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Nutritional Content And Organoleptic Properties Of Crackers Ambon Banana Peel In Hypertension Patients

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ABSTRACT

The final process of processing bananas produces large volumes of banana peel waste, but this is not balanced with proper utilization of banana peel waste . Banana peels contain quite high levels of nutrients, especially vitamins and minerals such as water, fiber, carbohydrates, protein, fat, calcium, phosphorus , iron , vitamin B and vitamin C. In addition, the content The high nutrition in banana peels can also be beneficial for sufferers of degenerative diseases . The aim of this research is to analyze the nutritional content of Ambon banana skin crackers , namely levels of protein, fat, carbohydrates, fiber, potassium, sodium, iron, phosphorus, calcium, vitamin C and vitamin D. and analyzing the organoleptic tests of Ambon banana peel crackers , namely taste, aroma, texture and color . This research method is experimental research with a completely randomized design , namely making crackers from Ambon banana peels with the addition of mocaf flour . The results of the research are the nutritional content analysis of fried Ambon banana peel products, namely total energy 535.57 kcal , energy from fat 293 kcal , ash content 1.245, water content 5.58%, carbohydrates 59.47%, fat 32.57% , protein 1.14%, fiber 6.44%, the mineral nutrients with the highest content are phosphorus 363.90 mg , potassium 324.63 mg , sodium 140.54 mg , calcium 74.06 mg , iron 1.57 mg . For vitamin D3, it is 3.12 mcg and in the oven/baked, there is a total energy of 377.21 kcal , the highest macronutrients are carbohydrates at 89.92 grams , then protein at 1.48 grams and fat at 1.29 grams . For mineral nutrients, the highest content is phosphorus at 528.39 mg , followed by potassium at 455.27 mg , sodium 180.04 mg , calcium 89.05mg, iron 2.01mg. Meanwhile, fiber is 8.07% and vitamin C is 0.46 mcg and vitamin D is 0.68 mcg . Conclusion: with the addition of mocaf flour, the mineral nutritional content (potassium, phosphorus, calcium, sodium) is higher in the oven process when compared to the fried one, but from the results of the assessment of the level of preference the fried process is more preferred than the baked one.

1. INTRODUCTION

Indonesia is a tropical area, there are various types of horticultural plants Tropical fruits that are widely developed in Indonesia are bananas. Bananas can grow in any place so that fruit production is always available and can be used as processed products Enough Good For development source food local. Banana is Wrong One fruit superior Indonesia which always occupies the first position both in terms of harvested area and production compared with type fruits other (Suryalita , 2019) . Bananas are a food ingredient that is easy to find, especially in Indonesia. Ambon banana is a type of banana that is usually used as raw material by food entrepreneurs such as traders of fried bananas and fried molen (Seliawati I, et al , 2020). The final process of processing bananas produces large volumes of banana peel waste, but this is not balanced with proper utilization of banana peel waste.

Skin banana ambon own content nutrition, like carbohydrate, fat, proteins, calcium, phosphorus, substance iron, vitamin B, vitamin C and water. These nutritional elements can be used as a source of energy and antibodies for the human body (Ago, A, Y, et al , 2014). A large number of banana peels will have a profitable selling value if they can be used as food raw materials. Banana peels contain quite high levels of nutrients, especially vitamins and minerals such as water, fiber, carbohydrates, protein, fat, calcium, phosphorus , iron , vitamin B and vitamin C. In addition, the content The high nutrition in banana peels can also be beneficial for sufferers of degenerative diseases (Proverawati , et al , 2019).

