

Formulation And Evaluation Of Physical Properties Of Liquid Soap Komba Komba Leaf (*Chromolaena odorata* L)

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ABSTRACT

The komba komba plant is very rich in chemical substances including alkaloids, flavonoids, glycosides, saponins and triterpenoids/steroids. Based on the potential utilization of komba komba leaves in empirical medical field as well as research showing the presence of antibacterial scientifically, then this plant has the potential to be further processed in the form of liquid soap preparations. The purpose of this study was to determine whether the leaf extract komba komba (*Chromolaena odorata* L) can be formulated into liquid soap preparations and knowing the best concentration so that it can produce preparation of liquid soap ethanol extract of komba komba (*Chromolaena odorata* L) leaves which well based on the parameter tests carried out. The design of this research is research experimental, which is a study by conducting experimental activities to knowing the influence that exists, as a result of certain treatment or The experiment was carried out by examining the experiments carried out on the variable test using, using organoleptic test experiments, homogeneity test, test foam and pH test. The results of this study indicate that komba komba leaf extract (*Chromolaena odorata* L) can be formulated as liquid soap and it has been done homogeneity test, pH test, foam test it is known that all parameters the requirements for liquid soap were tested, namely the overall preparation was homogeneous, pH The soaps have a pH of 10, 11 and 11, respectively, and have high foam resistance good that is able to maintain 60-70% foam volume for 5 minutes.

Keywords: komba komba plants, liquid soap, Physical properties.

INTRODUCTION

Gastrointestinal infections caused by microbes are still often hit Indonesian society. This event is proven by numbers The prevalence of diarrhea and dysentery is increasing. In general Microbes that cause digestive tract disorders enter the human body through word of mouth and by hand (1). To prevent infection from bacteria, therapy needs to be done using antibiotics, but the wrong antibiotics actually strengthen the defense system of bacteria (2).

Komba komba (*Chromolaena odorata* L) is a plant that thrives all over the world are easily found in countries certain areas including in Southeast Asia

such as Indonesia, Malaysia and Thailand (3).

The results of the study found that komba komba extract was very rich in containing chemical substances such as alkaloids, flavonoids, glycosides, saponins and triterpenoids/steroids (4) which are useful for treatment of the goodness of nasal mucus, decongestants, diarrhea in patients diabetes, fever, rheumatism, anti-fungal, anti-bacterial and can be used as medicine antidiabetic and anticataract (5).

Leaf extract of komba komba shoots (young leaves and stems) has antibacterial activity against bacteria that cause gangrene research (6) explained that the ethanol extract from the leaves of krinyuh has an inhibition zone with a

concentration of ethanol extract of komba leaves komba by 30% which can inhibit *Staphylococcus aureus* bacteria, *Enterococcus* spp, coagulase negative *Staphylococcus* (CONS), *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Proteus* spp, *Acinetobacter* spp, and *Citrobacter* spp. In this study, it will be studied whether komba komba leaf extract (*Chromolaena odorata* L) can be formulated into liquid soap preparations as well as knowing the best concentration so that it can produce preparation of liquid soap ethanol extract of komba komba leaf (*Chromolaena odorata* L) which is good based on the parameter tests carried out.

MATERIAL AND METHODS

Materials

Plastic bottles, porcelain cups, Erlenmeyer glasses 50 ml and 100 ml, beakers 250 ml (Pyrex), measuring cup 25 ml, 50 ml and 100 ml (Pyrex), mortar and pestle, paper weighing, air bath, volume pipette (Pyrex), dropper pipette, analytical balance (Chyo). Olive Oil, KOH (Potassium Hydroxide), CMC (Carboxyl Methyl Cellulose), Stearic Acid, BHT (Butyl Hydroxide Toluene), SLS (Sodium Lauryl Sulfate), Aquadest, Ethanol extract komba leaves (*Chromolaena odorata* L).

Methods

Organoleptic test was carried out on the formulation of liquid soap with ethanol extract komba komba leaves, the aims to determine the physical properties of soap and observe changes in shape, color and odor that may occur during storage (7).

Homogeneity can be done by applying the preparation on glass objects or transparent materials, and observed there should not be visible particle specks. If there are no details, the preparation can be said to be homogeneous (8).

The pH value is a value that indicates a school ingredient. The pH test of liquid bath soap is carried out using universal pH or a pH meter (calibrated with a pH buffer solution first every time measuring) the expected pH of the liquid soap falls within the range pH standard, namely pH 8-11 (9).

