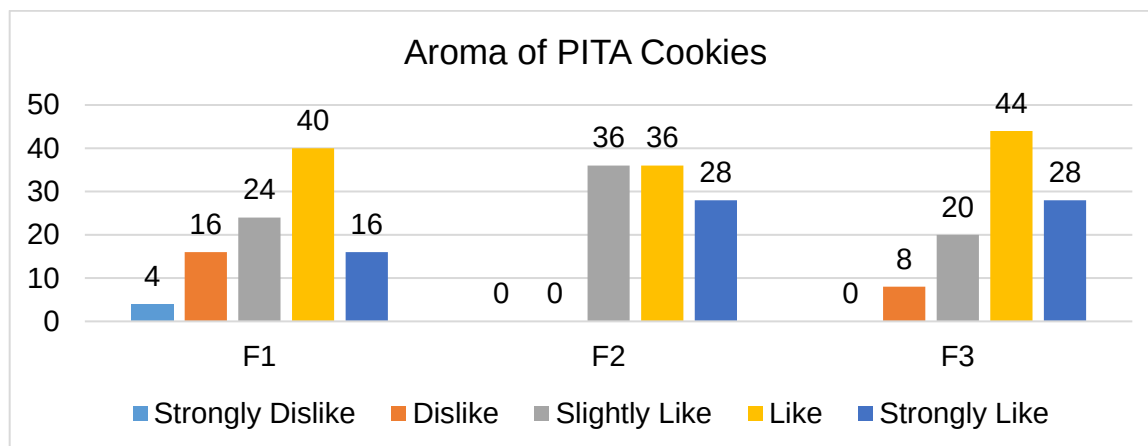


Figure 2. Organoleptic Test Results Based on Aroma of PITA Cookies

Figure 2 presents the results of the organoleptic test on the aroma of PITA cookies. In the first formulation, the highest percentage was in the "like" category at 40%. In the second formulation, both the "slightly like" and "like" categories had equal percentages of

36%. In the third formulation, the highest percentage was again in the "like" category, reaching 44%. Among the three formulations, there were no significant differences in aroma preference. However, formulation 3 was slightly more favored by panelists because the banana aroma was not overly dominant, resulting in a more balanced and appealing overall aroma.

