

# PETIT BLACK VELVET CAKE BASED BLACK RICE FLOUR HIGH FIBER

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## ABSTRACT

In 2016 imports of wheat for consumption needs in Indonesia based on Statistical Center Data (BPS) of 8.3 million tons annually. Therefore, researchers make a product based on local food that is black rice to suppress the number of grain imports in Indonesia. The study aims to find the Petit Black Velvet formula that can be accepted by the community. This research uses the Research and Development (R&D) method with the development model 4D (Define, Design, Develop and Disseminate). In this study, Petit Black Velvet with a variable composition of black rice flour using 30%, 50% and 70% substitution. The results showed that the Petit Black Velvet product that is acceptable to the public is by substitutions of black rice flour for 70%, with a reference recipe from Jobsheet Patisserie I Boga UNY. From the test results with untrained panelists showed that the overall average value of 3.75 means that the Petit Black Velvet product is already acceptable to the community.

**Keywords:** Petit Black Velvet Cake, black rice flour, high fiber

## INTRODUCTION

The development of the culinary business in the 21st century has undergone much rapid progress. Not only new products derived from the creative hands of the creators emerge, but also followed by the development/innovation of existing products. This resulted in a number of typical culinary flourishing, but the use of local materials is still limited. This case is exacerbated by the number of dependence is high enough on the consumption of wheat in both the original form and its derivatives, this also affects the number of wheat flour imports.

The Association of Indonesian Wheat Flour Producers (Aptindo) projects the import of wheat for consumption needs this year is predicted to increase by about 5% to 6% from last years. In 2016 imports of wheat for consumption needs to be base on statistical central Data (BPS) of 8.3 million tonnes. If wheat import increase reaches 5% or 6% then total wheat imports in 2017 are estimated to be approximately 8.71 million tonnes to 8.79 million tonnes (Aditya, 2017). To solve this problem, it is necessary to change the

consumption rate referring to the local food source of non-wheat flour.

One of the potential of local foodstuffs in Indonesia, among others, is the local black rice flour. Black rice is a food plant derived from the family Gramineae. As the name suggests, this rice has a distinctive characteristic of the color of the dense rice (kernel) to close to black. People are more familiar with black sticky rice. Although the color is equally black, black rice with black rice has a difference, if the black rice is cut into clear-colored rice and if cooked will be a little rough than the ordinary rice. While black sticky rice if cut transverse will be visible in the white color of milk in the rice, and if cooked will be sticky like sticky rice (Maspariy 2014).

In Indonesia, black rice flour is still not used optimally to serve as the basic ingredient for food product manufacture. Therefore, researchers devised one of the products made from black rice flour with the name Petit Black Velvet Cake, which is basically the development of sponge cake with black rice flour that is low will gluten, which is currently Still in the research process to find the right recipe. But the

public acceptance to the product sponge cake made of black rice flour is not known, because the people are still not familiar with products made from black rice flour.

Black rice flour has a deficiency when used as the basic ingredient of sponge cake because of the nature of black rice that has the ability to absorb water and high amylose content to make a rough texture (coarse fiber), then it is substituted with Wheat flour that has a gluten content that makes the dough sponge cake soft and smooth, as well as the properties of the elastic gluten contribute easily when the sponge cake's dough is formed according to taste.

Sponge cake is a kind of cake made from eggs, wheat, sugar, printed in various sizes, and commonly used as a cake base and formed with toppings that vary. The specialty of Sponge cake is in its flexible nature, soft texture, delicious flavor, and more available filling. In order to research activities as a movement of food safety, then it can be chosen one of the alternatives of making sponge cake using black rice flour which has a lot of anthocyanins and fiber content to create products sponge cake. Have a variety of nutritional content and beneficial for the purity.

