

The Effectiveness Test of Ethanol Extract 96% Garlic Pubber Skin as Anti-Aging

Mustaruddin

Efarina University, Simalungun, Indonesia

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Corresponding Author:

Mustaruddin

Efarina University,
Simalungun, Indonesia

Email:

mustarduddin@gmail.com

ABSTRACT

Aging is a process experienced by the human body where the function of body parts becomes reduced, for example, the skin is getting thinner and then wrinkles appear. Premature aging of the skin occurs due to photoaging by UV radiation and some bad living habits. In reducing the signs of aging on the skin, antioxidants are needed to protect the skin from damage caused by oxidation so that it can prevent premature aging. Antioxidants can be enzymes (eg superoxide or SOD, catalase, glutathione peroxidase), vitamins (eg vitamins E , C, A) and other compounds such as flavonoids, albumin, bilirubin, ceruloplasmin and others. One of the antioxidants found in nature is garlic peel . Garlic peel has been shown to have many benefits including, containing flavonoids, polyphenols, alkaloids and tannins, and it is this content that proves garlic skin contains separate antioxidants.

Keywords:

Garlic Peel, Cream, Anti-Aging.

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1. INTRODUCTION

Aging (aging) is a process experienced by the human body where the function of body parts decreases, for example the skin is getting thinner and then wrinkles appear. to the top. Premature aging of the skin occurs due to photoaging by UV radiation and some bad living habits. Anti-aging is a technique to inhibit the process of damage to the skin (degenerative), so that it can inhibit the emergence of signs of aging on the skin [27].

Antioxidants are substances that can neutralize free radicals, so that atoms and unpaired electrons get electron pairs and become stable. Free radicals are atoms or molecules that are very unstable [14]. As an active ingredient, antioxidants are used to protect the skin from damage caused by oxidation so as to prevent premature aging [15]. Antioxidants have a small molecular weight, but are able to activate the development of radicals. Antioxidants are also compounds that can inhibit oxidation reactions, by binding to free radicals and highly reactive molecules, thereby inhibiting cell damage . Antioxidants can be enzymes (eg superoxide or SOD, catalase, glutathione peroxidase), vitamins (eg vitamins E , C, A) and other compounds such as flavonoids, albumin, bilirubin, ceruloplasmin and others [31]. One of the antioxidants found in nature is garlic peel.

Antioxidants can be used as anti-aging that can prevent premature aging, for its use it is necessary to use anti-aging cosmetics with high antioxidants in order to treat the skin [31]. These antioxidants can be formulated as cosmetic preparations in the form of creams, gels or lotions.

Cream is one of the most commonly used cosmetic dosage forms. Cream is a semi-solid preparation in the form of a thick emulsion and for external use [2]. The advantage of using the cream is that it has a fairly high aesthetic value and a fairly good level of comfort in use. Cream preparations are easy to wash, are non-sticky, have a moisturizing effect on the skin and have good spreadability. With that in this study using a cosmetic preparation in the form of a cream.

Garlic peel has been shown to have many benefits including, containing flavonoids, polyphenols, alkaloids and tannins, and it is this content that proves garlic skin contains separate antioxidants. Therefore, the antioxidant content found in garlic skin led the authors to research and use garlic skin as an anti-aging cream.

Formulation of the problem

- Can the 96% ethanol extract of garlic bulb skin be used as an anti-aging cream formulation?
- Does a cream containing 96% ethanol extract of garlic bulb skin have anti-aging properties?

Literature Review

Garlic is not a typical Indonesian plant. This plant comes from Central Asia such as Japan and China which has a subtropical climate. Garlic can be found in fresh, frozen, dried, fermented (black garlic) and packaged products. Garlic is included in the bulbous plant or also known as the clove plant in layers. Garlic grows in clumps and stands 30-75 cm tall. This garlic has a pseudo-stem that is formed from leaf midribs. The leaves are ribbon-like, flat and elongated. Garlic roots are in the form of many small fibers. Each garlic leaf consists of a number of spring onions (cloves) where each clove is wrapped in a thin white skin [13].

