

Product Innovation in Using Mangosteen Skin in the Making of Batik Steamer

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ABSTRACT

The purpose of this research is motivated by the development of mangosteen skin research. Many beneficial ingredients contained in mangosteen peel, such as xanthone which is anti-cancer and anti-oxidant and very beneficial for one's health. The use of mangosteen peel in making steamed batik sponges is as a coloring agent while it is expected to provide benefits when consuming steamed batik sponges. The selection of steamed sponge batik is an appointment of local culture and introduces to tourists. The research method used was an experimental method of adding mangosteen peel to a randomly designed steamed sponge mixture. To test prescription formulations and product quality using organoleptic tests, hedonic tests and consumer acceptance tests. The number of samples used in this study were 15 expert panelists consisting of chefs, academics and practitioners, in addition to general panelists or as many as 100 respondents who were randomly selected. In this study there were three prescription formulations for sample code, namely BKBKM 1 recipe formulation (6% mangosteen skin addition), BKBKM 2 recipe formulation (8% mangosteen skin addition) and BKBKM 3 recipe form (10% mangosteen skin addition). Three recipe formulations were tested on 15 expert panelists who would then produce the most preferred recipe formulations. The recipe from BKBKM 3 is the most preferred recipe formulation. Next, the BKBKM 3 recipe formulation is tested again to respondents or consumers to find out the acceptance test for innovative products. After that, the product is stored at room temperature and in the refrigerator to find out how long the product is safe for consumption.

Keywords: Innovation Product; Batik; Steamed Sponge; Mangosteen Peel.

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1. Introduction

Tourism is closely related to culinary tourism. Each region in Indonesia has a variety of unique culinary attractions that attract tourists. Developing product innovations undertaken by businesses, such as manufacturing engineering, developing materials, shapes, and dyes that are used to make them more attractive. Healthy food is food that contains nutrients and is not harmful to health, therefore the ingredients used must be safe, including coloring. One source of natural ingredients that can be used as natural dyes is mangosteen peel. Tourism is defined as a process that produces outputs that are built from enhancing relationships and interactions between tourists, tourism suppliers, 'host' governments, local communities and the surrounding environment that play a role in attracting and inviting tourists to come. (Goeldner, 2003: 6). The tourism industry is known as the Hospitality Industry which consists of various businesses that provide services, especially accommodation, food and drinks not only for those who are traveling for pleasure, but also for travelers who have various interests and other things outside their recreational activities.

The culinary industry is included in this industry. (Turgarini and Ningsih, 2014). Creative industries currently receive special attention, because they are considered capable in contributing to national and regional income and capable of absorbing labor. There are at least 14 sub-sectors of the creative industries namely fashion, art markets and antiques; interactive game; film, video and photography; craft; music; the design; advertising; television and radio; performing Arts; research and development; computer services and software; publishing and printing, and architecture. In the future it is planned that the culinary sub-sector will enter the creative industry sub-sector. (Ningsih, Program, Management & Catering, 2008)

In the 4th century BC, Archestratus, saw gastronomy as a "pleasure to pursue

delicacy" of food. He also wrote "Gastronomia" or literally interpreted as "rules for peru" which contains a food guide (Santich, 1996) in Dewi Turgarini (2018). Gastronomy, according to KBBI, is mentioned as the art of preparing delicious dishes, or culinary. But in essence gastronomy has a very broad meaning.

Mangosteen is a fruit that is developing research. Many benefits are contained in fruit, tree trunks, and even mangosteen peel. The results showed "Mangosteen peel is reported to contain rich xanton group compounds. From isolation experiments guided by activity tests, it was found that the most active compounds were alpha-mangostin, gamma-mangostin and garsinon-E. Further studies showed that mangosteen peel extract and its active compounds have pharmacological activities namely anti-allergic, anti-inflammatory, anti-oxidant, anti-cancer, anti-microorganism, anti-atherosclerotic, and even anti-HIV. In the toxicity test, ethanol extract from mangosteen fruit containing active compounds xanton showed no acute or sub-chronic toxicity" (Nugroho, 2007).

Bolu is a sweet food (sweet stuff) made from the main ingredients: flour, sugar, eggs and margarine. The history of cakes is very long and cannot be separated from the history of bread, which originated in ancient Egypt. Etymologically based on the Oxford Dictionary, the word bolu or Kue (in English) comes from the word "Kaka" which comes from the ancient Norse language (ie the language used by immigrants from northern Germany) in the Scandinavian region during the 13th century viking era . Generally these sponges are baked in the oven or some are steamed like steamed sponges or steamed brownies. Steamed sponge is a food or sponge that is included in traditional Indonesian cakes.

