

The Effect of Added Banana Flower on Acceptance and Chemical Properties Shredded Bamboo Shoots

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Abstract

One of the foods that are high in fiber other than bamboo (bamboo shoots) is banana flower with a high fiber content which will benefit the elderly by processing it into shreds, as a substitute for crude fiber and also has many benefits for body health. This research is experimental with three treatments and three repetitions with the addition of 20 grams, 30 grams and 40 grams of banana heart. The panelists used in this study were semi-panelists. The research methods: This type of research is experimental with a Completely Randomized Design (CRD), specifically 3 treatments and 3 repetitions using the hedonic test. Up to 30 people were trained from students at the Department of Nutrition, Ministry of Health, Aceh. Utilizing ANOVA (Analysis Of Variance) and Duncan's Multiple Test Further Test, data processing and analysis were performed. The addition of 20 g, 30 g and 40 g of banana flower had no significant effect on the color of the shredded bamboo shoots. The addition of 20 g, 30 g and 40 g of banana flower had a significant effect on the taste, aroma and texture of shredded bamboo shoots. The high water content in shredded bamboo shoots is influenced by the process of boiling ingredients such as bamboo shoots and banana buds, to reduce the water content it can be seen through the frying process which then shrinks.

Keywords: banana flower, chemical test, organoleptic test, shredded bamboo

Introduction

One of the foods that are high in fiber other than bamboo (bamboo shoots) is banana flower with a high fiber content which will benefit the elderly by processing it into shreds, as a substitute for crude fiber and also has many benefits for body health. In addition to being high in fiber, banana flowers contain many natural substances that are good for health such as protein, carbohydrates, and the fiber content in banana flowers is also high. With the content of the substances mentioned above, banana flower is also often said to be a food that has complete nutritional content. So that the combination of bamboo shoots and banana flower can increase the nutritional value. This study aims to determine the effect of increasing the heart on the acceptability of shredded bamboo shoots and to determine the fiber and chemical properties of shredded bamboo shoots.

Methods

This research is experimental with three treatments and three repetitions with the addition of 20 grams, 30 grams and 40 grams of banana heart. Then, organoleptic tests (color, taste, aroma and texture) were conducted on 30 untrained panelists and data processing was carried out using the ANOVA test, while for the chemical properties using the proximate test.

Result

Hedonic organoleptic test

Color

Shredded bamboo shoots have the same color between the addition of 20 grams of banana flower (A), the addition of 30 grams of banana flower (B) and the addition of 40 grams of banana flower (C), which is brownish in color.

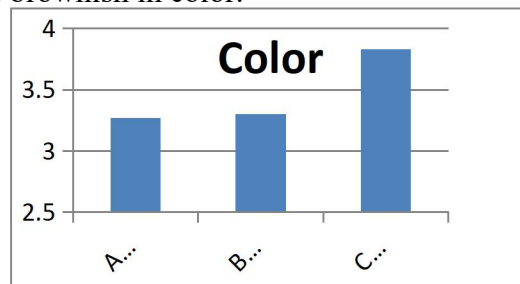


Figure 1: Color Graph of Shredded Bamboo Shoots

The results of the organoleptic test showed that on average the panelists gave a somewhat favorable response (3.83) to the color of shredded bamboo shoots with the addition of 40 grams of banana flower (C), moderately liked responses (3.30) to the color of shredded bamboo shoots with the addition of 30 grams of banana heart. (B) and also on the addition of 20 grams of banana flower (A) the panelists gave a somewhat favorable response. Brown color occurs because there is a browning reaction.

Flavor

Shredded bamboo shoots with the addition of banana flower has a savory taste that tends to be the same from each treatment. The panelists liked the addition of 40 grams of banana flower (C) with a value of 4.13, then liked the addition of 30 grams of banana flower (B) with a value of 3.03 and the addition of 20 grams of banana flower (A) with a value of 3.07 panelists gave a somewhat favorable response. The taste that panelists prefer is because it contains more banana flower and shredded bamboo shoots. Taste can be obtained by adding additional ingredients such as spices or from the raw material of the product itself or from the processing used. Generally, products such as shredded have a distinctive taste with the addition of certain spices.

