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The Effect of Gembili Flour Substitution (*Dioscorea Esculenta L.*) in the Making Roti Canai on Physical Quality and Sensory Quality

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Abstract
This study aims to analyze the effect of substituting gembili flour in making roti canai on its physical quality and sensory properties. The study was conducted at the Pastry and Bakery Laboratory, Food Service Management Study Program, Jakarta State University, from July 2024 to August 2025. The research method used was an experiment, with samples of roti canai substituted with 20%, 25%, and 30% cassava flour. The results of the ANOVA test showed that there was no effect, while in terms of thickness, there was an effect of cooking loss, so it was followed by a Duncan test. The Duncan test results showed significant differences in each treatment. The 30% treatment had the highest average thickness of 12.45 mm. The results of the sensory quality analysis showed that there was no effect of treatment on the outer color, cassava aroma, samin oil aroma, cassava taste, savory taste, outer texture, inner texture, and layers, while in terms of inner color, there was an effect, so it was continued with Tuckey's test. The 30% treatment obtained the highest average in terms of outer color, inner color, gembili flavor, savory flavor, outer texture, inner texture, and layer. This study recommends 30% gembili flour substitution in roti canai as an effort to utilize local food ingredients.

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1. INTRODUCTION

Roti canai or commonly known as roti cane is a popular dish with Indian influences in several Middle Eastern countries and even in Southeast Asia, such as Indonesia, Malaysia and Singapore. (Ire, 2024) Roti canai is a type of flatbread (*flatbread*) which has a crispy texture on the outside and a soft texture on the inside. Roti canai is made from a dough of wheat flour, water, fat, and salt. Roti canai is flat because it is made by rolling it until thin, then folding it and rolling it.*pan seared* until golden brown. Roti canai is generally consumed as a staple food or snack. As a staple food, roti canai is served with goat curry, chicken curry, and other curries. One of the main ingredients used in making roti canai is wheat flour.

Wheat flour is frequently used in the manufacture of various food products. This results in flour use continuing to increase annually. During the 2017-2023 period, Indonesia imported more than 9 million kilograms of wheat and meslin seeds annually. According to the Central Statistics Agency (2025), by 2023, dependence on imported wheat as a raw material for wheat flour from other countries will reach 10.58 million tons. Therefore, strategies are needed to reduce dependence on wheat-based foods. One way is to utilize local raw materials processed into flour, such as gembili.

Gembili is a tuber plant that is often consumed by the local population as a daily food source. Gembili tubers are considered a subsistence crop, meaning they are not a staple crop cultivated because their use is still limited. (Hartari & Suhardiyanto, 2023). Gembili has the following

characteristics: it is round and oval in shape with varying sizes, usually around 5-10 cm long, has thin, light brown skin, is heart-shaped, has black thorns around the tuber, and has white flesh.(Miksusanti et al., 2020)Gembili is known to contain quite high levels of carbohydrates, namely 22.5-31.3%.(Sabda et al., 2019). According to Winarti et al (2017) referred to in(Ervietesari & Aidhatieni, 2021)Gembili tubers contain dietary fiber in the form of inulin reaching 14.77% dry weight.

Gembili tubers are still underutilized because they are generally only steamed or boiled. Therefore, gembili tubers have the potential to be developed as an alternative food source by processing them into flour, which offers a longer shelf life and allows for innovative processing.

Gembili flour has amylose content of 23.2% and amylopectin of 76.8%.(Richana & Sunarti, 2004), while wheat flour has an amylose content of 28% and amylopectin of 72%(Pradipta & Putri, 2015)Wheat flour contains gluten, which acts as an adhesive to maintain the integrity of the food's shape, making the dough elastic, helping the dough rise during baking, and providing a chewy texture to the food. Meanwhile, the amylopectin in gembili flour plays a role in viscosity, the dough's ability to maintain its shape, maintain moisture, trap gas, and maintain a soft and not too dense final texture, as in the results of research on roti canai with taro flour substitution, which is also rich in amylopectin.(Trisno & Manalu, 2019)The gelatinized amylopectin network can stabilize the structure of bread, thus mimicking the role of gluten in providing strength and elasticity to dough.

