Formulation And Physical Quality Test And Antioxidant Activity Test Of *Body Butter* Preparation Of Ethanol Extract Of Rambutan Fruit Peel *(Nephelium Lappaceum L.)*

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Abstract
This research was conducted in the utilisation of natural ingredients in the preparation of body butter made from rambutan fruit peel (Nephelium lappaceum L.) which contains flavonoid compounds as antioxidants. This study aims to determine the physical quality and antioxidant activity of body butter preparation of ethanol extract of rambutan fruit peel (Nephelium lappaceum L.) conducted at the Pharmacy Laboratory of Muhammadiyah University of Palopo in September-October 2023. It is a type of experimental research with procedures for processing samples, making body butter preparations, testing the physical quality of preparations, and testing antioxidants. The body butter formulation was carried out with a concentration of rambutan fruit peel extract 0% (F0), 6.4% (F1), 16.4% (F2) and 26.4% (F3). The results showed that the preparation met the physical quality, namely texture/cream shape, light brown F1, slightly dark brown F2 and dark brown F3, vanilla odour, each preparation met the homogeneity requirements, pH 7, viscosity test ranged from 3906-4292, stickiness 7-8 seconds, spreadability test 5.7-6.0 cm. The results of the liking test of 4 F1 formulas were the most preferred, the humidity test was 41.15%-55%, and the irritation test of all formulas was not irritating. Antioxidant test results IC50 value of F1 166.68 µg/mL, F2 73.61 µg/mL, F3 1.89 µg/mL.

Keywords: Rambutan fruit peel (Nephelium lappaceum L); Body Butter; Antioxidant.

1. Introduction

Now days, many people are more inclined towards cosmetics that contain herbal ingredients. This is because herbal cosmetics are made from natural ingredients that will not give side effects to the human body, but will provide nutrients and minerals that are beneficial to the body [1] Therefore, cosmetics with natural raw materials are the main choice for everyone, because they consider the efficacy and safety factors.

There are various kinds of cosmetics for skin care such as skin cleansing cosmetics, protective cosmetics, and also skin moisturising cosmetics. One example of cosmetics that function to moisturise the skin is body butter. Body butter is a semi-solid preparation that has a high ratio of oil, and has a thick texture and is similar to butter and margarine, so it is able to maintain moisture and nourish the skin than lotion preparations. Body butter preparations are suitable for people who have dry skin types and also easily broken skin such as on the feet, arms, elbows, heels, and knees. Body butter can also provide protection from free radical. One of the compounds that can counteract free radicals is antioxidant compounds. Antioxidants can be naturally

produced by the body, however, the body also needs antioxidants that come from outside so that it will help to ward off free radicals [2].

One of the natural ingredients proven to have antioxidant activity is rambutan. Rambutan fruit (Nephelium lappaceum L.) is an exotic tropical fruit that is widely found in Southeast Asian regions such as Indonesia. According to data [3] rambutan fruit in Indonesia has a production volume of around 681,178.00 tonnes. So that the results of the production of rambutan fruit in large quantities will also be followed by an increase in waste generated, such as rambutan skin waste. Rambutan skin accounts for 50% of the total weight of rambutan fruit as a whole [4].

According to research conducted the ethanol extract of rambutan fruit peel with concentrations of 10 µg/ml, 20 µg/ml, 40 µg/ml, 80 µg/ml, and 160 µg/ml has the ability to inhibit free radicals equal to vitamin E. Similar research conducted by [5] ethanol extract of rambutan fruit peel has an IC50 of 20, 39 µg/dl where with 20.39 µg/dl can suppress 50% of DPPH free radicals, besides that rambutan skin also contains flavonoid compounds where it is known that flavonoids are well used on the skin as antioxidants and also as antidotes to free radicals.

Based on the description above related to the benefits of rambutan skin which is only considered as garbage waste that eventually rots, as well as the importance of using body butter for the body, a study was conducted to make a body butter preparation formulation of rambutan fruit peel ethanol extract that meets the physical quality of body butter preparations and also has antioxidant activity based on DPPH radical immersion.

