No 17 Organoleptik test

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Organoleptic Test Patisserie Product Based on Consumer Preference

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Abstract. The main objective of this research was to produce innovative patisserie product based on consumers' preferences through organoleptic test. This research was conducted in several stages, namely: preparation phase, organoleptic test phase, and nutritional analysis. The making of patisserie product was done by considering the Segmentation of Consumer Behavior (Behavioristic Segmentation). Preparation phase was the making of product formulation. The determination of selected formula was based on experiment and organoleptic test i.e. hedonic quality test using semi-trained panelists. The next stage was to conduct organoleptic analysis i.e. hedonic quality organoleptic test to the flavor, serving and packaging of the patisserie product. The last step was to analyze the nutrition of the product. This research was an experimental research conducted at the Culinary Arts Laboratory, involving 14 panelists. In this study we used some instruments that was required to collect the research data. The result of this research was the finding of the patisserie product formula i.e. innovative product Cream Puff Nori, Spinach and Salmon. Based on the approach which we used i.e. the organoleptic test, we got result that at the final stage of organoleptic test, Choux paste product was rated as follows: 46.2% of the panelists stated that it was very delicious and 46.2% stated that the flavor of choux paste both content and skin was delicious, and only 7.7% stated that the flavor of choux paste was less delicious. As for the appearance, 38.5% of the panelists stated that the choux paste had a very good appearance and 53.8% stated it had good appearance. Only 7.7% stated that it had less good appearance. Thus the appearance of choux paste was considered better. The packaging was considered very attractive by 30.8% of the panelists and was considered attractive by 46.2% of the panelists. While 23% of the panelists considered the packaging less attractive. Nutritional value of one recipe formula contained energy 2064.8 Kal, 124.13 g protein, 57.13 g of fat and 198.5 g carbohydrate (32 pieces of choux paste).

1. Introduction

Nowadays, the trend of consumers' preferences towards patisserie products around the world is the increasing of consumers' awarness to choose healthier pastry product. [1] Based on the result of research conducted by the ministry of agriculture and agri-food in 2012 and 2013, it found that the trend of consumers' preferences towards patisserie product developing in Ukraine and the UK, leading to the degree of preference for product made from healthy ingredients. The consumers in the UK

nowadays prefer pastry that is high in fiber, low-fat and reduced sweetness (less sugar). Consumers in England prefer pastry products which are beneficial for health. Therefore, pastry product that are developed should consider health benefits, affordable prices and more attractive packaging.[2]

Some researches showed that hedonic organoleptic test was used in order to determine whether the patisserie product were received well by consumers or not.Organoleptic test is a test that is based on sensing process. Sensing means stimulus or reaction toward an object that give the impression of the object. In this case, the evaluation was toward the product that we developed i.e. Choux paste nori, spinach, and salmon. The evaluation process was subjective or likely was depended on consumers' behaviors (Behavioristic Segmentation). The purpose of the organoleptic test was to find the difference between samples (one another), so that the final result was to conclude about the consumers' acceptances or consumer preferences. Several factors which are important in organoleptic evaluation are to evaluate the food, especially pastry product are: aroma, flavor, texture, appearance, color, and the general reception. In this study we conducted organoleptic test by three factors: flavor, appearance (texture, color) and packaging. [3]

In this research, we conducted organoleptic tests on Choux paste product. We did three phases in this study, the first one was preparation phase of product development, the second phase was organoleptic test stage and the third phase was the stage of analyzing the nutritional value of the product.

During the preparation stage of our product development, we developed Choux paste by mixing nori and spinach in the crust and rogout salmon as filling. As we know, Choux paste is one of the types of pastry which has characteristics i.e. light but has large volumes and large cell. Dough formula of Choux paste consists of butter, water, flour and eggs. Choux paste is often categorized as a soft-textured cake with hollow in the middle, so that the hollow can be filled with a variety of content. Choux was first created by a chef named antonyms Careme, chou (cabbage in French language). It was called cabbage pasta because its final form resembled a cabbage. Based on the shape, there are several types of choux paste form 1) Eclair or Choux paste which is shaped long with the contents of custard or cream and top watered chocolate, 2) Paris Brest or Choux paste which is shaped like a bicycle tire because initially this type of Choux paste was created to enliven bicycle race event in Paris that was known as the Paris Brest, 3) Croquembouche Choux paste dichoux pasteun which is towered like tower, filled with vanilla custard and decorated with caramel.[4]

