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Processing of Gayam Fruit as Mochi Filling

Fajar Dharma Putra¹, Muhamamd Daffa Pratama², Wulanmeiaya Wowor³

Universitas Pelita Harapan, Indonesia <u>FD80198@student.uph.edu</u> <u>MP8017@student.uph.edu</u> <u>Wulan.wowor@uph.edu</u>

Abstract: Gayam is a tree-shaped plant that has uses as a food product, especially its fruit seeds. Gayam is on a branch of the Gayam tree. Usually Gayam is only processed by boiling and frying it. the goal is to process whether Gayam fruit can be processed into stuffing in Mochi. The type of research used is development research. Development research is a research method that produces finished products in the form of products and tests the effectiveness of these products. In this study, the researcher used a procedural research method. A procedure is an action or activity stage to complete a process. The research procedure starts with the preparation, implementation and final process in making Mochi Stuffing using Gayam fruit. The desired browning also gets a good thing because the natural color is given from the Gayam fruit itself. is close to perfect. So it can be said that the research on processing Gayam fruit as a mochi filling has been successful and is suitable for consumption.

Keyword : Gayam, Stuffing, Mochi

I. INTRODUCTION

With its fertile soil, Indonesia has abundant natural wealth even though there are still plants in Indonesia that can be consumed and have good benefits for the body. One of the good benefits for the body can be vitamins, carbohydrates, or protein. In addition, plants in Indonesia have the potential to be developed but not widely known by the public. One of these plants is Gayam, Gayam contains protein, carbohydrates and minerals. (Saputri, 2016).

Inocarpus fagifer. Or commonly called Gayam is one of the types of plants that come from the Malenesia Region, especially the eastern part of Indonesia. Gayam is a tree-shaped plant that has a medium height and height of about 7 meters to 30 meters. This Gayam plant has uses as a food source, especially the seeds of the fruit. Gayam fruit is produced from mature trees that bear fruit at the age of seven to eight years. Gayam fruit is on the branch of the gayam tree, each fruit branch has three to four gayam (Wawo et al., 2019)

Although it has a usefulness as food, the variety of processed foods from Gayam is still said to be very little. Usually Gayam is only processed by boiling and frying only (Hesthiati, 2019) and used as processed products such as Gayam chips (Sotyati, 2016). In addition, Gayam fruit is less glimpsed because it is not considered economically valuable because of the old and complicated way of cooking. Although including rare plants, the spread of Gayam trees is in Java, Sumatra, and Kalimantan (Sotyati, 2016).

In seeking information about public knowledge about Gayam fruit, researchers collected data with questionnaire methods. Questionnaire is a method of collecting data that is done by giving or asking a set of questions or written statements and then answered by respondents without coercion and then the researcher analyzes so that an information is obtained (Masnidar, 2017).

Researchers conducted a questionnaire survey distributed to students of Pelita Harapan University. Respondents who know the fruit of Gayam are not comparable to those who know gayam fruit. Based on the results of questionnaires that have been spread, data obtained from 250 respondents, 207 who know the fruit of Gayam and how to process it, as many as 43 do not know about the fruit Gayam. This proves that people's knowledge of Gayam fruit is still minimal, even though Gayam fruit is a fruit native to Indonesia that has nutritional value and can also be developed.

This gayam fruit can be used as a substitute for other types of food or alternative foods. Gayam fruit has a balance of nutrients such as minerals, fat by 2.15%, and protein by 11.63%, this content is good for health in the body such as mineral functions as a helper functional reactions in the body such as maintaining bone health and energy formation, fat that has a function as a source of energy and prolongs satiety, proteins that have the



function of antibody formation, energy sources and reserve energy if carbohydrates are insufficient. With the above explanation it can be concluded that Gayam can be used as an alternative food source (Wawo et al., 2019)

Researchers chose Gayam fruit because there is still a lack of variety of dishes from Gayam fruit even though Gayam has a good content, this is strengthened by the data from questionnaire surveys that researchers have done. The fruit is processed by boiling and frying. In Indonesia, Gayam fruit in the process is traditionally boiled. This boiled gayam fruit is dry and filling but difficult to digest. In certain areas Gayam fruit is sold in traditional markets with variations boiled and used as Gayam fruit chips (Hesthiati, 2019). With the lack of processed from Gayam fruit, researchers try to develop more processed from this Gayam fruit, one of which is by utilizing Gayam fruit into Mochi stuffing.