1. Benefits of Garlic

Garlic has great benefits and uses for human life. The main and most important part of garlic is the tuber which is usually used as a spice in the kitchen. Garlic can be used as a traditional medicine to treat respiratory disorders, urinary tract disorders, high blood pressure, cholesterol, headaches, flu, hemorrhoids, constipation, bruises, intestinal worms, insomnia, and others. Several scientific studies that have been conducted say that garlic can be used as an anti-diabetic drug (Mathew and Augusti 1973), antihypertensive (Foushee et al.1982), anticholesterol, antiatherosclerosis (Yarnell, 1999), antioxidant (Borek, 2001), anti-cell aggregation. platelets (Agarwal, 1996), promoter of fibrinolysis, antiviral, antimicrobial (Noket al. 1996; Zhang 1999; Ohta et al. 1999; Mabey et al. 1988) and anti-cancer [30].

2. Garlic Content

In 100 grams of garlic there are 71.0 grams of water, 95 calories, 4.5 grams of protein, 0.2 grams of fat, 23.1 grams of carbohydrates, 42 mg of calcium, 346 mg of potassium, 134 mg of phosphorus, 1.0 mg of iron, 0.22 mg of vitamin B1, and 15 mg of vitamin C. Through chemical extraction and isolation, several active compounds in garlic can be identified, such as allicin discovered by Bailey and Cavallito in 1944, allicin discovered by Stoll and Seebeck in 1944. 1448, ajoene, S-allylcysteine, and scordinin [21].

3. Garlic Skin

The need for garlic in one year in Indonesia reaches 480,000–500,000 tons. The magnitude of the benefits of garlic for humans makes garlic a necessity that must be met. However, the by-product of garlic, namely garlic peel, is still underutilized. Garlic peels can be found in abundance in the food processing industry and are usually disposed of as waste. In 1 kg of garlic obtained 50 g of garlic skin so that in 100,000 tons of garlic obtained about 5000 tons of garlic skin. The large amount of garlic skin produced provides an opportunity to take advantage of it.

4. Extraction

Extraction is the process of separating materials from a mixture using a suitable solvent. When the equilibrium between the concentration of the compound in the solvent and the filtration of the plant is reached, the extraction process is stopped. After the extraction process, the solvent is then separated from the sample by filtration [29]. Some of the extraction processes whose ingredients come from plants are as follows (Mukhriani, 2014):

- a. Grouping of plant parts (leaves, flowers, etc.), drying and grinding of plant parts.
- b. Solvent selection.
- c. Polar solvents: water, ethanol, methanol, and so on.
- d. Semipolar solvents: ethyl acetate, dichloromethane, etc. Non-polar solvents: n-hexane, petroleum ether, chloroform, and so on.

5. Skin Organs

The skin is the most extensive and easily accessible organ of the body. Adult skin has a surface area of about 2 m², thickness of about 3 mm, receives one third of the circulating blood and serves to protect and receive stimuli from the environment [28].

2. METHOD

1. Types of research

This type of research was carried out experimentally or observational measures were carried out to determine whether there was an effect of cream from garlic peel extract as an anti-aging.

2. Place and time of research

The research was conducted at the Pharmacy Laboratory of Efarina University. The research was conducted from August to September 2021.

3. Sample Preparation Procedure

Fresh garlic peel in wet sorting (separating foreign organic ingredients or ingredients that are not needed). Then washed with clean water which aims to further clean the remnants of foreign organics that are still attached during

wet sorting. Dry at room temperature (avoid direct sunlight). Followed by dry sorting (separating foreign organic materials that may arise in the drying process). Grinding is done using a blender. Then sifted, In this process do not use a sieve that produces a size that is too small because it can complicate the further testing process. In this study, a 30 mesh sieve was used. A total of 350 g of powder was used for maceration extraction and the remaining powder was used for simplicia characteristic test. Packaging is stored in tightly closed containers.