Choux paste has a variety of content, and the crust of Choux paste can be modified so that we can create an innovative product. Unlike puff pastry, Choux paste is more easily made. Choux paste is very flexible to be filled with a variety of content. At first, Choux paste was filled with a variety of different custard but as the time goes on choux paste is now not only being filled with custard, but also being filled with a wide variety of fillings such as Sandwich.[5]

Nowadays, the development of choux paste in the culinary world is very rapid, both shape and modification of the crust ingredients. At preparation phase, we made product innovation of Choux paste crust from mixture of nori and spinach. The use of nori on bakery product had been carried out by previous research, even the use of seaweed such as nori (Porphyra umbilical) as the mixture into the dough-making sausage. Seaweed is a food that has historically consumed worldwide but only consumed in limited quantities in certain regions in the world today. Seaweed has been used in the food industry. The use of seaweed aims to improve the sensory properties of food product. Earlier research has suggested that a mixture of seaweed to the food is generally acceptable to consumers. Seaweed mixture will increase the nutritional value of food product.[6]

Several studies conducted at Sheffield Hallam University found that mixing the dry seaweed as much as 5% into bakery product as a substitute for salt (sodium chloride) led to better shelf life quality of bread. Therefore we mixed powdered seaweed (nori) into the Choux paste crust dough which aimed to give the green color of the crust, extend product shelf life quality and increase the nutritional value of the product better. [7]

In addition, we added extract spinach which mixed into the Choux paste crust. The addition of spinach extract aimed to increase the nutritional value and to add better green color on the crust. We

added a mixture of spinach extract into the Choux paste crust in order to add a lot better nutrients such as protein, carbohydrates, iron, calcium, and various other vitamins and minerals. Spinach is beneficial for health e.g. it can be used for having diet, it also can maintain eye health, and to fight against cancer[8].

Furthermore, we used ragout for Choux pastry filling. The ragout was different from the others because we used salmon, we chose salmon because it has very high nutrients and are very beneficial as well. The ragout was mixed with oriental spices with oyster sauce. In addition, we made a surprise in choux paste by adding mayonnaise in order to have a different taste when it was eaten. We used the salmon as filling ingredients because it has many benefits. Overall, salmon is an important component of a healthy diet, both in the short and long term. Salmon contains all the fatty acids needed by the body and is important to the diet for adults. Salmon fish consumption is 300 g per serving at least 800 g per week. Salmon has been proved to be beneficial for people with heart disease, Alzheimer's, dementia, depression, and women who are pregnant or planning to become pregnant.[9]

Right after the preparation phase, the next phase was to conduct the organoleptic test. Organoleptic test was done in 2 phases toward Choux paste nori, spinach and salmon. Product which was being developed then was tested by using organoleptic test. This test was performed in two phases, involving 14 panelists. The next phase was the calculation of nutritional content of the product Choux paste by counting calories, fat, protein, and carbohydrates. Calculation of the nutritional content was based on List of Food Composition in Indonesia.

2. Method

The method used was an experimental method and hedonic test of product based on consumers' preferences. Hedonic evaluation test. The hedonic evaluation test involves asking consumers to rate their preference from 1 (I dislike extremely) to 4 (I like very much) for 4 sensory attributes specific to the test product. The overall preference is ascertained at the beginning of the questionnaire in order not to influence the consumer and be closer to typical conditions of consumption.

The experimental method was used to develop patisserie product which was going to be tested.To get the good formula of choux paste crust, we did experiment 3 times by mixing nori and spinach. In this experiment we used a basic receipe formula of Choux paste crust with the ingredients composition in Table 1 as follows:

Table 1. Basic formula of Choux paste crust

No.	Ingredients	Amount
Ingredients of Choux paste		
1.	The high protein wheat flour	110 g
2.	Liquid Milk	125 ml
3.	Water	125 ml
4.	Spinach	50 g
5.	Salt	¼ tsp
6.	Butter	58 g
7.	Nori powder	50 g

Next, we carried out the development of Choux paste crust product and choux paste filling. The expected experimental result was to produce choux paste crust which could rise, was light and hollow. Then, the finished product was tested by using hedonic organoleptic test (level of preference).

