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Optimization of Water Guarantee for Making Face Cleaning Soap

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ABSTRACT

Facial cleansers generally have good cleaning power. Facial cleansing soap is also very necessary to keep facial skin clean and healthy. One of the natural ingredients that can help the cleaning process is guava leaf water. Guava leaf water contains several secondary metabolites, such as tannins, triterpenoids, glycosides and flavonoids. In addition, the selection of dosage forms also affects the cleaning power of a cleaning soap. Therefore, in this study, a cleaning soap was made from guava leaf water and a physical evaluation of the soap was carried out in accordance with the specifications and requirements specified. The principle of the saponification reaction is the reaction between oil and KOH/NaOH. The facial cleansing soap made in this study is solid soap. Based on the quality test results, solid leri soap has a pH of 10.3, the saponification rate is 32 water content 34 water content 34% and respondent tests on the aroma and foam aspects which show good enough results so that guava water treatment can be an alternative solution to prevent the use of water. Facial cleanser that contains harmful chemicals.

INTRODUCTION

Clean and healthy facial skin is a dream for all people, both for women and men. A simple treatment that can be done is to wash your face using facial cleansing soap. Soap is a surfactant that is used with water for washing and cleaning (1). Soap is usually in the form of a printed solid called a bar because of its history and general shape. The use of liquid soap has also been widespread, especially in public facilities. When applied to a surface, soapy water effectively binds the particles in suspension easily carried by clean water.

One alternative to using facial soap without damaging the skin is to use products made from (natural) herbs, such as the guava plant (Psidium guajava L). Guava belongs to the Myrtaceae family, comes from tropical America, grows on loose or clay soil, in the open and contains quite a lot of water. This guava tree is widely planted as a fruit tree. However, it often grows wild and can be found at an altitude of 1 to 1,200 meters above sea level. The part of the guava plant used is the guava leaf. Guava leaves (Psidium guajava L.) contain quite a lot of phenolic compounds including tannins and flavonoids, so that guava leaves are antimicrobial (2). Guava leaves contain secondary metabolites consisting of tannins, polyphenols, flavonoids, monoterpenoids, sisculterpenes, alkaloids, quinones and saponoids, vitamins B1, B2, B3, B6, and vitamin C.

Saponins are surface active compounds that are like soap, and can be detected based on their ability to form foam and hemolyze blood cells (3). The mechanism of action of saponins as antibacterial is to reduce surface tension, resulting in increased permeability or cell leakage and resulting in the release of intracellular compounds (4). Saponins diffuse through the outer membrane and vulnerable cell walls, then bind to the cytoplasmic membrane and disrupt and reduce the stability of the cell itself. This causes the cytoplasm to leak out of the cell resulting in cell death. Antimicrobial agents that disrupt the cytoplasmic membrane are bactericidal.

One way of making guava leaf extract is by using the maceration type extraction method. Maceration is a type of solid-liquid extraction which is carried out by immersing the component to be extracted (sample) at room temperature using a solvent that is suitable for the sample (5). Emulgel is a preparation, either in the form of water-in-oil or oil-in-water type emulsion, which is mixed with a gelling agent (6). The combination of the

emulsion with the gel is intended to increase the stability of the preparation and to produce a controlled dual release system of the active substance.

The process of making soap often use a variety of fats or oil as raw material. The types of oil or fat used in the manufacture of this soap will affect the properties of the soap, both in terms of hardness, the amount of foam produced, as well as its effect on the skin. For this reason, in making soap, it is necessary to choose the type of oil or fat that is suitable for the use of the soap itself. Soap-making technology is developing rapidly using the saponification process. The content of substances to make soap varies according to the nature and type of soap. Making soap is a simple reaction between the fatty acids contained in the oil with NaOH/KOH, this reaction is known as the saponification reaction.

METHODOLOGY

This research was conducted at the Chemical Laboratory of the Faculty of Health, Aufa Royhan University in Padangsidimpuan City. The tools used in this study, among others, beakers, stirrer, scales, stove, and mould. While the ingredients used are: cooking oil, NaOH, stearic acid, glycerol, alcohol, guava leaf water deposit, and fragrance.

