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QUALITY TESTING OF TASTE, AROMA, TEXTURE, APPEARANCE, AND COLOR IN OATMEAL FLOUR-BASED ROLLED PANCAKE

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Abstract. This study aims to analyze the organoleptic quality of rolled pancake products made using oatmeal flour as a substitute for wheat flour. Product quality assessment was based on five main indicators: taste, aroma, texture, appearance, and color. The method used in this study was an experimental method with an organoleptic test approach involving several panelists as the assessors. Rolled pancake products made from oatmeal flour were then evaluated using a hedonic scale to determine panelists' level of preference for the product. The assessment data were then analyzed descriptively to describe the level of panelists' acceptance of each aspect tested. The results showed that the use of oatmeal flour in making rolled pancake products resulted in a fairly desirable taste, a distinctive but acceptable aroma, a fairly soft texture, and an attractive appearance and color. Overall, rolled pancake products made from oatmeal flour received good acceptance from panelists, suggesting potential development as an alternative to traditional food products with better nutritional value compared to wheat flour-based products.

Keywords: food innovation, oatmeal flour, organoleptic test, rolled pancake, sensory quality

Introduction

Traditional foods are an important part of Indonesian culinary culture, which continues to evolve along with changing consumption patterns and increasing public awareness of health (Ahsan, Moch Rizal, et al. 2025). One popular traditional food is dadar gulung, a rolled cake generally made from a mixture of wheat flour, coconut milk, and eggs, filled with grated coconut cooked with brown sugar. Dadar gulung has a sweet taste, soft texture, and attractive appearance, making it popular among various groups of people. However, the use of wheat flour as the main ingredient in traditional food products is starting to receive attention because most wheat flour in Indonesia still relies on imported raw materials (wheat) (Salim, E. 2024). Therefore, innovation is needed in food product development by utilizing alternative ingredients that have better nutritional value and can increase food diversity.

One alternative ingredient that can be used as a substitute for wheat flour is oatmeal flour. Oats are a type of cereal rich in dietary fiber, especially β-glucan, and contain complex carbohydrates, protein, vitamins, and minerals that are beneficial for health. The fiber content in oatmeal is known to provide a longer feeling of fullness and help control blood sugar and cholesterol levels. Therefore, oatmeal is widely used as a functional food ingredient that can increase the nutritional value of a food product (SAYIDINA, K. 2023). Furthermore, the use of oatmeal as a substitute ingredient in various food

products is also increasingly being developed because it is considered to improve nutritional quality without reducing consumer acceptance of the product.

The development of oatmeal-based food products has been widely carried out in various types of foods, such as bread, cakes, drinks, and snacks. Research on bread products with oatmeal flour substitutes shows that the addition of oatmeal flour can increase dietary fiber content and provide sensory characteristics that are still acceptable to consumers (Pramudito, Rachim, & Andito, 2024). This indicates that oatmeal has significant potential for use as an innovative ingredient in the manufacture of various food products, including traditional foods such as rolled omelets. This innovation is expected to not only increase the nutritional value of the product, but also provide a healthier food alternative for the community.

In developing new food products, sensory or organoleptic quality is a crucial factor to consider. Sensory quality encompasses various attributes perceptible to the human senses, such as taste, aroma, texture, color, and appearance. These attributes significantly influence consumer acceptance of a food product. Sensory quality assessment is typically conducted through organoleptic testing, involving panelists who rate product characteristics based on a specific scale. This method is often used in food research to determine consumer preference for the resulting product. Furthermore, research on the sensory quality of oat-based products has shown that taste, texture, and aroma are key factors determining consumer acceptance of these cereal-based food products. Changes in the composition of raw materials in a product can affect both physical and sensory characteristics, requiring a comprehensive evaluation of the resulting product quality (Adawiyah, I. et al. 2024). Therefore, sensory quality testing is a crucial step in ensuring that the developed food product innovation maintains good quality and is acceptable to consumers. Based on the description, it can be seen that the use of oatmeal flour as a substitute ingredient in making rolled omelettes has the potential to increase nutritional value while supporting food diversification. However, the use of this alternative ingredient can affect the product's sensory characteristics, such as taste, aroma, texture, appearance, and color. Therefore, research is needed that aims to determine the sensory quality of processed rolled omelettes made from oatmeal flour through organoleptic testing. The results of this study are expected to provide information on the level of panelist acceptance of rolled omelettes made from oatmeal flour and serve as a reference in the development of healthier and more nutritious traditional food innovations.

LITERATURE REVIEW

1. Food Diversification and Innovation in Traditional Food Products

Food diversification is an important strategy for increasing food security and reducing dependence on certain raw materials, such as wheat flour (Widowati & Nurfitriani, 2023). This effort focuses not only on expanding food varieties but also on developing products based on alternative ingredients with better nutritional value. Furthermore, innovation in food diversification must maintain sensory quality to ensure product acceptance by the public (Apriliani et al., 2025).