2. Methodology

A. Type of Research

This type of research is experimental research. This research includes making simplisia, making ethanol extract of rambutan fruit peel (Nephelium lappaceum L.), making body butter preparations of ethanol extract of rambutan fruit peel (Nephelium lappaceum L.), testing the physical quality of the preparation, and seeing the antioxidant activity of body butter preparations of ethanol extract of rambutan fruit peel (Nephelim lappaceum L.).

B. Time and Place of Research

1. Time

This research was conducted for 1 month, starting from September to October 2023.

2. Place

This research will be conducted at the Laboratory of Pharmaceutical Technology Solid Preparations, Faculty of Health Sciences, University of Muhammadiyah Palopo.

C. Population and Sample

1. Population

The population used in this study was rambutan fruit peel (Nephelium lappaceum L.) obtained in West Wara District, Mawa Village, Palopo City,

South Sulawesi.

2. Sample

The samples used in this study were ripe rambutan (Nephelium lappaceum L.) fruit peels.

Table 1.1. Modification of Formulation and Physical Quality Test and Antioxidant Activity Test of Body Butter Preparation of Ethanol Extract of Rambutan Fruit Peel (Nephelium lappaceum L)

No	Material	Formulation (%)				Material Function
		F0	FI	FII	FII	
1.	Rambutan fruit peel extract	-	6,4%	16,4%	26,4%	Active Ingredients
2.	Stearic Acid	20%	20%	20%	20%	Emulgator
3.	Cetyl Alcohol	2%	2%	2%	2%	Emolient
4.	Propylenglycol	10%	10%	10%	10%	Humectant
5.	TEA	4%	4%	4%	4%	Emulgator
6.	Methyl Paraben	0,18%	0,18%	0,18%	0,18%	Preservative
7.	Propyl Paraben	0,02%	0,02%	0,02%	0,02%	Preservative
8.	Vanilla fragrance	qs	qs	qs	qs	Aroma
9.	Aquadest	100%	100%	100%	100%	Solvents

D.Tools and Materials

1. Tools

The tools used in this study include beakers, measuring cups, test tubes, porcelain cups, volume pipettes, stirring rods, measuring cups, PH paper, glass objects, mortars, hot plates, UV-VIS spectrophotometry, stopwatches, viscometers, petri dishes, beaker glass, measuring flasks, Vortex mixer, skin analyzer, measuring flasks, analytical scales, horn spoons, ovens.

2. Materials

Ripe rambutan (Nephelium lappaceum L.) fruit peel extract marked by red fruit peel, stearic acid, TEA, cetyl alcohol, propylenglycol, methyl paraben, propyl paraben, essential oil, distilled water, methanol pa, DPPH, aluminium foil, 70% ethanol, parchment paper.

E. Research Procedure

1. Sample Collection

a.Red-coloured rambutan fruit peels were taken from ripe fruits.

b.Fresh rambutan skin that has been obtained is then wet sorted to separate from foreign particles.

c.Then the washing process is carried out with running water, after which the

washed rambutan skin is chopped into small pieces.

d. After that, it is dried in the sun and covered with black cloth, which aims to protect the active compounds in the plant from being damaged.

2. Sample Extraction

a. Making extracts is done using the maceration method.

b. Weighed simplisia powder rambutan fruit peel (Nephelium Lappaceum L.) which has been dried as much as 200 grams.

c. After that, put it in a container and add 1500 ml of 70% ethanol solvent. This maceration process is carried out for 4 days while stirring occasionally

F. Preparation of Body Butter

1. The preparation of body butter is done by melting oil phases such as stearic acid, cetyl alcohol, and propyl paraben on a hot plate at 70°C.
2. After that, the water phase was dissolved with half of the distilled water, then triethanolamine, methyl paraben, and propylenglycol were added.
3. Then the two phases were mixed into a mortar and stirred quickly, then add the remaining water little by little until a homogeneous cream mass was obtained.
4. After the two phases are mixed, add the ethanol extract of rambutan skin and crushed until homogeneous. Once homogeneous, add essential oil or perfume (Anwar et.al, 2021).