## **METHOD**

The type of research used in this research is. Research and development is a research method used to produce a specific product and test the effectiveness of the product. The model to be used is ADDIE stands for Analysis, Design, Develop or Production, Implementation or Delivery, and Evaluation combined with the model 4D which stands for Define, Design, Develop and Dissemination into Analysis, Design, Develop and Dissemination (Endang Mulyatiningsih, 2011) covering the following stages:

### **Define**

A process that defines what researchers will learn is conducting a need analysis, identifying problems (needs) and performing analysis of tasks at this stage is done drafting a related product development research proposal

Literature review of all aspects regarding the problem, product and product development process. At this stage, a prescription is searched for the next development product. The reference recipe was found through literary studies during the proposal drafting process. After drafting the proposal completed the first presentation.

### **Design**

Commonly referred to as a draft. In making product design based on analysis results that will be the basis of the next product. At this stage make the concept of development of reference product. Product development includes developing recipes, processing techniques and presentation techniques. The production of product development concept is based on a literature study that has been done in the previous stage.

### **Develop**

It is a process of realizing reality. By developing recipes with the concept of products that have been designed by manufacturing and testing products namely product development, validation and testing panelists to be used as a reference at the time of the Dissemination (exhibition).

### **Product development**

At this stage is made in the manufacture of Black Velvet Sponge products in accordance with prescription recipes and the concept of development of Black Velvet Sponge products that have been made in the design stage. The product manufacture stage is made from mixing materials, used technique, and presentation. After the product is feasible, conducted test product validation by experts/expert 2 people.

### **Validation**

The validation process is intended to obtain a viable product for a large-scale cob test. In this stage is done until the product is declared feasible. Products are tested with a referenced product so that the assessment is done by comparing the reference product and

development product. The more same value is the better.

### Semi-trained organoleptic test

The panelist test used was a test of product acceptance by a semi-trained panelist on Sponge's Black Velvet. In this test, researchers made 2 products of Black Velvet Sponge, which is one product of reference and another development product that has been declared valid by the expert. Panelist used is a minimum of 30 semi-trained students from the Program of technical studies of Boga and Engineering education of Boga Department of PTBB FT UNY.

### Disseminate

It is a wider level of distribution by conducting publication or product exhibition of development results to consumers. In the last phase it was conducted a panelist test in bulk to a minimum of 60 untrained panelists. This stage is done with a product title exhibition. Further analysis of data so that it can be concluded and then will be the material for the preparation of research reports.

## RESULTS AND DISCUSSION

The results of this study will be reviewed from each stage and analysis of the data each step with documentation.

### Define

At this stage, the research proposal for product development related to the literature study of all aspects concerning problem, product and product development process. To maintain the quality of the development product to remain in accordance with standard product characteristics, the development product formula must still use standard prescription reference as a control. However, in the manufacture of this product, the author examines the recipes from a trusted source, then compares each recipe's formula to determine the basic formula. The referenced recipe found is the recipe of the **Jobsheet Patisserie I Boga UNY**.

**Table 1. Recipe to reference Sponge Cake Jobsheet Patisserie I**

Ingredients	Amount
Sugar	100 g
Whole Egg	4 pcs
Egg Yolk	4 pcs
Ovalet	½ esp
Flour	250 g
Stratch	½ esp
Milk Powder	½ esp
Liquid Butter	100 g

### Design

Formula design is used to determine the appropriate prescription in the manufacture of this product, which is the processing of black rice flour. The use of black rice flour as a material for the substitution of both flavors, texture and aroma in the manufacture of such products. With a comparison of the addition of 30%, 50% and 70% black rice flour from the total wheat flour used.

### Develop

#### Product Development

At this stage is done making product Petit black velvet in accordance with the concept of development of Petit black velvet product that has been made in the design stage. Researchers test with the first variable i.e. using black rice flour substitutions on wheat flour, analyzed descriptively by researchers and deduced by comparative researchers which is better results. The result of this trial is shown in table 2.