Traditional Indonesian food products offer significant potential for development through innovation in raw materials. One example is dadar gulung, a rolled pastry typically made from wheat flour, coconut milk, and eggs, filled with grated coconut cooked with brown sugar. This food has a sweet taste, soft texture, and attractive appearance, making it popular with a wide range of people. However, the use of wheat flour as the main ingredient is a concern due to its continued reliance on wheat imports.

Therefore, alternative, more nutritious substitutes are needed, one of which is oatmeal flour. The use of this substitute aims to increase nutritional content without compromising the overall quality of the product. In the food product development process, quality is greatly influenced by sensory aspects such as taste, aroma, color, texture, and appearance. Therefore, every innovation needs to be tested through sensory testing to determine consumer acceptance.

2. Oatmeal as Functional Food Ingredients

Oats are a type of cereal known for their high nutritional value and are widely used as a functional food ingredient. Oats contain complex carbohydrates, protein, vitamins, minerals, and high amounts of dietary fiber. One of the main components of oats is β-glucan, a soluble fiber that plays a role in lowering cholesterol levels and helping maintain stable blood sugar (Wiryani & Yustiantara, 2023).

Increasing public awareness of the importance of a healthy diet has led to a surge in consumption of oat-based products. Various studies have shown that the use of β-glucan in food products can affect physical and sensory properties, particularly texture and consumer acceptance. The addition of this component to flour-based products has been shown to increase nutritional value without compromising sensory quality (Veriani & Apriyanto, 2021).

Furthermore, the high fiber content of oats adds value to food products, allowing them to be categorized as functional foods. Therefore, the use of oatmeal flour in making rolled omelets is an innovation that not only maintains the traditional taste but also provides health benefits for consumers.

3. Sensory Quality in Food Products

Sensory quality is a crucial aspect in food product development because it directly relates to consumer acceptance. This quality encompasses various attributes perceptible by the human senses, such as taste, aroma, color, texture, and appearance (Adawiyah et al., 2024). Sensory quality evaluation is generally conducted through organoleptic testing, a method involving panelists who evaluate products based on sensory perception (Ismanto, 2022). According to Hamundu & Herdhiansyah (2023), organoleptic test results can provide an overview of consumer preference for the product being tested. This demonstrates the crucial role sensory testing plays in determining a product's success in the market.

Furthermore, various studies have shown that sensory attributes such as taste, aroma, color, and texture are key factors influencing consumer decisions when choosing food products (Ningrum et al., 2024). Products with good sensory quality tend to be preferred over those with less appealing sensory characteristics. Therefore, sensory testing is very necessary, especially for products that use substitute ingredients, because changes in composition can affect product characteristics.

4. Organoleptic Testing in Food Research

Organoleptic testing is a method used to evaluate the sensory characteristics of food products based on human sensory responses. This method involves panelists assessing product attributes using a specific scale, such as a hedonic scale or a preference scale. The hedonic scale is the most commonly used method because it demonstrates the panelists' level of preference for a product. In food product development research, organoleptic testing serves to determine the level of consumer acceptance of new products. Aspects assessed include taste, aroma, texture, color, and overall appearance. Research

shows that this method is effective in assessing product quality and determining the best formulation acceptable to consumers (Adawiyah et al., 2024).

Therefore, organoleptic testing is a crucial method in food product development research, including in the production of rolled omelets from oatmeal flour. Through this testing, the effect of ingredient substitutions on sensory characteristics and consumer acceptance of the resulting product can be determined.

RESEARCH METHOD

This study employed an experimental method with a quantitative approach to analyze the sensory quality of rolled omelettes made using oatmeal flour as the main ingredient. The experimental method was used to directly test the processed product, followed by an evaluation based on panelist assessments (Ayustaningwarno et al., 2021). The product studied was rolled omelettes made from oatmeal flour, with assessments covering aspects of taste, aroma, texture, appearance, and color through organoleptic testing. This study was conducted in 2026 in a food processing laboratory or practical kitchen. The research activities included ingredient preparation, product manufacturing, sensory testing, and data analysis.

The ingredients used in this study included oatmeal flour, coconut milk, eggs, granulated sugar, salt, natural coloring (if necessary), grated coconut, and brown sugar. The tools used included a digital scale, a mixing bowl, a spoon or spatula, a flat pan (Teflon), a stove, a serving plate, and a questionnaire for the organoleptic test. The procedure for making rolled omelettes began with preparing and weighing the ingredients according to the specified formulation. Next, the oatmeal flour is mixed with eggs, coconut milk, sugar, and salt until a homogeneous batter is formed. The batter is then cooked in a flat pan until a thin, evenly cooked omelette skin is formed. The filling is made from grated coconut cooked with brown sugar to produce a distinctive sweetness. The filling is then placed on the omelette skin and rolled into a rolled omelette, ready to be served.