Several studies have been conducted on the use of gembili flour, namely in making bagelen (Monikha and Azizah, 2020), *snack bar* (Cahyani and Rosiana, 2020), putu ayu cake (Dwi Febrita, 2024). Therefore, gembili flour has the potential to be used in the manufacture of food products, such as roti canai. Gembili has several functional properties similar to wheat flour, such as the ability to dissolve in water, absorb water, absorb fat, and so on. (Oktavianasari et al., 2023). Furthermore, the starch content of gembili flour is comparable to that of wheat flour. Therefore, gembili flour can be substituted for wheat flour as a dough framework.

Based on the descriptions above, to optimize the basic ingredients in making roti canai, researchers will innovate by replacing some of the wheat flour with gembili flour. This research is expected to increase the variety of food products and reduce the use of wheat flour.

2. RESEARCH METHODS

2.1 Research methods

The research method used in this study was an experimental method to determine the effect of gembili flour substitution on the physical and sensory quality of roti canai. The population in this study was roti canai substituted with gembili flour, with samples consisting of roti canai substituted with gembili flour at percentages of 20%, 25%, and 30%. The sampling technique was random *sampling* where each sample is given a random three-digit code known only to the researcher.

2.2 Data Collection and Analysis Techniques

Data collection in this study was carried out in stages, beginning with product validation by five expert panelists, namely lecturers from the Culinary Arts Education Study Program, Jakarta State University. Next, samples were tested on 45 somewhat trained panelists, namely students from the Culinary Arts Education Study Program, Jakarta State University to assess the sensory quality aspects of outer color, inner color, gembili aroma, ghee aroma, gembili taste, savory taste, outer texture, inner texture, and layers using a scalelike. Then the samples were tested for physical quality using scales for the physical quality aspect of cooking loss and calipers for thickness aspects.

Sensory quality test data analysis was conducted using the Kruskal-Walli's test followed by the Tuckey's test. Physical quality testing was conducted on the physical quality aspect of cooking loss and thickness. Data obtained from the analysis of physical quality tests

was carried out with the Anova test to determine the effect on each treatment. If there is an effect, it will be continued with the Duncan test.

2.3 Making Gembili Flour

The manufacture of gembili flour refers to Noviandri (2022) with slight modifications from the researcher at the manufacturing stage. The process of making gembili flour begins with using clean equipment and good quality ingredients, such as tubers that are not damaged, not too old, and smell fresh. Next, the gembili tubers are weighed and washed to remove any dirt, then peeled and washed again until clean. After washing, the gembili is sliced thinly and soaked in a solution of 0.3% sodium metabisulfite and 5% salt for 2 hours. The soaked and drained gembili is then arranged on a baking sheet and oven-baked at 60^{the}C for 6 hours. The dried gembili is then ground and sieved using a 200-mesh sieve to obtain a fine flour. The sifted gembili flour is then stored in an airtight container.

