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The Formulation of *Body Scrub* Combining 96% Ethanol Extract of Avocado Seeds (*Persea americana Mill*) and Red Rice Flour (*Oryza nivara*) with Honey Added

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A B S T R A C T

Avocado seeds (*Persea americana Mill*) contain secondary metabolite compounds that have many benefits that can be utilized to develop natural ingredient-based pharmaceutical preparations such as body scrub. While red rice is a natural antioxidant and natural keratolytic ingredient. This study aims to formulate an avocado seed based body scrub. The experimental method and divided into 3 groups with different concentrations of 5%, 15%, and 25%. The physical evaluation carried out includes organoleptic, homogeneity, pH, spreadability, stickness, centrifugation, stability, irritation, and hedonic test. The results showed that the scrub preparations made had met the requirements of the physical quality test and the best was formula 1 with 5% extract concentration, brown in color, semi-solid texture with vanilla and extract odor.

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INTRODUCTION

Skin is often exposed to sunlight and pollution every day. This causes the skin to become dull, dry and lose moisture. Therefore, it is necessary to use the right body scrub product to nourish the skin. There are many benefits of using a body scrub, because using soap alone is incomplete if not balanced with the use of a body scrub (Hairiyah et al., 2022). Natural additives that can help the quality of body scrubs are avocado seeds, red rice and honey. Where avocado seeds have antioxidant activity, red rice is useful for cleansing the skin, natural antioxidants, maintaining skin brightness as well as natural keratolytic ingredients. The addition of honey to body scrub products acts as a vitamin that can provide skin moisture and improve dull skin.

Avocado seeds contain secondary metabolite compounds such as alkaloids, flavonoids, tannins, saponins, terpenoids or steroids and phenolics that act as natural antioxidants. In addition, avocado seed extract contains nutrients such as vitamin E which can be used as an ingredient to moisturize the skin with a human skin pH of 6.52 so that it is safe when used on the surface of human skin (Ambarwati & Rustiani, 2022). Avocado seeds contain flavonoid compounds that have potential as antioxidants (Kiki et al., 2018).

Based on research conducted (Miswatul, 2013) red rice (*Oryza nivara*) contains flavonoid compounds that function as antioxidants. Brown rice has several advantages compared to white rice, which contains many phenolic compounds. Phenolic compounds have many types, ranging from simple phenolic compounds to complex compounds that bind to glucose groups as glycons. One group of phenolic compounds that have benefits as antioxidants is the flavonoid compound group and is caused by the large content of anthocyanin pigments that act as antioxidants (Oktaviani & Ulilalbab, 2020). Based on Oktaviani and Ulilalbab's (2020) research, the results of the antioxidant activity test show that red rice extract has an IC value of $_{50}$ (41ppm) with a strong antioxidant category.

Honey is hygroscopic, meaning it easily absorbs water and ambient air. Therefore, it can be used as a humectant and helps keep the skin moisturized. In addition, honey preserves internal epithelial tissue and improves blood circulation, preventing dry skin. Due to these contents and properties, honey has the potential to be developed into cosmetic preparations, including in the form of body scrubs (Sinulingga et al., 2018).

Body scrub is one of the products resulting from the rapid development of technology today. Body scrubs are used to keep the skin of the body clean and fresh. Body scrub products vary greatly, ranging from price, packaging color, soft texture, and aroma. The purpose of a body scrub is to remove dead skin cells, dirt, and open pores so that the skin becomes brighter and whiter. Currently, there are many types of body scrubs circulating in the community, with various effects ranging from softening the skin to whitening the skin (Hairiyah & Nuryati, 2020). Based on the explanation above, researchers are interested in conducting research on avocado seeds by making body scrub formulations from avocado seeds and evaluating the physical quality of avocado seed body scrub preparations with the addition of good honey.

