

CHAPTER I

INTRODUCTION

1.1. Background Of The Study

Health is a very influential thing for human life. Poor environmental conditions can interfere human health. Various kinds of bacteria, germs, fungi, and viruses will develop rapidly and can disrupt human life. Infectious diseases or diseases caused by microorganisms are diseases commonly found in the community. Some infectious diseases are often experienced by the community. One of which is skin infections. One type of bacteria that causes this disease is the *Staphylococcus aureus* (Lowy, 2010). The bacteria *Staphylococcus aureus* mostly found on the surface of the skin can cause minor skin infections, such as acne, *carbuncles* (skin inflammation), impetigo, boils (*furuncles*), and cellulite (Palupi, 2016).

Indonesia is one of the developing countries that had enough natural resources including biological natural resources. Recently many plants are widely known to have benefits and efficacy for treatment (Suirta, 2007). Based on the word of Allah SWT in the Al-Quran it is stated, that Allah SWT created everything on the earth for you (humans). He did not create all that in vain because everything created always has a value of benefits. Therefore, humans are ordered to make the best use of all Allah's creations. This has been explained by Allah SWT in his words:

هُوَ الَّذِي خَلَقَ لَكُمْ مَا فِي الْأَرْضِ جَمِيعًا

Meaning: "It is He Who created for you all things of that which is on the earth" (Q.S Al-Baqarah: 29).

رَبَّنَا مَا خَلَقْتَ هَذَا بَاطِلًا سُبْحَانَكَ فَقِنَا عَذَابَ النَّارِ

Meaning: "Our Lord, You did not create this aimlessly; exalted are You (above such a thing); then protect us from the punishment of the fire" (Q.S

Al-Imran 191).

Even though the community already knows and uses plants as medicine, the reality is that the usage of peels from various plants as an alternative for treatment is not optimal (Pangkahila and Adimoelja, 2002). One of the plants that has a potency to cure skin infections caused by microorganisms such as boils is potato peels. Tubers (*Solanum tuberosum* L.) contains alkaloids, flavonoids, and polyphenols (Depkes RI, 2001). According to Dhianawaty (2015), concentration compound of phenolic in the potato peels is higher than in tubers potatoes. Phenolic compound allows potato peels to have high antioxidant activity (Schiber and Saldana, 2009). Phenol compounds in potato peels have been tested for antibacterial activity against gram-positive bacteria *Bacillus subtilis* and gram-negative *Escherichia coli* bacteria (Syafitri, 2013).

A lotion is a liquid pharmaceutical preparation used for topical usage in the form of both emulsions and suspensions (Ahmadita, 2017). To produce a good lotion, a formula which contains ingredients is as needed appropriate concentration (Ansel, 1989). The selection of ingredients is because of an emulsion-shaped preparation is easily washed by water and not sticky compared to other topical preparations. In addition, the liquid ingredients form was absorb rapidly and onto the skin (Balsam, 1970). The mechanism of lotion production can be referred to a percutaneous absorption. Its the active ingredient is distributed through the skin and systemic circulation so that it has therapeutic effects (Ansel, 2008).

Based on the background above, the researcher carried out a study entitled “The formulation and antibacterial test of the lotion from ethanol extract of potato (*Solanum tuberosum* L.) peels against *Staphylococcus aureus* bacteria”.

1.2. Problem Formulation

The problem formulations problem of this study are as follows:

1. Can the ethanol extract of potato peels be formulated into lotion preparations?
2. How is the evaluation test of the preparation of the lotion from ethanol extract of potato peels using formulations F1, F2, and F3?
3. How is the antibacterial activity of the preparation of the lotion from ethanol extract of potato peels using formulations F1, F2, and F3 against *Staphylococcus aureus* bacteria?

1.3. Research Objectives

The objectives of this study are as follows:

1. Knowing the preparation formulations of the lotion from ethanol extract of potato peels.
2. Knowing the evaluation test for the preparation of the lotion from ethanol extract of potato peels using formulations F1, F2, and F3.
3. Knowing the antibacterial activity of the lotion from ethanol extract of potato peels using formulations F1, F2, and F3 against *Staphylococcus aureus* bacteria.

1.4. Benefits of The Research

1.4.1. Theoretical Benefits

The benefits of this study theoretically are to a scientific source of information to the public that potato peels can provide benefits as an antibacterial medicine. In addition, the results of this study can provide more references to be developed for further research by researchers and can provide more in-depth knowledge about the use of natural resources as raw material for medicine.

1.4.2. Practical Benefits

The practical benefit of this research is to obtain lotion preparation in various formulations from the ethanol extract of potato

peels. In addition, this study is to intended produce antibacterial which could be used to treat skin infections caused by *Staphylococcus aureus* using potato peels extract as an alternative treatment. Furthermore, the results of this study can be compiled in the form of scientific articles for publication and obtain patent rights in terms of formulation of lotion products from potato peels extracts.