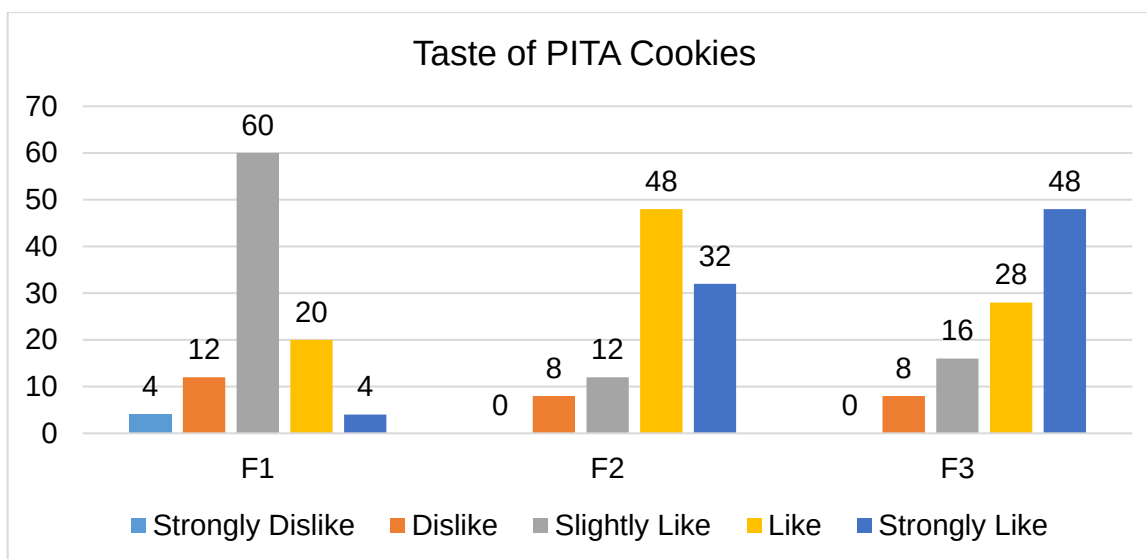


Figure 3. Organoleptic Test Results Based on Taste of PITA Cookies

Figure 3 shows the results of the organoleptic test based on the taste of PITA cookies. In the first formula, the highest percentage falls under the "slightly like" category at 60%; in the second formula, the highest percentage is in the "like" category at 48%; and in the third formula, the highest percentage is in the "strongly like" category at 48%. In the first formula, the dominant category is "slightly like" at 60%. This is because the taste of the first formula is more dominated by the flavor of banana, as the ratio used was 75% banana flour and 25% taro flour. This indicates that Formula 1 had the highest percentage in the "slightly like" category at 60% compared to the other two formulas. Among the three treatments, the most preferred by the panelists was Formula 1, which consisted of 75% kepok banana flour and 25% taro flour.

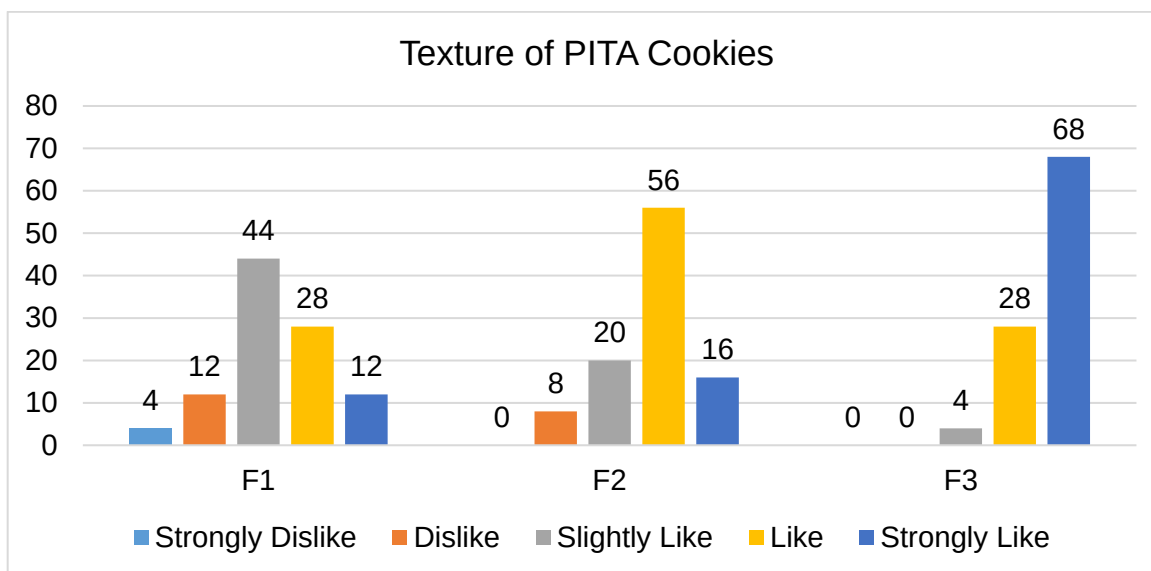


Figure 4. Organoleptic Test Results Based on Texture of PITA Cookies

Figure 4 shows the results of the organoleptic test on the texture of PITA cookies. In the first formula, the highest percentage is in the "slightly like" category at 44%, in the second formula, the highest percentage is in the "like" category at 56%, and in the third formula, the highest percentage is in the "strongly like" category at 68%. There was no significant difference in texture among the three formulas. However, Formula 3 was preferred by panelists due to its taste and color, which had a greater appeal, thus influencing the preferred texture.

Table 1. Acceptability Test Results Based on Color, Aroma, Taste, and Texture of PITA Cookies

Treatment Type	Color	Aroma	Taste	Texture	Total
F1	40	45	34	37	155
F2	57	49	58	47	210
F3	54	57	59	67	236

Table 1 shows that the highest percentage of preference for color, aroma, taste, and texture overall was obtained in Treatment 3 with a total of 236%. This indicates that this formulation was the most liked by the panelists.