The era of globalization is now doing a lot of movement to maintain Indonesian culture, by elevating culture and introducing foreign tourists. Batik is one of Indonesia's

culture that is known for its distinctive. With this, researchers want to make product innovations using mangosteen peel in making steamed batik sponge.

2. Literature Review

2.1. Product Innovation

According to (Mirnasari, 2013, p. 77) innovation comes from the word to innovate that means making a change or a new introduction. We are among various kinds of innovations starting with innovation in knowledge, technology, ICT, economics, education, social, etc. According to (Hartini, 2012, p. 82) innovation is a way to start or introduce something new. The main focus of innovation is the creation of a new idea, which in turn will be implemented into a new product or new process. As for the main goal of the innovation process is to provide and channel customer a better value. Many experts claim that an innovation is a guarantee of a company or organization in increasing competitiveness.

2.1.1. Method of Making Steamed Batik Bolu

In making batik steamed rolls, the method used is fairly easy. The cooking method used is steamed is on Table 1.

2.1.2. Proposed Mangosteen as an Additional Material

Mangosteen is a typical tropical fruit of the Sunda Islands and Maluku. The scientific name of this plant is *Garcinia mangostana*. Mangosteen is widely cultivated in Indonesia, Malaysia, Thailand and the Philippines. Mangosteen fruit is round like a tomato. It has thick skin with a shiny hard surface while the inside is soft. Mangosteen has a blackish purple skin color. The flesh of the fruit is arranged in the form of blades such as oranges, the color is milky white. The sweet taste of mangosteen fruit is refreshingly sour. Besides being eaten by the fruit, its skin can also be used. Mangosteen rind is used as a basic ingredient of food supplements and herbs. Mangosteen skin tastes bitter and cannot be eaten immediately. But it contains antioxidants and other nutrients that are beneficial to health.

Table 1. Standard Recipes for Steamed Batik Bolu

No	Methods & Procedures	Quantity	Ingredients	Information
1	Preparation	5 pcs	Egg	<i>Mise en place</i>
		3 pcs	Egg yolk	
		200 gr	Sugar	
		200 gr	Wheat	
		75 gr	Milk powder	
		5 gr	<i>Emulsifier</i>	
		200 ml	Oil	
2	Shake	5 pcs	Egg	Beat until fluffy
		3 pcs	Egg yolk	
		200 gr	Sugar	
		5 gr	<i>Emulsifier</i>	
3	Add it	200 gr	Wheat	Mix well
		27 gr	Milk powder	
4	Feedback	200 ml	Oil	Mix well
5	Divide the dough			Take a little mixture to mix with mangosteen peel powder
6	Draw			Colored dough is used to draw batik patterns, then filled with white dough
7	Steaming			Steam the dough for 15 minutes

No	Methods & Procedures	Quantity	Ingredients	Information
8	<i>Finishing</i>			The ripe cake is given jam and stacked

Results of the author

3. Materials and Methods

The research method or the scientific method is a procedure or steps in the process of gaining data by having specific goals and uses (Sugiyono, 2011, p. 2). The research method used in the preparation of this research is experimental which is included in the quantitative research method. Experimental research method or testing is a study to find out whether the experimental variables are effective or not. In this test the control variable must be used. The experimental research method is used as an implementation phase which has the objective to model the training on integrated business patterns. Apart from that, in this research process, the researchers used organoleptic tests aimed at expert panelists on the innovation of batik steamed sponge cakes. After being tested by expert panelists, a test of shelf life and consumer acceptance is carried out by providing samples and questionnaires to the consumer panelists who become the reference of analysis.

Before doing the research, the authors do the pre-research in order to get the right formulation. The formulation chosen by the author in terms of mangosteen peel doses to match what is expected. The author decided to use the mangosteen peel powder flour results. After that the authors continue the pre-study by determining the amount of dose to be used so that the resulting color produced by the mangosteen peel attract and the texture on the steamed sponge is the same in general. The conclusion drawn by the authors for organoleptic and hedonic tests is the amount of mangosteen peel as much as 10 gr, 8 gr, and 6 gr.

In this research, the object was batik steamed sponge products. Besides that, the subject of the research was consumers of steamed batik sponge cakes. In this study, the author took 15 expert panelists who were Chef Cuisine, teachers and lecturers in

culinary, and entrepreneurs in the culinary field, who would later taste the steamed batik sponge by presenting different recipe formulas. The difference in recipe formulation itself aims to find out which end result is most preferred by expert panelists. The final result will later be presented to consumer panelists totaling 100 people to determine consumer acceptance.

Table 2. Expert panelists and consumption panelists

Panelist	Amount
Expert Panelist	
Hotel Chef	5
Academics in the field of catering	3
Food businessman	5
Hotelier	2
Number of Expert Panelists	15
Consumer Panel	
Student / Student	50
Citizens	50
Total Consumer Panel	100

The conclusion is that the object or subject is specified in this study.

