

The Use Of Taro Flour as An Alternative Ingredient in Cream Soup Processing: Sensory Quality Analysis

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KEYWORDS

taro flour; cream soup; sensory test; food diversification

ABSTRACT

This research aims to analyze the sensory quality of using taro flour as a substitute for conventional thickeners in making cream soup which includes taste, texture, color and aroma. Taro (*Colocasia esculenta*) is a local tuber that is rich in nutrients, such as carbohydrates, fiber and various vitamins, but its use in the food industry is still relatively minimal (Saleh, 2023). This research was conducted by combining experimental and qualitative methods, using One Case Study design. In the experimental process, sensory tests were carried out to evaluate cream soup which was formulated using taro flour as a substitute for conventional thickening agents. This sensory test involved sensory panelists and general consumers, with a total sample of 15 people including 3 experts. Panelists were asked to assess the sensory attributes, which include taste, aroma, texture and color of the cream soup. In addition, qualitative methods were applied through in-depth interviews with respondents to gain further understanding regarding their perceptions of taro flour-based cream soup. This approach provides additional insight into consumer preferences, as well as the reasons behind acceptance or dissatisfaction with the product being tested. The research results showed that the use of taro flour was able to make a positive contribution to the sensory attributes of cream soup, especially in terms of taste and texture. Besides that, the color and aroma of the product also received good ratings from the panelists. Cream soup products made from taro flour show a fairly high level of consumer acceptance, indicating that taro flour has great potential to be used as an alternative to thickeners in the food industry. This study also highlights the importance of diversifying local food by utilizing ingredients that are easily accessible and have high nutritional value, such as taro, to support health and future food product innovation.

INTRODUCTION

Food is a basic human need that supports energy, nutrition, and health. With increasing awareness of the importance of healthy food, the demand for quality and innovative products continues to grow. This encourages researchers and the food industry to continue to innovate, including by utilizing local ingredients that are rich in nutrients but have not been fully utilized (Saleh et al., 2023:22). Research by Ikhrum & Chotimah (2022) emphasizes that innovation in the use of local food ingredients not only enriches products but also supports public health by improving nutritional quality. One of the local foods that has not been fully utilized is taro. Taro (*Colocasia esculenta*) is a local tuber that is rich in nutrients, high in carbohydrates as a

source of energy, and contains fiber that supports digestive health and blood sugar control. Taro is also rich in vitamins C and E as antioxidants, as well as important minerals such as potassium for electrolyte balance and magnesium for nerve and muscle function (Padma et al., 2021:45). Sartika et al. (2023) stated that the potential of taro as a functional food has not been optimized, so its utilization in the food industry needs to be increased to explore its health and economic potential. One of the food products that can be made using taro flour as an ingredient is cream soup.

Cream soup is popular for its delicious taste and creamy texture, which is produced from a combination of quality ingredients such as broth, vegetables, and dairy products. Its soft and savory texture makes it popular as an appetizer or comfort food. Cream soup is often considered luxurious because of its rich taste and texture, which can be enhanced with innovative ingredients and formulations (Cornelia, 2018:67). Cream soup usually uses wheat flour or cornstarch as a thickener. However, with the increasing need for food diversification, taro flour has the potential to replace conventional flour in its manufacture because taro flour contains better nutrition. In addition to nutritional aspects, it is important to evaluate the impact of using taro flour as a thickener on the sensory quality of cream soup, such as taste, aroma, texture, and color.

This study focuses on the problem of how the use of taro flour affects the sensory attributes of cream soup, such as taste, aroma, texture, and color. The purpose of this study was to analyze the sensory quality of the use of taro flour as a substitute for conventional thickeners in making cream soup which includes taste, texture, color, and aroma. This study is limited to the use of taro flour as a thickener for cream soup, without involving other products. Only taro flour according to the standard recipe is used, without variations in the formula. The sensory parameters analyzed include color, texture, aroma, and taste, without taking into account nutritional value or chemical properties. Sensory testing was carried out through a hedonic test with certain panelists. The sample involved 15 panelists, including 3 experts, from STP AMPTA Yogyakarta students.

The study took place in the STP AMPTA Yogyakarta kitchen lab from September 1 to October 1, 2023. This study contributes to the development of food technology, especially in utilizing local ingredients such as taro flour as an alternative thickener, as well as its impact on the sensory quality of cream soup. This study also enriches academic insight into the potential of taro flour as an alternative thickener, adding to the literature on its benefits and characteristics in the food industry. The use of nutrient-rich taro flour can provide additional health benefits, encourage more nutritious food products and support healthy eating patterns.