This Mochi filling was chosen by researchers because in general the mochi filling develops into dozens of flavors. There is mochi with flavors of Suji Pandan, Vanilla, Strawberries, Cheese contents, Nut contents, and also chocolate contents (Mulyana, 2018). According to the book Patiseri Volume I, stuffing is a term in patiseri intended for the middle filling of patiseri products. Stuffing is an additional ingredient in the form of sweet cream, jam and filled between layers (Faridah, 2008). One of the mochi stuffing is red beans, the red bean stuffing on mochi has a smoothed, somewhat sticky, creamy peanut-like texture. This texture is almost the same as gayam fruit that is mashed after the boiling process. The similarity of these two cream-like textures is one of the reasons researchers chose Gayam as a filling in Mochi.

Mochi has a unique taste compared to other snacks that have a chewy texture as well as sweet with sprinkled flour and become its own characteristic. The character of chewy mochi is soft, savory, sweet and has a variety of flavors. Having a round shape studded with flour and chewy when eaten, the ingredients are derived from glutinous rice flour, sugar, with peanut stuffing. The character of mochi has a sticky texture but can still be chewed this test is done by researchers with hedonic or organoleptic tests.

The selection of mochi was chosen by researchers because of the low value of Gayam fruit in the value of interest and selling, so the researcher chose mochi to be processed to increase the interest value and sell Gayam fruit. With the comparison data between mochi and onde onde in Indonesia, more people are finding out about mochi. Researchers used a comparison of web search mochi with onde-onde, onde-onde to be a comparison because it includes snacks that have stuffing and the outer skin is made of glutinous flour.

We reinforced again about the fondness of mochi through a questionnaire that we distributed to students of Pelita Harapan University and got results from 250 respondents, 214 liked mochi, this is the reason why researchers chose to make mochi as the skin of Gayam fruit filling

II. METHOD

The object of the study that the researchers chose was gayam, in Latin, Inocarpus Fagifer. Gayam is a plant that comes from the Malesiana region of eastern Indonesia. Gayam is a tree-shaped plant has uses as a food, especially the seeds of the buah gayam fruit is on the branch of the gayam tree. Usually Gayam is only processed by boiling and frying the fruit of Gayam is less eyed because it is not considered economically valuable because of the old and complicated way of cooking. From the existing problems, there are variations in the processing of gayam into Mochi Filling. Because the characteristics of gayam fruit seeds themselves are somewhat sticky and have a distinctive aroma and taste so that it can produce uniqueness from other Mochi fillings.

A. Research Methods

- a. In this study, researchers used methods of research procedures. A procedure is an action or stage of activity to complete a process. The research procedure begins with the preparation, implementation and final process in the manufacture of Mochi Filling that uses fresh Gayam fruit as its main ingredient. This research procedure will be explained more in-depth at the research stage.
- b. Place and Time of Research This research was conducted at home, Jl. Pondok Arum E2 No. 12a, Nambo Jaya, Karawaci, Tangerang. The trial was conducted for a week from Mid-November to the end of November 2021.
- c. Research Materials

The ingredients that researchers used in this study are braised and mashed Gayam fruit, granulated sugar, liquid cream and a strand of pandan leaves.

d. Research Equipment

The equipment used to make this Mochi filling includes microwaves, bowls, spatula, cutting boards, scales, measuring spoons, cake knives, mixers.



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e. Research Stages

In making a recipe for mochi stuffing made from Gayam fruit in order to create good results. Researchers have difficulty in finding basic recipes because there is no making mochi stuffing from the basic ingredients of Gayam fruit. The mochi filling recipe from the basic mochi recipe of peanut contents is converted into a gayam fruit filling recipe focusing on only the stuffing section only. Where the basic recipe is based on Wiati (Wiati, 2021)

Recipe According to Wawa Wiati				
	Recipe Reference	How to Make		
	Mochi Stuffing :	How to make mochi stuffing		
a.	150g Peanuts	a. Roast peanuts		
b.	75g granulated sugar	b. Remove the skin of the water, puree using a blender or		
с.	1-2 hot water	pounded roughly		
		c. Add the granulated sugar, mix well;		
		d. Put in hot water and stir until even until the dough can be		
		clenched;		
		e Divide into small circles and set aside		