THEORETICAL REVIEW

Avocado seeds can be utilized as a source of natural antioxidants. The antioxidants are flavonoids contained in the ethanol extract of avocado seeds, including quercetin. Quercetin is a very strong flavonoid compound. This is probably because this compound contains more hydroxyl groups than other flavonoid compounds. The more substituted hydroxyl groups in a molecule, the stronger the antioxidant effect because more hydrogen atoms can be donated (Anggorowati et al., 2016). While red rice (*Oryza nivara*) contains many polyphenolic compounds including anthocyanins, which are pigments that give the rice its red color. Anthocyanins are compounds that improve health because they have antioxidant effects (Setyowati & Gani, 2018). Honey as a natural ingredient can be used as a moisturizer because it has moisturizing, emollient and antioxidant properties (Sinulingga et al., 2018).

METHODOLOGY

This research is an experimental laboratory research. The tools used in this research are stirring rod, porcelain cup, separating funnel, beaker glass (Pyrex), measuring cup (Pyrex), parchment paper, pH meter, dropper pipette, horn spoon, digital scale (Ohaus), grinder (Ossel), mesh 60 sieve, chamber, silica gel F254 KLT plate, UV light table 254, Oven (Incucell), rotary evaporator (Buchi), vaccum, glass object, adhesion tester, scatter tester, and centrifugation device.

Raw materials is avocado seeds obtained from Kedungarum Village, Kuningan Regency, Kuningan District. And additional materials are red rice from Kutaraja Village, stearic acid (Quadrant), distilled water, honey, triethanolamine (Quadrant), cetyl alcohol (Quadrant), 96% ethanol (Brataco), nipagin (Quadrant), and vanilla essence.

Making Avocado seed extract refers to (Fahamsya & Listina, 2023). Avocado seeds were weighed as much as 5 kg, then washed thoroughly using running water, then peeled and chopped into small thin pieces and dried in an oven at 45°C for 24 hours. The dried avocado seeds were then ground into flour using a grinder. A total of 500 grams of avocado seeds (*Persea american Mill*) that have been mashed are macerated using 96% ethanol solvent (1:4) 2000 ml and homogenized for 3 x 24 hours (3 days). The extract was filtered using filter paper. The results of the macerate were thickened by using a waterbath tool so that a thick extract was obtained. The manufacture of keratolytic material refers to research (Budijanto & Yulianto, 2012). Red rice was obtained from Kuningan Traditional Market from Kutaraja Village. Red rice is sorted then cleaned, followed by cleaning with running water to be oven for 24 hours at 45°C. Blend the dried red rice and sift it with a 40 mesh sieve, resulting in red rice flour.

Formulation and preparation of scrub preparations according to the table, modified from research (Fahamsya & Listina, 2023), (Prathita & Kusbandari, 2022) and (Hairiyah & Nuryati, 2020).

Table 1. Formulation Of Body Scrub Combination Of Avocado Seed (*Persea americana Mill*) and Red Rice Flour (*Oryza nivara*) With Honey Added

No	Material	Formulation (%)				Functionality
		F0	F1	F2	F3	
1	Avocado seed extract	-	5	15	25	Active ingredient
2	Red rice flour	0,5	0,5	0,5	0,5	Scrubbing agent
3	Stearic acid	16	16	16	16	Emulgator
4	Trietanolamin	2	2	2	2	Emulgator
5	Gliserin	25	25	25	25	Emolien
6	Cethyl alcohol	3	3	3	3	Base
7	Methyl paraben	0,02	0,02	0,02	0,02	Preservative
8	Vanilla essence	q.s	q.s	q.s	q.s	Fragrance
9	Honey	4,6	4,6	4,6	4,6	Humectan
10	Aquadest add	100	100	100	100	Solvent