In this study, researchers will use a population that has been determined. The population to be tested for their preference on batik steamed rolled sponge products is 15 experts in the pastry field. Consumer panels to be taken are as many as 100 respondents.

3.1. Data Collection Techniques and Tools

3.1.1. Interview

With this technique the researcher will interact directly with the respondent.

3.1.2. Questionnaire

To find out whether the product is liked or not, the researcher will distribute the questionnaire to respondents.

3.1.3. Documentation

Documentation is useful as evidence when conducting this research.

3.1.4. Literature

This technique is used to collect data sources needed to carry out research such as journals and previous research.

3.1.5. Experimental

To get the product to be studied, researchers conducted experiments on the product.

3.2. Data analysis technique

The data that researchers collect will then be processed using Microsoft Office and Excel.

3.2.1. Organoleptic Testing

According to Sofiah & Achyar, organoleptic testing has various methods for testing and is classified into several groups. The most popular method of testing is the group of differentiation testers (defferece tests) and the group of voter testers (preference tests). Besides these two groups, scalar testing and description are also known. If the two examiners who first used it in research, process analysis and the final assessment, the latter two groups of testers is widely used for quality control (quality control) (Sofiah & Achyar, 2008) .

Based on the above quote it can be concluded that organoleptic testing can be done in various ways but there are two of the most popular ways namely differentiation testers and voter testers. However, there are also scalar and description testing methods.

Sensory/organoleptic traits are properties that can be assessed using the five senses (Afrianti, 2008), such as:

- a. Appearance (shape, size, color)
- b. Flavor (sweet, sour, Salty, mani, bitter)
- c. Flavor (smell and taste)
- d. Texture (hard, tough, chewy, soft, crispy)

3.2.2. Hedonic Test

The hedonic test is also called as the preference test. This test is done during the development of the product to compare with other products. This preference test asks expert panelists' opinion to choose a product among other products and dive their

responds to it whether they like it or not. In addition to panelists stating likes it or not, they also stated their level of preference and that level was called the hedonic scale (Setyanigsih, Apriyantono, & Sari, 2010).

In this testing phase, researchers gave questionnaire forms and also gave products that researchers made to 15 expert panelists, with several assessments namely color, taste, aroma, texture, and appearance with a value scale of 5 ranging from very like to dislike.

4. Results and Discussion

The results of the research conducted by the author are including the prescription formulations, production processes, product shelf life, product nutritional value and product packaging. Test the recipe of steamed batik sponge with the addition of mangosteen peel and consumer acceptance test to 15 expert panelists consisting of chefs, academics, and culinary entrepreneurs. The treatment of steamed batik sponge with the addition of mangosteen peel has the following formulation:

a. Steamed Batik Mangosteen Leather Steamer (BKBKM 1)

The addition of mangosteen peel powder in the first formulation was as much as 6% in one recipe of steamed sponge dough .

b. Steamed Batik Mangosteen Leather Steamer (BKBKM 2)

The addition of mangosteen peel powder in the first formulation is as much as 8% in one recipe of steamed sponge dough .

c. Steamed Batik Mangosteen Leather Steamer (BKBKM 3)

The addition of mangosteen peel powder in the first formulation is as much as 10% in one recipe of steamed sponge dough .

Organoleptic test results from 15 expert panelists were BKBKM 3 prescription formulations (addition of mangosteen peels by 10%) with a total score

of 27.6 compared to BKBKM 2 formulations (adding 8% mangosteen peels) with a score of 27.08 and BKBKM 1 formulations (adding skin mangosteen as much as 6%) with a score of 26.06 which then the formulation of this recipe was tested for consumer acceptance by 100 panelists.

The results of data from consumer acceptance tests on the aspects of taste, texture, aroma, appearance, and packaging have a total value of 2,205 which is in the interval 2101-2500 where this interval class falls into the category of very like, then it can be concluded that respondents really like steamed sponge products mangosteen skin batik .

The product endurance test results at room temperature can last for 3 days and the refrigerator can last for 7 days with a selling price of Rp 30,000.

4.1. Test characteristics Organoleptik

Organoleptic testing in the research of mangosteen skin batik steamed roll products includes the characteristics of taste, aroma, texture, color, appearance, formulation and packaging.

4.1.1. Taste Characteristics

The taste characteristic is an aspect that is assessed by the taste buds from the experience felt by the panelists when tasting mangosteen skin batik steamed sponge products which will produce an assessment according to their experience. The average rating for the flavor characteristics of the mangosteen leather batik steamed sponge products can be seen in the table below.