3. Results and Discussion

In the first experiment we developed the basic formula of pie crust recipe by mixing a bunch of spinach that had been cut in advance. Then, we blended the spinach that previously had been cut. Next, we strained the spinach until all the water out and then discarded the waste. The spinach mixture

on the pastry choux paste was intended to give color to the choux paste. The following Table 2 shows formula in the first experiment as follows:

Tabel 2. The Choux paste formula in the first experiment

No	Ingredients	Amount
Ingredients of Choux paste		
1.	The high protein wheat flour	110 g
2.	Liquid Milk	125 ml
3.	Water	125 ml
4.	Spinach	50 g
5.	Salt	¼ tsp
6.	Butter	58 g

In the process of product making, we found some problems in the making of Choux paste crust, such as in the addition of wheat flour. Wheat flour was supposedly baked beforehand. So that, Choux paste crust was less dry or too mushy and the texture was less smooth. In this first experiment, both crust and the filling of Choux paste tasted too salty.

The Choux paste which was resulted from the experiment then was tested on 14 panelists comprising of patisserie lecturers, students and the general public. In the first test on the aspect of the flavor, 42.9%, of the panelists stated it tasted delicious, 50% stated that it tasted less delicious and 7.1% stated it did not taste delicious. According to the panelists, the crust taste was too salty, the ragout taste was too salty as well, and the flavor was pungent. As for the appearance of Choux paste, 14.3% of the panelists stated that the appearance of choux paste was very good, 50.0% stated that the appearance of choux paste was good and 35.7% stated that appearance of choux paste was less good. The suggestions regarding to the appearance of choux paste according to the panelists that the Choux paste crust was still considered less tender, the texture slightly harder and the color of cream puff was less attractive. Whereas the evaluation of the packaging according to panelist 7.1% stated that the packaging was very attractive, 42.9% considered the packaging was attractive, and 28.6% stated that the packaging was less attractive and 21.4% stated that the packaging was not attractive. The suggestion for the packaging according to the panelists was that the packaging still needed improvement. The results of the first organoleptic tests are presented in Figure 1 as follows:

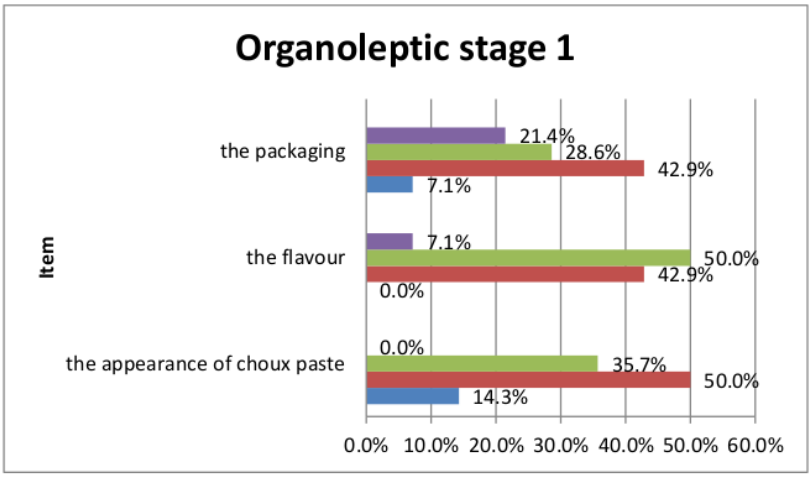

Figure 1. The First Organoleptic Test of Choux paste

Based on the results of the first experiment it was found that the Choux paste crust still had a less smooth texture. This was because the texture of Choux pastry dough was not smooth caused by:

- At the time of putting the flour was not all at once
- After the flour was put, the stirring process was late.

The way to solve the problem was by putting flour into the mixture of butter and water that had been boiled. How to put the flour was not little by little, but all at once. After the flour was put, then directly we stirred it quickly until smooth. Therefore we recommended not to make the dough too much, a maximum of two recipes in one production. Based on the results of the organoleptic test phase 1, then we made the others crust dough by improving the methods and improving the cream puff color.