 TABLE 1

 Recipe According to Wawa With

TABLE 2

Adjusment Recipe				
Basic Recipe Adjustment	Ingredient Trial			
Mochi stuffing:	Mochi stuffing materials:			
a. 100 g of Gayam fruit	 Replacing peanuts with gayam fruit; 			
b. 75 g granulated sugar	b. Replace hot water with 50g of liquid cream;			
c. 50 g of liquid cream	c. Add a salty taste, with 1 tsp salt;			
d. 1 strand of pandan leaves	d. Add a pleasant aroma, with 1 strand of pandan leaves;			
_				

The research stage of processing Gayam fruit as a mochi filling consists of parts, namely the preparation stage, the implementation stage, and the completion stage.

The first stage is where the preparatory stage consists of:

- 1. Prepare equipment used in the manufacture of mochi fillings such as smoothers, spatula, scales, pans, scissors, measuring spoons, measuring cups, bowls, plastic gloves, and brushes.
- 2. Make sure all equipment to be used is functioning properly and in a clean condition.
- 3. Preparing the ingredients used in the manufacture of mochi stuffing consists of clean peeled gayam fruit, liquid cream, granulated sugar, salt, pandan leaves.
- 4. Weigh and measure all the ingredients needed in the manufacture of mochi filling.

The second stage is the stage in the implementation consisting of:

- 1. Wash the gayam fruit that has been peeled from the outer skin, cleaned with a brush tool to clean the skin that is still attached to the seeds of Gayam fruit until clean.
- 2. Gayam fruit that has been cleaned boiled with water for 40-45 minutes until ripe and bad smells reduce.
- 3. Once cooked turn off the heat transfer into the chopper machine, grind until smooth and evenly distributed on the whole gayam fruit.
- 4. Prepare a liquid cream that has been measured with a measuring glass, weighed granulated sugar, salt to taste, large cut pandan leaves using scissors.
- 5. The mashed Gayam fruit then cook again and add the ingredients that have been prepared at point 4 on a low heat.



- 6. Cook and stir evenly with a spatula so that all the ingredients can be mixed properly.
- 7. Cook until rinsed then turn off the heat, remove and place into the prepared bowl.
- 8. Wait until the filling temperature becomes warm 25 30 degrees so that it can form like balls, to make it easier to insert the filling into the mochi skin later.
- 9. If the filling will be used the next day or there is a remnant then wait until room temperature, put it in a tightly sealed container and store it in the refrigerator.

The third stage is the stage in completion consisting of:

- 1. Gayam fruit filling that has been cooked and has been in a warm state can be formed into the size of mochi and can be served with the desired variety of shapes.
- 2. Next tested on trained panelists and then asked to fill out the form that has been given and provide input on the stuffing of mochi made from Gayam fruit.

III. RESULT AND DISCUSSION

A. Results

The first recipe was approved on November 9, 2021 by pastry lecturer Lice Sari. Testing of trained panelists was conducted in different places and cities in the cities of Bali and Tangerang due to time constraints. To equalize the sample to be tested to the panelists, an agreement is made using the same recipe and has been approved and when tested the sample is made 3 hours before being tested to the panelist.

The night was conducted bali-tangerang data collection given to the team to combine the value of each panelist and evaluation of recipes. Found the similarity of panelist input in the recipe and tested the next day with the recipe has been updated. The recipe that has been updated on November 12 was retested on November 13, 2021 in Bali with 10 trained panelists, on November 16, 2021 with 1 panelist and lastly on November 18, 2021 as many as 4 panelists. Because the schedule of the panelists encountered requires different periods of time so to keep all samples given to panelists good, ingredients and recipes are made 3 hours before meeting the panelists for trial.

The results of Gayam fruit utilized into mochi filling can be tested using hedonic quality methods and mean tests. Then produce some mochi stuffing experiments as follows.

a. First Trial

In the first trial, the test was conducted on November 11, 2021. The first trial and trial results consisting of the ingredients used are accompanied by the way of making using Wiati recipe reference, (2021).