Evaluation of body scrub combination of 96% ethanol extract of avocado seed (*Persea americana Mill*) and red rice flour (*Oryza nivara*) with the addition of honey includes : a). Organoleptic test, tests were carried out by observing changes in color, odor, and shape (consistency) of body scrub preparations. Observations were made for 3 weeks. Organoleptic tests including color, aroma, and consistency can be used as qualitative indicators of the physical instability of the preparation which is directly related to the comfort of the preparation by consumers and the quality of the preparation. b). pH test, testing was carried out using a pH meter. A total of 1 gram of each preparation was put in a beaker and diluted in 100 mI of distilled water. The pH of the preparation was measured using a pH meter. pH that meets the requirements is around 4.5 to 6.5. c). Homogeneity Test, a total of 0.5 g of body scrub preparation was applied to a glass object, then coarse particles were observed by palpating and noting the texture of the preparation. Homogeneity of the preparation is indicated by the absence of coarse particles in the preparation and the color of the preparation is evenly distributed. d). Spreadability Test, performed by placing 0.5 g of sample on a watch glass, another glass is placed on it. Added 125 g of additional load and allowed to stand for 1 minute. The requirement for good spreadability is 5-7 cm. e). Stickiness Test, 0.5 g of cream is applied to a glass plate and a 250 g weight is applied for 5 minutes. The load was lifted and the two glass plates were released while recording the time until the two plates separated from each other. The standard for good cream adhesion is >4 seconds. f). Emulsion Type Test, emulsion type testing is done by placing 1 g of body scub on the glass object and then adding 1 drop of methylene blue, stirring using a stirring rod until mixed. If the methylene blue is evenly dispersed, it means that the cream made is type O/W and if blue grains are formed on the glass object, it means that the type of

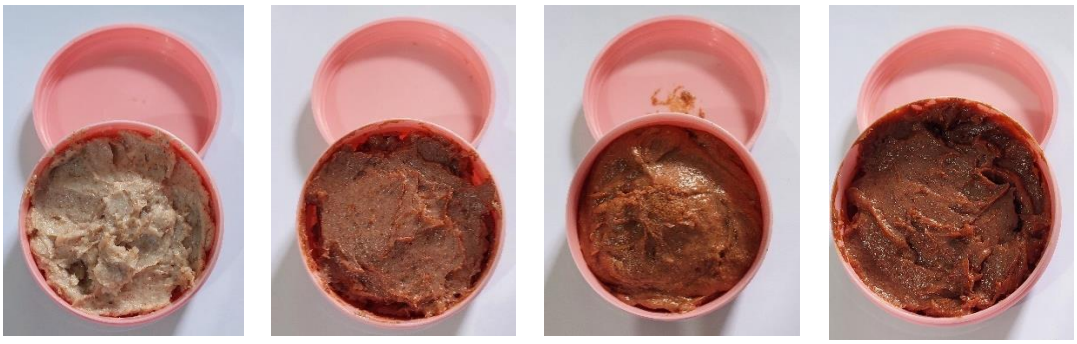
cream made is type W/O. g). Centrifugation Test, this test was carried out by placing 10 g of preparation in a centrifugation tube. Then centrifuged at 4000 rpm for 30 minutes. h). Stability Test, the stability test was carried out using the cycling test method. The cream was stored at ± 4°C for 24 hours and then at ± 40°C for 24 hours. The test was conducted for 6 cycles, where each cycle observed physical changes in the cream including organoleptic, homogeneity, pH, spreadability and adhesiveness. (1). Cycling Test, creams with various concentrations were stored at 4°C for 24 hours and then transferred to an oven at 40° ± 2^{o}C for 24 hours (one cycle). The test was carried out for 6 cycles, then observed the physical changes that occurred in the form of the presence or absence of separation. (2). Low Temperature ± 4°C, creams with various concentrations were stored at low temperature (4 ± 2°C) for 6 cycles, then observed for color, odor, softness and homogeneity, as well as measured pH, and Viscosity. i). Irritation Test, the test was conducted by applying body scrub to the forearm of 4 volunteers. The reaction observed is the occurrence of irritation to the skin or not. j). Hedonic Test, is a test to determine the level of preference for brown rice body scrub preparations (keratolytic effectiveness) consisting of aroma, color, and comfort on the skin for 25 respondents. Hedonic scale assessment with the highest value of 5 (very like) and the lowest value of 1 (very dislike). This evaluation refers to research (Musdalipah et al., 2016), (Mutia Arda & Dewi Andriany, 2023), (Leny et al., 2021), (Fahamsya & Listina, 2023), (Meta, 2019), (Tungadi et al., 2023), (Nurfita et al., 2021), (Multiyana & Wuryandari, 2018), (Agustiyani et al., 2017), (Nisa et al., 2017), (Juliantoni et al., n.d.).