Based on organoleptic test at phase 1, in the second experiment, we developed Choux paste crust by adding 10 sheets of nori (50 g) for Choux paste crust. In the choux paste crust we added nori upon mixing of eggs so that the distinctive aroma of nori got into the dough. The selection of nori aimed to balance the flavor in Choux paste, gave stronger green color, enhance oriental flavor and increase nutritional value. A nori contains a lot of fiber, minerals, vitamins and essential fatty acids that are needed by the body. Besides, the use of nori as a food colorant has been already widely used for the manufacture of food products.

In the second organoleptic test, the rate given by the panelists further improved compared to the first test. Based on the results of this evaluation, it can be concluded that the panelists rated the product as a better product. As shown in chart 2, the result of panelists' votes toward the taste of Choux paste are: 46.2% of the panelists stated that it was very delicious and 46.2% expressed that choux paste both the content and the crust was delicious, and only 7.7% said that it was less delicious. As for the appearance, the panelists stated that the Choux paste had very good appearance were as much as 38.5% and as much as 53.8% stated it had good appearance. Only 7.7% said it had less good appearance. Thus the appearance of Choux paste was considered better. As for packaging, 30.8% of the panelists stated that it was atractive and considered attractive by as much as 46.2%. Panelists expressed that it was less attractive as much as 23%.

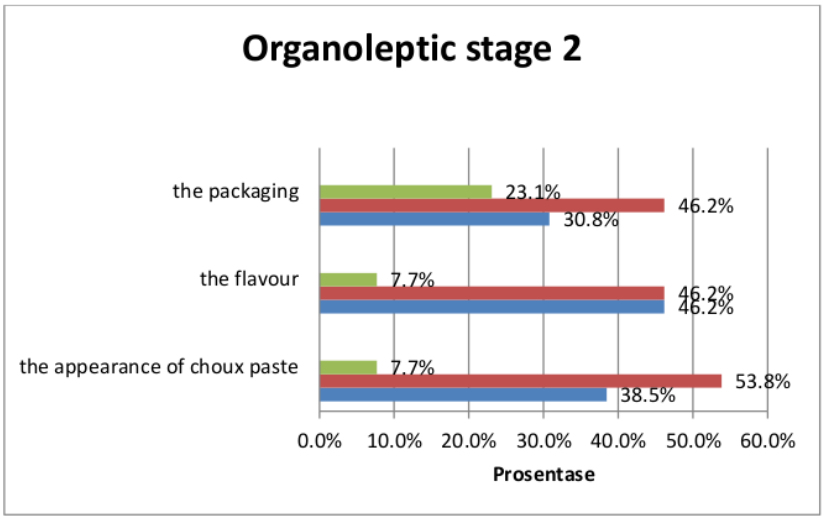

Figure 2. The Second Organoleptic Test of Choux paste

Based on organoleptic test results as shown in Figure 2, it shows that consumers prefer crispier Choux paste crust, delicious crust flavors and fillings and attractive packaging.
We found that a blend of choux paste crust and the content of the salmon have the advantages:

- The consumers preferred Choux paste which had attractive shapes (attractive appearance).
- The resulting color of the Choux paste crust was very attractive, green color was obtained from the blend of colors of nori and spinach. Food coloring was made from natural ingredients, so it had many benefits and increased nutritional value.
- In terms of taste, Choux paste had the specific distinction compared to choux paste which was commonly available in the market. Choux paste was served with rogout salmon filling, and thus creating new flavors i.e. blend oriental flavors, and of course will increase the selling price of the Choux paste.

Nutrient content of choux paste per formula receipe in 32 pieces of Choux paste has nutritional value as shown in Table 2 below:

Table 2. Nutrient of Choux paste Nori, Spinach and Salmon

Energy	Carbohydrates	Fat	Protein
2,064.8 calories	198.5 grams	57.13 grams	124.13 grams

4. Conclusion

Choux paste Nori, Spinach and Salmon was the innovative patisserie product. Product innovation lied in the use of extra nori and spinach to the crust and filling rogout salmon. Consumers were very fond of this product both of appearance and flavor, as well as packaging. The advantages of the product lied in the use of natural and healthy ingredients and had good enough nutrients.

Acknowledgments

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