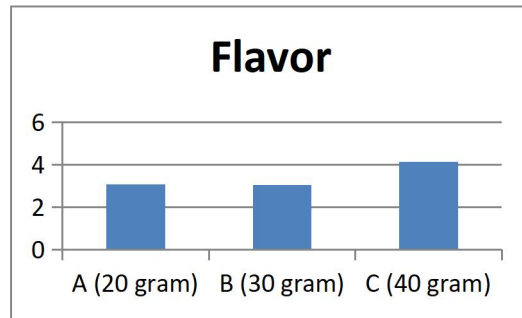


Figure 2: Graphics of Bamboo Shoot Shredded Flavor

Aroma/Scnt

Shredded bamboo shoots have the same fragrant aroma between the addition of 20 grams of banana flower (A), the addition of 30 grams of banana flower (B) and the addition of 40 grams of banana flower (C).

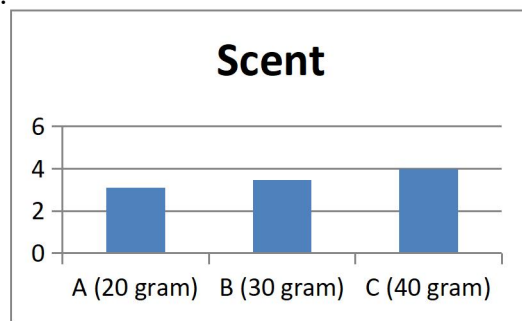


Figure 3: Graph of the Fragrant Bamboo Shoots Aroma

The panelists gave a favorable response (3.97) to the aroma of shredded bamboo shoots with the addition of 40 grams of banana flower (C) with 70 grams of bamboo shoots, a somewhat favorable response (3.47) to the aroma of shredded bamboo shoots with the addition of 30 grams of banana flower (B) with 80 grams of bamboo shoots and also the addition of 20 grams of banana flower (A) with 90 grams of bamboo shoots, the panelists gave a somewhat favorable response. Panelists like the aroma because the concentration of banana flower and shredded bamboo shoots is balanced, so that when frying the aroma is more pronounced and also after frying. This is in accordance with the statement of Soekarto (1985), that the aroma produced from food ingredients determines the delicacy of the food.

Texture

Shredded bamboo shoots have the same crunchy texture between the addition of 20 grams of banana flower (A), the addition of 30 grams of banana flower (B) and the addition of 40 grams of banana flower (C).

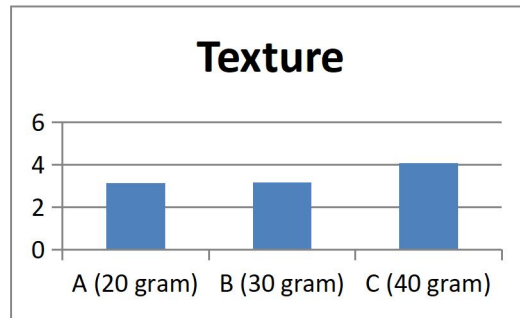


Figure 4: Texture Graphics of Shredded Bamboo Shoots

Panelists gave a favorable response (4.07) to the texture of shredded bamboo shoots with the addition of 40 grams of banana flower (C), somewhat liked responses (3.17) to the texture of shredded bamboo shoots with the addition of 30 grams of banana flower (B) and also to the addition of banana hearts. 20 grams (A) panelists gave a somewhat favorable response. Panelists liked the texture of the shredded bamboo shoots because the frying process made the water from the shredded bamboo shoots shrink, causing the abon to be crispy. Then because the concentration of banana flower and bamboo shoots is balanced. Bamboo shoots generally have a lot of fiber so that when frying the banana flower which binds more water will be covered by bamboo shoot fibers.

Chemical Properties

Table 1. Chemical Properties Shredded Bamboo Shoots added banana flowers

Chemical Properties	Formula A	Formula B	Formula C	SNI*
<i>Water content (%)</i>	<10	<10	<10	<10
<i>Protein (%)</i>	2.17	2.29	2.45	-
<i>Fat (%)</i>	>30	>30	>30	<30
<i>Carbohydrate (%)</i>	<25	<25	<25	<25
<i>Fiber</i>	3.45	3.57	3.60	-

*) SNI 013707-1995

Discussion

Color

The browning reaction occurs due to the frying process. The resulting color depends on the temperature in the frying carried out, the longer the time used in frying causes the color change in the oil to darken and will affect the color of the frying result. This is in accordance with the statement (Winarno, 1993) that the length of frying affects the color of the shredded bamboo shoots produced by brown, the color of the shredded is often favored by panelists, which is brownish yellow like in shredded products in general.