METHOD

This study is a qualitative study with an experimental method that utilizes taro flour as a thickener in cream soup. Data were collected through questionnaires and interviews. Before testing the panelists, the researcher conducted several experiments to obtain a suitable and stable taro flour cream soup recipe for further testing. The experimental design used was a One-shoot case study. Sugiyono (2021:226) stated that this method examines a group given treatment and then the results are observed. The sensory parameters analyzed include color, texture, aroma, and taste, without taking into account nutritional value or chemical properties. Sensory testing was carried out through a hedonic test with certain panelists. The sample involved 15 panelists, including 3 experts, from STP AMPTA Yogyakarta students. The study took place in the STP AMPTA Yogyakarta kitchen lab from September 1 to October 1, 2023. This study analyzed the data by discussing the conclusions obtained from the panelists' answers and interviews with experts. Descriptive statistics were carried out by presenting the results of the questionnaire in the form of a single table. The table describes consumer responses to the quality of taro flour cream soup based on the tendency of the assessment results, then interpretations were carried out to understand the meaning behind the tendency.

Table 1 CREAM SOUP STANDART RECIPE

Taro Flour Cream Soup Standard Recipe 1		Taro Flour Cream Soup Standard Recipe 2		Taro Flour Cream Soup Standard Recipe 3	
Ingredient	Quantity	Ingredient	Quantity	Ingredient	Quantity
Roux		Roux		Roux	
Melted Butter	20 gr	Melted Butter	25 gr	Melted Butter	25 gr
Taro Flour	50 gr	Taro Flour	30 gr	Taro Flour	40 gr
Filling		Filling		Filling	
Corn	150 gr	Corn	150 gr	Corn	150 gr
Stock	100 ml	Stock	200 ml	Stock	300 ml
Milk	100 ml	Milk	50 ml	Milk	80 ml
		Cooking Cream	50 ml	Cooking Cream	20 ml
Onion	20 gr	Onion	20 gr	Onion	20 gr

[Source: Data Primer, 2024]

In this study, the researcher used the third taro flour cream soup recipe because the researcher considered that the third recipe is better than the first and second ones.

Cooking Method

1. Melt the butter then add the taro flour to make a roux. Then set aside.
2. Saute onion with butter
3. Add the white stock
4. Add the roux by straining it first
5. Add the milk and cooking cream
6. Add the seasoning salt & paper
7. Stir until it thickened
8. Add Corn and arrange it on top of the soup cup.

RESULTS AND DISCUSSION

Sensory Test and Hedonic Test

Sensory test is an assessment method used to measure an individual's sensory response to a food product, based on the senses of taste, smell, sight, touch, and hearing. Hedonic test is one type of sensory test. Hedonic test is done by giving points on a scale of 1 (very dislike) to 5 (very like).

Hedonic testing on taro flour cream soup products is done by giving preference scores as follows: very like with a value of 5, like with a value of 4, neutral with a value of 3, dislike with a value of 2, and very dislike

with a value of 1. The following are the results of the organoleptic test and hedonic test on taro flour cream soup:

1. Taste

Taste is a sensory perception felt through the sense of taste on the tongue. In the context of this study, the taste in question is the taste produced by the taro flour cream soup itself which is obtained after the panellists taste the taro flour cream soup. The ideal cream soup taste usually combines several basic characteristics to produce a delicious, smooth, and satisfying experience. In the case of this taro flour cream soup, there is no difference in taste quality as shown in the table below:

Table 1

Hedonic Taste Test					
Cream Soup has the same Taste					
	1	2	3	4	5
Total				10	5

[Source: Data Primer, 2024]

From the table above, it can be seen that there are 10 people who like the taste of this taro flour cream soup. Meanwhile, there are also 5 other people who really like the taste. On average, people like the taste produced from cream soup that uses taro flour as a thickener. The panellists felt that there was no significant difference between the taste of conventional cream soup and cream soup that uses taro flour as a thickener.

It can be concluded that the use of taro flour as a thickener in cream soup preparations can be applied well. The use of taro flour in cream soup preparations must be considered because the process of making an uncooked roux also greatly affects the taste quality of the cream soup. Cooking an uncooked roux can cause the distinctive taste of taro flour to remain.

