

Experimental Study of Dry Sponge Cake Using Ambon Banana Flour

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Abstract. This study aims to determine the foaming technique for processing dry sponge cake made from Ambon banana flour in terms of its quality, including the indicators of taste, color, aroma and texture. Meanwhile, the population and sample of this study were 30 female students of STP AMPTA YOGYAKARTA who took part in the student culinary club and expert activity unit. Thus, the data collection techniques used are experimental, observation, documentation, interviews and literature study methods. In-depth interviews were conducted with the experts to find out the results of experiment 1 to experiment 2 in order to produce good dry banana flour sponge cake. Furthermore, the data analysis technique in experimental research II uses hedonic and organoleptic tests. The results of the study show that the use of sponge method in the experiment II resulted that the use of Ambon banana flour in dry sponge cake have good quality lies in its taste, color, texture, and flavor. Moreover, shaking the egg whites separately in making dry sponge cake using Ambon banana flour produces a better banana flour sponge cake. Next, the taste of dry banana flour sponge cake has the advantage over dry sponge cake obtained from pure banana flour because pure Ambon banana flour tastes and smells are more delicious. The texture of dry banana flour sponge cake is quite good according to dry sponge texture standards. Whereas, the aroma of dry sponge cake from banana flour produces dry sponge cake that is good in terms of its nice aroma. In addition, the colors of dry sponge cake made from banana flour are good to look at.

Keywords: ambon banana flour, dry sponge cake, food quality, hedonic test, organoleptic

RESEARCH BACKGROUND

Pastry is a field that focuses on serving and processing cake-type dishes. According to Bartono (in Triani et al, 2022), pastry is a part of the kitchen that specifically produces types of bread, cakes and desserts. Pastry making has several specific functions, for example, making products that can be sold, as well as special dishes according to orders. One example of a pastry product is sponge cake or sponge cake. Sponge cake is a pastry product made from a mixture of wheat flour, eggs, sugar, fat and rising ingredients which is then baked in the oven (Hambyah & Sutrisno, 2018). Sponge cake is a cake that is very popular with the general public. The quality of the sponge cake itself is determined by the taste, texture, aroma and level of development. This dry bolu is a sponge cake that is dried and the baking process is done twice (Pratomo, 2013). The purpose of this dried sponge cake is to make the shelf life of the sponge cake longer due to the reduced water content. The basic ingredient for making dry sponge cake generally uses wheat flour. Dependence on imported wheat needs to be given special attention in efforts to increase the development of alternative foods as substitutes for wheat so that we do not always rely on imported wheat flour and are able to utilize local resources. One food ingredient that can be used as a substitute for wheat flour is banana flour in making dry sponge cake. Banana production in Indonesia is quite high, which is not commensurate with the level of public consumption, resulting in many bananas not being utilized due to the relatively short shelf life of bananas.

The best solution to this problem is to make bananas into processed flour products. In this research, researchers will try to use Ambon banana flour as the main ingredient for making dry sponge cake. So far, Ambon bananas have not been used optimally and there are not many variations in processing,

so there needs to be a variety of new products from processed bananas. Ambon banana is a fruit that has a characteristic sweet taste and distinctive aroma (Putri et al: 2015). So far, many cake and bread preparations have used banana flour as a substitute for wheat flour. Apart from having an effect on the aroma, taste, texture and color, bananas are used as the main ingredient in cake preparations because bananas are still rarely used in cake and bread products. Based on temporary observations made by researchers regarding the use of banana flour as a substitute for wheat flour in making dry sponge cake, complete data is still not available. The data obtained shows that most people use banana flour as a substitute for wheat flour in making cookies, muffins and cakes or sponge cakes. Researchers observed research from Pratomo (2013) where in the research the sponge method was processed using the sponge method, beating eggs and sugar until fluffy and thick, then adding flour and melted butter. In this research, the researchers plan to try a different processing technique, namely the foam method, namely by beating the egg whites until they expand first before mixing them into the egg yolk mixture which is beaten with sugar and leavening.

REVIEW OF RELATED LITERATURE

1. Ambon banana flour

Banana flour is one way to preserve bananas in processed form by grinding them (Kiptiah, M., Nuryati, N., Amalia, R. R., & Hayati, M., 2019), cutting the bananas thinly, soaking them in water that has been give a solution of sodium bisulfite, to prevent browning reactions on the bananas. After soaking, the bananas are dried by drying them directly in the sun or drying them using a tool called a cabinet, then ground and sifted with a 60 mesh size.

Ambon banana flour has a fairly high carbohydrate content of 76.46%. The characteristics of Ambon banana flour are that it has a white - gray color, and Ambon banana flour has a distinctive taste and aroma (Pratomo: 2013).