Based on analysis of variance (ANOVA) showed that the addition of banana buds had no significant effect on the color of shredded bamboo shoots with a significant level (P value) of $0.022 > 0.05$ so it can be concluded that the addition of banana buds as much as 20 grams, 30 grams and 40 grams had no significant effect. on the color of the resulting shredded bamboo

shoots, so it was not continued with the Duncan test. The color of the shredded bamboo shoots had no effect because the color produced was almost the same in each treatment so that the panelists on average gave a somewhat favorable response.

The occurrence of browning on the shredded bamboo shoots with the addition of banana hearts is through frying so that it changes the color to brown. As for the manufacturing process where the banana flower that has been boiled is then pulverized, after the process is brown.

Flavor

Based on analysis of variance (ANOVA) showed that the addition of banana buds had a significant effect on the taste of shredded bamboo shoots with a significant level (P value) $0.000 < 0.05$ so it can be concluded that the addition of banana buds was 20 grams (A), 30 grams (B) and 40 grams (C) significantly affected the taste of shredded bamboo shoots produced, so it was continued with the Duncan test. The results of Duncan's analysis showed that the treatment with banana buds and shredded bamboo shoots was different in the addition of banana buds and bamboo shoots. Where in treatment (C) 40 grams of banana flower with 70 grams of bamboo shoots, in treatment (B) 30 grams of banana flower with 80 grams of bamboo shoots and in treatment (A) 20 grams of banana flower with 90 grams of bamboo shoots. Where C is in a different notation while A and B are in the same notation, the panelists liked the addition of 40 grams of banana flower (C) due to the savory taste. The savory taste is caused by the ripe frying process (the occurrence of oil absorption and the pressing process).

Taste is a sensation that is formed from the combination of ingredients and their composition in a food product by the sense of taste. According to Winarno in Tatoalik (2013: 5) in Resti Fiannisa (2017), "The savory taste is caused by the presence of amino acids in proteins and fats contained in food"

Aroma/Scent

Based on analysis of variance (ANOVA) showed that the addition of banana buds had a significant effect on the aroma of shredded bamboo shoots with a significant level (P value) of $0.000 < 0.05$ so it can be concluded that the addition of banana buds as much as 20 grams, 30 grams and 40 grams had a significant effect on the aroma. shredded bamboo shoots produced, so that it was continued with the Duncan test. The results of Duncan's analysis showed that the treatment with banana buds and shredded bamboo shoots was different in the addition of banana buds and bamboo shoots. Where in treatment (C) 40 grams of banana flower with 70 grams of bamboo shoots, in treatment (B) 30 grams of banana flower with 80 grams of bamboo shoots and in treatment (A) 20 grams of banana flower with 90 grams of bamboo shoots. Where C is in a different notation while A and B are in the same notation. So it can be concluded that the panelists liked the addition of 40 grams of banana flower in terms of aroma.

Aroma according to Winarno (2008), the aroma of food generally determines the delicacy of food ingredients and has a lot to do with the sense of smell. Aroma really determines the panelists' acceptance of a product. A delicious or distinctive aroma will increase consumer tastes. Through aroma, panelists or the public can find out the ingredients contained in a product.

Texture

Based on analysis of variance (ANOVA) showed that the addition of banana buds had a significant effect on the texture of shredded bamboo shoots with a significant level (P value) of $0.000 < 0.05$ so it can be concluded that the addition of banana buds as much as 20 grams, 30 grams and 40 grams significantly affected the aroma. shredded bamboo shoots produced, so that it was continued with the Duncan test.

The results of Duncan's analysis showed that the treatment with banana buds and shredded bamboo shoots was different in the addition of banana buds and bamboo shoots. Where in treatment (C) 40 grams of banana flower with 70 grams of bamboo shoots, in treatment (B) 30 grams of banana flower with 80 grams of bamboo shoots and in treatment (A) 20 grams of banana flower with 90 grams of bamboo shoots. Everything is in a different notation, the panelists liked the addition of 40 grams of banana flower because of the crunchy texture.