G. Physical Quality Test of Preparations

1. Organoleptic Test

Body butter cream is analysed through visual observations including colour, smell and shape [5].

2. Ph Test

The pH test is carried out by dipping the pH meter into the preparation and then recording the pH value written digitally, the pH of the preparation of the pH value requirements in topical preparations according to SNI 16-4399-1996 in 4.5-8.

3. Homogeneity Test

The homogeneity test is seen visually which is done by means of 2 glass objects, one of which is smeared thinly and also evenly with body butter preparations, then seen under sunlight whether the preparation is homogeneous or not by looking at the presence or absence of coarse grains in the preparation [5].

4. Spreadability Test

The spreadability test is carried out by means of 0.5 g of preparation placed in the middle of a scaled glass, then closed again with transparent glass above the preparation. Then added 150 g ballast let 1 minute after that record the diameter of the spread. Good spreadability is equivalent to 5-7 cm.

5. Adhesion Test

On the glass object placed as much as 0.25 grams of body butter and covered with another glass object, with pressure and given a weight of 1 kg

for 5 minutes. The load is lifted from the glass object and then separated between the two glass objects and recorded the separation time between the two [5].

6. Irritation Test

The irritation test was carried out on 14 panellists with an open patch or open patch with a diameter of 2 cm, then allowed to stand for up to 2 hours then observe changes that occur in the form of itching, swelling, redness and roughening of the skin.

7. Moisture Test

Moisture test was conducted on 14 panellists who were observed for 5 days. Before the application of the preparation on the skin of the panellist's arm, the moisture of the panellist's arm was first measured with the Skin Moistue Oil Content Analyzer HX-B03-005 using percentage parameters (%), namely dehydration 0- 29%, normal 30-50%, hydration 51-100% [6].

8. Taste Test (Hedonic)

The liking test or hedonic test aims to see the level of panellist preference for the body butter preparation that has been made. The number of panellists in this study was 14 people, categorised into 4 categories of liking levels including: very like (4), like (3), less like (2) and dislike (1), after which the percentage of liking levels was calculated [7].

9.Viscosity Test

The viscosity test uses a viscometer tool which is carried out by placing the preparation in a beaker glass, then installing the appropriate spindle and after that measuring at the appropriate rpm speed. Where the viscosity of good skin preparations ranges from 2000-50000 cPs [8].

10. Antioxidant Test

a.Preparation of DPPH mother solution

Weighed as much as 5 mg of DPPH and then dissolved in methanol PA until the limit mark using a 50 ml volumetric flask, having a concentration of 100 ppm after which the volumetric flask is then wrapped in aluminium foil and homogenized, incubated for 30 minutes (Ifaya, 2023).

b.Preparation of blank

solution Pipetted as much as 1 ml of DPPH solution and 3 ml of methanol PA into the tube and homogenised. Allow to stand for 30 minutes and measure the absorbance at a wavelength of 517 nm (Ifaya, 2023).

c. Preparation of vitamin C comparison solution

Comparison solution was prepared by making vitamin C mother solution. Vitamin C was weighed as much as 1 mg which was then dissolved with methanol as much as 10 ml and shaken until homogeneous. After that, the test tube was covered with aluminium foil until there was no part exposed to light. Furthermore, vitamin C concentrations were made with various concentrations, namely 0.6 ppm, 1 ppm, 1.3 ppm, 2 ppm, and 2.6 ppm. The vitamin C series solution was made by pipetting the vitamin C mother solution and then adding methanol to a volume of 2250 µl and then adding 750 µl DPPH (0.02%) (Dzaky, 2018).