**Table 2. Table of production of Petit black velvet with a various comparison of black rice flour substitution**

Sub.	Taste	Color	Texture	Aroma
30 %	Sweet	Grey	Soft	Black rice
50 %	Sweet	Dark Grey	Lil bit rough	Black rice
70 %	Sweet	Lil bit black	Rough	Black rice

From the test results a variety of comparisons of the amount of black rice flour use in table 1 can be seen a significant difference in each comparison. Assuming it saves production costs as well as a good overall result then researchers choose Petit Black Velvet with black rice flour substitution of 70% of total wheat flour from prescription standard products.

### Validation

The next stage after the determination of wheat flour and black rice flour is a validation test 1. With the first validation result shown in table 3.

**Table 3. First Result of validation**

Characteristic	Reference	Development
Shape	3	3.6
Color	3.4	3
Aroma	3.2	4
Texture	3.4	3.4
Taste	3.4	4
Overall	3.2	4

Expert rated with the number 1-4. In table 2, it is indicated that expert prefers development products, which means that students succeed in making functional food products in accordance with characteristic standards. But there is still a slight correction to the composition of the product portion and color to be repaired again. After this validation phase is continued improvement of development product with expert advice to be done validation again without reference product. The validation test result to 2 can be seen from table 4.

**Table 4. Validation result 2**

Characteristic	Product Assessment Development
Color	Deep Black
Aroma	Butter and Black Rice
Texture	Soft and light
Taste	Sweet and lil bit savory
Overall	Good

In the validation test, the 2 expert rate is descriptive and assessed to be well worth the limited scale test for semi-trained panelists and has allowed performing to the next stage.

### Semi-trained organoleptic test

Organoleptic test by semi-trained panelists conducted in Laboratorium Chemical education of Boga engineering and clothing Faculty of Engineering of State University Yogyakarta with the number of panelist 30 people. The average result is shown in table 5.

**Table 5. Organoleptic test of Semi-trained panelists**

Characteristic	Reference	Development
Color	3,43	3,33
Aroma	3,23	3,06
Texture	3,4	3,2
Taste	3,26	3,13
Overall	3,02	3,3

Judging from table 4, color Petit black velvet Reference is higher on development. This is due to the color of the Petit black velvet which tends to dark blackish produced by black rice flour. The aroma value of the reference product is higher than the development product due to the development product using black rice that is slightly smelly musty on the material of making petit black velvet than the reference product. For product reference value is higher than the development product of course because the use of black rice flour is not as smooth as wheat flour and not the texture is not weighing from development products that use Black rice flour. Nevertheless, panelists still assess development products better even though there are few differences.

### Disseminate

At this stage in addition to the functioning of exhibitions and publications is also emphasized to conduct sensory test panelist untrained. The average value of untrained sensory panelist test results is presented in table 6.

**Table 6. Untrained sensory test Results**

Characteristic	Product Assessment Development
Color	3.733
Aroma	3.7
Texture	3.716
Taste	3.75
Overall	<b>3.75</b>

From the test results this last stage gets a pretty good result of all the assessments close to number 4 which means it is worth to be marketed commercially as a product worth selling. This product is very good to be developed with functional food label and to support the movement of Indonesian local food utilization.

**Tabel 7. Results Analysis of the Proximate Petit Black Velvet product test**

Analysis	Take I (%)	Take II (%)
Water	37.8917	37.6015
Ash	0.9096	0.9227
Protein	4.7528	4.5496
Fat	23.7023	23.6993
Coarse fibre	7.6273	7.7418
Carbohydrates	25.1160	25.4849
Energy	331.4971 kal/100g	332.1228 kal/100g

## CONCLUSION

The results showed that the product of Petit Black Velvet which was acceptable to the public was by substitutions of black rice flour for 70%, with a reference prescription from Jobsheet Patisserie I Boga UNY. From the test results with untrained panelists showed that the overall average value of 3.75 means the product of Petite Black Velvet is acceptable to the public.

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