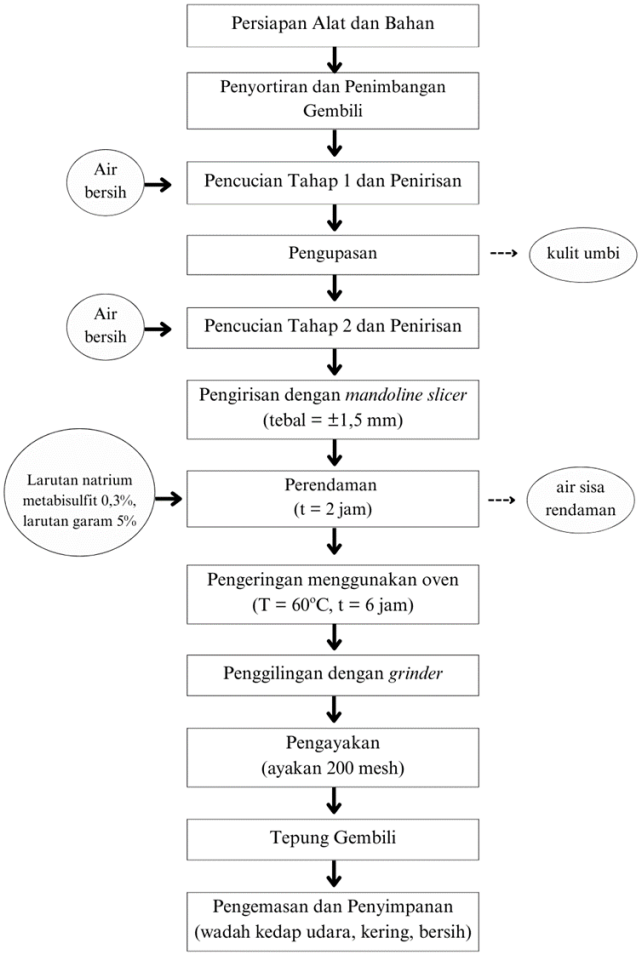

Figure 1 Flowchart of Gembili Flour Production

2.4 Making Roti Canai

Table 1 Formula for Roti Canai with Gembili Flour Substitution

	Material	Unit					
		Gram	**20%**	**Gram**	**25%**	**Gram**	**30%**
	Protein wheat flour high	**200**	**80**	**187,5**	**75**	**175**	**70**
	Gembili flour	**50**	**20**	**62,5**	**25**	**75**	**30**
	Egg yolk	15	6	15	6	15	6
	Salt	4	1,6	4	1,6	4	1,6
	ghee	20	8	20	8	20	8
	Room butter	30	12	30	12	30	12
	Air	80	32	80	32	80	32
	Liquid milk	30	12	30	12	30	12
	Oil	200	80	200	80	200	80
Spread							
	Margarine	4	1,6	4	1,6	4	1,6

Making roti canai begins with preparing equipment and ingredients such as wheat flour, eggs, salt, ghee, *room butter*, water, milk, oil, margarine. All ingredients are weighed, then flour, salt, egg yolks, water, and milk are mixed using a mixer for 15 minutes. Then, fat is added and mixed again for 10 minutes. The dough is now smooth and elastic *rounding* and rested for 5 minutes. After resting, the dough is cut into pieces, then rounded and soaked in oil for 4 hours to relax the dough. Next, the dough is thinned by rotating it clockwise with the palm of your hand, then the dough is pulled lengthwise on each side until thin and smeared with 4 grams of melted margarine per dough. After that, the dough is rolled into a knot resembling a bun that curls upwards. The shaped dough will be left to rest for another 15 minutes to relax the dough. After that, the dough is slightly flattened and baked on top *pan* Bake for 10 minutes, until lightly browned on both sides. Serve the cooked roti canai with curry sauce.