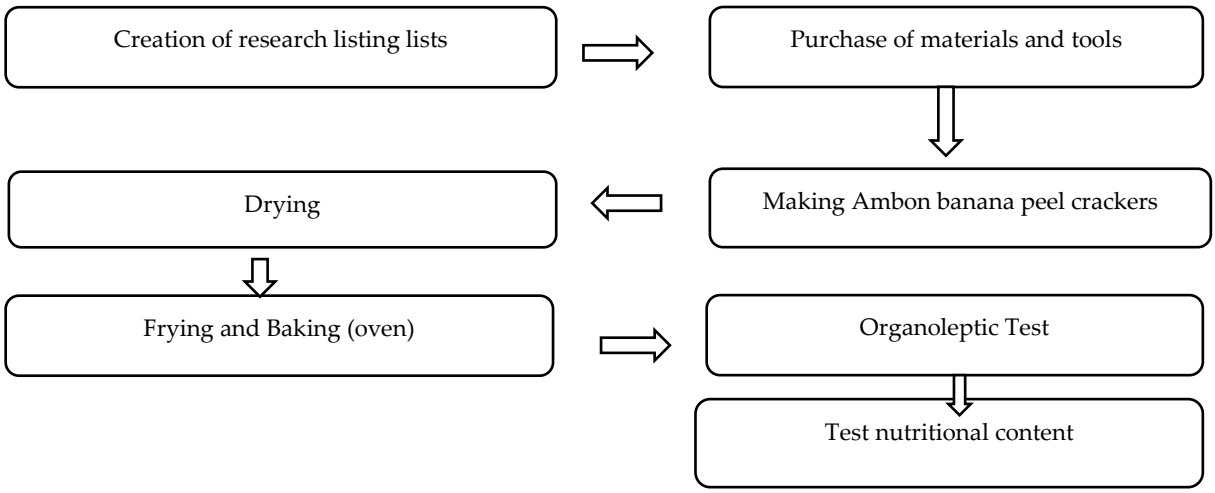
diseases are included in the category of non-communicable diseases where the function of organs in the body decreases with age. Based on the results of the 2018 Basic Health Research (Riskesdas), the prevalence of hypertension increased from 25.8% to 34.1%, compared to the 2013 Riskesdas .

The fiber content is 6 g/100 mocaf flour which is used as an ingredient in making products into food sources of fiber among others for making dry cakes, dry/wet noodles , vermicelli, pampek , meatballs, crackers, brownies , and others (Ihromi , et al , 2018). The fiber content in mocaf flour is able to meet 20% of the daily fiber needs of adult women aged 16-18 years (Dwiyanti et al ., 2019).

Based on the description of the nutritional value of banana peels above, it is necessary to process banana peels as source food useful preparations .

2. METHODS

This research method is experimental research with a completely randomized design , namely making crackers from Ambon banana peels with the addition of moccaf flour . The treatment of moccaf flour is adjusted to SNI/01-2886-200 regarding the quality requirements for crackers, namely 150 kcal energy , 0.2% total fat, 12% sodium, 90 gr carbohydrates , 2 gr calcium , 0% vitamin C, 2 gr protein . The research stages are as follows:



Research design

1). Experimental design

This study used a randomized block design (CRD) with three treatments, one repetition so that there were three experimental units. Treatments in research are:

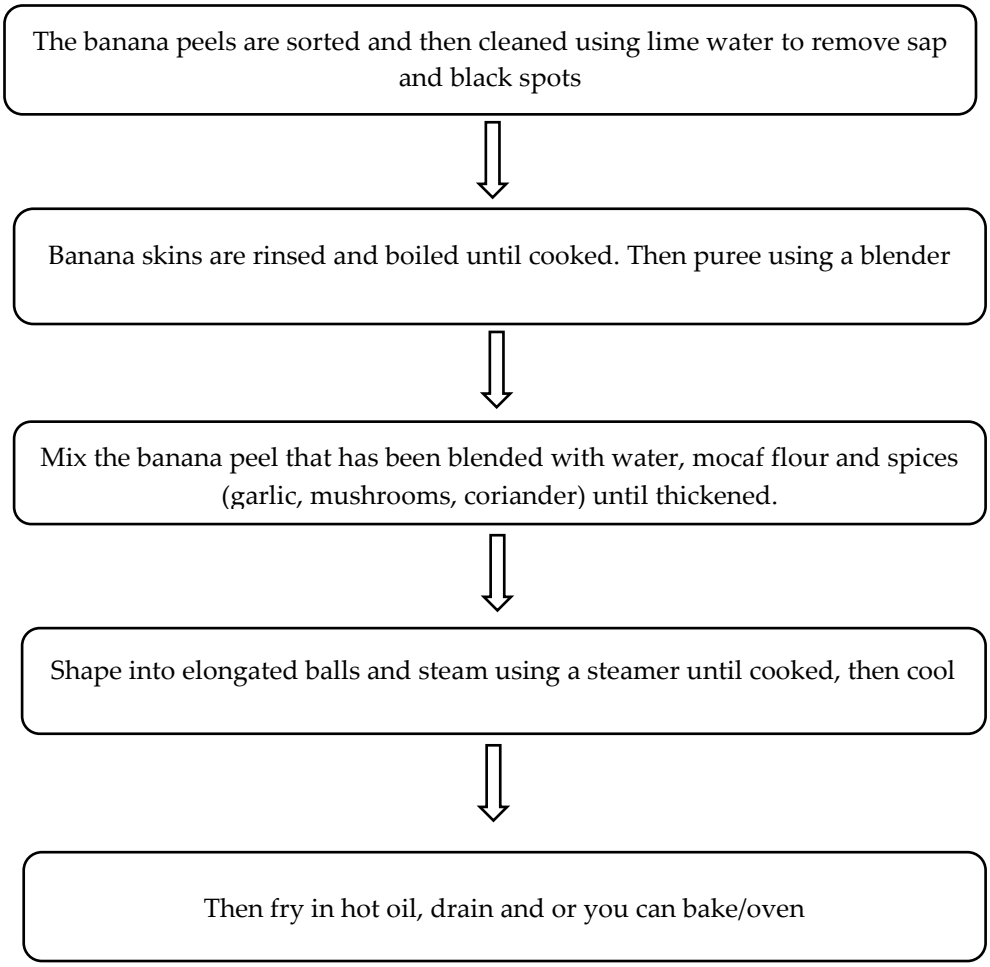
F1: 100 grams of banana peel and 100 grams of mocaf flour

F2: 75 grams of banana peel and 100 grams of mocaf flour

F3: 50 grams of banana peel and 100 grams of mocaf flour (Sogo, et al., 2018

2). Tools and materials

The process of making Ambon banana peel cracker products with the addition of mocaf flour



No	Activity	Material	Tool
1	Washing Ambon banana peels	- Ambon banana peel - Water flow	- Spoon - Basin - Scales
2	Making Ambon banana peel crackers with the addition of mocaf flour	- Small pieces of boiled banana peel - Garlic - Mold - Coriander - Mocaf flour	- Washroom - Tray - Cormorant - Knife - Pan - Spoon - Filter

3	Organoleptic Test	Ambon banana peel with the addition of mocaf flour	- Mug - Scales - Spatula - Blender - Cooking oil - Tools for drying products - Organoleptic Test Form - Serving utensils - Stationery - Drinking water

The final stage is the drying process in the hot sun until dry for ± 8 hours . Then fry in hot cooking oil, drain and or in the oven/bake. Then presented to the panelists for organoleptic testing including color, aroma, texture and taste consisting of 3 Ambon banana peel formulas which are different through processing techniques by frying and in the oven

3. FINDINGS AND DISCUSSION

The organoleptic test uses the rating test hedonic with 15 trained panelists . _

Banana peel cracker product processing techniques

Technique for frying banana peel crackers

At the color liking level, the percentage of liking category levels is a sample F2 is 40.0 % while the least dislike category is 0.0 % , the level of liking for the aroma shows the highest category, namely in the neutral category with each sample F3 as much as 73.3 %, while samples F1 and F2 have the same value, namely 53.3%. Samples F1 and F2 have the same value , namely the liking category is 40.0%, the level of texture liking obtained by the percentage of the highest liking category is sample F3 , namely 53.3 %, while the least liking category is found in sample F1 , namely 26.6 % , the level of taste preference shows that samples F2 and F3 have the highest percentage value of the liking category level, namely 60.0 %, while the category The fewest likes were found in the F1 sample , namely 46.6 % .