Table 2. Proximate Analysis of Cookies Based on SNI 01-2973-1992

Component	Sample Code	SNI Requirement
	100% Wheat Flour	Selected Cookies (F3)
Moisture	5.09%	4.519%
Ash Content	0.97%	1.451%
Protein	9.63%	5.535%
Fat	11.89%	28.214%
Carbohydrate	72.40%	10.635%

Table 2 shows the nutrient analysis of PITA cookies, with the following nutrient content: Protein (5.535%), Fat (28.214%), Carbohydrates (10.635%), Ash Content (1.451%), and Moisture Content (4.470%). These results were obtained from 100 grams of cookies.

Table 3. Organoleptic Acceptability Test Results Based on Color

F1			F2			F3		
Result	R	R2	Result	R	R2	Result	R	R2
1	1	1	3	2	4	4	3	9
2	1	1	3	2	4	5	3	9
3	1	1	5	3	9	4	2	4
4	1.5	2.25	4	1.5	2.25	5	3	9
2	1	1	3	2	4	4	3	9
4	2.5	6.25	3	1	1	4	2.5	6.25
4	3	9	3	1.5	2.25	3	1.5	2.25
3	1.5	2.25	4	3	9	3	1.5	2.25
3	1	1	5	3	9	4	2	4
3	1	1	4	2	4	5	3	9
3	1	1	5	3	9	4	2	4
5	2.5	6.25	5	2.5	6.25	4	1	1
3	1	1	4	2.5	6.25	4	2.5	6.25
4	2	4	3	1	1	5	3	9
3	1	1	5	3	9	4	2	4
4	1	1	5	2.5	6.25	5	2.5	6.25
3	1	1	4	2	4	5	3	9
2	1	1	5	3	9	3	2	4
5	3	9	4	2	4	3	1	1
3	1.5	2.25	4	3	9	3	1.5	2.25
4	2	4	5	3	9	3	1	1
4	3	9	3	1.5	2.25	3	1.5	2.25
4	3	9	5	1.5	2.25	5	1.5	2.25
2	1	1	5	3	9	4	2	4
2	1	1	3	2	4	4	3	9
Sum of Ranks	39.5	77.25		56.5	138.75		54	129
Sum of Squared Ranks		1560.25			3192.25			2916

T calculated > F table (4.2 > 3.19)

Table 3 shows the statistical results from the Friedman test. The T hitung is greater than F tabel (4.2 > 3.19), indicating that there is an effect on the acceptability of the color

of the PITA cookies formulated with Taro Flour and Kepok Banana Flour as a snack food for schoolchildren.

Table 4. Organoleptic Acceptability Test Results Based on Aroma

F1			F2			F3		
Result	R	R2	Result	R	R2	Result	R	R2
2	1	1	3	2	4	5	3	9
2	1	1	5	3	9	3	2	4
3	2	4	5	3	9	2	1	1
3	1	1	4	2	4	5	3	9
1	1	1	3	2	4	4	3	9
4	1.5	2.25	5	3	9	4	1.5	2.25
4	1.5	2.25	4	1.5	2.25	5	3	9
4	2.5	6.25	3	1	1	4	2.5	6.25
5	3	9	3	1	1	4	2	4
4	1.5	2.25	4	1.5	2.25	5	3	9
3	1	1	5	3	9	4	2	4
5	3	9	3	1	1	4	2	4
4	1.5	2.25	4	1.5	2.25	5	3	9
3	1	1	4	2.5	6.25	4	2.5	6.25
4	2	4	5	3	9	3	1	1
5	3	9	4	2	4	3	1	1
2	1	1	3	2	4	4	3	9
4	2.5	6.25	3	1	1	4	2.5	6.25
5	3	9	4	2	4	2	1	1
4	2.5	6.25	3	1	1	4	2.5	6.25
3	1	1	4	2	4	5	3	9
3	1	1	4	2.5	6.25	4	2.5	6.25
4	2	4	3	1	1	5	3	9
2	1	1	4	3	9	3	2	4
4	3	9	3	1.5	2.25	3	1.5	2.25
Sum of Ranks	44.5	94.75		49	109.5		56.5	140.75
Sum of Squared Ranks	1980.25			2401			3192.25	

T calculated > F table ($0.98 < 3.19$)

Table 4 shows that the statistical result for the aroma test with T hitung less than F table ($0.98 < 3.19$), indicating no significant effect on the acceptability of the aroma of the formulated PITA cookies.