Foam stability is expressed as the resistance of soap bubbles to maintain the size or resistance of the film from bubbles. Foam stability after 5 minutes the foam should last between 60-70% of initial volume. The preparation is put into a tube containing 10 ml aquades and then closed. The tube was shaken for 20 seconds and measured the height of the foam formed, the tube was left for 5 minutes, then measured more high foam. Then it is recorded and calculated by the following formula (11)

RESULT

The results of the organoleptic test of liquid soap preparations were carried out by looking at the directly through the sense of sight shape, color and smell of liquid soap. Test organoleptic assessment to assess the preparation of product acceptability on physical soap appearance (11). The results can be seen in table 1.

Table 1. Organoleptic Results

Concentration	Test		
	Shape	Color	Smell
0%	Thick	White	Typical
10%	Thick	Yellow	Typical
15%	Thick	Yellow	Typical
20%	Thick	Brown	Typical

Homogeneity can be done by applying the preparation on glass objects or transparent materials, and observed there should not be visible particle specks. If there are no details, the preparation can be said to be homogeneous (8). From the research that has been done in liquid soap

preparations do not get granules, then the preparation said to be homogeneous, the results can be seen in table 2.

Table 2. Homogeneity Results

Concentration	Test
	<i>Homogeneity</i>
0%	Homogeneity
10%	Homogeneity
15%	Homogeneity
20%	Homogeneity

The pH of the preparation can be determined using universal pH or pH meter (calibrated with a pH buffer solution first before each use) measuring), the expected pH of the liquid soap falls within the range of pH standards that are acceptable to the skin, namely pH 8-11 (9). pH test on Liquid soap is very important because the use of liquid soap preparations will direct contact with the skin, so it can cause irritation if the pH value does not match the pH of the skin (10), the results of the pH test can be seen in table 3

Table 3. pH Results

Concentration	Test
	<i>pH</i>
0%	10
10%	10
15%	11
20%	11

Foam stability is expressed as the resistance of soap bubbles to maintain the size or resistance of the film from bubbles. Foam stability after 5 minutes the foam should last between 60-70% of initial volume (11). The results of the foam test can be seen in the table 4.

Table 4. Foam Stability Results

Concentration	Test		
	<i>Height Initial</i>	<i>Height Final</i>	<i>Stability Foam (mm)</i>
	<i>Foam (mm)</i>	<i>Foam (mm)</i>	
0%	71	69,3	97,18%
10%	65	56	86,15%

15%	67,5	59	87,4%
20%	69	58	84,05%

DISCUSSION

Based on the organoleptic test, it is known that soap without ethanol extract of komba komba leaves has a white color while for each soap with ethanolic extract of komba komba leaves with a concentration of 10%, 15%, and 20% respectively have weak yellow, bright yellow, brown, increasing the concentration of the extract, the darker (brown) increases. Smell on a soap with a distinctive scent of komba komba leaves. In the formulation without concentration (0%) and concentrations of 10%, 15%, 20% in a thick but slightly liquid dosage form. Thing This is possible because one of the constituent materials such as CMC (Carboxyl Methyl cellulose) has properties as a thickening agent which is quite good (Kamal, 2010). According to SNI, standard liquid soap, has a liquid form, and smells and smells good.

In the homogeneity test, the results showed that the soap preparation liquid without ethanol extract of komba komba leaves and with ethanolic extract of leaves komba komba with concentrations of 0%, 10%, 15% and 20% homogeneous without any coarse grains and granules on observation through a sample watch glass squeezed by the watch glass. This shows the ingredients in liquid soap is mixed homogeneously so that there is no separation formulation (8).

The results of the pH examination showed that the liquid soap made without the addition of ethanol extract of komba komba leaves has a pH of 10 and liquid soap with the addition of ethanol extract of komba komba leaves with a concentration of 10%, 15% and 20% have pH 10, 11 and 11. pH values of all The liquid soap falls within the standard range of pH in liquid soap according to (9), which is pH

8-11 so it is safe to use. With this formula It can be used for liquid soap. The pH value increases with alkalinity and decreases with development (12).

Test foam on liquid soap preparations to determine the resistance soap bubbles to maintain the size or rupture resistance of the coating bubble film, foam after 5 minutes the foam should last between 60-70% of the initial volume (11). soap with foam too much can cause skin irritation due to the use of foaming agents which is too much (7). Based on (9), foam height requirements liquid soap, which is 13-220 mm so that in liquid soap preparations enter the various requirements of liquid soap. results Based on the obtained can keywords that the preparation of liquid soap with ethanol extract of komba komba leaves or without ethanol extract of komba komba leaves can produce foam well.

CONCLUSION

From the results of this study indicate that komba komba leaf extract (*Chromolaena odorata* L) can be formulated as liquid soap and after homogeneity test, pH test, foam test it is known that all the parameters tested meet the requirements for liquid soap, namely the preparation of all homogeneous, liquid soap has a pH of 10, 11 and 11 and has the advantage of good foam that is able to maintain 60-70% foam volume for 5 minutes

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