- 1) First experiment stuffing material:
 - a) 100 g of Gayam fruit
 - b) 75 g granulated sugar
 - c) 50 ml of liquid cream
 - d) 1 tsp salt
 - e) 1 strand of pandan leaves
- 2) How to make the first trial stuffing:
 - a) Wash the gayam fruit that has been peeled from the outer skin, cleaned with a brush tool to clean the skin that is still attached to the gayam fruit until clean.
 - b) Gayam fruit that has been cleaned boiled with water for 40-45 minutes until ripe and bad smells reduce.
 - c) Once cooked turn off the heat transfer into the chopper machine, grind until smooth and evenly distributed on the entire seeds of gayam fruit.
 - d) Prepare a liquid cream that has been measured with a measuring glass, weighed granulated sugar, salt to taste, large cut pandan leaves using scissors.
 - e) The mashed Gayam fruit then cook again and add the ingredients that have been prepared on point-4 on a low heat.
 - f) Cook and stir evenly with a spatula so that all the ingredients can be mixed properly.
 - g) Cook until rinsed then turn off the heat, remove and place into the prepared bowl.
 - h) Wait until the filling temperature becomes warm 25 30 degrees so that it can form like balls, to make it easier to insert the filling into the mochi skin later.



i) If the filling will be used the next day or there is a remnant, it would be better if the filling remains placed at room temperature before being put in a tightly sealed container and stored in the refrigerator.

First Test Panelist Assesment				
Respondents	Taste	Color	Texture	Aroma
1	2	2	3	3
2	2	3	4	3
3	4	2	3	4
4	3	3	3	4
5	4	4	4	2
6	3	4	3	3
7	4	3	3	3
8	4	3	4	4
9	4	4	2	4
10	4	4	3	4
11	3	4	3	4
12	3	4	3	3
13	2	4	3	4
14	3	4	4	3
15	3	4	4	3
Median	2,5	2,5	2,5	2,5
Mean	3,20	3,46	3,26	3,40
Results	less	excellent	good	excellent
panelist comment summary				
1 Lack of neutrality of sweetness				
2 Less creamy				
3	3 for filling less aroma gayam			
4	less smooth	in the filling text	ıre	
5	Too Strong	a scent		

TABLE 3

The average score found from each indicator of the first experiment in terms of taste is 3.20 with sufficient criteria, in terms of color is 3.46 with excellent criteria, in terms of texture is 3.26 with good criteria, and in terms of aroma is 3.40 with very good criteria. The median in this study is the number of each assessment indicator divided by the number of indicators and obtained a value of 2.5 this value is a limit of criteria enough if it is above the value of 2.5 then the result can be said to be good or very good and if below the value of 2.5 then the result is said to be less. From the average results that researchers have been able to all indicators have exceeded the middle or median value found from the measurement scale used, namely 4 skot assessments. Numbers 4 to strongly agree, 3 to agree, 2 to disagree, and 1 to disagree.

The results of this first trial get an open answer from trained panelists through a filled form in which the mochi stuffing of the gayam fruit has not been satisfied from the trained panelists. Stating from a taste that is less sweet, less smooth to the texture of the filling, the smooth texture suggested by panelists is to have a softness that resembles the texture of green bean mochi filling where the softness is obtained from mashing or using a smoothing tool and added more cream than the initial recipe so that the soft taste arises more.

The aroma of Gayam fruit is also still too embossed and still dominates in mocha stuffing. Panelists expressed concern that if the aroma of Gayam fruit is more dominant it will make fewer people interested, so the panelists suggest adding cream in the cooking process that is expected to neutralize the aroma better so that the study decided to conduct a second experiment to improve from the panelist's suggestion to achieve the desired results.

The thing that will be improved on the second trial recipe is to add 10g sugar to cause a sweetness that is more pronounced and add salt to make a balanced taste. In terms of texture will be done the addition of 10 minutes in the boiling of Gayam fruit which is expected to be a little easier when smoothed with a chopper machine.

Do not forget to add cream to the mochi filling dough that is expected aroma of Gayam fruit is more reduced and acceptable with the aroma of most people, the cream is added as much as 10 ml from the first try to get a smoother texture. Pandan leaves are used only 1 strand and not added, because they want to keep the distinctive aroma of the Gayam fruit itself and still acceptable and smelly.