2. Aroma

In sensory research, aroma is one of the important aspects that are often assessed by panelists or consumers because aroma can greatly affect the appeal and initial perception of the quality of a food or beverage product. A pleasant and balanced aroma can increase appetite, while an inappropriate aroma can decrease interest in the product. In general, cream soup is known to have a soft, creamy, and savory aroma, which comes from a combination of quality milk or cream components, which create a distinctive and soothing aroma. In the case of taro flour cream soup, there is no difference in the quality of the aroma as shown in the table below:

Table 2

Aroma Hedonic Test					
Cream Soup has the same Aroma					
	1	2	3	4	5
Total				8	7

[Source: Data Primer, 2024]

From the table above, there are 8 people who like the aroma produced by this taro flour cream soup. Meanwhile, there are 7 people who really like the aroma produced. On average, people like the aroma produced by cream soup that uses taro flour as a thickener. The panelists considered that the taste was not too different from cream soup in general.

From the data above, it can be concluded that the use of taro flour as a thickener in cream soup can be applied well. However, there is something that needs to be considered, namely the cooking process of the

roux must be considered because roux that is not too cooked can produce an aroma from the taro flour itself, thus affecting the quality of the aroma of the cream soup. In addition, the addition of other ingredients such as cooking cream, milk, and butter makes the aroma of taro flour even less noticeable.

3. Color

In the context of food, color plays a very important role, as it is often the first indicator that influences our perception of the quality, freshness, and appeal of a dish. Color is also not just a visual aspect. Color can influence certain expectations about the taste, aroma, and texture of a dish. surface of the dish looks shiny. The color of the dish matches the color of the main ingredients. It does not look too pale due to the lack of use of vegetables or other flavorings. It does not change color due to being overcooked. The garnish on the dish looks attractive and is cut neatly (Wayne, 2019). In the case of this taro flour cream soup, the color quality is different from cream soup in general as shown in the table below:

Table 3

Color Hedonic Test					
Cream Soup has the same Color					
	1	2	3	4	5
Total		1	5	9	

[Source: Data, Primer, 2024]

From the table above, there are 9 people who like the color of this taro flour cream soup. There are 5 other people who feel neutral with the resulting color. Meanwhile, there is also 1 person who does not like the resulting color. On average, people like the color produced from cream soup that uses taro flour as a thickener. Even so, there are still people who are not satisfied with the resulting color. The color produced from taro flour cream soup tends to be dark compared to cream soup in general. This is due to the presence of polyphenol oxidase enzymes in taro flour (Samosir et al, 2023).

From the data above, it can be concluded that the use of taro flour as a thickener in cream soup preparations can be applied quite well. The color produced from taro flour cream soup tends to be rather dark, which affects the assessment obtained.

4. Texture

Texture is one of the important characteristics of food that we can feel through various senses, such as fingers, tongue, mouth, or teeth (Finna, 202). The texture of a food plays a major role in shaping the sensory experience and influences our perception of its quality and deliciousness. For example, an ideal cream soup has a soft and smooth texture, like velvet, without any gritty or lumpy taste that provides a comfortable and enjoyable eating experience (Wayne, 2019). In the case of this taro flour cream soup, there is no difference in texture quality as shown in the table below:

Table 4

Color Hedonic Texture					
Cream Soup has the same Texture					
	1	2	3	4	5
Total				11	4

[Source: Data Primer, 2024]

From the table above, there are 11 people who like the texture produced from this taro flour cream soup. Meanwhile, there are 4 people who really like the texture produced. On average, people like the texture produced from cream soup that uses taro flour as a thickener.

From the data above, it can be concluded that the use of taro flour as a thickener in cream soup can be applied well. The cooking process also affects the result of the texture produced. In order to get a soft, lump-free, and non-gritty texture of taro flour cream soup, the roux is first filtered and continuously stirred so that no lumps are formed.



Figure 1. Cream Soup [Sumber: <https://images.app.goo.gl/k2isE7uUhMcfanYi7>]



Figure 2. Cream Soup Tepung Talas [Source: Primary Datar, 2024]

CONCLUSION

From the experiment above, it can be concluded that the use of taro flour as an alternative thickener in making cream soup produces a taste, aroma, color, and texture that is quite liked by panelists and experts. The results of using taro flour as a thickener do not affect the sensory quality of the cream soup itself. However, it should be underlined that for the color sensory attribute, there is a slight change compared to cream soup in general, which tends to have a darker color. This is due to the presence of the polyphenol oxidase enzyme in taro flour.

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