Table 3. Average Assessment Characteristics of BKBKM Flavors

Formulation	Treatment	Average Assessment
BKBKM 1	Mangosteen skin addition of 6%	2.73
BKBKM 2	Mangosteen skin addition of 8%	3.07
BKBKM 3	Mangosteen skin addition of 10%	3,4

Table 3 above shows that the results of the experience of 15 panelists regarding the flavor characteristics of steamed batik sponge with the addition of mangosteen peel, from the data above is the most superior taste in BKBKM formulation 3 with an average gain of 3.4. Panelists preferred the taste of the BKBKM 3 formulation because it had a better taste compared to the BKBKM 1 formulation which according to panelists the taste of mangosteen skin was not felt, whereas the BKBKM 2 formulation did have a better mangosteen skin taste, it's just that the panelists were more concerned about the BKBKM 2 formulation.

4.1.2. Aroma Characteristics

The aroma characteristic is an aspect which is assessed by the sense of smell. From the experience of smelling the aroma of steamed batik sponge products with the addition of mangosteen peel that will produce an assessment based on his experience. An average assessment of the aroma characteristics of steamed batik sponge with the addition of mangosteen peel can be seen in the table below.

Table 4. Average Scoring Characteristics of BKBKM Scents

Formulation	Treatment	Average Assessment
BKBKM 1	Mangosteen skin addition by 6%	3.80
BKBKM 2	Mangosteen skin addition of 8%	3.87
BKBKM 3	The addition of trowels mangosteen as much as 10%	3,93

Table 4 above shows that the results of the experience of 15 panelists regarding the aroma characteristics of steamed batik sponge with the addition of mangosteen peel, from the data above is the most superior aroma in the BKBKM formulation 3 with an average gain of 3, 93. The panelists liked the aroma of the BKBKM 3 formulation because in this formulation the resulting aroma was very smelly compared to the formulation of BKBKM 1 and BKBKM 2.

4.1.3. Texture Characteristics

Textural characteristics are aspects that are assessed by the sense of taste and touch. From the experience of feeling the texture of the steamed batik sponge product with the addition of mangosteen peel that will produce an assessment based on his experience. Average assessment of the characteristics of batik steamed sponge texture by adding mangosteen peel can be seen in the table below.

Table 5. Average Rating of Texture Characteristics of BKBKM

Formulation	Treatment	Average Assessment
BKBKM 1	Mangosteen skin addition of 6%	3, 8
BKBKM 2	Mangosteen skin addition of 8%	3, 8
BKBKM 3	Mangosteen skin addition of 10%	3,73

Table 5 above shows that the results of the experience of 15 panelists regarding the texture characteristics of steamed batik sponge with the addition of mangosteen peel, from the above data formulation BKBKM 1 and BKBKM 2 are superior by obtaining an average rating of the same amount of 3, 8. The panelists liked the texture of the BKBKM 1 and BKBKM 2 formulations because they thought the texture was soft like steamed sponge in general. While the texture of the panelist BKBKM 3 formulation is less like because the resulting texture is less wet because of the higher concentration compared to the other two formulations.

4.1.4. Color Characteristics

Color characteristics are aspects that are assessed by the sense of sight. From the results of the experience of color vision of steamed batik sponge products with the addition of mangosteen peel that will produce an assessment based on his experience. Evaluation of the average color characteristics of steamed batik sponge with the addition of mangosteen peel can be seen in the table below.

Table 6. Average Color Characteristic Rating BKBKM

Formulation	Treatment	Average Assessment
BKBKM 1	Mangosteen skin addition of 6%	3, 73
BKBKM 2	Mangosteen skin addition of 8%	4.0 7
BKBKM 3	Mangosteen skin addition of 10%	4.07

Table 6 above shows that the results of the experience of 15 panelists regarding the color characteristics of steamed batik sponge with the addition of mangosteen peel, from the data above are the most superior colors in the formulation of BKBKM 2 and BKBKM 3 with an average acquisition of 4.0 7. Panelists assessed that the colors produced from the BKBKM 2 and BKBKM 3 formulations were good compared to the BKBKM 1 formulation, which was slightly paler in color.

4.1.5. Display Characteristics

Characteristics of appearance or appearance is an aspect that is assessed by the sense of sight. From the results of the experience of the appearance of steamed batik sponge products with the addition of mangosteen peel that will produce an assessment based on his experience. An average assessment of the appearance characteristics of steamed batik sponge with the addition of mangosteen peel can be seen in the table below.

Table 7. Average Rating Characteristics of BKBKM Views

Formulation	Treatment	Average Assessment
BKBKM 1	Mangosteen skin addition of 6%	4
BKBKM 2	Mangosteen skin addition of 8%	4, 2
BKBKM 3	Mangosteen skin addition of 10%	4 , 27

Table 7 above shows that the results of the experience of 15 panelists regarding the appearance characteristics of steamed batik sponge with the addition of mangosteen peel, from the data above is the most superior

display on BKBKM formulation 3 with an average gain of 4, 27 . The panelists liked the appearance of the BKBKM 3 formulation, according to them the resulting appearance was more attractive.