Table 5. Organoleptic Acceptability Test Results Based on Taste

F1			F2			F3		
Result	R	R2	Result	R	R2	Result	R	R2
1	1	1	2	2	4	5	3	9
5	3	9	3	2	4	2	1	1
3	1	1	5	3	9	4	2	4
4	1.5	2.25	5	3	9	4	1.5	2.25

2	1	1	5	3	9	4	2	4
3	1	1	4	2	4	5	3	9
3	1	1	4	2	4	5	3	9
2	1	1	3	2	4	4	3	9
3	1	1	4	2	4	5	3	9
4	2	4	5	3	9	3	1	1
3	1	1	4	2	4	5	3	9
4	2	4	5	3	9	3	1	1
3	1	1	4	2	4	5	3	9
4	2	2	5	3	9	3	1	1
3	1	1	4	2	4	5	3	9
3	1	1	4	2	4	5	3	9
3	1	1	4	2	4	5	3	9
3	2	4	2	1	1	4	3	9
4	2	4	5	3	3	3	1	1
3	1	1	4	2	4	5	3	9
3	1	1	4	2	4	5	3	9
2	1	1	3	2	4	4	3	9
3	2	4	4	3	9	2	1	1
3	1	1	5	3	9	4	2	4
3	1	1	4	2	4	5	3	9
Sum of Ranks	33.5	50.25		58	136		58.5	155.25
Sum of Squared Ranks	1122.25			3364			3422.25	

T calculated > F table (15.5 < 3.19)

Table 5 shows that the statistical result for the taste test with T hitung greater than F table (15.5 < 3.19), indicating a significant effect on the acceptability of the taste of the PITA cookies formulated with Taro Flour and Kepok Banana Flour as a snack for schoolchildren.

Table 6. Organoleptic Acceptability Test Results Based on Texture

F1			F2			F3		
Result	R	R2	Result	R	R2	Result	R	R2
1	1	1	2	2	4	4	3	9
3	2	4	2	1	1	5	3	9
4	2	4	5	3	9	3	1	2
4	1.5	2.25	5	3	9	4	1.5	2.25
3	1	1	4	2	4	5	3	9
5	2.5	6.25	4	1	1	5	2.5	6.25
4	1.5	2.25	4	1.5	2.25	5	3	9
3	1	1	4	2	4	5	3	9
3	1	1	4	2	4	5	3	9
5	3	9	4	1.5	2.25	4	1.5	2.25
3	1	1	5	3	9	4	2	4
3	1	1	4	2	4	5	3	9
2	1	1	3	2	4	5	3	9

5	3	9	3	1	1	4	2	4
3	1	1	4	2	4	5	3	9
2	1	1	3	2	4	4	3	9
4	1.5	2.25	4	1.5	2.25	5	3	9
3	1	1	4	2	4	5	3	9
4	2.5	6.25	3	1	1	4	2.5	6.25
2	1	1	4	2	4	5	3	9
4	2	4	3	1	1	5	3	9
4	1.5	2.25	4	1.5	2.25	5	3	9
3	1	1	4	2	4	5	3	9
3	1	1	4	2	4	5	3	9
3	1	1	5	2.5	6.25	5	2.5	6.25
Sum of Ranks	37	65.5		46.5	95.25		66.5	186.25
Sum of Squared Ranks	1369			2162.25			4422.25	

T calculated > F table (3.37 > 3.19)

Table 6 shows that the statistical result for the texture test with T hitung greater than F tabel (3.37 > 3.19), indicating that there is an effect on the acceptability of the texture of the PITA cookies formulated with Taro Flour and Kepok Banana Flour as a snack for schoolchildren.

DISCUSSION

Snack Food and Panelists' Acceptance of Taro Flour Cookies with the Addition of Kepok Banana Flour

Snack foods are types of food enjoyed by various age groups, ranging from children to adults. Generally, snack foods are consumed in small portions and contain about 10%-20% of the total daily energy needs (Jauhariah & Ayustaningwarno, 2013). In this study, cookies were made using taro flour as the base ingredient with the addition of kepok banana flour. This combination aims not only to diversify food products but also to improve the nutritional content of the final product.

Acceptance of Color

Color is the first impression observed and evaluated by panelists. Color is the first organoleptic parameter noticed in food presentation because it involves the sense of sight. Attractive colors can increase consumer appetite to taste the product (Lamusu, 2007).

