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Innovation of Otak-otak based on sweet potatoes

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ABSTRACT

This study aims to evaluate the innovation of making otak-otak by replacing tapioca flour with sweet potatoes as the basic ingredient of otak-brain. Otak-otak is a traditional Indonesian food that is generally made from fish, tapioca flour, and other spices. Along with increasing awareness of healthier lifestyle patterns, these innovations are expected to offer more nutritious alternatives. Sweet potatoes with low glycemic content and high fiber are expected to increase the nutritional value of the brain and support digestive health and weight management. The research method used is an experimental method. The manufacturing process involves shredded sweet potatoes, processing ebi, processing other ingredients, and steaming. The product quality assessment was carried out by an organoleptic test involving 50 panelists to assess aspects of taste, color, texture, aroma, and appearance. The results of the organoleptic test showed that the tuber-based brains were well-received by the panelists. Taste rating 86% of panelists rated the product as good to very tasty. The color of the product was considered attractive by 78% of the panelists. The texture of the product was rated soft by 70% of the panelists, and the assessment of aroma and appearance had positive values, 86%, and 76% respectively by the panelists. The results of this study state that brain-brain innovation by using sweet potatoes as a substitute for tapioca flour has succeeded in producing healthier and still delicious products. In addition to being beneficial to health, the use of sweet potatoes can also support the local economy and strengthen food security. Therefore, it is hoped that this research can be useful for people who are interested in tuber-based brains.

Introduction

Otak-otak is a traditional food made from fish and spices and has long been a favorite food of the Indonesian people. According to (Potabuga, Sulistijowati, & Mile, 2022), fish otak-otak is a gel product from fish meat mixed with tapioca flour and added with other spices such as salt, sugar, coconut milk, garlic, and pepper. However, with the development of the times and increasing public awareness of the importance of healthier

and more nutritious culinary variations, the need to innovate in the manufacture of brains is increasingly urgent. One of the interesting innovations is the use of sweet potatoes as a basic ingredient as a substitute for tapioca flour (Amalia, Darmanto, & Rianingsih, 2016).

In addition, sweet potatoes contain a lot of calcium, which is necessary for the growth of bones and teeth. Sweet potato carbohydrates have a low glycemic index (LGI,54), so they are excellent for diabetics because they do not increase blood sugar significantly, in contrast to carbohydrates with a high glycemic index such as rice and corn (Agustini, Fahmi, & Amalia, 2009). Most of the sweet potato fiber is soluble fiber, which helps absorb excess fat and cholesterol in the blood and maintains controlled cholesterol and fat levels. Now, the natural oligosaccharide fiber of sweet potatoes is an important commodity for enriching processed food products, such as milk. Oligosaccharides help with bowel movements and prevent constipation. Nonetheless, it can cause bloating.

According to (Ayeleso, Ramachela, & Mukwevho, 2016), Jalan is the second agricultural product that is widely produced in Lampung, so it is easy to get into markets. Sweet potato jams that have white flesh are also yellow and purple variants, which have health benefits such as anti-cancer and antioxidants. This innovation not only provides an alternative for those who reduce sugar levels but also increases the nutritional value of these foods. According to (Ginting, Yulifianti, & Jusuf, 2014) stated that yellow sweet potatoes are a type of sweet potato that has yellow flesh, besides that yellow sweet potatoes also have antioxidants, beta-carotene, and anthocyanins that are beneficial for health. The beta-carotene contained in sweet potatoes can reduce the likelihood of developing heart disease by 40%, protecting the prevention of cancer, premature aging, stroke, cataracts, and muscle disorders. By using sweet potatoes, the texture of the otak-otak becomes softer but still savory, attracting consumers who want healthy yet delicious food.

In addition to health benefits, the use of sweet potatoes as a raw material can also support the local economy. According to research conducted by (Leksono et al., 2023). Sweet potatoes are one of the potential products because of their high economic value and seen from the other side have many advantages. (Leksono et al., 2023) stated that currently food is not only used to meet the basic needs of the body, such as hunger and nutrient intake, but also used to meet secondary needs, such as taste, tertiary, such as performing certain physiological functions for the body.

According to (Fromm & Vidler, 2015), Sweet potatoes can be used as a basic ingredient for various types of products. The sweet potato brain-brain innovation is a creative effort to create a healthier and more nutritious variety of traditional foods. Replacing flour with sweet potatoes in brain-making offers several significant health benefits. Consuming too much flour in our daily diet is not good for our bodies. Excessive consumption of processed foods from flour can lead to weight gain, considering that flour often has a high-calorie content.

In addition, flour-based foods tend to have a high glycemic index, which can trigger drastic blood sugar drops. This, in the long run, can increase the risk of metabolic diseases

such as type 2 diabetes. The use of sweet potatoes as a substitute for flour in the manufacture of brain brains provides a healthier alternative because sweet potatoes contain carbohydrates with a low glycemic index, which provides more stable energy and helps control blood sugar. Additionally, sweet potatoes are rich in fiber that aids digestion and provides a feeling of fullness for longer, which can aid in weight management.