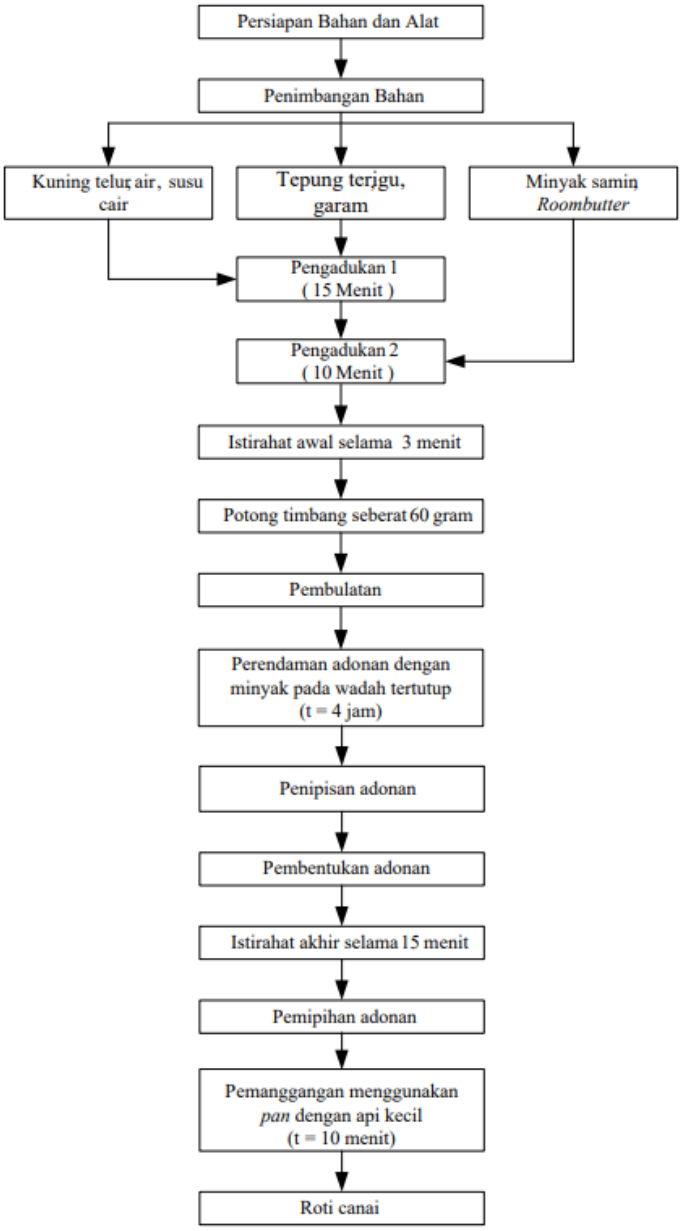

Figure 2 Roti Canai Making Process Chart

3. RESULTS AND DISCUSSION

3.1. Physical Quality

a. *Cooking loss*

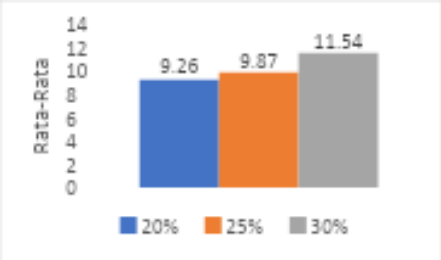

Figure 3 Average Graph *Cooking Loss*

The results show that the F count is 2.31 with α = 0.05, the degree of freedom of treatment (dbp) is 2 and the degree of freedom of error (dbg) is 6, the F table is 5.14. These results indicate that F count < F table, which means H_0accepted and H_1rejected, then there is no influence on cooking *loss* Roti Canai with gembili flour substitution treatment of 20%, 25%, and 30%.

The higher the percentage of gembili flour substitution used, the higher the value of *cooking less*on roti canai. *Cooking loss* related to the loss of water content of a product during processing. This is in line with research by Abdullah (2024) which states that the higher concentration of gembili flour used as a filler result in a decrease in the water content of egg tofu. Gembili flour can increase the water binding capacity (Afrisanti, 2010 in Abdullah, 2024). This is also influenced by the fiber content, because fiber has the property of easily absorbing water. The low water content in the product is caused by gembili containing high carbohydrates so that the bound water is easily released (Rudiyanto, 2015 in Sabda et al., 2019). The higher addition of gembili flour to roti canai results in a low water content, causing the value of *cooking loss* high.