4.1.6.Characteristics of Recipe Formulations

The characteristics of the recipe formulation are aspects that are assessed by the sense of sight, smell, touch and taste, because of the suitability of the recipe formulation of a product the end result of the product will produce taste, aroma, texture and appearance that are appropriate and good. From the experience of the panelists' sensory experience on steamed batik sponge products with the addition of mangosteen peel that will produce an assessment based on their experience. An average assessment of the characteristics of batik steamed sponge cake with the addition of mangosteen peel can be seen in the table below.

Table 8. Average Assessment Characteristics of BKBKM Recipe Formulations

Formulation	Treatment	Average Assessment
BKBKM 1	Mangosteen skin addition of 6%	3, 93
BKBKM 2	Mangosteen skin addition of 8%	4
BKBKM 3	Mangosteen skin addition of 10%	4.13

Table 8 above shows that the results of the experience of 15 panelists regarding the display characteristics of steamed batik sponge with the addition of mangosteen peel, from the data above is the most superior display on BKBKM formulation 3 with an average acquisition of 4.13. The panelists considered the appropriate recipe formulation, BKBKM 3 formulation, because it produced the right aroma, taste, texture and appearance. While BKBKM 1 formulations are like regular steamed cake

and BKBKM 2 formulations are just as appropriate as BKBKM 3 except that panelists prefer BKBKM 3.

4.1.7.Packaging Characteristics

The characteristics of the packaging are aspects assessed by the sense of sight and touch. From the experience of seeing the packaging of steamed batik sponge products with the addition of mangosteen peel that will produce an assessment based on his experience. An average assessment of the characteristics of steamed batik sponge packaging with the addition of mangosteen peel can be seen in the table below.

Table 9. Average Rating of MRCUC Packaging Characteristics

Assessment	Total
Very interesting	4 people
Interesting	8 people
Quite interesting	3 people
Not attractive	
Very unattractive	
Amount	15 people

Table 9 above shows that the results of the experience of 15 panelists regarding the packaging characteristics of steamed batik sponge with the addition of mangosteen peel, from the data above that eight (8) people from fifteen (15) panelists gave an interesting assessment of the packaging of steamed batik sponge mangosteen skin.

The results of the different treatments of the three batik steamed sponge formulations with the addition of mangosteen peel are attached in the table below.

Table 10. Expert Panelist Test Results on Batik Steamed Bolu with the addition of Mangosteen Skin

Formulation	Evaluation Aspect of BKBKM							Total
	Rasa	Aroma	Texture	Color	Appearance	Recipe Formulation	The packaging	
BKBKM 1	2.73	3.8	3, 8	3, 73	4	3, 93	4, 07	26.06
BKBKM 2	3.07	3.87	3, 8	4, 07	4, 2	4	4, 07	27.08
BKBKM 3	3, 4	3, 93	3, 73	4.07	4.27	4.13	4, 07	27.6

Table 10 above shows the total average acquisition values for the three formulations of mangosteen skin steamed batik sponge recipe consisting of characteristics of flavor, aroma, texture, color, appearance, recipe formulation and packaging. Based on the above data that the most superior prescription formulation BKBKM 3 with the acquisition of an average value of 27, 6. After getting a sample of superior products from the results of expert panelists' test, then the next writer tests the general panelists or consumers. This stage requires 100 consumers or respondents who are willing to be a sample that will become research material. Products that will be tested on consumers only sample BKBKM 3 products and provide questionnaires.

4.2. Consumer Acceptance Test

Consumer acceptance test is done by providing a sample of the product along with a questionnaire of preference assessment of the steamed batik sponge product with the addition of mangosteen peel.

In this study, consumer identity or also referred to as respondents includes gender, age, occupation, last education and never or did not consume mangosteen before.

4.2.1. Respondents by Gender

The frequency and percentage of respondents by sex in this study can be seen in the table below.

Table 11. Respondents by Gender

No.	Gender	Frequency	Percentage (%)
1	Male	43	43
2	Girl	57	57
	amount	100	100

Table 11 shows that in this study the dominant female respondents were 57 people with a percentage of 57 %.

4.2.2. Age Based Respondents

Frequency and percentage of respondents based on age range in this study can be seen in the table below.

Table 12. Respondents by Age

No.	Age	Frequency	Percentage (%)
1	15-20 years	38	38
2	21-25 years	30	30
3	26-30 years	3	3
4	31-35 years	4	4
5	36-40 years	1	1
6	41-45 years	3	3
7	46-50 years	8	8
8	51-55 years	5	5
9	56-60 years	3	3
	amount	100	100

Table 12 shows that in this study respondents with an age range of 15-20 years dominated, amounting to 38 with a percentage of 38 %. In general, in the adolescent age more often consume snacks. However, other age ranges also like to consume snacks, it's just not like adolescence because many factors include health factors that make it impossible to consume snacks with the same frequency as in the teen age range.