RESEARCH RESULTS

The method used to obtain the extract is maceration. Maceration is a cold extraction process and is usually used for samples whose compounds cannot withstand heat. The principle of maceration itself dissolves active substances based on their solubility properties. The maceration process is carried out in a ratio of 1: 4 where 500 grams of avocado seed simplisia powder is dissolved with 2 liters of ethanol. Extraction is carried out by immersion and stirring for 3 x 24 hours, every 1 x 24 hours evaporation is carried out with a rotary evaporator and solvent changes. The purpose of changing the solvent is to maximize the secondary metabolite compounds contained in the extract during the extraction process. While stirring is expected to accelerate the contact between the solvent and the avocado seed sample, with the aim of secondary metabolite compounds in the filtrate will be bound by the solvent. The results were then filtered with a buchner funnel and filter paper so that the filtrate and residue were separated. The maceration cycle was repeated several times to enlarge the concentrate obtained. The color of the filtrate produced in the first to third maceration process is different, with variations from dark brown to brown. This color change indicates that the extraction process has been maximized. Furthermore, the filtrate is evaporated using a rotary evaporator with a temperature of 50^{0}C and thickened with a waterbath. The yield of 96% ethanol extract of avocado seeds obtained was 17.28% (Figure 1).

Figure 1. Extract manufacturing process

The results of combination of 96% ethanol extract of avocado seed (*Persea americana Mill*) and red rice (*Oryza nivara*) with the addition of honey were formulated as a scrub preparation with 3 different concentrations of 5%, 15% and 25%. Each formula has a total volume of 100 ml (Figure 2). The body scrub preparation formulation was then evaluated by organoleptic test, pH test, homogeneity test, emulsion type test, spreadability test, adhesiveness test, centrifugation test, stability test, irritation test and hedonic test, with the results shown in Table 2 and 3.



A B C D

Figure 2. Results of Body Scrub Formulation (A) F0 body scrub (0%); (B) FI body scrub (5% extract); (C) FII body scrub (15% extract); (D) FIII body scrub (25% extract)

Table 2. Results of Formulation of Body scrub Avocado seeds (*Persea Americana Mill*) before cycling test

Test	K+	F0	F1	F2	F3
Organoleptic	White color, semi solid texture, distinctive odor of milk	White to red spots color, semi solid texture, distinctive odor of vanilla	Light brown color, semi solid texture, distinctive odor of vanilla and avocado seed extract	Brown color, semi solid texture, distinctive odor of vanilla and avocado seed extract	Dark brown color, semi solid texture, distinctive odor of vanilla and avocado seed extract
pH	6	6	6	6	6
Homogenity	Homogeneous	Homogeneous	Homogeneous	Homogeneous	Homogeneous
Spreadability (cm)	2,73	3,0	3,22	2,82	2,66
Stickiness (seconds)	4,07	4,23	6,77	7,40	13,70
Emulsion type	O/W	O/W	O/W	O/W	O/W
Centrifugation	- (no separation phase)	- (no separation phase)	- (no separation phase)	- (separation phase)	- (separation phase)

Table 3. Results of Formulation of Body scrub Avocado seeds (*Persea Americana Mill*) after cycling test

