

Test formulation of jasmine (jasminum sambac) essential oil as a mixture body lotion: a case study in Kaliprau, Pemalang

Fahmi Arifan^{1*}, Satriyo Adhy², Wisnu Broto¹, Sri Winarni³, Sri Risdhiyanti Nuswantari¹

¹Departement Of Industrial Chemical Engineering Technology, Diponegoro University

²Department of Computer System, Faculty Science and Mathematics, Diponegoro University

³Department of Public Health, Faculty of Public Health, Diponegoro University

*Corresponding author:

Fahmi Arifan

Departement Of Industrial Chemical Engineering Technology

Diponegoro University

Perum Villa Tembalang, Jalan Bulusan Tembalang Blok C No. 15 Semarang

Phone: +628156520216

Email: fahmiarifan80@gmail.com

Abstract

Background :Body lotion is a cosmetic product used to protect the skin from external disturbances such as free radicals, making the skin dry, and causing premature aging to occur. Jasmine flowers can be utilized as an ingredient in the manufacture of body lotion. **Aims**: In this study, we aimed to determine the physical quality of body lotion with an inclusion of an essential oil from Kaliprau village, Pemalang. Pemalang is a center for jasmine production. **Settings and Design**: The design of this study was descriptive analysis. **Methods and Material**: To produce body lotion, 20 g of beeswax is melted mixed with shea butter vaseline, 15 g initially and then 125 g later on. The mixture is heated in medium heat, and then, 15 ml essence jasmine oil is added; the mixture is allowed to stand until it is cool and solidified. **Results**: The results are obtained from testing body lotion pH 6.6–6.8 (in accordance with SNI to the pH of the skin). The scatter test results show that the diameter is between 1.5 and 1.9 cm, with an initial load of 20.45 g and a further load of 17.45 g. A good dispersive power caused by skin contact between the drug becomes widespread, so that absorption of the drug into the skin takes place quickly. **Conclusions**: The scatter test results show that the body lotion was too dense, hence an increase in viscosity. The pH test indicates that the test results meet the criteria for lotion production, in a predetermined pH range..

Keywords: Body Lotion; Essential Oil; Jasmine

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Introduction

Jasmine flower can be processed as an essential oil. This essential oil can be utilized for products used in aromatherapy, perfume industry, cosmetics, traditional medicine, and complementary in traditional ceremonies (1). Most people typically use cosmetic products, such as body lotion. Jasmine flower is used for aromatherapy. In Kalipraou, the quality of body lotion should be tested. A lotion is a low- to medium-viscosity topical preparation intended for application to unbroken skin. By contrast, creams and gels have higher viscosity. Lotions are applied to external skin with bare hands, a brush, a clean cloth, cotton wool, or gauze (4). Most lotions are oil-in-water emulsions using a substance such as cetearyl alcohol to keep the emulsion together, but water-in-oil lotions are also formulated. The key components of a skin care lotion, cream or gel emulsion are the aqueous and oily phases, an emulgent to prevent separation of these two phases, and, if used, the drug substance or substances. A wide variety of other ingredients such as fragrances, glycerol, petroleum jelly, dyes, preservatives, proteins and stabilizing agents are commonly added to lotions. The parameters observed in testing quality include color, fragrance, texture, pH, and dispersive power. Good quality is necessary for consumers (2). The purpose of this study was to determine the best formulation obtained from the addition of jasmine essential oil as a mixture of hand body lotion.