Research procedure

The first step in making basic soap is to dissolve 13.5 grams of NaOH in 33.5 grams of water. In another bowl, dissolve 10 grams of stearic acid in 90 mL of cooking oil, heat on the stove until the stearic acid dissolves (avoid boiling the oil). After the stearic acid dissolves, let stand until warm, then add the NaOH solution into the oil while continuing to stir. After mixing well, let stand for 15 days. Soap base is ready. The next step, 100 grams of basic soap that has been allowed to stand, is dissolved in 100 mL of a mixture of alcohol and glycerol (1:1) by heating until dissolved and evenly distributed. The mixture is continuously stirred and allowed to stand until it is lukewarm. After that, add enough fragrance, then add ± 5 grams of guava water sediment. The mixture is stirred until well blended, then poured into the mould. Wait a few hours for the soap to harden, the soap is ready to be packaged and used.

RESULTS AND DISCUSSION

Evaluation of solid guava soap preparations in this experiment was carried out to obtain solid guava water soap preparations with good quality. The tests carried out include checking the quality of the soap, namely water content, foam stability, and the indicated pH in Table 1.

Table 1. Soap quality analysis

sample	Water content %	Analysis pH	Number lathering
Soap from guava water	34	10,3	32

Then facial cleansing soap from guava leaves which will be further analyzed, namely water content, acidity, saponification rates and consumer satisfaction questionnaires.

Water content

Moisture content indicates the amount of water contained in a material. According to SNI (1994), the maximum water content in soap is 15% (7). The result of the water content produced from this guava water solid facial cleansing soap is 34%, this indicates a result that exceeds the SNI threshold. This is due to the use of 70% alcohol (70% ethyl alcohol and 30% water), as well as the water content contained in guava water deposits.

Acidity (pH)

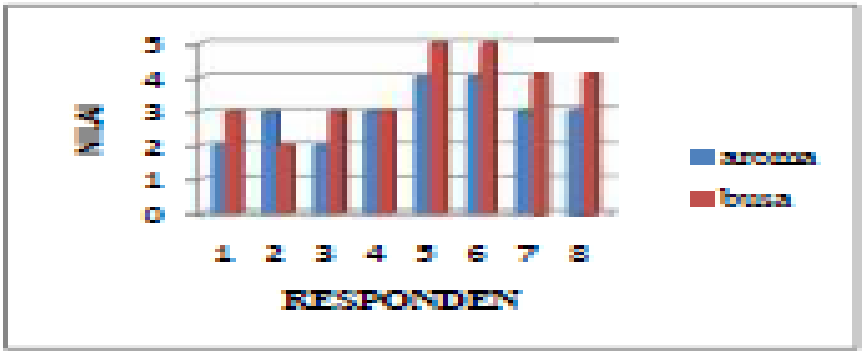
Cosmetic products, especially soap, have a very important physical characteristic, namely the pH value. Very high or very low pH values can increase the absorption capacity of the skin, thereby allowing skin irritation. Standard pH for soap ranges from 9-11. The pH value of the soap is 10.3.

Saponification rate

The saponification number can be used to determine the molecular weight of crude oil and fatty acids. Oils composed of short C-chain fatty acids mean that they have a relatively small molecular weight, will have a large saponification number and vice versa. The saponification rate is expressed as the amount (mg) of NaOH required to saponify one gram of fat or oil. The result of the saponification number from 30 grams of solid guava water soap is 32.

Organoleptic Test

The purpose of the organoleptic test is to measure the level of preference or hedonic to solid guava water soap. This study used 8 untrained respondents who were asked to rate the aroma, and foam of solid guava water soap through a questionnaire sheet that has been provided. The results of the organoleptic test obtained from the 8 respondents are shown in Figure 2. Based on the results of the analysis shown in Figure 2, the results of the organoleptic test which includes aroma and foam for 8 respondents, indicate that the average value for aroma is sufficient while for foam it is almost close to good.



Description of the value scale:
Score 1 = Very less
Score 2 = not enough
Score 3 = enough
Score 4 = good
Score 5 = very good
Score 6 = very good
Score 7 = good
Score 8 = good
Figure 2. Organoleptic test results of solid guava water soap

CONCLUSION

The conclusion of this study is that the pH is 10.3 and the saponification number is 32 and what has been done is that solid guava water soap is good enough to be used as an innovation in soap making.

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