4.2.3. Job Based Respondents

The frequency and percentage of respondents based on the type of work or profession in this study can be seen in the table below.

Table 13. Respondents by Occupation

No.	Occupation	Frequency	Percentage (%)
1	Student / Student	68	68
2	entrepreneur	15	15
3	Civil servants	2	2
4	General employees	11	11
5	Housewife	3	3
6	Police	1	1
	amount	100	100

Table 13 shows that in this study respondents with occupational or professional status as students dominated the number of 68 people with a percentage of 68%. Respondents who are students or college students generally like to consume snacks.

4.2.4. Respondents based on experience consuming mangosteen

The frequency and percentage of respondents based on their experience consuming mangosteen in this study can be seen in the table below.

Table 14. Respondents Based on Their Experience Consuming Mangosteen

No.	Experience	Frequency	Percentage (%)
1	Never consume	95	95
2	Never consume	5	5
	amount	100	100

Table 14 shows that in this study respondents who had consumed mangosteen dominated at 95 people with a percentage of 95%. Mangosteen is indeed familiar to the community, especially the people of West Java, so that the frequency of experience of respondents who have consumed Mangosteen is greater than that which has never consumed Mangosteen .

4.2.5. Respondents Based on Determination of Selling Prices

The frequency and percentage of respondents based on responses to the determination of the selling price of the product in this study can be seen in the table below.

Table 15. Respondents Based on Determination of Selling Prices

No.	The response	Frequency	Percentage (%)
1	Very cheap	21	21
2	Cheap	71	71
3	Cheap enough	8	8
4	Expensive	0	0
5	Very expensive	0	0
	amount	100	100

Table 15 shows that in this study respondents with cheap responses to the selling price of Rp 30,000 for a box of mangosteen skin batik steamed sponge dominates 71 people with a percentage of 71% declaring cheap. From the results of the data show that the dominant respondent agreed with the specified selling price.

4.3. Characteristics of Consumer Acceptance

Product evaluation is categorized as liking or disliking a food by an assessment that has been carried out at the stage of characteristics of taste, texture, aroma, appearance and packaging that is given a grade or score so that the researcher gets results whether the steamed batik sponge product with the addition of mangosteen peel is accepted by the respondent or consumer.

4.3.1. Consumer Acceptance Rating Based on Product Characteristics of Taste

The results of the data recap from the questionnaire respondents regarding the characteristics of taste can be seen in the table below.

Table 16. Respondents Response Based on Taste

Answer Score	Score		Score
	Frequency	(%)	
Really like	68	68	340
Like it	32	32	128
Pretty like	0	0	
Do not like	0	0	
Very dislike	0	0	
amount	100	100	468

Table 16 shows that the responses in terms of the taste of steamed batik of mangosteen peel batik are in the aspect of very liking and liking. This shows a positive value in terms of the taste of the mangosteen skin steamed batik sponge product and that consumers are suspected to like the taste of this product and can be accepted. In addition, the products of mangosteen skin batik steamed sponge also use local additives which are familiar to the people of West Java and are an added value of mangosteen leather batik sponge products .

4.3.2. Consumer Acceptance Assessment Based on Characteristics of Product Quality Texture

The results of data recapitulation of the respondent's questionnaire regarding texture characteristics can be seen in the table below.

Table 17. Respondents Response Based on Texture

Answer Score	Score		Score
	Frequency	(%)	
Really like	62	62	310
Like it	30	30	120
Pretty like	8	8	24
Do not like	0	0	0
Very dislike	0	0	0
amount	100	100	454

Table 17 shows that the responses in terms of the texture of the steamed batik mangosteen peel are in the assessment aspect very like, like and quite like. This shows the positive value of the texture of the mangosteen skin steamed batik sponge product and that consumers are suspected to like the texture of this product and can be accepted.

4.3.3. Consumer Acceptance Rating Based on Aroma Quality Product Characteristics

The results of recap data from the respondents' questionnaire regarding the aroma characteristics can be seen in the table below.

Table 18. Respondents Response Based on Aroma

Answer Score	Score		Score
	Frequency	(%)	
Really like	56	56	280
Like it	44	44	176
Pretty like	0	0	0
Do not like	0	0	10
Very dislike	0	0	0
amount	100	100	456

Table 18 shows that the responses in terms of the aroma of steamed batik battered mangosteen peel were in the assessment aspect of very like and like. This shows the positive value of the aroma produced from mangosteen skin steamed batik sponge products and that consumers are suspected of liking the aroma of this product and are acceptable.