4. Examination of Simplicia Characteristics

a. Macroscopic Examination

Macroscopic examination was carried out in order to pay attention to the color, odor, surface characteristics and size of the simplicia.

b. Determination of Water Content

Determination of water content using the gravimetric method, by weighing 5 grams of simplicia powder in a cup of known weight, put in an oven for 5 hours at a temperature of 105 degrees Celsius, then cooled in a desiccator and weighed the sample to a fixed weight [2].

c. Determination of Water Soluble Levels

A total of 5 grams of dried simplicia powder, macerated for 24 hours in 100 ml of water-chloroform (2.5 ml of chloroform and 1000 ml of distilled water), in a corked flask while occasionally shaking for the first 6 hours, left for 18 hours, then filtered. The first 20 ml of the filtrate was evaporated over a water bath to dryness in a shallow, flat-bottomed dish that had been tared. The remainder is heated in an oven at a temperature of 105 degrees Celsius until a constant weight is obtained. The water soluble extract content was calculated on the material dried in the air [3].

d. Determination of Ethanol Soluble Extract Levels

A total of 5 grams of dry simplicia powder was macerated for 24 hours with 100 ml of ethanol (96%) using a stoppered flask while being shaken repeatedly for the first 6 hours and then left for 18 hours. Then it was filtered quickly to avoid evaporation of ethanol (96%), then 20 ml of the filtrate was evaporated to dryness in a shallow, flat-based dish that had been tared, the rest was heated at 105 degrees Celsius to a constant weight. The concentration of ethanol-soluble extract (96%) was calculated on the material that had been dried in the air [3].

e. Determination of Total Ash Content

Approximately 2 grams of simplicia were weighed carefully then put into a silicate crucible that had been ignited and tared, then leveled. The silicate crucible is slowly incandescent at a temperature of 500-600 degrees Celsius until the simplicia turns into white ash, then the silicate crucible is cooled in a desiccator and weighed. The total ash content is calculated in grams per gram of air-dried material [33].

f. Determination of Acid Insoluble Ash Content

The ash obtained in the determination of ash is cooled with 25 ml of dilute hydrochloric acid for 5 minutes, the part that is insoluble in acid is collected, filtered with ash-free filter paper or filter paper, washed with hot water, ignited in a silicate crucible to constant weight, then cooled and weighed. Ash content that is not soluble in acid is calculated against the weight dried in the air [2].

g. Extraction Procedure

The garlic skin that has been blended and sifted is prepared as much as 350 grams. Macerated using ethanol 96% 1050 ml, soaked for 5 days in a jar with occasional stirring. Jar covered with a dark cloth to protect it from light at room temperature. After obtaining filtrate 1 and dregs 1, then the macerate was filtered and squeezed with flannel. Dregs 1 was rammed by adding 700 ml of 96% ethanol for 2 days with occasional stirring. The filtrate 1 and filtrate 2 were mixed, then heated in a water bath to obtain a thick extract.

3. RESULTS AND DISCUSSION

1. Results of Examination of Simplicia Characteristics

1) Results of Macroscopic Examination of Garlic Bulbs and Garlic Skin Powder:

- a) Garlic is a compound tuber with an average shape of 8-20 cloves, about 4-6 cm in diameter. Garlic which is completely wrapped in 3-5 membranes is white. The length of the garlic is about 3.5 cm. Each clove is covered or wrapped in a thin membrane that is almost white in color and slightly loose, while the membrane that covers the skin is not attached to the outside of the clove flesh is pink. The pink garlic membrane has a length of approximately 4 cm. Garlic has a distinctive aromatic odor.
- b) After being blended and sifted using a 30 mesh sieve, the garlic skin obtained a fine white powder and has a characteristic sharp aromatic odor.

2) Results of the Assignment of Levels:

3)

Table 1. Results of determination of water content, water soluble extract content, ethanol soluble extract content, total ash content, acid insoluble ash content in garlic peel powder.