The overall organoleptic assessment was carried out by calculating the average of the panelists' assessments for each sample and the organoleptic attribute attributes. This was done to find out which samples were more accepted by the panelists . For the texture attribute, the highest result was obtained in sample F2, namely 3.53%. For the taste attribute , the highest result value which was most liked was found in sample F2 . namely 3.87% and the aroma attribute has the highest result which is most often found in the F2 sample, namely 3.53%, also the color attribute has the highest result which is most often found in the F2 sample, namely 3.67%. but if you look at the image, the color attributes show that the difference is not too big .

technique for banana peel crackers

At the level of liking, the color shows the percentage level of the most disliked category in the sample F2 is 6 6.7 % while the liking category is found in the F3 sample , namely 33.3% , the aroma liking level shows the highest category, namely in the neutral category with each F2 sample as much as 80.0 % ; F1 as much as 66.7 % ; F3 as much as 60 % . In samples F1 and F3 have the same value, namely the very like category as much as 13.3% and dislike with a percentage value of 20.0 % , the level of liking texture percentage level of the very dislike category is the highest in the F3 sample , namely 66.7 % while the category neutral is found in the three samples (F1, F2, F3) , namely 1 3.3% , the level of taste liking shows that samples F1 and F3 have the highest percentage value of the like category, namely 26.7 %, while the dislike category is the least in the sample. F2 is 26.7 %.

The overall organoleptic assessment was carried out by calculating the average of the panelists' assessments for each sample and the organoleptic attribute attributes. This was done to find out which samples were more accepted by the panelists. Showing that the results of assessing the color, aroma, texture and taste of banana peel crackers were above 2, 9. For the texture attribute, the highest result was obtained in the F2 sample, namely 1.60. The taste and aroma attribute had the highest result value which was most liked in the F2 sample. namely 2.93% , but if you look at the color attribute image, it shows that the difference is not too much, except for the F1 sample, which is 2.60, the difference is very visible from the other samples .

Proximate Analysis

Proximate analysis is a method for determining the percentage of nutrients in feed based on its chemical properties, including protein, fat, water content, ash content, carbohydrates , fiber , vitamin C, potassium, sodium, phosphorus, iron, calcium and vitamin D. Proximate analysis has the benefit of assessing the quality of feed or food ingredients, especially the substances contained therein .

a. Nutrient content analysis test of fried Ambon banana skin crackers

The nutritional content of Ambon banana peel crackers uses laboratory analysis tests. The following is a table of analysis test results for fried Ambon banana skin crackers.

Table 1. Analysis test results for fried Ambon banana skin crackers

No	Nutrients	Units	Results
1	Energy Total	Kcal/100 g	535.57
2	Energy From Fat	Kcal/100 g	293.13
3	Rate Ash	%	1.24
4	Rate Water	%	5.58
5	Carbohydrate (By Difference)	%	59.47
6	Rate Total fat	%	32.57
7	Rate Proteins	%	1.14
8	Vitamin C (Ascorbic Acid)	mg / 100 g	Note detected
9	Fiber Food	%	6.44
10	Potassium (K)	mg / 100 g	324.63
11	Sodium (Na)	mg / 100 g	140.54
12	Phosphor (P)	mg / 100 g	363.90
13	Iron (Fe)	mg / 100 g	1.57
14	Calcium (Ca)	mg / 100 g	74.06
15	Vitamin D3 (Cholecalciferol)	mcg / 100 g	3.12

The table above shows that in 100 grams of fried Ambon banana peel crackers there is a total energy of 535.57 kcal , the highest macronutrients are carbohydrates at 59.47 grams , then fat at 32.57 grams and the smallest is protein at 1.14 grams . For mineral nutrients, the highest content is

phosphorus at 363.90 mg , followed by potassium at 324.63 mg , sodium 140.54 mg , calcium 74.06 mg , iron 1.57 mg . Meanwhile, fiber is 6.44% and vitamin D is 3.12 mcg .

When compared with the RDA per day for male adults aged 19 - 29 years, 100 grams of Ambon banana peel crackers contain 0.324 grams of potassium , meaning that the resulting product is small. Crackers are consumed by the public as a snack or complement to heavy meals, which are generally made from tapioca flour mixture mixed with main raw materials such as shrimp or fish (Seliawati , et al). However, with the addition of mocaf flour, the food fiber content of the product in 100 grams of banana peel crackers is 6.44% (Dwiyanti et al ., 2019). Mocaf contains vitamin C, phytoestrogens , low sugar, safe for consumption by everyone, autistic and celiac disease and also physiological effects such as preventing colon cancer, having a hypoglycemic effect (Setiavani , G. 2013).

b. Nutrient content analysis test of Ambon banana peel crackers in the oven/baked

The nutritional content of Ambon banana peel crackers uses laboratory analysis tests. The following is a table of analysis test results for Ambon banana peel crackers in the oven/baked.