Test	K+	F0	F1	F2	F3
Organoleptic	White color, semi solid texture, distinctive odor of milk	White to red spots color, semi solid texture, distinctive odor of vanilla	Light brown color, semi solid texture, distinctive odor of vanilla and avocado seed extract	Brown color, semi solid texture, distinctive odor of vanilla and avocado seed extract	Dark brown color, semi solid texture, distinctive odor of vanilla and avocado seed extract
pH	6	6	6	6	6
Homogenity	Homogeneous	Homogeneous	Homogeneous	Homogeneous	Homogeneous
Spreadability (cm)	3,20	2,96	2,72	2,64	2,52
Stickiness (seconds)	4,14	4,84	5,12	5,87	6,22
Emulsion type	O/W	O/W	O/W	O/W	O/W
Centrifugation	- (no separation phase)	- (no separation phase)	- (no separation phase)	- (separation phase)	- (separation phase)

DISCUSSION

Avocado seed (*Persea americana Mill*) 96% ethanol extract body scrub was made in 4 formulas, where the formula consisted of different extract concentrations, namely F0/base (without additional extract), F1 with 5% extract concentration (5 grams of extract), F2 with 15% extract concentration (15 grams of extract) and F3 with 25% extract concentration (25 grams of extract). Body scrub is evaluated with the aim of being a parameter to determine the quality of a preparation.

This organoleptical test aims to determine the physical form of the body scrub preparation. This test is carried out by visually observing the preparation which includes shape, color, and smell. The results of the evaluation of the preparation in the organolepis test are that it has a semi-solid shape or texture, in formula (+) or control (+) the preparation is white without the addition of extracts and has a milky odor, formula 0 or control (-) the preparation is white with red spots without the addition of extracts and has a vanilla odor, formula 1 (5%) is ordinary brown not too pale, formula 2 (15%) is brown and formula 3 (25%) is dark brown. In formula 0 or base without the addition of extracts has a vanilla odor, formula 1 with the addition of 5% avocado seed ethanol extract produces a lighter brown color than formulas 2 and 3 with a mixed of vanilla and extract odor. Based on the organoleptical test results obtained, it shows that the higher the concentration of extract added, the more intense the brown color given to the preparation. Of all the formulas except the control (+) has a vanilla aroma or odor and it can be concluded that the four formulas have met the parameters of a good body scrub preparation based on texture, color and odor. The addition of extracts, vanilla essence and storage can affect the physical properties of a preparation (Ramani et al., 2021). The body scrub preparation is stored in a tightly closed container that is protected from sunlight so that the body scrub preparation remains stable.

The homogeneity test is carried out to determine whether or not the ingredients used are mixed, a good body scrub preparation shows homogeneous results without the presence of unmixed particles such as clumps, besides that the homogeneity test of the body scrub preparation aims to see the dispersion ability between the active substance and the base it uses (Sangkal et al., 2020). This test was carried out using glass object glass with 3 replications. Based on the homogeneity test, it was found that the results of the body scrub preparation had good homogeneity because there were no grains in the preparation, only grains of brown rice scrub, because the base and active substances were evenly mixed and showed the results that the formula met the homogeneity test requirements. This test is carried out to find out whether the preparation is evenly distributed or not.

The pH test is carried out to determine the safety and comfort of using avocado seed ethanol extract body scrub preparations on the skin of the body, if the pH is low from the requirements of the skin's pH range it will cause irritation, while the high pH can cause the skin to become dry (Untari & Robiyanto, 2018). This pH test was carried out using pH indicator paper and resulted in an average pH of 6 for all formulas including control (+). From the evaluation results obtained, all formulas meet the range of normal skin requirements.