NO	Description	Simplicity Level
1	Water content	2.14%
2	Water Soluble Level	11%
3	Ethanol Soluble Essence Level	3%
4	Total Ash Content	11.77%
5	Acid-insoluble ash content	0.41%

1. The result of determining the water content obtained in garlic peel simplicia is 2.14%, this result meets the requirements set by *Materia Medika Indonesia* edition VI (MMI VI), that the water content of simplicia should not be more than 10% [2]. Large water content can cause microbial growth because water is a medium for growth of microorganisms.
2. Determination of water soluble extract content and ethanol soluble extract content was carried out to determine the levels of chemical compounds dissolved in water and ethanol, for water soluble extracts the results were 11%, while for ethanol soluble extracts the results were 3%. The water-soluble extract content is higher than the ethanol-soluble essence, this means that more chemical compounds are soluble in water than ethanol-soluble.
3. Determination of the total ash content can be used to determine whether or not a processing is good and know the types of materials used. The total ash content of garlic peel powder obtained was 11.77%, indicating that the total ash content of the powder was in accordance with the requirements, that the applicable standard parameters were not more than 16.6% [2]. The physical properties of the powder can be influenced by the levels of inorganic or mineral compounds present in the powder [31]. If the value of the total ash content is too high, it indicates the presence of mineral and inorganic contamination in the powder. It is hoped that the powder will not experience mineral and inorganic contamination, so that it has high quality.
4. Acid insoluble ash content is one of the criteria in determining the level of cleanliness in the processing of a product. Acid insoluble ash is reflected by the presence of mineral or metal contamination. Acid insoluble levels usually contain silicates from soil or sand. Acid insoluble ash content in garlic peel powder was obtained at 0.41%, indicating that the total ash content of the powder was in accordance with the requirements of the *Indonesian Herbal Pharmacopoeia*, which was less than 1%, and should not be more than 0.7% [3]. If the value of acid insoluble ash content is too high, it indicates the presence of mineral and inorganic contamination in the powder. It is hoped that the powder will not experience mineral and inorganic contamination, so that it has high quality.

2. Garlic Skin Extraction Results

Garlic peel extract was made using the maceration method. The maceration method was chosen because the active substances in the garlic skin such as flavonoids are not resistant to heat, which is of course to protect thermolabile compounds (substances that are damaged, decomposed or changed in response to heat). The drying process of the wet-sorted garlic skin takes 1 week, by airing it at room temperature. After drying, the garlic skin was blended and sieved using a 30 mesh sieve and 350 g of powder was taken. Extraction is used with 96% ethanol as solvent because it is polar and extracts both polar and non-polar compounds. The use of 96% ethanol as a solvent is due to the nature of ethanol which is able to inhibit the growth of molds and germs, its absorbance is good, it does not cause swelling of the cell membrane, it is able to inhibit the work of enzymes and is very effective in producing optimal extracts.

The extraction process uses maceration and ramaceration methods with a ratio of the amount of both 1:5. A total of 350 g of simplicia powder was extracted with 1050 ml of 96% ethanol for 5 days with stirring once a day for 5 minutes. Then it was ramacerated using the remaining simplicia in the maceration process added with 700 ml of 96% ethanol solvent, soaked for 2 days and stirred once a day for 5 minutes. Ramaceration is carried out to maximize the extraction process that has been carried out at the maceration stage. The extraction process is carried out by covering the container using a dark cloth to protect it from light at room temperature. The results of the extraction of 350 g of simplicia powder obtained a liquid extract of 750 g.