b. Thickness

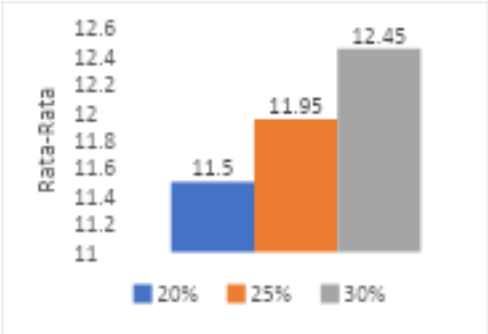

Figure 4 Average Thickness Graph

The results of the physical test of the thickness aspect showed an F count value of 16.12 with α = 0.05, a treatment degree of freedom (dbp) of 2 and an error degree of freedom (dbg) of 6 resulting in an F table of 5.14. This shows that F count > F table which means H_0rejected and H_1accepted. Thus, there is a significant difference in the thickness of roti canai substituted with gembili flour, so it will be continued with Duncan's test.

Based on the results of the Duncan test, the 20% treatment has the notation a, the 25% treatment has the notation b, and the 30% treatment has the notation c. The 10% treatment shows a significant difference from the 25% and 30% treatments, while the 25% treatment is significantly different from the 20% and 30% treatments. Thus, each treatment shows a significant difference from each other.

Based on the test results, it can be concluded that the higher the percentage of gembili flour used, the thicker the roti canai. Gembili flour has a high starch content. This means that the higher the percentage of gembili flour used, the more water contained in the roti canai dough is bound by the gembili flour. The heat generated during the baking process causes the starch granules in the flour to absorb water and swell, allowing the dough to rise (Mulfri, 2024). This process is called gelatinization.

3.2. Sensory Quality

Table 2 Average Results of Sensory Quality Test

Testing Criteria	Treatment		
	20%	25%	30%
Outer Color	3,07[a]	3,53[a]	3,73[a]
Deep Color	3,2[a]	3,47[b]	3,93[c]
Aroma of Gembili	4,13[a]	3,87[a]	4[a]
Castor Oil Scent	4,07[a]	3,80[a]	3,87[a]
Feel the Gembili	3,07[a]	3,27[a]	3,40 [a]
Savory Taste	3,80[a]	3,80[a]	4,13[a]
Outer Texture	3,60[a]	3,53[a]	3,53[a]
Deep Texture	3,80 [a]	3,73[a]	3,67[a]
Layer	4,33[a]	4,13[a]	4,27[a]

Note: The same notation on the same line has no significantly different meaning.

Outer Color

Based on the Kruskal-Walli's test assessment data, it was shown that the substitution of gembili flour did not affect the external color aspect. This is shown in x^2calculate = 5,541 which is smaller than x^2table = 5,991.

Color is an important indicator and can influence other sensory qualities. The addition of ingredients with specific color characteristics can affect the product's appearance. Gembili flour has a brownish-white color, so it can affect the outer color of roti canai. Furthermore, milk can influence color because it contains lactose and protein. The protein and lactose in milk can cause a browning process during baking, called the Maillard process (Damat et al., 2018; Hendrasty & Santoso, 2024). The reaction of *Maillard* Browning is the reaction between reducing sugars and amino acids under heating (Hustiany, 2016). Furthermore, the outer color of roti canai is influenced by temperature, baking time, and the use of fat, which aids in the browning process (Lesaffre, 2022). However, substituting gembili flour did not affect the outer color of roti canai.

Deep Color

In the results of testing the color aspect hypothesis in obtaining x^2calculate = 7,134 which is greater than x^2table = 5.991. This shows that there is an effect of substitution of gembili flour in roti canai on the aspect of inner color, so a test was carried out *tuckey's*.

Research by Monikha & Azizah (2020) and Dwi Febrita (2024) explains that the higher the content of gembili flour used, the darker the resulting product will be. According to Pitojo (2007) in Masrikhiyah (2020), the brown color of gembili flour is caused by a reaction between the polyphenol content in the tuber. Polyphenols cause enzymatic browning, a reaction between polyphenolase and oxygen in the air (Richana, 2012).