The cream type test aims to determine the type of cream in the preparation. Emulsion type test is a test carried out to identify the type of emulsion for the preparation made. Emulsion type test with color addition technique used emulsion that has been made, then dripped with a few drops of methylene blue. This test was carried out with as much as 1 take of cream preparation placed on a glass object plus 1 drop of methylene blue solution, mixed evenly, forming a homogeneous blue color in the outer phase which indicates the formation of an oil-in-water (O/W) type emulsion. The results of the cream type test showed that the type of cream in the five formulas was oil in water. This shows that the three formulas are easily washed off by water. The oil-in-water emulsion type has the advantage of being non-sticky, easy to wash off using water, and easy to spread on the skin surface.

This stickiness test aims to determine whether the avocado seed ethanol extract body scrub preparation is attached or not to the skin of the body, the requirements for a good adhesion test on this topical preparation range more than 4 seconds. Where the higher the adhesion value, the longer the contact between the body scrub preparation and the skin. Based on the results of the adhesion test that formula F0 produced 4 seconds of adhesion and formulas F1, F2, F3 produced longer adhesion. So the higher the concentration of extracts and the denser the body scrub dosage form, the longer the adhesion will be. This test aims to determine the ability of the preparation when attached to the skin. Adhesion is related to the length of contact between the preparation and the skin, and the comfort of using the preparation. The adhesion test of body scrub preparations from the three formulas with concentrations of 5%, 15% and 25% was found to be effective in the three formulas, for higher concentrations it will be longer because the active ingredient in the form of avocado seeds which is higher, will affect the adhesion. The results of the evaluation of the stickiness test obtained for all formulas meet the requirements. Based on the results of One Way Anova data

analysis, the five formulas along with the control (+) body scrub preparation have significant differences in value in the adhesion test. That shows the effect of the addition of extracts on the stickiness of body scrub preparations. Where the extract has a thick and sticky mass, the greater the concentration of extract added, the body scrub preparation has a high adhesion value. Apart from the addition of extracts, mixing temperature and stirring time also affect the adhesion of the preparation, the longer the stirring time, the higher the adhesion of the preparation (Baskara et al., 2020).

This spreadability test aims to determine the ability to spread the body scrub preparation when applied to the skin of the body. The greater the dispersion ability produced, the easier it is to use. This spreadability test was carried out by giving 0 load, 50 grams, 150 grams and 250 grams. The value of a good spreadability range is 5-7. This test is to see the ability of the preparation to spread evenly on the surface of the skin when applied, so that the active ingredients have a more optimal effect. The spreadability of a good preparation is seen from the wider the spreadability, the better the penetration into the skin. The body scrub preparation shows that the three formulas with concentrations of 5%, 15% and 25% are between 3-5 cm. According to Garg et al., (2002) the spreadability of semisolid is divided into two, namely semistiff is a semisolid preparation with high viscosity with a spreadability value range between 3-5 while semifluid is a semisolid preparation with low viscosity with a spreadability value range between 5-7 cm. The results of the spreadability test of the avocado seed ethanol extract body scrub range between 3-5 cm so that the body scrub preparation is included in the semistiff category. Based on the results of One Way Anova data analysis on the spreadability of the five formulations, there is no significant difference in value. From the results of the evaluation of the spreadability test, it was found that the addition of extracts did not greatly affect the spreadability of the body scrub preparation. This test is to see the ability of the preparation to spread evenly on the surface of the skin when applied, so that the active ingredients have a more optimal effect.

This centrifugation test is carried out to observe whether there is stability of the preparation by knowing the phase separation. This test was carried out with a total of 10 grams of preparation placed in a centrifugation tube. Then centrifuged at 4000 rpm for 30 minutes. Based on the observation of centrifugation of body scrub preparations, it was carried out to observe changes in physical stability by applying a pressure and the results showed no separation in the control (+), F0 and F1. In F2 and F3 there is phase separation or breaking due to the effect of pressure and there is also an effect of temperature at the time of mixing and length of stirring on the characteristics of the cream preparation.