With the yield:

$$\begin{aligned}
 \% \text{ Yield} &= \frac{\text{Weight of Extract Obtained} \times 100\%}{\text{Weight of Extracted Simplicia}} \\
 &= \frac{750 \text{ g} \times 100\%}{350 \text{ g}} \\
 &= 21.42\%
 \end{aligned}$$

This result meets the requirements of the *Indonesian Herbal Pharmacopoeia*, namely the yield of not less than 7.2% (DepKes RI, 2000). The yield of a sample is very necessary, to determine the amount of extract obtained

during the extraction process. In addition, the yield data has something to do with the active compounds from a sample so that if the amount of yield increases, the number of active compounds contained in the sample also increases. As has been reported by [9] that the high active compound contained in a sample is indicated by the high amount of yield produced.

The result of the liquid extract of the garlic skin is thickened by heating it in a water bath at a temperature of 99.9 degrees Celsius. A thick extract of 31 g was obtained with a yield of 8.85%, dark brown in color. then the yield of the thick extract of garlic peel obtained was declared good, because the yield was not less than 7.2%.

3. Ethanol Free Test Results

From observations using H₂SO₄ and acetic acid, it was found that the garlic peel extract had no ester odor. Therefore, the thick extract of garlic peel is alcohol-free.

4. Phytochemical Screening Test Results

Phytochemical screening test was carried out to determine the active compound content of garlic peel extract. The results of the phytochemical screening test can be seen in the following table:

Table 2. Results of Garlic Skin Phytochemical Screening Test.

Test Type	Positive Results According to Libraries	Results
Alkaloids	- A white precipitate is formed (Mayer's reagent) - Formation of Reddish Brown Precipitation (Dragendorff's Reagent) - The appearance of a red color (Wagner's reagent)	+
Flavonoids	The occurrence of a yellow-brown color change	+
Saponins	Formation of foam that lasts more than 10 minutes as high as 1.5 cm	+
Steroids/Triterpenoids	The occurrence of a color change to black	-
Quinone	The occurrence of a yellow-brown color change	+
Polyphenol	Formation of a blackish discoloration	+

Information :

Sign (+): There is a Compound Content in the Extract

Sign (-) : No Compound Content In Extract

Based on the results of the phytochemical screening test conducted, it showed that the garlic peel extract contained alkaloids, flavonoids, saponins, quinones and polyphenols.

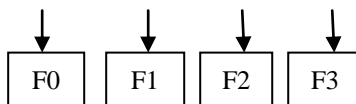
(Pictures of garlic peel extraction and phytochemical screening test results can be seen in the appendix).

5. Results of Examination of Preparations

1. Organoleptic Test Results

Table 3. Organoleptic Test Results.

Observation	F0	F1	F2	F3
Color	Milky White	White	cloudy white	Dark Chocolate
Smell	Vanilla Perfume	Vanilla Perfume	Vanilla Perfume	Vanilla Perfume
Form	Half Solid	Half Solid	Half Solid	Half Solid



Information :

Cream F0 : Blank without garlic peel extract

Cream F1 : Anti-aging cream ethanol extract of garlic peel 1%

Cream F2 : Anti-aging cream garlic peel ethanol extract 2%

Cream F3 : Anti-aging cream garlic peel ethanol extract 4%

The resulting garlic peel extract cream is a thick (semi-solid) cream that is soft like cream and not sticky. The addition of vanilla perfume into the cream preparation aims to cover the characteristic odor of the cream base and the distinctive odor of the addition of thick extract of garlic peel. The overall results of observations made on cream preparations showed that the four cream formulas did not change color, odor and no *creaming occurred* during 4 weeks of storage.

2. Homogeneity Examination Results

The results of homogeneity observations showed that all formulations of garlic peel ethanol extract cream preparations had a homogeneous composition, no coarse grains were felt on the glass plate when tested. During 4 weeks of cream storage, all formulations did not experience a change in homogeneity, so it can be said that the cream preparation was stable in terms of its homogeneity.