Aroma of Gembili

In the Kruskal-Walli's hypothesis test, x is obtained^{2}count = 1.176. Then we get that x^2 calculated is smaller than x^2Table 1. This shows that substituting gembili flour does not affect the aroma of gembili. Aroma is the smell of a food product. The Kruskal-Walli's test showed no effect of substituting gembili flour in making roti canai. This is due to the dominant use of other ingredients, such as ghee *butter*, liquid milk, and eggs can mask the natural aroma of gembili flour so that the resulting aroma is not too strong, but has a slightly distinctive smell like tubers in general. This is in line with research (Nabila, 2025), which shows that the substitution of gembili flour in products of *muffin* does not affect the aroma of gembili.

Castor Oil Scent

Based on the test results obtained x^2count = 1.214, so it can be concluded that there is no effect of roti canai substituted with gembili flour on the aroma aspect of ghee oil. The aroma of ghee oil is obtained from the addition of ghee oil and *butter* substitute gembil flour into the roti canai doughi. The use of gembili flour does not cover the aroma of samin oil in the roti canai dough. The use of samin oil is intended to add the distinctive aroma of roti canai(SFI Author, 2021).

Feel the Gembili

Based on the Kruskal-Walli's test, x is obtained^{2}count = 2.057 which means that there is no effect of substituting gembili flour in making roti canai on the taste aspect of gembili.In this study, the higher the percentage of gembili flour in the product, the more the flavor of the canai roti improved. However, Kruskal-Wallis results indicated that the substitution of gembili flour in canai roti did not have a significant effect. The use of ghee and *butter* can slightly mask the taste of gembili. This is in line with research(Nabila, 2025)which shows that the substitution of gembili flour in *muffin* did not provide a statistically significant difference, although it was felt at 30% and 40% substitution.

Savory Taste

The quality assessment of the savory taste aspect of roti canai with gembili flour substitute treatment of 20% and 25% is included in the category of approaching strong with an average value of 3.80, while the 30% treatment is included in the strong category with an average value of 4.13. The following are the results of the Kruskal-Walli's calculation, obtained x^2calculate = 1,555 which is smaller than x^2table. Therefore, it can be concluded that there is no effect of using gembili flour substitution in making roti canai on the savory taste aspect.

The savory taste is obtained from the use of fat, namely *butter*, ghee, and margarine as a spread. Fat has the function of providing *flavor* or the taste of bread (Damat et al., 2018). Salt is used to provide flavor and improve *flavor* other ingredients used in the dough (Hendrasty and Santoso, 2024).

Outer Texture

The calculation results on the external texture aspect of roti canai with 20%, 25%, and 30% gembili flour substitution obtained at an average value of 3.60; 3.53; 3.53, which means it is included in the category between slightly crispy to crispy. The test results using Kruskal-Wallis obtained x^2calculate 0.130 which is smaller than x^2table. Therefore, it is concluded that there is no effect of using gembili flour substitution in making roti canai on the external texture aspect.

In the research Cahyani and Rosiana (2020) states that the texture on *snack bar* Gembili flour and soybean flour tend to be crispy. This is because gembili flour contains a higher amylopectin content than amylose. Amylopectin plays a role in the gelatinization process, while amylose affects swelling and breakage strength. The higher the content of gembili flour, the crispier the product texture. However, excessive use can make roti canai more difficult to shape and the texture becomes denser. This is in line with research of Mufarrochah et al. (2023)in the treatment with a ratio of wheat flour and gembili of 0:150 which resulted in the addition of more gembili flour, the more *cookies* the resulting texture is easily crumbled.

Deep Texture

The assessment data of the texture aspect in roti canai with gembili flour substitution treatment of 20% obtained an average score of 3.80 which is included in the category of being close to soft, the treatment of 25% and 30% obtained an average of 3.73 and 3.67 which are in the category between being slightly soft to soft. The results of the Kruskal-Wallis test show that x^2calculate 0.563 which is smaller than x^2table.