2. Dry Cake

Dry sponge cake is a dry cake made from wheat flour, sugar, eggs and vanilla (Merawati et al, 2016). Dry sponge cake usually has a sweet taste and crunchy texture, with the baking process being done twice.

3. Cake or Sponge Making Method

Several methods or techniques for making cake or sponge cake described below are the most basic methods for making cake or sponge cake. The following are five methods for making cake or sponge cake, including:

a. Creaming Method (Sugar Butter)

The creaming method is a method of making cake by beating fat (margarine/butter) and sugar until it becomes pale and resembles cream.

b. Sponge Method

The sponge method is used to make sponge cake type cakes. The first way is to beat the eggs and sugar until fluffy and thick. The second way is to separate the egg whites and beat them separately until shiny and stiff.

c. Flour and Butter Method

The flour and butter method is a technique for making cakes by combining two techniques, namely the creaming method and the sponge method.

d. Foam Method

The foam method can also be called meringue. Foam dough is produced from egg whites beaten at high speed with a little acidic ingredient such as cream of tartar or you can also use table vinegar or lime juice.

e. Paste Method (Reverse Creaming)

The paste method is a cake making technique that is the opposite of the creaming technique, namely by forming the dough to resemble pasta.

4. Food Quality

Quality is not only found in goods or services, but also includes food products. Customers who come looking for food certainly want to buy quality food. According to Potter and Hotchkiss (in Nisa: 2020:37) Food quality is the quality characteristics of food that can be accepted by consumers, such as size, shape, color, consistency, texture and taste. According to West, Wood and Harger (in Nisa: 2020) broadly state that the dimensions of food quality consist of:

a. Food Colors

The colors of the food ingredients must be combined in such a way that they do not look pale or the colors do not match. Food must look good when it is on the plate, which is an important factor. The freshness and cleanliness of the food served is an important example that will influence the appearance of the food whether it is good or not to be enjoyed.

b. Portion

In every food serving, a standard portion has been determined, which is called the standard portion size.

c. Form

The shape of food plays an important role in eye appeal.

d. Temperature

Consumers like variations in temperature from one food to another, because temperature can also affect taste.

e. Texture

There are many kinds of food textures, namely smooth or not, hard or soft, liquid or solid, soft or not.

f. Aroma

Aroma is a reaction from food that affects consumers. Before consumers enjoy the food, consumers can smell the food.

g. Maturity level

The level of food maturity will influence consumers.

h. Flavor

The taste point of the tongue is the ability to detect the basics, namely sweet, sour, salty, bitter. In certain foods, these four flavors are combined in the food to create a unique and interesting taste to enjoy.

RESEARCH METHOD

This research is qualitative research with experimental methods on dry sponge products using Ambon banana flour. The data collection technique used in this research is by using questionnaires and interviews. According to Sugiyono (2017) an experiment is a method used to determine the effect of an independent variable (treatment/treatment/action) on a dependent variable (outcome) under controlled conditions. The experimental design used in this research is a one-shot case study design, namely where a group is given treatment, and then the results are observed (Sugiyono, 2017). The following is the One-shot case study design pattern:

Pola: X O

Keterangan: X adalah treatment atau perlakuan

Source: Sugiyono, 2017

The population and sample in this experiment were 27 panelists and 3 experts. The sampling technique in this experiment used a purposive sampling technique with the criteria 1) students STP AMPTA YOGYAKARTA class of 2021 who have completed practical cake processing courses 1 and 2; 2) The STP AMPTA students also take part in the student culinary club activity unit. The data collection method for this experimental research is observation, documentation, interviews, literature study. In-depth interviews with experts in the cake field. Meanwhile, questionnaires were distributed to obtain consumer responses regarding food quality. The analysis technique in this experimental research uses hedonic tests and organoleptic tests to obtain data related to consumer responses to dried Ambon banana flour sponge cake.

RESULTS AND DISCUSSION

Consumer Response to Dry Bolu with Ambon Banana Flour Second Experiment

1. Taste

According to Fandy Tjioptono (2011), food taste is one of the factors that determines the taste of food. The aim of processing and cooking food is to produce food that is high in taste so that it is satisfying for those who eat it.

The results of interviews with experts can be concluded that the taste of dry sponge cake made from banana flour is the same, according to the expert, dry sponge cake made from banana flour is in accordance with the standard taste of dry sponge cake in general. From the survey results, twenty-four panelists said that the taste of dry sponge cake made from banana flour was "savory" which can be seen based on the taste indicators, twenty-eight panelists said the taste of dry sponge cake made from banana flour was "quite sweet", in this case the panelists stated that the taste of the dry sponge cake is delicious, savory and has a "quite sweet" taste. Because the banana flour used in making dry sponge cake gives the sponge dough a savory taste, so the panelists and experts like dry sponge cake made from banana flour compared to dry sponge cake in general which does not have a savory taste. The following is a single table of flavors of torn bread made from coconut milk.

