

CHAPTER I

INTRODUCTION

A. Background

Cosmetic are a product that is in demand by many people, especially women. Cosmetics are preparations or combinations of several ingredients used for the outside of the body such as the epidermis, hair, nails, lips, and other organs. Cosmetics are widely used from different ages, including adolescents. The age group of 10 to 19 years is a transitional period in life where there are very large physical and psychological changes. Caring and protecting the body is one of the expressions of gratitude to Allah SWT who has created man in perfect physical form to be the caliph of the earth.

لَقَدْ خَلَقْنَا الْإِنْسَانَ فِي أَحْسَنِ تَقْوِيمٍ ۝

It means: “Truly, We have created man in the best possible form” (QS. At-tin: 4)

Parts of the human body can be decorated with cosmetics to provide beauty to look beautiful and dazzling. One of these parts is the lips. Lips are part of the face that can affect the appearance of facial aesthetic perception. The lips have a different layer of corneum with the skin of the face usually containing about 3 to 4 layers and is very thin. On the skin of the lips, there is nothing that serves as a lip protector from the external environment because it has no hair follicles and no sweat glands. Lips are very susceptible to the environment as well as the various health care products that provide unkind impact. The lips are the skin that is most sensitive to hot and cold weather. The blood vessels under the lips will vasodilate during hot weather, causing excessive evaporation due to the increase in moisture transfer from the capillaries

to the tissues. On the contrary, the lips will experience vasoconstriction of blood vessels because the transfer of moisture from the capillaries to the tissues is reduced. This is what causes the lips become chapped and dry. Types of cosmetics for the face include powder, moisturizer, face cream, foundation, lipstick, *lip balm*, eye shadow, eye liner, eyebrow pencil, mascara, facial foam, cleanser, toner, serum, and so on. Dry and chapped lips can be prevented by lip care using lip balm which moisturize the lips.

Lip balm works by forming a layer of oil on the surface of the lips as a moisturizer. *Lip balm* forms a protective layer of lips from external influences¹. The use of *lip balm* is more intended to lips treatment than as makeup for the lips. One of the requirements for decorative cosmetics is to have an attractive color, a fragrant smell, not sticky, and not damage or interfere with the skin, lips, and other drakness.² *Lip balm* itself is designed to protect and maintain lip moisture.³ *Lip balm* on the market use chemicals as dyes, so it can irritate the lips.⁴ Synthetic dyes are dyestuffs made from sulfuric acid or nitric acid which is often contaminated by arsenic or other heavy metals of a toxic nature.⁵ Synthetic dyes exhibit negative effects such as gastrointestinal problems, irritation, respiratory disorders, and neurological reactions.⁶ A large number of reports about cosmetics using synthetic dyes and harmful chemicals increased the vigilance of many parties and the use of natural dyes began to developed. The use of natural coloring agents anticipate the occurrence of negative effects of synthetic dyes such as irritation.⁷

¹ Madans, A., Katie, P., Christine, P., Shailly, P. (2012). Ithaca Got Your Lips Chapped: A Performance Analysis of Lip Balm. BEE 4530. Hal. 15.

² Tranngono RI and Latifah F, 2007, Handbook of Cosmetic Science, PT. Gramedia Pustaka Utama, Jakarta: P. 11, 90-93, 167

³ Muliawan D., and Suriana, N. "On Cosmetics." Jakarta, 2013.

⁴ Hafifah Sarwanda, Nurul Fitriani, Niken Indriyanti 13th Proc. Mul. Pharm. Conf. 2021. e-ISSN: 2614-4778. hal. 81

⁵ Cahyadi W. Analysis & Health Aspects of Food Additives. 2nd ed. Bandung: Bumi Aksara; 2009

⁶ Nur Hidayat. Microbiology Agricultural industry. 2018. Pg 157

⁷ Angela Yosiana, Rahmiati. Cosmetology and Beauty Education, Faculty of Tourism and Hospitality, Padang State University. Pages 9846-9852 Volume 5 Number 3 of 2021

Natural coloring agents obtained from plants, animals, or from mineral sources. Natural coloring agents are used from the past until now as food coloring agents. In general, this natural dye is safer than synthetic dyestuffs. Synthetic coloring agents contain carcinogenic substances that can cause liver damage. Natural dyestuffs are increasingly needed because they are safer than synthetic dyes.⁸ Therefore, making *lip balm* using natural dyes is an expression of gratitude towards Allah Swt as stated in the verse below:

فَلْيَنْظُرِ الْإِنْسَانُ إِلَى طَعَامِهِ ﴿٢٤﴾ أَنَا صَبَبْنَا الْمَاءَ صَبًّا ﴿٢٥﴾ ثُمَّ شَقَقْنَا
الْأَرْضَ شَقًّا ﴿٢٦﴾ فَإِنْ بَتْنَا فِيهَا حَبًّا ﴿٢٧﴾ وَعَيْنًا وَقَضْبًا ﴿٢٨﴾ وَزَيْتُونًا
وَنَخْلًا ﴿٢٩﴾ وَحَدَلِيقَ غُلْبًا ﴿٣٠﴾ وَفَاكِهَةً وَأَبًّا ﴿٣١﴾ مَتَاعًا لَكُمْ
وَلَا نُعَامِكُمْ ﴿٣٢﴾

That is to say: Then let the man pay attention to his food. Indeed, we have truly poured out water (from the sky). Then We divided the earth to the best of our ability, and then We grew the grain on the earth. grapes and vegetables, olives and dates, (the) dense gardens. and fruits and grasses for your pleasure and your farm animals. (QS. Abassa 24-32).

One of the plants that grow a lot in Indonesia and have the potential to produce natural dyestuffs is the seeds of betel nut (*Areca catechu* L.). Betel nut contains purplish-red pigments that can be used as coloring agents. Natural dyes are safe to use as a substitute for synthetic dyes. of the palm plants that can produce natural dyes is the betel nut plant (*Areca catechu* L.)⁹

The betel nut plant (*Areca catechu* L.) contains flavonoids and tannins which are a class of polyphenol compounds mainly found in its

⁸ Badan POM RI, 2007, Public Warning / Warning About Cosmetics Containing Hazardous Ingredients and Prohibited Dyes. Jakarta : BPOM

⁹ Laely Nur Afita, Abi Aufa, et al , Formulation And Evaluation Of Betel Nut Ethanol Extract Lipstick Preparations (*Areca catechu*).

seeds. Betel nut is capable of producing color pigments that can be used as natural dyes.¹⁰ Other compounds contained in betel nut seeds besides flavonoids and tannins are arecaidine, arecaine, choline or bilineurine, guvacine, guvacoline, and glucose ester groups that bind to several groups of pyrogallol. The compound that produce the color pigment in the seeds of betel nut (*Areca catechu* L.) is tannins.¹¹ In betel nut, there is a phlobaphene compound usually known as areca red which produces a burgundy color so that it can be used as a natural dye . So far studies showing the formulation of *lip balm* preparations with betel nut seeds as a natural dye have not been done much, therefore we conducted research on the formulation of betel nut seed *lip balm* as a natural dye

B. Problem Formulation

The formulation of the problem in this study is:

1. What are the characteristics of *lip balm* preparations from betel nut seed extract (*Areca catechu* L.) as a natural dye?
2. What is the concentration of betel nut seed extract (*Areca catechu* L.) which can produce good color characteristics according to the quality standards of the preparation?

C. Research Objectives

The objectives of this study are:

1. Knowing the characteristics of *lip balm* preparations from betel nut seed extract (*Areca catechu* L.) as a natural dye
2. Knowing the concentration of betel nut extract (*Areca catechu* L.) which can produce color characteristics and intents according to dosage quality standards

¹⁰ Technology Yernisa, E. Gumbira-sa'id, Khaswar syamsu and others, 'Application of Natural Powder Dyes From Betel Nut Extract (*Areca Catechu* L.) On Transparent Soap Dyes.', 23.3 (2013), 190–98

¹¹ Heru A Cahyanto, 'Antioxidant Activity of Betel Nut Ethanol Extract (*Areca Catechu* , L)', 2018, 0–3

D. Research Benefits

1. Theoretical Benefits

The results of this study can theoretically be used as scientific information and reference in the formulation of *lip balm* preparations from betel nut seed extract as a natural dye with an appropriate concentration for cosmetic preparations from natural ingredients and as a reference for further research.

2. Practical Benefits

The results of this study can be

- a. Providing information to the public about the benefits of betel nut seeds that can be used as a natural dye, especially in cosmetic preparations
- b. Increase the use of betel nut fruits and development for the benefit of others
- c. Can be used as a reference for further research.