Table 2. Analysis test results for Ambon banana peel crackers in the oven/baked

No	Nutrients	Units	Results
1	Energy Total	Kcal/100 g	377.21
2	Energy From Fat	Kcal/100 g	11.61
3	Rate Ash	%	1.86
4	Rate Water	%	5.45
5	Carbohydrate (By Difference)	%	89.92
6	Rate Fat Total	%	1.29
7	Rate Proteins	%	1.48
8	Vitamin C (Sour Ascorbate)	mg / 100 g	0.46
9	Fiber Food	%	8.07
10	Potassium (K)	mg / 100 g	455.27
11	Sodium (Na)	mg / 100 g	180.04
12	Phosphorus (P)	mg / 100 g	528.39
13	Iron (Fe)	mg / 100 g	2.01
14	Calcium (Ca)	mg / 100 g	89.05
15	Vitamin D3 (Cholecalciferol)	mcg / 100 g	0.68

The table above shows that in 100 grams of Ambon banana skin crackers baked or in the oven there is a total energy of 377.21 kcal , the highest macronutrients are carbohydrates at 89.92 grams , then protein at 1.48 grams and fat at 1.29 grams . For mineral nutrients, the highest content is phosphorus at 528.39 mg , followed by potassium at 455.27 mg , sodium 180.04 mg , calcium 89.05mg, iron 2.01mg. Meanwhile, fiber is 8.07% and vitamin C is 0.46 mcg and vitamin D is 0.68 mcg .

When compared with the RDA per day for male adults aged 19 - 29 years, 100 grams of Ambon banana peel crackers contain 0.455 grams of potassium , meaning that the resulting product is small. In this research, with the addition of mocaf flour , the food fiber content of the product in 100 grams

of banana peel crackers was 6.44%. Mocaf contains vitamin C, phytoestrogens , low sugar, safe for consumption by everyone, autistic and celiac disease and also physiological effects such as preventing colon cancer, having a hypoglycemic effect (Setiavani , G. 2013).

4. CONCLUSION

a. The nutritional content analysis of fried Ambon banana peel products shows that in 100 grams of fried Ambon banana peel crackers there is a total energy of 535.57 kcal , the highest macronutrients are carbohydrates at 59.47 grams , then fat at 32.57 grams and the smallest. protein of 1.14 grams . For mineral nutrients, the highest content is phosphorus at 363.90 mg , followed by potassium at 324.63 mg , sodium 140.54 mg , calcium 74.06 mg , iron 1.57 mg . Meanwhile, fiber is 6.44% and vitamin D is 3.12 mcg .
b. The nutritional content analysis of baked Ambon banana peel products shows that in 100 grams of Ambon banana peel crackers baked or in the oven there is a total energy of 377.21 kcal , the highest macronutrients are carbohydrates at 89.92 grams , then protein at 1.48 grams and fat of 1.29 gr . For mineral nutrients, the highest content is phosphorus at 528.39 mg , followed by potassium at 455.27 mg , sodium 180.04 mg , calcium 89.05mg, iron 2.01mg. Meanwhile, fiber is 8.07% and vitamin C is 0.46 mcg and vitamin D is 0.68 mcg .
c. Determination of the selected formulation was based on organoleptic tests, it was found that the best formulation was F2 with an overall average value of 3.8, which means the panelists liked the banana peel cracker product. in formula F2.
d. The results of banana peel cracker products baked or in the oven, both in terms of taste and aroma, show that the addition of the same mocaf flour has a significant effect on the taste and aroma of the crackers, while in terms of color, the more banana peels, the denser the product produced.
e. From the results of the nutritional analysis test, the banana peel cracker product requires a food dryer in the drying process
f. When cutting steamed material, it is best to use a special cutting tool so that the thickness is even

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