Table 1 Hedonic Test (Taste)

Panelists	Taste									
	Tasty					Quite Sweet				
	1	2	3	4	5	1	2	3	4	5
No			3	2	3			2	2	3
				4				5		

From the data above, it can be concluded that as many as twenty-four panelists said "like" on a scale of 4 hedonic test, for the savory taste found in dry sponge cake made from banana flour, where this savory taste is an advantage in dry sponge cake obtained from pure banana flour. because pure Ambon banana flour tastes and smells more delicious.

2. Texture

According to Fandy Tjioptono (2011) Texture is the most important element in processed food, there are many types of texture, namely smooth or not, hard or soft, liquid or solid, dry or wet. Food has different textures depending on the processing carried out, it can be soft, smooth, rough, liquid or solid. If dry sponge cake has a poor texture, people's interest in consuming the food will decrease. From the explanation of the resource person above, it can be concluded that the texture resulting from this second experiment has a good dry sponge cake texture and when consumed is easy to swallow, a good dry sponge cake texture should be smooth and soft. The texture of this dry banana flour sponge cake is said to be soft because the recipe standards made by the researcher are in accordance with it, then the soft taste also occurs because of the foming process used by the researcher. The following is a single table of textures for dry sponge cake made from banana flour:

Table 2 Hedonic Taste (Texture)

Panelists	Texture									
	Crispy					Easily Swallow				
	1	2	3	4	5	1	2	3	4	5
No			7	23				4	20	6

From the data above, it can be concluded that as many as twenty-three panelists said "crunchy" on a scale of 4 hedonic tests, where the texture of dry banana flour sponge cake in the second experiment produced dry banana flour sponge cake that was not hard and had a nice and good texture. Then twenty panelists on average said that dry sponge cake made from banana flour had a texture that "could be swallowed easily" on a 4 hedonic test scale. So it can be interpreted that dry sponge cake made from banana flour has a fairly good texture according to dry sponge texture standards.

3. Aroma

In research, Fandy Tjioptono (2011:17) said that the aroma of food must be delicious so that it has a very strong attraction and is able to stimulate and arouse the appetite. The fragrant and delicious aroma produced by bread comes from the butter and coconut milk used. From the explanation of the resource person above, it can be concluded that the aroma produced from the dry sponge cake experiment made from banana flour has a natural aroma that is "very fragrant" which is obtained from natural banana flour, because banana flour has a distinctive aroma so it creates a natural aroma in the mixing process. compared to using wheat flour with added essence. The resulting dried banana flour cake has a more fragrant aroma. The following is the hedonic test table for dry banana flour sponge cake:

Table 3 Hedonic Taste (Aroma)

Panelists	Aroma				
	Banana				
	1	2	3	4	5
No		2	7	22	3

From the data above, it can be concluded that as many as twenty-two panelists said that dry sponge cake made from banana flour has a "fragrant" aroma on the 4 hedonic test scale, which is the aroma indicator in making dry sponge cake made from banana flour that has received a good response from experts and panelists. Because the fragrant aroma produced from the banana flour used in making dry sponge cake has produced a dry sponge cake that is good in terms of its fragrant aroma.

4. Color

According to Fandy Tjioptono (2011:17) says that color is an element that needs to be considered when serving food, the color served will influence consumers and can attract attention and increase appetite, so that appetite starts from the eyes until the desire to eat a dish with color arises. an eye-catching dish. Food colors must be combined in such a way as not to look pale or to avoid mismatched colors.

From the information provided by the sources above, it can be concluded that the color of a good dried banana flour sponge cake must have a golden brown color, which means it has a color that is neither burnt nor pale. From the color indicator, dry sponge cake made from Ambon banana flour produces a good color in accordance with the dry sponge color standards that have been determined. The following is a single table of colors for torn bread made from coconut milk:

Table 4 Hedonic Taste (Color)

Panelists	Color				
	Golden Brown				
	1	2	3	4	5
No			5	25	

From the data above it can be concluded that as many as twenty-five panelists said "golden chocolate" on the 4 hedonic test scale, for the color of dry sponge cake made from banana flour where the color of this dry sponge cake already has a good color. This indicates that the panelists quite liked the color of the dry sponge cake made from banana flour which was pleasant to look at.

CONCLUSION

The shape and appearance of the dried banana flour sponge cake looks attractive. The appearance of this dry banana flour sponge cake is good because the mixing process using the foam method is good, besides that the use of 70 grams of banana flour makes the banana flour sponge dough lighter and has good pores too.

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