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THE PROXIMATE ANALYSIS OF TRADITIONAL CAKE KEMBANG GOYANG WITH ADDITION OF NILEM FISH PROTEIN CONCENTRATE

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KeyWords
Proxymate analiysis, kembang goyang, nilem fish protein concentrate

ABSTRACT

The purpose of this research is to determine the proximate analysis of kembang goyang traditional cake which has been added with concentrate nilem fish protein. The evaluation parameters are water content, protein content, ash content and fat content. This research was conducted in July to November 2019 at the Food Technology Laboratory, Faculty of Engineering, Pasundan University. The research method used was an experimental method with control and 5% based on the weight of rice flour. Based on the results of the analysis of kembang goyang traditional cake with the addition of nilem fish protein that is 2.70% of water content, 8.26%of protein content, 1.95%of ash content and 18.99%of fat content.

INTRODUCTION

One of the traditional foods that is often served at big events is kembang goyang. The name "kembang goyang" means, "kembang" which means flower because the kembang goyang mold. While the 'goyang' comes from the way it is made which must be shaken. Kembang goyang has a sweet taste and crispy texture. The process of making a beaten flower is by printing the dough using a typical flower printing tool (flower) then dipping it in oil and shaking it during the frying process to remove it from the mold [1].
making kembang goyang is making dough, frying and packaging [2]. Kembang goyang protein is still low at 5.18% [3]. Protein is the main energy source as a builder and also as a regulator [4].

Fish is a composition with a high protein content. Now fish have been processed into various kinds of processed products. One of the processed fish is fish nilem concentrate protein which can be used as an additive in food products to increase the nutritional value of a product. Fish concentrate protein is a round flour which is the result of fat and air content of whole fish obtained from higher protein compared to the original raw material [5]. Fish processed into fish protein concentrate will produce a product that is more durable and can increase the protein content in food products [6]. Nilem fish protein content reaches 38.83%, according to the needs of fish nilem suitable as a raw material for concentrated fish protein [7].

The nutritional value of rocking flowers is expected to increase with the addition of nilem fish protein concentrate. Then it is necessary to do a proximate analysis of kembang goyang cakes which have been added to fish protein concentration.

MATERIAL AND METHOD

Place and Time

This study was conducted from July to November 2019 at the Food Technology Laboratory, Faculty of Engineering, Universitas Pasundan.

Material and Tools

This study used several ingredients including nilem fish meat, hexane, sodium bicarbonate (NaHCO3), NaCl, water, rice flour, tapioca flour, cooking oil, sugar, eggs, and coconut milk.This study also uses several tools including digital scales, stainless spoons, knives, basins, food processors, mixtures, cutting boards, measuring cups 50 ml capacity, jars, cloths, stoves, filters, 60 mesh flour filters, ovens, kembang goyang molds), mixers and pans.

Research Method

This study used an experimental method with the treatment of adding nilem fish protein concentrate to kembang goyang traditional cake. The treatment are :

Treatment A: Addition of nilem fish protein concentrate 0% from rice flour
Treatment B: Addition of nilem fish protein concentrate 5% from rice flour

The formulation of kembanggoyangtraditional cake is:

Table 1. Formulation of KembangGoyang Traditional Cake

Ingredients	Treatments	
	0%	5%
Rice Flour (g)	200	200
Tapioca Flour (g)	100	100
Fish protein concentrate (g)	0	10
Sugar (g)	100	100
Egg (g)	50	50
Coconut Milk (g)	32.5	32.5
Oil (g)	1000	1000

Kembang goyang making procedure:

1) Mixing ingredients coconut milk, eggs and sugar until well blended.
2) Add rice flour, tapioca flour and nilem fish protein concentrate.
3) Heat the mold in cooking oil, dipped in the dough.
4) The batter is fried in hot oil.
5) Frying compilation is done by shaking the mold in hot oil for 1 minute

Parameter Observed

The test carried out is proximate analysis to determine the nutrition value of kembang goyang. Proximate analysis include water content, ash content by gravimetric method, fat content by soxhlet method [11] and protein content by kjeldahl method [12]. Then the value of nutrition kembang goyang 10% treatment compared to the Indonesian National Standard (SNI) number 01-0222-1999.

Water Content

Porcelain cup is dried in an oven for one hour at a temperature of 10°C**,** then it is cooled in a desiccator for 30 minutes and weighed to a constant weight, a sample of 2 g is weighed, then put incup porcelain and dried in an oven 105°C for 5 hours. The cup containing the dried sample is then cooled in a desiccator for 30 minutes and weighed to the weight constant. If a constant weight has not been obtained, the porcelain cup is heated again into the oven (105°C) for 30 minutes. Determination of water content using the formula:

$$\text{Water content (\%)} = \frac{\text{initial weight - final}}{\text{weight of sample weight (g)}} \text{ x } 100\%$$