3. The results of the pH measurement of the preparation

Measurement of the pH of the preparation is carried out to determine whether the preparation is in accordance with the pH of the skin so that it is safe to use the preparation to avoid skin irritation for the wearer. According to [28], the pH requirement for a good topical preparation is in accordance with the natural pH of the skin, which is 4.5-7. In measuring the pH of the preparation of garlic peel ethanol extract cream used litmus paper. The results obtained in the F0, F1 and F2 cream formulations obtained the color of litmus paper at numbers below 7, while in the F3 formulation the litmus paper color was obtained at numbers below 6. to use. During 4 weeks of storage, all formulations remained at their previous pH values.

4. Results of Observation of Preparation Stability

Table 4. Results of Observation of Preparation Stability.

Observation for 4 weeks	F0	F1	F2	F3
Color	Milky White	White	cloudy white	Dark Chocolate
Smell	Vanilla Perfume	Vanilla Perfume	Vanilla Perfume	Vanilla Perfume
Form	Half Solid	Half Solid	Half Solid	Half Solid
Homogeneity	✓	✓	✓	✓
pH	Numbers Below 7	Numbers Below 7	Numbers Below 7	Numbers Below 6

Information :

Cream F0 : Blank without garlic peel extract

Cream F1 : Anti-aging cream ethanol extract of garlic peel 1%

Cream F2 : Anti-aging cream garlic peel ethanol extract 2%

Cream F3 : Anti-aging cream garlic peel ethanol extract 4%

Sign (✓): Homogeneous Formulation.

From the observation of the stability of the preparation for 4 weeks, it was found that the entire formulation did not change.

5. Spreadability Test Results

The spreadability test is intended to find out how much the cream can spread on the skin. The greater the spreadability of the cream, the greater the active substance delivered to the skin layer [14].

Table 5. Spreadability Test Results.

Replication	F0	F1	F2	F3
1	5.3	5	5.5	5.3
2	5	5.8	5.7	5
3	5.4	6	5	5.5

Information :

Cream F0 : Blank without garlic peel extract

Cream F1 : Anti-aging cream ethanol extract of garlic peel 1%

Cream F2 : Anti-aging cream garlic peel ethanol extract 2%

Cream F3 : Anti-aging cream garlic peel ethanol extract 4%

The results showed that the dispersion value of all face cream formulations had met the standard. Good dispersion of cream preparations is in the range of 5-7 cm [17].

6. Adhesion Test

The stickiness test aims to determine the time it takes for the cream to stick to the skin. Good adhesion to allow the cream not to come off easily and the longer it sticks to the skin, so that it can produce the desired effect. According to [14] the requirement for good adhesion for topical preparations is more than 4 seconds.

Table 6. Results of Adhesion Test.

Replication	F0 (Second)	F1 (Second)	F2 (Second)	F3 (Second)
1	17	8	16	12
2	13	9	11	10
3	11	8	12	10

Information :

Cream F0 : Blank without garlic peel extract

Cream F1 : Anti-aging cream ethanol extract of garlic peel 1%

Cream F2 : Anti-aging cream garlic peel ethanol extract 2%

Cream F3 : Anti-aging cream garlic peel ethanol extract 4%

Based on the observation results of the adhesion test, it can be concluded that the preparation of garlic peel ethanol extract cream meets the parameters of good adhesion.

7. Irritation Test Results on Volunteer's Skin

The results of the irritation test on the skin of volunteers who have been smeared with cream preparations on the back of the ear and left for 24 hours.

Table 7. Irritation Test Results on Volunteers' Skin.

Irritation Reaction	Volunteer											
	F0			F1			F2			F3		
	1	2	3	1	2	3	1	2	3	1	2	3
Redness	-	-	-	-	-	-	-	-	-	-	-	-
Itching	-	-	-	-	-	-	-	-	-	-	-	-
Skin Roughing	-	-	-	-	-	-	-	-	-	-	-	-

Information :

Cream F0 : Blank without garlic peel extract

Cream F1 : Anti-aging cream ethanol extract of garlic peel 1%

Cream F2 : Anti-aging cream garlic peel ethanol extract 2%

Cream F3 : Anti-aging cream garlic peel ethanol extract 4%

Sign (+) : Redness

Sign (++) : Itching

Sign (+++) : Skin Roughing

Sign (-) : No Reaction

Based on the data in table 5.7 shows that there is no irritation reaction in the form of redness, itching and skin roughening caused by the cream preparation, it can be concluded that the cream preparation made is safe to use.