This stability test is conducted to determine the properties or ingredients of products that change after a period of time influenced by environmental factors such as temperature, humidity and light. This test is called the cycling test, which is carried out with 2 different temperatures, namely low temperature (4 ± 2 ° C) for 6 cycles in the refrigerator and accelerated temperature (40 °C) for 6 cycles in the oven. The results of stability testing at low temperature storage did not occur phase separation, all formulas only became frozen. While at accelerated temperature

storage the formula has a consistency that changes slightly from thick to slightly more liquid. Furthermore, each formula after completion was tested including organoleptic test, pH test, homogeneity test, spreadability test, adhesion test, emulsion type and centrifugation test. For all tests, there was no change between before and after the stability test, except for the adhesion test. There is a difference in adhesion after the 12-cycle stability test or cycling test due to temperature factors that cause the preparation to become more liquid or low adhesion.

The irritation test is carried out to determine the potential for irritation to the skin after being given a body scrub preparation, with the aim of knowing the level of safety (Elmitra, 2017). This test was carried out using the open test method, by applying the body scrub preparation to 10 respondents on their forearms with 5 circles where each circle was given a different formula. The response that was noted was whether or not there was any disturbance to the skin such as itching or redness. This test was conducted 15 minutes after use to see whether there was redness or itching. Based on the test results to 10 respondents, the results were safe, no one experienced redness or itching.

Hedonic or liking test is a test conducted to determine the level of respondents' liking for the color, shape and smell of avocado seed ethanol extract body scrub preparations (Persea americana Mill). So that it is known which preparation is most favored by respondents from the results of the questionnaire assessment. Observations were made based on a 1-5 scale assessment where 1 (strongly dislike), 2 (dislike), 3 (somewhat dislike), 4 (like) and 5 (strongly like). This test was conducted with 10 respondents aged 16-35 years taken in the Cirebon and Kuningan areas, where respondents had to observe organoleptically and give an assessment of the preparation on a scale of 1-5. This hedonic test was carried out using SPSS and based on the normality test it was not normally distributed, therefore a non-parametric test was carried out, namely the Kruskal Wallis test which was used to test whether there were significant differences between the formulas. The results of this test obtained a sig value <0.05 in the shape, aroma and color tests. Furthermore, the Mann-Whitney Test which is used to compare 2 formulas with unrelated differences, shows that in the shape test which has a sig value <0.05 is in the control (+) and formula 3 which means that each formula is significantly different. The color test has a sig value> 0.05, which means that each formula is not significantly different. And in the aroma test which has a value <0.05 is in control (+) and control (-), control (+) and formula 1 and control (+) and formula 3 which means that each formula has a significant difference. From the average results of the favorability test, it was found that the most preferred preparation by respondents was the control formula (+) and formula 1 with a 5% concentration of avocado seed ethanol extract.

Avocado seed ethanol extract (Persea americana Mill) formulated in body scrub preparations have different properties. Obtained from the evaluation results that have met the requirements of organoleptic test, homogeneity test, pH test, adhesion test, spreadability test, centrifugation test, stability test, irritation test and hedonic test. In the centrifugation test of formulas 2 and 3 phase separation occurred and in formula 1, the average formula was liked by respondents starting from the texture, color and odor. So formula 1 shows that 5% concentration of

avocado seed ethanol extract is the best formula in the formulation of body scrub preparations.

CONCLUSIONS AND RECOMMENDATIONS

Based on the study the combining of 96% ethanol extract of avocado seed (*Persea americana Mill*) and red rice flour (*Oryza nivara*) with honey added can be formulated as a body scrub, with physical evaluation results that have met the requirements. Of the three formulas, the best is formula 1 with 5% extract concentration in brown color, semi-solid texture with vanilla and extract odor. The researcher suggested the need for formulation development along with antibacterial and can also develop other cosmetic preparations for skin care.

FURTHER STUDY

This research has limitations in language, writing and others, therefore further research is needed so that further research is better and has competence.

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