Based on organoleptic test results, cookies made with taro flour from Pontianak and the addition of kepok banana flour in the third treatment (F3) were the most preferred by panelists. The resulting color was darker brown as the proportion of banana flour increased. Cookies from the F3 formula were visually more appealing. The Friedman test showed that the color of cookies was influenced by the concentration of kepok banana flour in the formulation. The final color tended to be light brown due to the baking process, which was influenced by temperature and baking time.

Acceptance of Aroma

Aroma is closely related to the sense of smell and can only be recognized in vapor form. The aroma received by the nose is a mixture of pleasant, sour, rancid, and burnt

smells. Aroma plays an important role in the initial acceptance of a product because consumers typically smell the aroma before tasting it (Berčík et al., 2023).

The results of the organoleptic test showed that cookies from the third treatment (F3) were more preferred based on aroma. However, the Friedman test indicated that the difference in the concentration of kepok banana flour did not have a significant effect on the aroma of the cookies. This may be due to the dominance of aromas from other ingredients and the baking process, which prevented the banana aroma from being too prominent.

Acceptance of Taste

Taste is one of the main factors determining consumer acceptance, with the four basic tastes being sweet, bitter, sour, and salty (Apriliana, 2018). Sensitivity to taste is located on the tongue, and the taste perceived plays a crucial role in determining the consumer's decision to like or reject a product.

The organoleptic test showed that the taste of cookies from the third treatment (F3) was the most preferred. Interestingly, panelists preferred the taste of the formula with a lower concentration of kepok banana flour. The Friedman test showed that differences in flour concentration significantly affected the taste. The dominant taste came from the taro, with a slight banana flavor, while additional ingredients such as margarine, powdered sugar, and egg yolks during the baking process contributed to the flavor enhancement.

Acceptance of Texture

Texture is the sensation felt in the mouth when food is bitten, chewed, or swallowed, and can also be felt through touch. According to Musita (2016), texture plays an important role in determining product quality because consumers tend to prefer textures that are appropriate for the type of product.

The organoleptic test results showed that the texture of cookies from the third treatment (F3) was the most preferred by panelists. The Friedman test showed that differences in the concentration of kepok banana flour influenced the product's texture. According to the researchers, the crispiness of the cookies was influenced by additional ingredients such as egg yolks, which help strengthen the structure and prevent cracking, while still being easy to bite.

In addition, texture is affected by the base ingredients, the thickness of the dough when shaped, and baking temperature. The addition of fat or margarine also plays an important role in forming a soft and crispy texture. Fat not only provides flavor but also makes the product brittle and dry.

Nutrient Analysis

Acceptance refers to a person's attitude in accepting or approving a treatment and comparing it to processed products, goods, or objects. In this study, the consumer acceptance aspects tested included aroma, taste, texture, and color (Apriliana, 2018). The results of the consumer acceptance test for the three treatments on cookies made from taro flour (*Colocasia esculenta* L. Schott) with the addition of kepok banana flour (*Musa paradisiaca* forma typica) as a snack for schoolchildren showed that panelists preferred the third treatment (F3). Treatment F3 produced the most preferred color, aroma, taste, and texture.

The acceptance of the color, aroma, taste, and texture of the cookies from the three treatments showed a significant effect. Based on the organoleptic test results, it can be concluded that the best treatment was F3, with a composition of 25% kepok banana flour and 75% taro flour. Cookies from this treatment were then analyzed for their nutritional

content, including water content, ash content, fat, protein, and carbohydrates. Table 2 shows that the lowest water content was in the cookies from treatment F3, at 4.519%, with an average overall water content of 5.09%. The low water content is due to the baking process, which evaporates most of the water in the dough. A low water content is expected to extend the shelf life of the product, making taro flour cookies with the addition of kepok banana flour more durable.

Additionally, the analysis in Table 2 also shows that the highest ash content was found in treatment F3, at 1.451%. This indicates that as more kepok banana flour and taro flour are added, the ash content in the product increases. High ash content can contribute to the stability of the product. The protein content of cookies from treatment F3 was 5.535%, which is still below the SNI quality standard for cookies, which is a minimum of 9%. The low protein content is due to the characteristics of the raw materials; both banana flour and taro flour have lower protein content compared to wheat flour. Additionally, the high baking temperature can cause protein degradation and Maillard reactions between amino acids and reducing sugars, which further reduces protein content.