Sweet potatoes are also rich in vitamins and minerals, including beta-carotene, which functions as an antioxidant and supports eye health and the immune system (Susanti, 2017). By adopting this innovation, the brains not only become healthier but also remain delicious and can be enjoyed by various groups, including those who want to develop a healthy diet. Sweet potato brains innovation also supports food verification and can be a positive step in promoting healthier and more nutritious local ingredients.

Method

This study uses an experimental descriptive method. The choice of this method is based on careful considerations related to the purpose of the study, namely to describe the effect of replacing starch flour with sweet potato on the quality of brain-brain products. The experimental descriptive method was considered most appropriate because researchers could observe and record the changes that occurred in the brain-brain product after starch flour was replaced with sweet potato. The results of these observations are then analyzed to determine how the substitution affects various aspects of product quality, such as texture, taste, nutritional content, and durability of the product.

Tools and Materials

In this study, the tools and materials to be used are as follows:

Material	Qty	Unit
Sweet potato	250	Gr
Ebi	1	Gr
Garlic	6	Gr
Tapioca Flour	1	Tsp
Flavoring	1/2	Tsp
Banana leaves	2	Sheet

How to Make

1. Grate the sweet potato
2. Roast the ebi until fragrant and slightly browned
3. Then mashed using a chopper
4. Put the refined ebi into the grated tube
5. Then add the flavorings and onions and stir all the ingredients until evenly distributed
6. Prepare banana leaves that have been pruned and cut into small pieces
7. Wrap the ingredients that have been mixed using banana leaves
8. Steam for about 15-20 minutes over medium heat The sweet potato Otak-otak is ready to serve.

Results and Discussion

The results of the tuber-based brain-brain organoleptic test, it was divided into five assessment indicators, namely color, texture, taste, aroma, and physical shape of the brain. This study involved 50 panelists to determine the public acceptance of tuber-based brain-brain products.

Acceptance by Taste

Based on the results of data collection for taste in tuber-based brains involving 50 panelists.

The following are the results of the assessment based on taste:

Figure 1
Assessment of taste

The results of data processing carried out by involving 50 panelists to assess the taste in the brains made from sweet potatoes which were divided into 5 aspects, namely very tasty, delicious, quite tasty, not tasty, and very unpleasant.22% for a very good assessment, 64% for a good assessment, 14% for a quite good assessment, 0 for bad assessment, and 0 for very bad assessment.

Acceptability by Color

Based on the results of data collection for color in tuber-based brains involving 50 panelists.

The following are the results of the assessment based on color.

Figure 2
Judgment by color

The results of data processing were carried out by involving 50 panelists to assess the color of the tuber-based brains which were divided into 5 aspects of assessment, namely, very interesting, not interesting, quite interesting, interesting, and very interesting. 22% for very interesting assessments, 56% for attractive ratings, 20% for quite interesting assessments, 2% for uninteresting ratings, and 0 for very unattractive ratings.

Acceptability Based on Texture

Based on the results of data collection for texture in tuber-based brain-brain products involving 50 panelists.

Here are the results of the assessment based on texture:

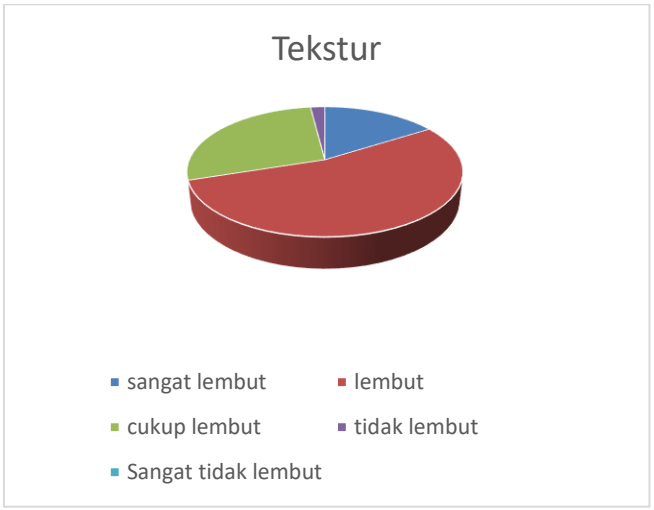

Figure 3
Judgment based on texture

The results of data processing were carried out by involving 50 panelists to assess the texture of tuber-based brains which were divided into 5 assessment aspects, namely, very soft, soft, moderately soft, not soft, and very not soft. 16% for very soft assessment,

54% for soft assessment, 28% for fairly soft assessment, 2% for not soft assessment and 0 for very soft assessment.

Acceptance by Aroma

Based on the results of collecting data for scents in tuber-based brain-brain products involving 50 panelists.