d. Preparation of test solution

Weighed 5 mg of sample dissolved in a 5 ml volumetric flask and added PA methanol to the limit mark to obtain a sample mother solution with a concentration of 100 ppm. Dilution of each formula sample with a concentration of (20 ppm, 40 ppm, 60 ppm, 80 ppm, 100 ppm). Each test solution was pipetted as much as 1 ml, 1 ml DPPH and 2 ml methanol then homogenised and incubated for 30 minutes [9].

e. Measurement of antioxidant activity

Antioxidant activity testing with DPPH method was done by pipetting 1 ml of DPPH solution, 2 ml of PA methanol, and 1 ml of sample ocean into a recitation tube that has been closed using aluminium foil. This test was carried out for each of the concentrations that had been made. Then incubate for 0-5 minutes. The absorbance was then measured using a UV-Vis Spectrophotometer at a wavelength of 517 nm [9]. From the absorbance data obtained, antioxidant power can be calculated by calculating % inhibition using the formula.

% Inhibition=(Abs.Blanko-Abs.Sample)/(Abs.Blanko) x 100%

3. Result and Discussion

3.1. Result (Font 12, Times New Roman, 1.15 Spacing)

A. Results of Determination of Drying Shrinkage

The following are the results of determining the drying shrinkage of rambutan fruit peel simplisia *(Nephelium lappaceum L.)* [10].

Table 1.2. Data on the results of determining the drying shrinkage of rambutan fruit peel simplisia *(Nephelium lappaceum L.)*.

A	Weight of empty cup	56,3 grams
B	Weight of cup + weight of sample before heating	58,3 grams

C	Weight of cup + weight of sample after heating	58,2 grams

Table 1.3. Data from the determination of moisture content of rambutan fruit peel simplisia *(Nephelium lappaceum L.)*

A	Weight of cup + weight of sample before heating	66,3 grams
B	Weight of cup + weight of sample after heating	66,2 grams
C	Sample weight	10 grams

Table 1.4. Data from the determination of % yield of ethanol extract of rambutan fruit peel *(Nephelium lappaceum L.)*

Table Percentage % yield of ethanol extract of rambutan fruit peel		
Sample Weight (g)	Condensed extract (g)	% Extract yield
200	335	59,7%

B. Uji Organoleptis

Tabel 1.5. Organoleptic Test Observation Results of body butter preparation of rambutan fruit peel ethanol extract *(Nephelium lappaceum L.)*

Observation	**Time**	**F0**	**F1**	**F2**	**F3**
Shape/Texture	Week 1	Cream	Cream	Cream	Cream
	Week II	Cream	Cream	Cream	Cream
	3rd week	Cream	Cream	Cream	Cream
	Week IV	Cream	Cream	Cream	Cream
Odour	Week I	Vanilla	Vanilla	Vanilla	Vanilla
	Week II	Vanilla	Vanilla	Vanilla	Vanilla
	3rd week	Vanilla	Vanilla	Vanilla	Vanilla
	IVth week	Vanilla	Vanilla	Vanilla	Vanilla
Colour Observation	Week I	White	Light Brown	Slightly dark brown	Dark brown
	Week II	White	Light Brown	Slightly dark brown	Dark brown
	3rd week	White	Light Brown	Slightly dark brown	Dark brown
	IVth week	White	Light Brown	Slightly dark brown	Dark brown

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration,

F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

C. Homogeneity Test

Table 1.6. Homogeneity Test Observation Results of body butter preparation of rambutan fruit peel ethanol extract (Nephelium lappaceum L.)