TABLE 4 Second Adjustment Recipe

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Trial recipes 2			Recipe adjustment		
	Ingredients for mochi stuffing		Adjustments for mochi stuffing:		
a.	100 g of Gayam fruit	a.	add 10g of sugar		
b.	85 g of granulated sugar	b.	add 20 ml of liquid cream		
с.	70 ml of liquid cream	с.	salt is added during the culing until it reaches taste		
d.	salt on taste				
e.	1 strand of pandan leaves				

b. Second Trial

In the second trial, the trial was conducted on November 13, 2021. The second trial consists of the materials used as well as by means of manufacture that can be seen in the previous table and display the results of the second experiment.

- 1) Materials and how to make the second trial mochi stuffing
 - a) a. 100 g of Gayam fruit
 - b) b. 85 g of granulated sugar
 - c) c. 70 ml of liquid cream
 - d) d. salt on taste
 - e) e. 1 strand of pandan leaves
- 2) How to make experimental stuffing
 - a) Wash the fruit gayam fruit that has been peeled from the outer skin, cleaned with a brush tool to clean the skin that is still attached to the seeds of the fruit gayam until clean.
 - b) 2. Gayam fruit that has been cleaned boiled with water for 55 minutes until ripe and bad smells reduce.
 - c) 3. Once cooked turn off the heat transfer into the chopper machine, grind until smooth and evenly distributed on the whole gayam fruit.
 - d) 4. Prepare a liquid cream that has been measured with a measuring glass, weighed granulated sugar, salt to taste, large cut pandan leaves using scissors.
 - e) 5. The mashed Gayam fruit is re-cooked and add the ingredients that have been prepared on point-4 on a low heat.
 - f) 6. Cook and stir evenly with a spatula so that all the ingredients can be mixed properly.
 - g) 7. Cook until rinsed then turn off the heat, remove and place into the prepared bowl.
 - h) 8. Wait until the filling temperature becomes warm 25-30 degrees so that it can form like balls, to make it easier to insert the filling into the mochi skin later.
 - i) 9. If the filling will be used the next day or there is a remnant, it would be better if the filling remains placed at room temperature before being put in a tightly sealed container and stored in the refrigerator.

Second Test Panelists Assessment				
Respondents	Taste	Color	Texture	Aroma
1	2	2	3	3
2	2	3	4	3
3	4	2	3	4
4	3	3	3	4
5	4	4	4	2
6	3	4	3	3
7	4	3	3	3
8	4	3	4	4
9	4	4	2	4
10	4	4	3	4
11	3	4	3	4
12	3	4	3	3
13	2	4	3	4
14	3	4	4	3
15	3	4	4	3
Median	2,5	2,5	2,5	2,5
Mean	3,20	3,46	3,26	3,40
Results	less	excellent	good	excellent
panelist comment summary				
1 Lack of neutrality of sweetness				

TABLE 5

From the results of the second experiment there was a significant change in value, the value obtained based on panelists can be concluded as follows in terms of taste of 3.87 with excellent criteria, in terms of color 3.87



with excellent criteria, in terms of texture 3.93 with very good criteria, and in terms of aroma of 3.73 with very good criteria. By following the advice and input from panelists with recipe modifications, a near-perfect value can be obtained, namely 4.

In the second experiment got an answer from trained panelists that in terms of taste that has a sweet taste that is balanced with the addition of salt elements from salt added to the filling, the sweet produced from the fruit of Gayam itself is not too strong and in terms of color given quite naturally and the absence of other color additions in the filling is considered quite good, Because the natural color obtained is good enough for a mochi filling.

In terms of texture during the first experiment is still lacking creamy taste then in this second experiment where the cream is added to achieve creamy taste is considered fitting and suitable with the sweet taste and also the addition of granulated sugar that has been fused in the cooking process followed also in terms of aroma which when the first try is still too pungent, after the addition of cooking process time until well ooced and also the addition of liquid cream, The resulting scent is much more acceptable to panelists. So this study decided to complete the experiment to the second trial because of the results are almost quite perfect and successful and the answers from trained panelists also gave a good response to this second test that the indicators desired in the study are appropriate and worthy to be disseminated and consumed.

B. Discussion

From the results of experiments that have been conducted twice obtained the results of assessments from panelists in table 5.