The cause of the texture is through each stage of making shredded bamboo shoots, one of which is through the frying process and then draining. For fried products, crispness signifies freshness and high quality. Crispy food should be hard, easy to bite, and give a crisp sound (Moreira, 1999). The higher the number of banana flower substitutions, the higher the value of the crunchy texture on the floss. According to Hardoko (2015:6), "The increase in the percentage of banana flower substitution into shredded tends to reduce the water content of the shredded meat. This indicates that the banana flower facilitates the shredded drying process related to the fiber (carbohydrate) content in the banana flower.

Ash content

Ash content in foodstuffs indicates the amount of inorganic matter remaining after organic matter is destroyed (Sulaeman et al. 1995 in Shultoniyah et al, 2013). The ash content obtained describes the number of minerals that are not burned into non-volatile substances (Soedioetama, 1996). The resulting shredded ash content is 0.77%, still meets the SII standard, which is a maximum of 9%. The low value of ash content is due to the low mineral content in the shredded material. According to Andarwulan et al. (2011), the effect of processing on materials can affect the availability of minerals for the body. The use of water in the washing, soaking and boiling processes can reduce the availability of minerals because minerals will be dissolved by the water used.

Water content

Analysis of the water content in the shredded bamboo shoots was carried out to determine the water content contained in the shredded bamboo shoots made. The water content in the shredded sample is meet to SNI standard, which is a maximum of 10%. The water content in the shredded produced is influenced by the processing process, namely at the boiling stage after being drained in a pulverizer and there is still a reduced water content then the ingredients are fried until cooked, because the water contained in the ingredients evaporates or comes out when the ingredients are fried. This is because the free water contained in the material is directly evaporated by the heat of the pan and oil as an intermediate medium, so that some of the free water contained in the material network can evaporate or be reduced (Winarno 2008).

Protein

The results of the proximate test can be seen that the protein value of 2.45% contained in the shredded bamboo shoots with the addition of 40 grams of banana flower (C), 2.29% of the addition of 30 grams of banana flower (B) and 2.17% with the addition of 30 grams of banana flower (A). In foodstuffs, it is a source of amino acids containing elements C, H, O, and N which are not owned by fats and carbohydrates. Protein is a very important nutrient for the body, because this substance in addition to functioning as a producer of energy, building blocks and regulatory substances (Winarno, 2008 in Purnamasari, 2017).

Fat

The fat content of shredded bamboo shoots with the addition of banana buds obtained is about 78.13% higher than the standard SNI shredded, which is 30%, this is presumably because during frying there is a high absorption of oil by the ingredients and the pressing process is not optimal so that a lot of oil is absorbed. still contained in shredded. In addition, the high fat content in shredded meat is thought to be due to the concentration of the addition of banana flower and spices. Winarno (1997) stated that fatty acids can be formed from compounds containing carbon such as acetic acid, ethanol and acetaldehyde.

Carbohydrate

The low carbohydrate value in each treatment (A, B and C) was thought to be due to the inadequate concentration of banana buds in this study. Carbohydrates in this study ranged from 1.75% - 2.22%. Thus the treatment that does meet the standard of shredded SNI. Where is shredded according to SNI 013707-1995 where the average value of shredded carbohydrates is a maximum of 25%.

Fiber

The results of the proximate test can be seen that the fiber value is 3.60% contained in shredded bamboo shoots with the addition of 40 grams of banana flower (C), 3.57% of the addition of 30 grams of banana flower (B) and 3.45% of the addition of 30 grams of banana flower (A). According to Sudiono (2017), fiber found in undigested food has positive properties for nutrition and metabolism. Dietary fiber is a component of plant tissue that is resistant to hydrolysis by enzymes in the stomach and intestines. High-fiber foods have a more beneficial effect than fiber supplements in the prevention and treatment of chronic diseases.

Conclusion

The addition of 20 g, 30 g and 40 g of banana flower had no significant effect on the color of the shredded bamboo shoots. The addition of 20 g, 30 g and 40 g of banana flower had a significant effect on the taste, aroma and texture of shredded bamboo shoots. The high water content in shredded bamboo shoots is influenced by the process of boiling ingredients such as bamboo shoots and banana buds, to reduce the water content it can be seen through the frying process which then shrinks.

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