The fat content of cookies from treatment F3 reached 28.214%, exceeding the minimum standard for cookies under SNI, which is 9.5%. This high fat content is suspected to come from ingredients rich in fat, such as margarine (which contains a minimum of 80% fat according to SNI 3541-2002), egg yolks, and skim milk. The addition of these ingredients significantly affects the high fat content in the final product (Badan Standar Nasional, 2002). The carbohydrate content of cookies from treatment F3 was 10.635%, which is far below the minimum SNI standard for cookies of 70%. The low carbohydrate content is linked to the higher levels of other components, such as ash, water, and fat, which lower the carbohydrate percentage. Moreover, kepok banana flour contains less carbohydrate (27g) compared to wheat flour (75.36g), so its contribution to the total carbohydrates is also lower.

4. CONCLUSION

Based on the research results, it can be concluded that the substitution of kepok banana flour and taro flour significantly affects the color, taste, and texture of the cookies in terms of panel acceptance. The panelists preferred cookies with a higher proportion of kepok banana flour and taro flour (treatment F3) because it produced a richer color, more favorable taste, and a more desirable texture (crispy and soft). However, there was no significant effect on the aroma of the cookies caused by the substitution of kepok banana flour and taro flour, indicating that the aroma of the product is more influenced by other ingredients and the baking process rather than by the flour composition.

REFERENCES

- Apriliana, A. M. (2018). Pengaruh Substitusi Tepung Beras Merah (*Oryza Nivara*) Pada Pembuatan Cendol Tepung Hunkwe Terhadap Daya Terima Konsumen. *Skripsi*, Universitas Negeri Jakarta. Retrieved from: <http://repository.unj.ac.id/178/>
- Badan Standar Nasional. (2022). *Margarin*. Jakarta: Badan Standar Nasional
- Berčík, J., Gálová, J., Vietoris, V., & Paluchová, J. (2023). The application of consumer neuroscience in evaluating the effect of aroma marketing on consumer preferences in the food market. *Journal of International Food & Agribusiness Marketing*, 35(3), 261-282.
- Jauhariyah, D., & Ayustaningwarno, F. (2013). Snack Bar Rendah Fosfor Dan Protein Berbasis Produk Olahan Beras. *Journal of Nutrition College*, 2(2), 250-261. <https://doi.org/10.14710/jnc.v2i2.2750>

- Kaahoa, A., Herawati, N., & Ayu, D. F. (2017). Pemanfaatan Tepung Ampas Tahu Pada Pembuatan Kukis Mengandung Minyak Sawit Merah. *The Journal of the Japan Prosthodontic Society*, 15(2), 472–473.
- Lamusu, D. (2007). Uji Organoleptik Jalangkote Ubi Jalar Ungu (*Ipomoea batatas* L) sebagai Upaya Diversifikasi Pangan. *Jurnal Pengolahan Pangan*, 3(1), 9–15.
- Musita, N. (2016). Kajian Sifat Organoleptik Biskuit Berbahan Baku Tepung Jagung Ternikstamalisasi Dan Terigu. *Jurnal Dinamika Penelitian Industri*, 27(2), 110-118.
- Octaviani, P., Izhar, M. D., & Amir, A. (2018). Hubungan Pola Makan dan Aktivitas Fisik dengan Status Gizi pada Anak Sekolah Dasar Di SD Negeri 47/IV Kota Jambi. *Jurnal Kesehatan Jambi*, 2(2), 56–66. <https://doi.org/10.22437/jkmj.v2i2.6554>
- Putri, C. Y. K., Pranata, F. S., & Swasti, Y. R. (2019). Kualitas Muffin Dengan Kombinasi Tepung Pisang Kepok Putih (*Musa paradisiaca* forma typica) Dan Tepung Labu Kuning (*Cucurbita moschata*). *Journal of Biota*, 4(2), 50. <https://doi.org/10.24002/biota.v4i2.2471>
- Santoso, A., Devi, M., & Kurniawan, A. (2014). Peningkatan Pengetahuan Siswa Mengenai Jajanan Sehat Menggunakan Media Minicard. *Jurnal Preventia*, 1–14.