4.3.4. Consumer Acceptance Rating Based on Product Quality Display Characteristics

The results of data recapitulation of respondents' questionnaires regarding display characteristics can be seen in the table below.

Table 19 shows that the responses in terms of the appearance of mangosteen skin batik steamed sponge are in the assessment aspect very like, like and quite like. This shows a positive value on the appearance of the mangosteen skin steamed batik sponge product and that consumers are suspected of liking the appearance of this product and can be accepted.

Table 19. Respondents' Responses by Appearance

Answer Score	Score		Score
	Frequency	(%)	
Really like	32	32	160
Like it	63	63	252
Pretty like	5	5	15
Do not like	0	0	0
Very dislike	0	0	0
amount	100	100	427

4.3.5. Consumer Acceptance Assessment Based on Product Characteristics of Packaging Characteristics

The results of the questionnaire respondents recap of data on the characteristics of the packaging can be seen in the table below.

Table 20. Respondents Response Based on Packaging

Answer Score	Score		Score
	Frequency	(%)	
Really like	15	15	75
Like it	70	70	280
Pretty like	15	15	45
Do not like	0	0	0
Very dislike	0	0	0
amount	100	100	400

Table 20 shows that the responses in terms of packaging of mangosteen skin batik steamed sponge were judged to be very like, like, and quite like. This shows a positive value for the packaging of the mangosteen skin batik steamed sponge products and that consumers are suspected of liking the packaging of these products and are acceptable.

4.3.6. Evaluation of Respondents' Responses Based on Consumer Acceptance Tests on Product Quality

After testing the consumer acceptance of 100 respondents to the assessment of product quality with five characteristics, namely taste, aroma, texture, appearance, and packaging. Below there is a formula that can be known from the calculation of the maximum score, minimum score and interval class. This formula is used to determine the quality of the product that has been assessed by 100 respondents.

The formula:

Skor maksimal (smaks)	: $n \times k \times \text{nilai maksimal}$
Skor minimal (smin)	: $n \times k \times \text{nilai minimal}$
Kelas Interval (C)	: $\frac{\text{smaks} - \text{smin}}{x}$

Description :

n = number of responses

k = number of scores

Known:

n = 100 respondents

k = 5

maximum value = 5

minimal value = 1

- a. Maximum score (Smaks) = $100 \times 5 \times 5$
= 2500
- b. Scores minimum (Smin) = $100 \times 5 \times 1$
= 500
 $\frac{2500 - 500}{5}$
- c. Class interval = 400

The value of the interval class of consumer acceptability research based on quality is 400.

Table 21. Consumer Acceptance Interval Classes

Amount of Values	Information
500 - 900	Very dislike
901-1300	Do not like
1301 - 1700	Pretty like
1701 - 2100	Like it
2101 - 2500	Really like

Table 22. Product Valuation Calculation for Steamed Batik Mangosteen Skin Bolu

Assessment Aspects	Score
Rasa	468
Texture	454
Aroma	456
Display	427
The packaging	400
amount	2,205

The results of the data obtained from the assessment of consumer acceptance of the five aspects of the assessment of mangosteen skin batik steamed sponge products that is 2.205 consisting of taste 468,

texture 454, aroma 456, display 427, packaging 400. The total value of 2.205 is at an interval of 2101-2500 where this interval class falls into the category of very like, then it can be concluded that the respondents really like the product of steamed batik sponge mangosteen skin.

4.4. Product Durability

Researchers have observed the durability of mangosteen skin batik steamed sponge products in two ways, which are stored at room temperature and stored in the refrigerator. Observation of the durability of steamed batik mangosteen peel can be seen in the table below.

Table 23. Mangosteen Skin Steamer Batik Steamer Durability Test at Room Temperature

Observation	Days to-		
	2	3	4
Rasa	5	4	3
Texture	5	4	3
Aroma	5	4	2
Color	5	5	4
Display	5	4	3

According to the observations durability steamed sponge batik mangosteen rind at room temperature, the quality of steamed sponge batik can only survive for three days and a decrease in the quality of

Table 25. Table of Nutrition Content of Raw Material Steamed Batik Mangosteen Skin

Portion: 3 loaf

Raw material	Quantity	Energy	Protein	Fat	Carbohydrate
		Kcal	gr	gr	gr
Whole Egg	5 pcs	358	31.4	23.8	1.8
Egg yolk	3 pcs	164	8.1	13.5	1.8
Sugar	200 gr	774	0	0	199.96
Wheat flour	200 gr	360	12	0	80
Milk powder	75 gr	383	18	21	29.3
Oil	200 ml	1,623	0	189.4	0
Emulsifier	5 gr	20	0	1,1	1.75
Nutrition Amount		3682	69.5	248.8	314.61

(MyFitnessPal, 2019)

From table 25 above it can be seen how much energy, protein, fat, carbohydrate and fiber content are contained in the raw materials used .