Based on Abdullah's research (2024), there is increasing use of gembili flour as a filler added to...*egg to fu* resulting in egg texture *to fu* increasingly dense. The decreasing average value indicates that the substitution of gembili flour reduces the softness of roti canai. This is due to the amount of starch that can fill the empty spaces in the gel matrix, resulting in a denser and harder product texture (Suseno, 2007, in Pratiwi et al. 2016). However, the Kruskal-Wallis test results showed that the substitution of gembili flour had no significant effect.

Layer

The results of the Kruskal-Wallis test show that x^2count as 0.997 is smaller than x^2Table 1. The conclusion is that there is no effect of using gembili flour substitution in making roti canai on the sensory quality of the layers. According to Ariska (2023), roti canai has a thin, layered texture because it contains fat in the center of the bread. In addition, the layers in roti canai are formed during the processing process. The use of margarine as a spread in all three treatments was the same amount.

4. CONCLUSION

There is a significant effect of substitution of 20%, 25%, and 30% gembili flour on the physical quality of the thickness aspect of roti canai and there is a significant difference between the treatment samples. However, in this aspect *cooking loss* stated that there was no effect of substituting gembili flour in making roti canai

There was no effect of substitution of gembili flour in roti canai on the sensory quality aspects of outer color, inner color, aroma of gembili, aroma of ghee, taste of gembili, savory taste, outer texture (crispyness), inner texture (softness), and layers. However, there was a significant effect on the sensory quality of the inner color aspect. Therefore, roti canai with 30% substitution of gembili flour treatment is recommended as an effort to utilize gembili tubers and as an alternative local food ingredient.

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6. BIBLIOGRAPHY

Abdullah, N. (2024). *Penggunaan Tepung Gembili (Dioscorea esculenta L.) Sebagai Bahan Pengisi Terhadap Sifat Fisik dan Organoleptik Egg Tofu*. Universitas Semarang.

Cahyani, W., & Rosiana, N. M. (2020). Kajian Pembuatan Snack Bar Tepung Gembili (Dioscorea Esculenta) Dan Tepung Kedelai (Glycine Max) Sebagai Makanan SelinganTinggi Serat. *Jurnal Kesehatan*, *8*(1), 1–9. https://doi.org/10.25047/j-kes.v8i1

Damat, D., Ta'in, A., Saati, E. A., Sudibyo, R. P., Wijaya, R., & Putri, D. N. (2018). *Teknik Pembuatan Roti Manis Fungsional*. Universitas Muhammadiyah Malang.

Dwi Febrita, T. (2024). Pengaruh Substitusi Tepung Gembili (Discorea Esculenta Linn) pada Pembuatan Kue Putu Ayu Terhadap Daya Terima Konsumen. *Cerdika: Jurnal Ilmiah Indonesia*, *4*(7), 594–606. https://doi.org/10.59141/cerdika.v4i7.830

Ervietasari, N., & Aidhatien, F. (2021). Cookies Berbahan Umbi Gembili sebagai Inovasi Pangan yang Bernilai Ekonomi, Kaya Gizi, dan Menyehatkan. *Journal Science Innovation and Technology (SINTECH)*, *1*(2).

Hartari, A., & Suhardiyanto, A. (2023). *Pangan Alternatif dari Berbagai Komoditas Lokal di Indonesia*. Universitas Terbuka.

Hendrasty, H. K., & Santoso, U. (2024). *All About Bakery Semua yang Harus Kamu Tahu Tentang Bakery*. Andi Publisher.

Hustiany, R. (2016). *Reaksi Maillard Pembentukan Citarasa dan Warna pada Produk Pangan*. Lambung Mangkurat University Press.

Ire. (2024). *Roti Canai: Asal-usul, Variasi, dan Teknik Pembuatannya*. https://rotienak.com/roti-canai/

Lesaffre. (2022). *Peran Lemak Dalam Pembuatan Roti*. https://lesaffre.com.sg/insights/role-of-fats-in-breadmaking/

Masrikhiyah, R. (2020). Substitusi Umbi Gembili (Discorea esculenta L) Terhadap Nilai Gizi dan Sifat Organoleptik Kue Umbi Gembili. *GIZIDO*, *12*(2).