E. Authenticity of Research

Tabel 1. Authenticity of Research

Research Title	Research Methods	Variable	Result	Difference Research
Formulation and Test of Physical Properties of Strawberry Fruit Ethanol Extract Lip Balm (<i>Fragraria Sp</i>) ¹²	This research is a descriptive study that aims to determine the formulation and test the physical quality of lip balm preparations from Strawberry Fruit Ethanol Extract (<i>Fragraria Sp</i>)	Dependent: Ethanol Concentration Strawberry fruit(<i>Fragraria Sp</i>) Independent : Characteristics of lipbalm preparations	The results showed that the preparation of lip balm strawberry fruit extract has no effect on the physical properties of lip balm preparations. Formulas 1, 2, and 3 produce good physical properties, which include organoleptic tests,	Dependent: Formulation of lip balm preparations Independent : betel nut extract with a certain concentration

¹² Intan Amalia. Formulation And Test Of Physical Properties Of Strawberry Fruit Ethanol Extract Lip Balm (*Fragraria Sp*) . Polytechnic of Hope Together. Tega

			homogeneity tests, pH tests, melting point tests, irritation tests, smear power tests. Based on the favorability test which includes color, aroma and humidity formula 1 is the most preferred formula with a liking level for color and aroma as much as 90%. And the degree of favorability to moisture yields 80%.	
Formulation And Evaluation Of Lip Balm Preparations With Yam Extract Dyes Purple Jalar (<i>Ipomoea Batatas (L.) Lamk .¹³</i>)	Experimentation with <i>lip balm</i> preparations with various variations of Purple Sweet Potato extract	Dependent: Formulation of <i>lip balm</i> preparations Independent: Purple Sweet Potato Extract (<i>Ipomoea batatas (L.) Lamk.</i>)	Purple sweet potato extract (<i>Ipomoea batatas (L.) Lamk.</i>) with a concentration variation of 3%, 6%, 9% and without the use of purple sweet potato extract does not meet the requirements due to color the resulting in the 2nd week of storage turns brown, which is due to the high heating temperature at the time of mixing. The difference in the concentration of the preparation of	Dependent: Formulation of lip balm preparations Independent : betel nut extract

¹³ Supartiningsih Formulation And Evaluation Of Lip Balm Preparations With Purple Sweet Potato Extract Dye (*Ipomoea Batatas (L.) Lamk.*). FARMANESIA Vol. 4, No.2, 12/2017. Sari Mutiara University of Indonesia 2S1 Pharmacy Study Program, Sari Mutiara University Indonesia

lip balm purple sweet potato extract exerts an influence on the color of the preparation. The higher the concentration of purple sweet potato extract, the darker the color pigment produced, then the best formula is formulation 3 with a concentration of 9% giving the appropriate color

Formulation And Physical Evaluation Of Preparations <i>Lip Balm</i> Ethanol Extract of Beet Tubers (Beta Vulgaris Var. Rubra (L) Moq.) As a Natural Dye ¹⁴	Experimentation with lip balm preparations with various variations of beetroot tuber ethanol extract	Dependent: Dosage formulations of <i>lip balm</i> Independent : Beetroot Tuber Ethanol Extract (<i>Beta vulgaris var. rubra (L) Moq.</i>)	Variations in the concentration of beetroot extract are F1 0%, F2 1%, F3 5%, and F4 10%. F1, F2, and F3 have a characteristic smell of oleum cacao, while F4 has a characteristic lanolin smell. Homogeneity tests F1, F2, F3, and F4 have homogeneous preparations. pH test on F1 5.26, F2 5.03, F3 4.87 and F4 4.76. melting point test of all melting formulas at 50°C for F1 and F2 for 12 min, F3	Dependent: Formulation of lip balm preparations Independent : betel nut extract
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¹⁴ Erlin Devi Isnaini. Formulation and Physical Evaluation of Lipbalm Preparations of Beet Tuber Ethanol Extract(Beta Vulgaris var. Beta Vulgaris). Rubra(L) Moq.) As a Natural Dyes. JurnalFarmasindopoliteknik Indonusa Surakarta ISSN: 2548-6667 Volume 4 Number 2, December 2020

10 min and F4 for
6 min. Preference
test concludes that
panelists prefer F4