8. Anti-aging activity test results

Anti-aging activity testing using a digital microscope and digital skin analyzer, where the test parameters include measuring moisture content, pore size and wrinkle measurement. Measurement of anti-aging activity begins with measuring the initial skin condition before treatment, this aims to be able to see how much influence the cream used in restoring the skin has. This test was carried out from the first week to the fourth week. The measurement results of anti-aging activity will be discussed per parameter.

a) Humidity (moisture)

Measurement of skin moisture content in volunteers was carried out using a digital skin analyzer. The data from the measurement of water content on the skin of volunteers can be seen in table 8.

Table 8. Results of Measurement of Moisture on the Skin Starting in Initial Conditions.

Cream	Volunteer	Percentage of Moisture Content (%)					% Enhancement Water content
		Initial Condition	Treatment (Sunday)				
			I	II	III	IV	
F0	1	10.3	39	39	43	45.3	5.08%
	2	28.1	38	38	39	42.6	
	3	15.7	40	40	41.5	43.3	
	Average	18,03	39	39	42,16	43,73	
F1	1	15,1	39	39	41	42.1	5.78%
	2	12,5	40	40	42	43.3	
	3	21,2	35	37	38,5	40.6	
	Rata-rata	16,26	38	38,66	40,5	42	
F2	1	19,2	35	36	36,5	42,4	6,42%
	2	10,5	36	36	40	42,9	
	3	14.7	36	39	40	43.2	
	Rata-rata	14,8	35,66	37	38,8	42,83	
F3	1	14.1	40	43,5	45	45.8	6,29%
	2	15,2	45	45	48	49.2	
	3	22	39	39	43	45.9	
	Average	17.1	41.33	42.5	45.33	46.96	

Parameters of measurement results:

0-29 : Dehydrated

30-50 : Normal

51-100 : Hydration [10]

Information :

Cream F0 : Blank without garlic peel extract

Cream F1 : Anti-aging cream ethanol extract of garlic peel 1%

Cream F2 : Anti-aging cream garlic peel ethanol extract 2%

Cream F3 : Anti-aging cream garlic peel ethanol extract 4%

In table 5.8, it can be seen that all groups of volunteers had dehydrated water content, namely 10.3 – 28.1. The treatment carried out showed an effect of increasing the water content of the volunteers' skin after applying the cream. The percentage of increasing skin moisture content in the F0 formulation was 5.08%, F1 5.78%, F2 6.42% and F3 6.29%. The highest percentage increase in skin moisture content was shown by the group of volunteers treated with the F2 formulation.

b) Pores (Pore)

The tool used to view the pores on the skin of volunteers is a digital microscope. Based on the results of the image obtained, the blank group showed a slight reduction in pore size. Meanwhile, formulations 1,2 and 3 showed a significant reduction in pore size compared to the blank group. The most visible pore reduction was demonstrated by a group of volunteers treated with the F2 formulation.

c) Wrinkles

The tool used to see wrinkles on the skin of volunteers is a digital microscope. Based on the results of the images obtained, it shows that the initial condition of the facial skin of all groups of volunteers has wrinkles. After the use of anti-aging cream from garlic peel concentration, it was seen that the blank formulation was not very good at reducing wrinkles on the facial skin. In the group of volunteers who used formulations 1,2 and 3, there was a reduction in the number of wrinkles. The most noticeable reduction in wrinkles

4. CONCLUSION

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

- 1) 96% ethanol extract of garlic peel can be used as an anti-aging cream.

- 2) The results of the orientation that have been carried out from concentrations of 0%, 1%, 2% and 4%, all gave good results, but based on efficiency considerations, the best concentration was chosen, namely from group 3 with a concentration of 2%.

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