Miksusanti, Solihah, I., & Wijaya, D. P. (2020). *Pati Umbi-Umbian dan Resisten Starch Sebagai Prebiotik Untuk Kesehatan*. Penerbit NEM.

Monikha, D., & Azizah, D. N. (2020). Karakteristik Roti Kering Bagelen dengan Substitusi Tepung Gembili. *Prosiding Seminar Nasional Riset Teknologi Terapan*.

Mufarrochah Wardani, R., Ulfa Utami, A., & Ulfa, R. (2023). Pengaruh Substitusi Tepung Gembili (Dioscorea esculenta) Terhadap Karakteristik Cookies. *Jurnal Teknologi Pangan Dan Ilmu Pertanian (JIPANG)*, *5*(1).

Mulfri, M. A. (2024). *Peran Gelatinisasi Dalam Pembuatan Makanan Sehari-hari*. https://kumparan.com/bocil-alip/peran-gelatinisasi-dalam-pembuatan-makanan-sehari-hari-23gnGVM3BnC/full

Nabila, F. (2025). *Pengaruh Substitusi Tepung Gembili (Dioscorea esculenta L.) Terhadap Sifat Fisik dan Mutu Sensoris Kue Muffin*. Universitas Negeri Jakarta.

Oktavianasari, R. R., Damat, D., & Manshur, H. A. (2023). Kajian Karakteristik Fisikokimia dan Organoleptik Beras Analog Berbahan Dasar Tepung Gembili (Dioscorea aculleata. L), Tepung Jagung (Zea mays, L) dan Pati Sagu (Metroxylon sp). *Food Technology and Halal Science Journal*, *5*(2), 125–136.

Penulis SFI. (2021). *Minyak Samin vs Mentega, Ini Perbedaan dan Manfaatnya*. https://www.sfidn.com/article/post/minyak-samin-vs-mentega-ini-perbedaan-dan-manfaatnya

Pradipta, I. B. Y. V., & Putri, W. D. R. (2015). Pengaruh Proporsi Tepung Terigu dan Tepung Kacang Hijau Serta Substitusi dengan Tepung Bekatul dalam biskuit. *Jurnal Pangan Dan Agroindustri*, *3*(3).

Pratiwi, T., Affandi, D. R., & Jati Manuhara, G. (2016). Aplikasi Tepung Gembili (Dioscorea esculenta) Sebagai Substitusi Tepung Terigu Pada Filler Nugget Ikan Tongkol (Euthynnus affinis). *Jurnal Teknologi Hasil Pertanian*, *IX*(1).

Richana, N. (2012). *Araceae & Dioscorea Manfaat Umbi-umbian.* NUANSA.

Richana, N., & Sunarti, T. C. (2004). Karakterisasi Sifat Fisikokimia Tepung Umbi dan Tepung Pati Dari Umbi Ganyong, Suweg, Ubikelapa dan Gembili. *Jurnal Penelitian Pascapanen*, *1*(1), 29–37.

Rotte Bakery. (n.d.). *Roti Canai : Apa Itu, Asal Usul Sejarahnya, Cara Mengkonsumsi dan Resep Praktis*. Retrieved March 14, 2025, from https://rottebakery.com/roti-canai-apa-itu-asal-usul-sejarahnya-cara-mengkonsumsi-dan-resep-praktis/

Sabda, M., Suci Wulanningtyas, H., Ondikeleuw, M., & Baliadi, Y. (2019). Karakterisasi Potensi Gembili (Dioscorea esculenta L.) Lokal Asal Papua Sebagai Alternatif Bahan Pangan Pokok. *Jurnal Buletin Plasma Nutfah*, *25*(1).

Trisno, D. S., & Manalu, M. B. F. (2019). Uji Kesukaan Roti Canai Dengan Substitusi Tepung Talas. *Jurnal Culinaria*, *1*.