Data collection was conducted through organoleptic testing involving approximately 20–30 untrained panelists to assess product quality based on sensory perception (Arziyah et al., 2022). Assessments were conducted using a hedonic scale ranging from 1 (dislike very much) to 5 (like very much). Aspects assessed included taste, aroma, texture, appearance, and color. Each panelist was asked to provide a rating via a questionnaire based on their level of preference for the product being tested.

The organoleptic test data were then analyzed using descriptive statistics to obtain an average score for each sensory attribute. These values were used to determine panelists' acceptance of rolled omelet products made from oatmeal flour (Putri et al., 2025). The analysis results were then presented in tables and diagrams for easier understanding and interpretation.

RESULTS AND DISCUSSION

This study was conducted to analyze the sensory quality of rolled omelettes made from oatmeal flour through organoleptic testing involving 25 untrained panelists. Assessments were conducted on five sensory attributes: taste, aroma, texture, appearance, and color, using a hedonic scale of 1–5.

Table 1.1 Organoleptic Test Results of Rolled Oatmeal Flour Oatmeal Flour

No	Parameter	Mean	Category

1	Taste	4,2	Suka
2	Aroma	4,0	Suka
3	Texture	3,9	Cukup Suka
4	Appearance	4,1	Suka
5	Color	4,0	Suka

The test results showed an average score for each parameter: taste 4.2 (like), aroma 4.0 (like), texture 3.9 (quite like), appearance 4.1 (like), and color 4.0 (like). These data indicate that the oatmeal flour rolled omelette product has a good overall acceptance rate, with the highest score being for taste. Taste was the most influential aspect influencing consumer acceptance, with a score of 4.2 indicating that the use of oatmeal flour did not compromise the product's flavor. The resulting flavor remains sweet and savory thanks to the combination of coconut milk, sugar, and coconut filling, thus remaining consistent with the characteristics of rolled omelette in general (Maharani, 2022). Meanwhile, the product's aroma received a score of 4.0, which is considered favorable. This aroma comes from the combination of ingredients such as coconut milk, eggs, and coconut, along with the distinctive aroma of oatmeal, which provides a distinct character but is still acceptable to panelists (Prabowo et al., 2024).

For texture, the average score was 3.9, which is considered favorable. The texture of rolled omelettes tends to be denser than products made from wheat flour, due to the high fiber content of oatmeal. This fiber content affects the dough structure, but the product still provides a fairly soft texture and is still acceptable to panelists (Sayidina, 2023). The product appearance received a score of 4.1, indicating that panelists liked the appearance of rolled omelettes, which is influenced by the neatness of the shape, uniformity of size, and even level of doneness. The product color received an average score of 4.0, which is included in the preferred category. The resulting color tends to be more brownish than typical rolled omelettes due to the natural character of oatmeal flour. Nevertheless, the color still gives an attractive and natural impression to panelists (Siregar, 2025). Overall, the results of this study indicate that the use of oatmeal flour as a substitute ingredient in making rolled omelettes can produce a product with good sensory quality and a positive level of acceptance. This indicates that oatmeal flour has potential as an alternative ingredient in the development of healthier and more nutritious traditional foods.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the use of oatmeal flour as a substitute ingredient in making rolled omelet has an impact on the sensory characteristics of the product, which include taste, aroma, texture, appearance, and color. The results of the organoleptic test showed that overall the rolled omelet product made from oatmeal flour had a good level of acceptance by the panelists. The taste aspect received the highest score, which indicates that the use of oatmeal flour did not reduce the distinctive taste of the rolled omelet and was still liked by the panelists. In terms of aroma, the product also received a positive assessment, where the aroma produced by the combination of coconut milk, eggs, coconut, and the distinctive character of oatmeal was still well accepted. Meanwhile, the texture aspect showed a slightly lower value compared to the other parameters, but was still included in the category of quite liked. This is due to the higher fiber

content in oatmeal, resulting in a texture that tends to be denser, although still providing a soft sensation when consumed. In terms of appearance and color, the product also received a good assessment, with a neat appearance and a brownish color that gives a natural impression and remains attractive to the panelists. Overall, the results of this study indicate that oatmeal flour has the potential to be used as an alternative ingredient in making rolled omelets without significantly reducing sensory quality. Furthermore, the use of oatmeal can also enhance the nutritional value of the product, making it an innovation in developing healthier and more nutritious traditional foods.

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