Protein Content

Protein content testing is carried out through three stages, namely destruction, distillation and titration. Stages of testing protein levels are the first step of destruction, samples weighed 1-5 g and then put into a kjeldahl flask and added with kjeldahl tab selenium and 10 mL H_2SO_4. Flask is placed in a heater with a temperature of 400°C in the acid chamber. Destruction is done until the solution becomes clear (1-1,5 hours). The product is then cooled and diluted with distilled water slowly until it reaches 100 mL. The second step is distillation, the result of decomposition is pipette 10 mL and put into distillation flask. Erlenmeyer 125 mL contains 25 mL of HBO solution; (boric acid) and 2-4 indicator drops (a mixture of 2 parts methyl red 0.1% in alcohol and 1 part brown cresol green (BCG) 0.1% in alcohol) placed just before the distillation begins. Destruction sample is added to the 8-10 mL NaOH solution then distilled until it turns bluish green. The third step is titration, using 0.01 N HCl solution until the solution is pink. The protein content calculated using the formula:

$$\text{Levels of (nitrogen\%)} = \frac{\text{Volume titration x N HC x BM N}}{\text{mg of sample}} \text{ x } 100\ \%$$

$$\text{protein content (\%)} = \text{\% levels of N x } 6.25$$

Ash Content

Porslen cup dried in an oven for one hour at 105^{o}C, then cool for 30 minutes in a desiccator and weighed to a constant weight. The sample was weighed as much as 2 grams and then put into a porcelain cup and flattened on an electric stove until it became charcoal. The sample is put into a *muffle* with a temperature of 600^{o}C for 6 hours until it becomes a white ash. *Muffle is* left until it shows the room temperature then the lid is opened. Porcelain plates that have been cooled are then weighed. Ash content was calculated by the formula:

$$\text{Ash content (\%)} = \frac{\text{ash weight (g)}}{\text{dry sample weight (g)}} \text{ x } 100\%$$

Fat Content

Fat flask dried in the oven (105°C) then weighed to weight constant**.** 2 g of sample are wrapped in fat-free filter paper and then put into a fat sleeve. The cartridge is inserted into the Soxhlet tube. 150 ml of chloroform is put into the fat flask. The sample was refluxed for eight hours. The solvent in the fat flask is then evaporated to separate the solvent and fat. After that is dried in a oven 150^{o}C for 30 minutes. Fat flask is then weighed until a constant weight is obtained. Determination of fat content using the formula:

$$\text{Fat content (\%)} = \frac{\text{final pumpkin weight- initial pumpkin}}{\text{weight sample weight (g)}} \text{ x } 100\%$$

RESULT AND DISCUSSION

Water Content

Water content is the amount of water content in the material stated in percent. The water content in a food plays a role in determining the shelf life because it can affect physical, chemical microbiological and enzymatic properties [13]. The results of water content of kembang-goyang cake with the addition of nilemprotein concentrate can be seen in Figure 1.

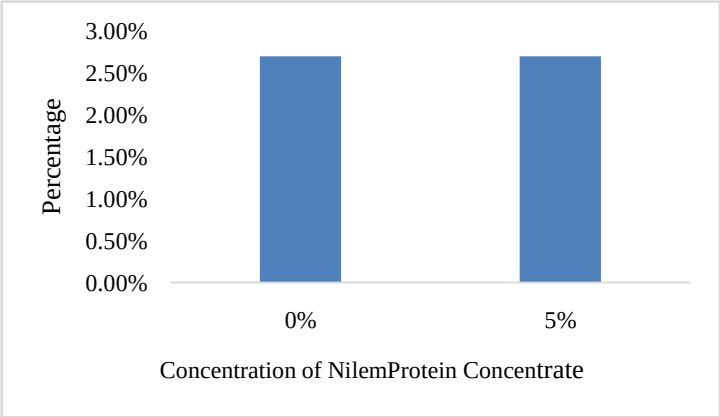

Figure 1. Water Conten of KembangGoyang

Based on the results of the water content test on the kembanggoyang cake, treatment A 0% (control) amounted to 2.69% and treatment B (5%) (the panelists' most preferred) is 2.70%. This shows an increase in the value of water content in the kembanggoyang cake. The more addition of nilem fish protein concentrate, the higher the water level of the kembanggoyang produced. The starch has an OH group so that it can bind to water [14]. Tapioca flour contains about 85% starch [15].

The maximum water content of crackers is 12% [10]. Kembanggoyang with the addition of nilem fishprotein concentrate 5% has a water content of 2.70%. This shows that the kembanggoyang has fulfilled Indonesian Nasional Standard (SNI) [10].

Protein Content

Protein is one of the macromolecular compounds that exist in each organism with different characteristics. Protein is a macro component that is needed by all living things [16]. The result of water conten test of kembanggoyang can be seen in Figure 2.