Homogeneity Test				
Formulation	**Week I**	**Week II**	**Week III**	**Week IV**
F0	Homogeneous	Homogeneous	Homogeneous	Homogeneous
F1	Homogeneous	Homogeneous	Homogeneous	Homogeneous
F2	Homogeneous	Homogeneous	Homogeneous	Homogeneous
F3	Homogeneous	Homogeneous	Homogeneous	Homogeneous

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

D. Ph Test

Tabel 1.7. Observation Result of pH test of body butter preparation of rambutan fruit peel ethanol extract *(Nephelium lappaceum L.)*

pH Test				
Formulation	**Week I**	**Week II**	**Week III**	**Week IV**
F0	7	7	7	7
F1	7	7	7	7
F2	7	7	7	7
F3	7	7	7	7

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

E. Adhesion Test

Table 1.8. Observation Result of Adhesion Test of body butter preparation of ethanol extract of rambutan fruit peel *(Nephelium lappaceum L.)*

Formulation	**Adhesion Test**				**Average**
	Week I	**Week II**	**Week III**	**Week IV**	
F0	06.49 second	07.49 second	06.89 second	07.00 second	07.00 second
F1	05.94 second	07.15 second	07.14 second	07.95 second	07.00 second
F2	05.05 second	07.04 second	10.19 second	08.60 second	08.00 second
F3	07.40 second	07.12 second	06.71 second	07.47 second	07.00 second

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

F. Spreadability Test

Table 1.9. Observation Results of Scatterability Test of body butter preparation of rambutan fruit peel ethanol extract *(Nephelium lappaceum L.)*

Formulation	Spreadability Test				Average
	Week I	Average	Week III	Week IV	
F0	6,4 cm	6,2 cm	6,2 cm	5,4 cm	6,0 cm
F1	6,3 cm	6,2 cm	6,1 cm	5,2 cm	5,9 cm
F2	6,4 cm	6,4 cm	6,1 cm	5,4 cm	6,0 cm
F3	6,0 cm	6,0 cm	5,8 cm	5,0 cm	5,7 cm

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

G. Viscosity Test

Table 1.10. Viscosity Test Observation Results of body butter preparation of rambutan fruit peel ethanol extract *(Nephelium lappaceum L.)*

Formulation	Viscosity Test				Average
	Week I	Average	Week III	Week IV	
F0	4242 cPs	4436 cPs	3738 cPs	3664 cPs	4020 cPs
F1	4546 cPs	4572 cPs	4068 cPs	3474 cPs	4165 cPs
F2	3688 cPs	4304 cPs	3974 cPs	3660 cPs	3906 cPs
F3	4276 cPs	4592 cPs	4314 cPs	3986 cPs	4292 cPs

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

H. Irritation Test

Table 1.11. Observation Results of Irritation Test of body butter preparations of ethanol extract of rambutan fruit peel (Nephelium lappaceum L.)

Respondent	Respondent Skin Reaction			
	F0	F1	F2	F3
1	(-)	(-)	(-)	(-)
2	(-)	(-)	(-)	(-)
3	(-)	(-)	(-)	(-)
4	(-)	(-)	(-)	(-)
5	(-)	(-)	(-)	(-)
6	(-)	(-)	(-)	(-)

7	(-)	(-)	(-)	(-)
8	(-)	(-)	(-)	(-)
9	(-)	(-)	(-)	(-)
10	(-)	(-)	(-)	(-)
11	(-)	(-)	(-)	(-)
12	(-)	(-)	(-)	(-)
13	(-)	(-)	(-)	(-)
14	(-)	(-)	(-)	(-)

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

I. Moisture Test

Table 1.12. Observation Results of Moisture Test of body butter preparation of ethanol extract of rambutan fruit peel *(Nephelium lappaceum L.)*

preparation	Average % initial condition before use of the preparation	Hari ke-					Rata-rata kelembapan		
		1	2	3	4	5			
F0	23,8 %	45,7%	44,1%	44%	44,3%	45%	41,15%		
F1	20,9%	58,5%	59%	58%	58,2%	58%	52,1%		
F2	26,2 %	59%	59,7%	59,1%	59,5%	59,5%	53,8%		
F3	25,7%	64%	59,8%	60%	60%	60%	55%		

Description: F0 = Formulation with 0% extract concentration, F1 = Formulation with 6.4% extract concentration, F2 = Formulation with 16.4% extract concentration, F3 = Formulation with 26.4% extract concentration.