The table below describes the nutritional content of steamed batik

the product soon became apparent da n have started to appear mildew on the surface of the sponge on the fourth day.

Table 24. Mangosteen Leather Steamed Bolus Batik Endurance Test in the Refrigerator

Observation	Days to-					
	2	3	4	5	6	7
Rasa	5	5	4	4	3	3
Texture	5	5	5	4	3	3
Aroma	5	5	4	4	3	3
Color	5	5	5	5	4	4
Display	5	5	5	5	5	5

According to the observation of the durability of the mangosteen skin steamed batik sponge on the refrigerator, the quality of the steamed batik sponge can last longer than products stored at room temperature, the product is able to last for seven days, although it has not seen any fungus on the surface of the batik steamed sponge but the quality is already reduced even if not as fast as products stored at room temperature.

4.4.1. Calculation of Nutritional Value of Steamed Batik Batik Mangosteen Skin

The content of the nutritional value in mangosteen skin steamed batik sponge can be seen in the table below.

mangosteen skin in one portion that has been calculated based on the calculation of the nutritional value of protein value multiplied by four (4), fat multiplied by nine (9) and carbohydrates multiplied by four (4).

Table 26. Table of Nutritional Content of Raw Material Steamed Batik Mangosteen Skin per Portion

Raw material	Energy	Protein	Fat	Carbohydrate
	Kcal	gr	gr	gr
Whole Egg	119.3	10.47	7.93	0.6
Egg yolk	54.67	2.7	4.5	0.6
Sugar	258	0	0	66.65
Wheat flour	120	4	0	26.67
Milk powder	127.67	6	7	9.77
Oil	541	0	63,13	0
Emulsifier	6.67	0	.37	0.58
Nutrition Amount	1227.33	23.17	82.93	104.87

- Energy = 1,227.33 kcal
- Protein = 23.17 gr x4 = 92.68gr
- Fat = 82.93gr x9 =746.37 gr
- Carbohydrates = 104 ,87 gr x 4 = 419.48 gr

Table 27. Nutrition Values Per Package

Nutritional Value	
Energy	1227.33 kcal
Protein	92.68 gr
Fat	746.37 gr l
Carbohydrate	419.48 gr

Table 27 above is a calculation of the nutritional value that will be included on the packaging of mangosteen skin batik steamed sponge products .

5. Conclusions

From this study it can be concluded several things, namely:

- Mangosteen skin batik steamed sponge formula formulation

After the authors conducted a series of kitchen project stages, the authors made three different prescription formulations namely BKBKM 1 formulation or 6% addition of mangosteen peel, BKBKM 2 formulation or 8% addition of mangosteen peel and BKBKM 3 formulation or 10% addition of mangosteen peel. Then the authors conducted an organoleptic test on 15 panelists consisting of chefs, academics and practitioners or food entrepreneurs who produce values to determine BKBKM formulations that are superior to the three formulations determined by the authors. The formulations were superior to that

formulation BKBKM 3 or the addition of 10% of mangosteen peel dough steamed sponge.

- Consumer acceptance of mangosteen skin batik steamed sponge products

Acceptance test was done after obtaining a superior formulation of the results of the organoleptic test to 15 expert panelists. Acceptability test was carried out on 100 consumers or respondents by providing samples of superior product formulations along with questionnaires regarding respondents' preferences for mangosteen skin steamed batik sponge products . Respondents in this study include various types, both from gender, age, occupation and experience of respondents consuming mangosteen. This test covers five aspects of assessment namely taste, aroma, texture, appearance and packaging. The results of consumer acceptance testing indicate that the mangosteen skin batik steamed sponge products can be received with the acquisition of a score of 2, 205 from the highest total score of 2,500.

- The selling price of steamed batik mangosteen skin sponge through consumer acceptance test

The selling price of mangosteen skin batik steamed sponge products is Rp 30,000,- and the highest response of 100 respondents with a percentage of 71% on low-cost options. The selling price of one steamed batik mangosteen skin for Rp 30,000 with details: food cost 35.7% or Rp 10,710, 20 % overhead or Rp 6.000, labor 15 % or R. 4,500 and profit 29.3 % or Rp 8,790.

- c. Mangosteen leather batik steamed sponge product marketing strategy

The marketing plan that will be carried out in marketing the mangosteen leather batik sponge products is first to do a partnership marketing with the regional office as a souvenir or souvenir of an event or tourism activity and assisted by social media by asking consumers to review the product and promote it through their respective social media, marketing is also assisted by creating a special Instagram account for the product so that it can always promote the product.

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