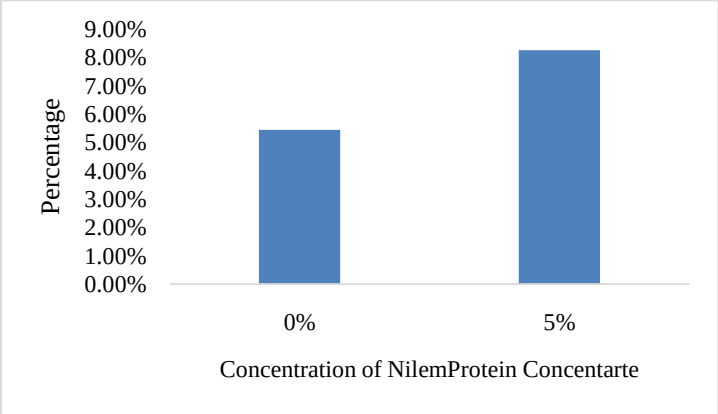

Figure 2. Protein Content of KembangGoyang

Based on figure 2, it can be seen that kembanggoyang with 0% addition of nilem fishprotein concentrate has water content 5,45% value, while with addition 5% of nilemprotein content is 8,26% value. This shows an increase in the value of protein content in kembanggoyang cake. Water content of kembanggoyang have increased due to nilemprotein concentrate that have undergone an extraction process so that fat content will decrease and protein levels increase. Protein is the component that plays the most role in water absorption compared to other components [15].

The minimum protein content of crackers is 6% [10]. The protein content of the kembanggoyang with the addition of 5% nilemprotein concentrate produces a protein value of 8.26%. This shows that the water content kembanggoyang have met the standard.

Ash Content

Ash content is a mixture of organic or mineral materials found in a food material [17]. Generally 96% of the food ingredients are inorganic and water, while the rest are mineral elements. Kembanggoyang ash test results with the addition of nilemprotein concentrate can be seen

in Figure 3.

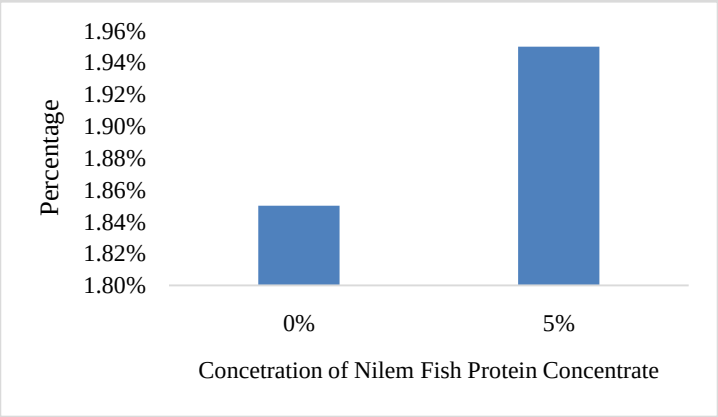

Figure 3. Ash Content of KembangGoyang

Based on the test results, the ash content of the treatment A kembang goyang (control) was 1.85% and the kembanggoyang cake the 5% treatment (the panelists' most preferred) is 1.95%. This shows an increase in the value of ash content in kembanggoyang cake. Increased ash content can be caused by the addition of supporting materials. Supporting materials in the production of kembanggoyang are rice flour, tapioca flour, eggs, sugar, salt, coconut milk and fish protein concentrate.

The maximum ash content for crackers is 2% [10]. Ash content in the kembanggoyang with the addition of a 5% nilemis 1.95%. This shows that the kembanggoyang with addition nilemproteinconcentarte still meets Indonesian Nasional Standard (SNI).

Fat Content

Fat is one of the nutrients needed by the body. Fat in food has an important role because it can determine the overall physical characteristics such as aroma, texture, taste and appearance [18]. Fat content of kembanggoyang cake with the addition of nilemprotein concentrate can be seen in Figure 4.

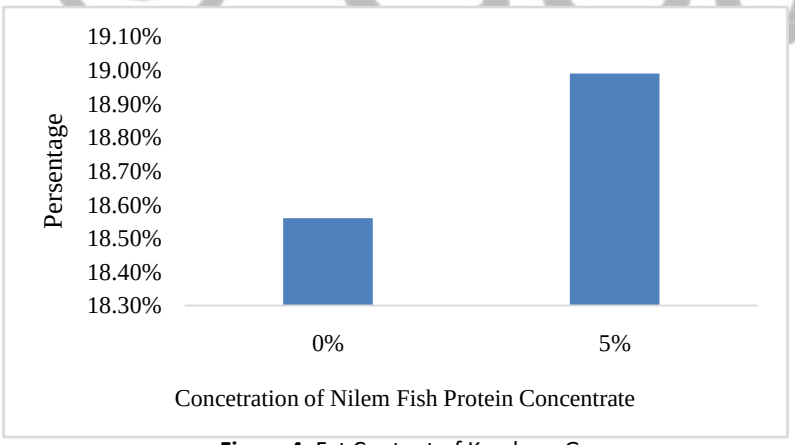

Figure 4. Fat Content of KembangGoyang

Based on the test results, the fat content in the kembanggoyang cake treatment 0% (control) amounted to 18.56% and kembnaggoyang the 5% treatment (the panelists' most preferred) is 18.99%. This shows that there is an significant increase in the value of fat content in kembnaggoyang. High levels of fat in kembanggoyang can be caused by the addition of coconut milk. Coconut milk contains 88.30% fat [19].

Conclusion

Kembang goyang traditional cake with 5% addition of nilem fish protein concentrate from 200 grams of rice flour has a nutrient value of 2.70% water content, 8.26% protein content, 1.95% ash content and 18.99% fat content.

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