J. Taste Test (Hedonict)

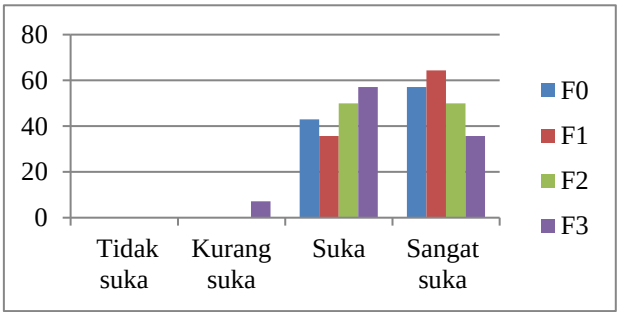

Figure 1.1
Aroma favourability test (n=14)

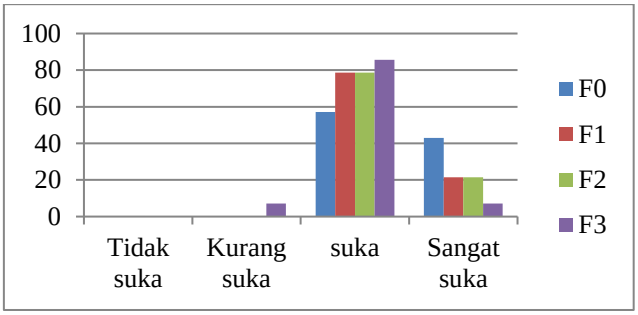

Figure 1.2
Texture favourability test (n=14)

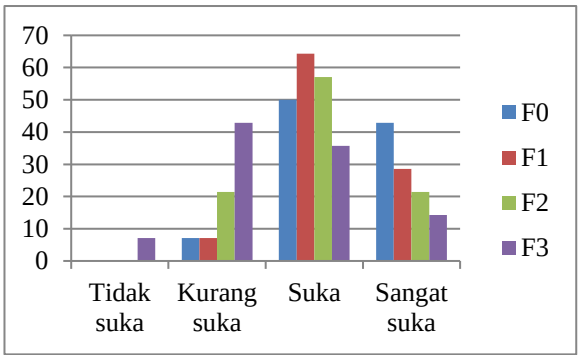

Figure 1.3
Colour liking test (n=14)

K. Antioxidant Activity Test

Table 1.13. Observation result of antioxidant activity test of body butter preparation with ethanol extract of rambutan fruit peel *(Nephelium lappaceum L.).*

Samples and Comparisons	IC50	Category
F1 (6,4%)	166,68 µg/ml	Medium
F2 (16,4%)	73,61 µg/ml	Strong
F3 (26,4%)	1,89 µg/ml	Very Strong
Vitamin C	5,28 µg /mL	Very Strong

3.2. Discussion

A. Drying shrinkage

The requirement for good drying shrinkage for simplisia is not to exceed 10% [11], which means that the drying shrinkage of rambutan fruit peel simplisia (Nephelium lappaceum L.) of 5% has met the requirements for good drying shrinkagerates.

B. Moisture content

Moisture content aims to provide a minimum limit or range of the

amount of water content in a material. High water content can trigger the growth of microorganisms and can cause decay. The moisture content obtained in the simplisia of rambutan fruit skin (Nephelium lappaceum L.) is 1%, which means that it meets the requirements of good moisture content, namely <10 [11].

C. The yield value indicates

the amount of bioactive compounds contained in the extract. The greater the yield value indicates that more active substances are attracted to a material [12]. The requirement for viscous extract yield is not less than 10%. The results of the yield of rambutan fruit peel *(Nephelium lappaceum L.)* found the percentage of extract yield of 59.7%, which means it has met the requirements of good yield.