	га	nensis Assesment Results	One and 1 wo		
Test	Indikator				
	taste	color	Texstur	Aroma	
1	3,20	3,46	3,26	3,40	
Median	2,5	2,5	2,5	2,5	
Results	lees	excellent	good	excellent	
Test		Inc	Indikator		
	taste	color	Texstur	Aroma	
2	3,87	3,87	3,93	3,73	
Median	2,5	2,5	2,5	2,5	
Results	excellent	excellent	excellent	excellent	

Da

TAE	BLE 6
nelists Assesment	Results One and T

A. First Trial

In the first experiment showed an average value where all indicators have passed the middle value of 2.5 in terms of taste get a value of 3.20, for indicators in terms of color 3.46, for indicators in terms of texture i.e. get 3.27 while for aroma indicators have a value of 3.40.

In the first experiment where the value of all the results can already be considered good, but this experiment received input from panelists about the product being assessed. Here are some of the inputs found on the first try as well as things that were added and improved:

- a. 1. Lack of sweet neutrality
- b. 2. Less creamy
- c. 3. For filling less aroma gayamnya
- d. 4. Less smooth on filling texture
- e. 5. Too strong aroma

From the input obtained on the first experiment, several improvements were made to perform the second experiment as follows

- a. To complete the input on point one, add the salty flavor obtained from the salt to help harmonize the sweetness contained in the mochi filling.
- b. To finish on point two by adding 20 ml of liquid cream that is included in the cooking process, to produce a creamier taste.
- c. At point three and point five look for an alternative that is not to add pandan leaves that can disguise the aroma of the gayam, but add cream and cooking time process plus so that the aroma of Gayam fruit is reduced but does not eliminate entirely.



d. For a less smooth texture this process adds boiling and cooking time until well undied, where this process succeeds to make the texture softer and the aroma is reduced but does not eliminate the whole of the Gayam fruit itself.

B. Second Trial

In the second experiment and has followed the advice and advice given by the panelists. The resulting value increases significantly for all indicators. Starting in terms of taste getting a value of 3.87 in terms of color also increased to 3.87 and in terms of texture got a value of 3.93, and the last namely the aroma got a value of 3.73.

In this second study it was in accordance with what was expected in getting near-perfect results and got an open answer from trained panelists, namely in terms of balanced taste, sweetness and having a balance of flavors, the desired color of browning also got good because the natural color given from the Gayam fruit itself, in terms of texture in the first experiment is still considered still a little rough then in the second experiment it is getting better and getting better and getting better. texture expected by the panelists.

The last point is on the aroma, the panelists also like and do not like the aroma of Gayam fruit. In this assessment, the panelists agreed with the aroma of Gayam fruit is expected to still exist but not excessive. This study decided to complete the experiment all the way to the second trial, because based on the data found to be almost perfect and can be concluded very well, in the answer given by trained panelists there is no longer a change in the recipe for mochi stuffing products from Gayam fruit is considered sufficient with the expected indicator value.

VI. CONCLUSIONS

From the results of experiments that have been conducted in this study obtained the desired data and can be concluded as follows:

- a. Based on the recipe of the trial in the last experiment, the desired results have been obtained from the response of trained panelists, who get a positive response and are seen on an interval scale that is close to the perfect value. In the last experiment recipe in terms of texture added 10 minutes in the cooking process to make it softer and easier to smooth. The addition of cream to the mochi filling dough makes the aroma of Gayam fruit more reduced, then pandan leaves are not added so that they can still smell the original aroma of the Gayam fruit itself. So it can be said that the research of processing Gayam fruit as a mochi filling has been successful and suitable for consumption.
- b. Gayam fruit has a genuine aroma and so strong can be used as a delicious and soft snack. Prove that Gayam fruit can be an alternative to other foods. It's not just stews and chips.
- Suggestion :

For those who will use Gayam fruit as an ingredient for product development research, it would be good if you consider the following:

- a. The aroma of gayam fruit is so strong and difficult to neutralize it. When you want to be used as a development material, it is appropriate to do boiling with a long time first so that the aroma and can also help the fruit seeds.
- b. The natural color produced from gayam fruit has a brownish color where the color is natural without the addition of dyes. It is highly recommended to eat sweet foods.
- c. The storage period of the newly picked Gayam fruit at room temperature has 5-6 days before decaying, so it is recommended to process the material directly until half finished so that it can be stored in the refrigerator for additional time while in the experimental process. And it is advisable to test on panelists using gayam fruit that is still fresh and good so that the results of food found to have good quality and maximum.

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