Subjects and Methods

The ingredients of this body lotion include shea butter, vaseline, beeswax, olive oil, and jasmine essential oil. The body lotion is processed by mixing the ingredients. In this process, double boiling method is used. First, all the ingredients are prepared; then, the beeswax is chopped into pieces; afterward, the shea butter and vaseline are scooped into a jar. Next, is to boil water and put 20 g of beeswax (in pieces), 125 g of shea butter, 15 g of vaseline, and two tablespoons of olive oil into a pan. Heat the pan over a low flame while stirring the ingredients occasionally until all of the ingredients are melted well. Turn off the heat. Use a glass jar or any heat-safe container to store the lotion. Add the jasmine essential oil for the body lotion's fragrance. This product is tested using organoleptic test. Organoleptic test is a method in which the physical stability of the ingredients is observed by looking at the changes in the shape, color, and fragrance that occur during storage. Observe the form, color, and smell of the cream (3). Dispersive power test is used to determine the softness of the cream when applied to the skin. This is done by putting a portion of the cream on a scale glass. Then, the top is covered with the same glass, and the load is increased gradually for 1 min. Next, the spread diameter

is measured at each additional load³. pH test is used to identify, via a pH meter, the safety of the cream when applied so that it does not irritate the skin.

Results

A. Organoleptic Test

Organoleptic testing on body lotion is done using the observation method. The observed parameters are color, fragrance, and texture. The body lotion was stored from August 13 to 30, 2019; the results show that the particles of the lotion are not clumpy and the color and fragrance did not change.

Figure1. Body lotion on August 30, 2019 (left), and August 13, 2019 (right)



B. Dispersive Power Test

Table 1. Dispersive Power Test

Diameter (cm)	Load (g)
1.5	20.45
1.9	37.9

A dispersive power test was conducted to examine the ability of the cream to spread to the skin. The scatter results indicate that the diameter was 1.5 and 1.9 cm with an initial load of 20.45 g and an additional load of 17.45 g. Dispersive power test aims to determine the resulting softness that can be easily identified when the cream is applied to the skin. A good dispersive power caused by skin contact between the drug becomes widespread; hence, the absorption of the drug into the skin takes place quickly. The dispersive power requirement for topical preparations are 5-7 cm. However, all of the cream is ineligible of 5-7 cm for topical preparations. Dispersive power and stickiness of the cream type M/A takokak ethanol extract fruit, which does not qualify a good topical preparation, are related to viscosity.

C. pH Test

Table 3. pH Test

Ph test	Time (min)
6.65	5
7,33	5
8,36	5

The experimental results show pH 6.65, 7.33, and 8.36 in 5 min for each test with an average pH of 7.4. pH measurement is intended to determine whether a produced cream will be safe and will not irritate the skin when applied. Terms pH is a good topical preparation based on the skin's natural pH, i.e., 4.5–6.5.

Discussion

Based on the results of organoleptic testing, the parameters of essential oil produced from jasmine flowers are suitable for the production of body lotion and do not cause irritation to the skin. The scatter test showed that the body lotion was too dense, hence an increase in viscosity. The pH test indicates that the results meet the criteria for lotion production, in a predetermined pH range. Based on the results of research conducted on the formulation of hand and body lotion preparations with the addition of jasmine essential oil, it was concluded that the addition of jasmine essential oil can be formulated into hand and body lotion preparations, but the preparations obtained as a whole did not meet the physical evaluation requirements based on the pH test.

References

1. Jayalandri G., Nangoy E., Posangi J., Bara R. Formulation and Lotion Stability Test of Guava Leaf Ethanol Extract Seeds (*Psidium guajava* L.) As Antioxidants. *Biomedic Journal* vol.4g. 2016
2. Rachmalia N., Mukhlisah I., Sugihartini N., Yuwono T. Irritability and physical properties of clove essential oil (*Syzigium aromaticum*) ointment base on hydrocarbon. *Maj. Farmaseutik* 12:372-376.2016
3. Rokhmawati A., Gunadi A., Fatmawati D.W.A. Dayaantibakteriekstrakbuah takokak (*solanum torvum* Swartz) terhadap pertumbuhan *Streptococcus mutans*. *Art. Ilmiah HPM* 1: 1-7. 2014
4. Remington, Joseph Price (2006), Beringer, Paul (ed.), Remington: The Science And Practice Of Pharmacy (21st ed.), Lippincott Williams & Wilkins, p. 772, ISBN 978-0781746731.