D. Organoleptic test

Observations in the organoleptic test aim to see the preparation from the physical appearance which includes shape/texture, smell, and colour. The results of observations on the preparation of body butter ethanol extract of rambutan fruit peel *(Nephelium lappaceum L.)* did not change during the 4 weeks of observation.

E. The homogeneity test

The results of observations on the homogeneity test of rambutan fruit peel ethanol extract body butter preparation showed that variations in extract concentration and also mixing bases in the preparation did not affect homogeneity in storage for 4 weeks. This can be seen by the absence of lumps or coarse grains in the preparation of body butter ethanol extract of rambutan fruit peel *(Nephelium lappaceum L.).*

F. PH Test

The pH observation is carried out to see the body butter made whether it is alkaline, acidic or neutral with the aim of knowing the safety and suitability of the preparation for the skin so that no irritation occurs. The results of pH observations on body butter preparations showed that each formula had the same pH value of 7 and there was no decrease or increase during 4 weeks of storage.

G. adhesion test

Based on the results of the adhesion test, it shows that the four formulas have good adhesion and have met the requirements for adhesion, namely> 4 seconds. The longer the adhesion time on the preparation, the better the release from the preparation base which allows the active substance to be fully absorbed.

H. spreadability test

The purpose of the spreadability test is to see the ability of the speed of the preparation to spread to the skin when applied. Based on the results of the spreadability test, it can be seen that the four formulations are in accordance with the requirements for good spreadability, which is between 5-7 cm.

I.Viscosity test

Viscosity test observation aims to see the viscosity of a preparation. Based on viscosity testing on the preparation, the highest viscosity was obtained in formula 3, namely 4292 cps. Based on the viscosity results of the four formulas, it meets the requirements for good topical preparation viscosity, which ranges from 2000-50000 cPs [8].

J. irritation test

In the observation of the irritation test, 14 respondents were obtained from the slovin formula using an error of 20%, this is because the population used is small. The results obtained in the preparation of body butter ethanol extract of rambutan fruit peel (Nephelium lappaceum L.) with concentrations of 0%, 6.4%, 16.4%, and 26.4% did not show any side effects in the form of redness, swelling, itching, or rough skin caused by the use of the preparation.

K. Moisture Test

Based on the percentage results of the increase in skin moisture, it can be seen that the formulation with the highest percent was obtained by F3 with an increase from day 1 to 5 of 55%, followed by the second highest percent, F2 with a value of 53.8%, and F1 with a percentage increase in moisture of 52.1%.

L. liking test

Overall, based on the results of the liking test for aroma, texture and colour of the body butter preparation, it was found that F1 was the preparation most liked by the panelists.

M. antioxidant activity

Based on the measurement of antioxidant activity with IC50 value on Vitamin C comparator obtained at 5.28 µg/mL which is categorised as very strong antioxidant, FI with IC50 value 166.68 µg/ml with medium category, FII with IC50 value 73.61 µg/ml in strong category, and FIII with IC50 value 1.89 µg/ml including very strong category.

4. Conclusion

Based on the results of the research that has been done, it can be concluded that

1. in the physical quality test of body butter preparation of ethanol extract of rambutan fruit peel (Nephelium lappaceum L.) which includes organoleptic test, homogeneity, pH, spreadability, adhesiveness, viscosity test, irritation test and hedonic test, and moisture test have met the preparation evaluation requirements.
2. While in the results of antioxidant activity testing, it can be concluded that the IC50 value contained in the preparation of body butter ethanol extract of rambutan fruit peel (Nephelium lappaceum L.) where formulas FI, FII, and FIII each have IC50 values of 166.68 µg/ml, 73.61 µg/ml, and 1.89 µg/ml. Where FI is included in the moderate antioxidant category, FII is included in the strong category, and FIII has a very strong antioxidant ability with an IC50 value of 1.89 µg/ml so that FIII has the ability to ward off free radicals just like Vitamin C.5.

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