The results of the assessment based on aroma are:

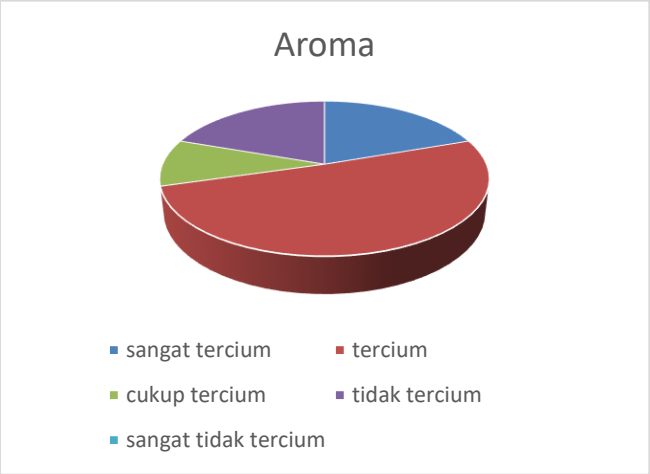

Figure 4
Assessment by aroma

The results of data processing were carried out by involving 50 panelists to assess the aroma in the tuber-based brains which were divided into 5 assessment aspects, namely, very smelly, sellable, quite smelly, not smelled, and very unsmelled. 24% of the rating was very smelly, 62% for the rating smelled, 12% for the rating was quite smelly, 2% for the rating was not smelled, and 0 found for the rating was very unsmiling.

Acceptability Based on Display

Based on the results of data collection for the display of tuber-based brain-brain products involving 50 panelists.

The following are the results of the assessment based on the appearance:

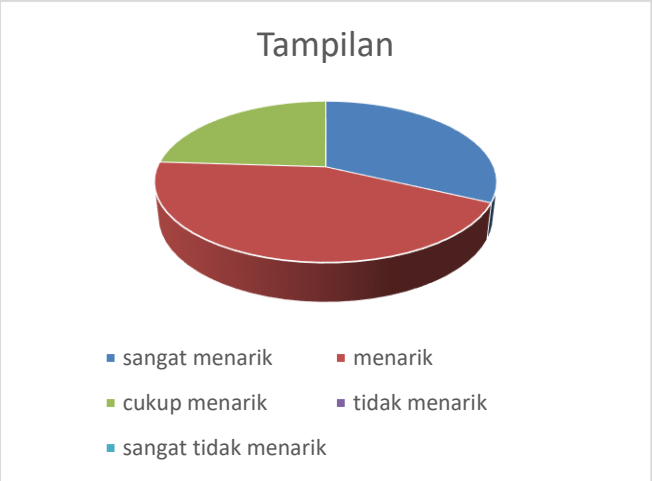

Figure 5
Ratings based on views

The results of data processing were carried out by involving 50 panelists to assess the appearance of sweet potato-based brains which were divided into 5 assessment aspects, namely, very interesting, interesting, quite interesting, not interesting, and very interesting. 32% for very attractive ratings, 44% for interesting ratings, 24% for quite interesting ratings, 0 for disrespectful ratings, and 0 for very unattractive ratings.

Conclusion

From the results of the research that has been carried out, starting from the process of making tuber-based otak-otak to data collection from the panelists, it can be concluded that starting from the formulation of the otak-otak recipe by replacing most of the starch flour with sweet potatoes can be said to be successful by making otak-otak into a healthier food because the starch flour is replaced with sweet potatoes and makes it easier for diabetics or those who are doing a diet program to enjoy delicious dishes and healthy. This sweet potato-based otak-otak recipe consists of 250g of grated sweet potato, 1g of roasted ebi, 6g of garlic, 1 tsp of tapioca flour as chewy, 1/2 tsp of flavoring, and 2 banana leaves.

The results of the organoleptic test carried out with questioner which were distributed to 50 panelists to assess the taste, color, texture, aroma, and appearance of tuber-based brain-brain products involving 23 students, 20 employees, 3 educators, and 2 others. The rating was based on the taste of 7 people for the rating of quite good, 32 people for the rating of good, and 11 people for the rating of very good. The assessment based on the color of 10 people for the assessment is quite interesting, 28 people for the assessment is interesting and 11 people for the assessment is very interesting. The assessment was based on texture: 1 person for a soft assessment, 14 people for a fairly soft assessment, 27 people for a soft assessment, and 8 people for a very soft assessment. The assessment was based on the smell 1 person for the rating of not smelling, 6 people for the rating of somewhat smelling, 31 people for the rating of smelling, and 12 people for the rating of very smelling. The assessment was based on the appearance of 12 people

for the rating was quite interesting, 22 people for the rating was interesting and 16 people for the rating was very interesting. It can be concluded that bringing this tuber-based otak-otak product can be accepted by the community.

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