

# CHAPTER I

## INTRODUCTION

### 1.1. BACKGROUND

The parasitic disease is a disease caused by parasites, especially ectoparasites. This parasite species survive in the host body by eating the body tissues, take the required nutrients and suck the blood of the host leading to a decrease in body weight, slow growth, a decrease in endurance until the death of the host. As of the important diseases caused by parasites, especially ectoparasites is scabies disease (Iqbal, 2009).

Scabies is a contagious skin disease caused by the mite *Sarcoptes scabiei*. This mite infection can cause very severe itching and usually characterized by lesions. This disease infesting the host with a way to penetrate the skin, lymph fluid sucking and also feed epidermal cells that cause excessive itching, especially at night to form a wound that resembles thick scales and will form a lesion (Subronto, 2008).

Treatment of scabies disease should be done with diligence and patience in practice. Because in the process, this disease requires a long time to treat. Typically, the time required to treat this disease is 1 year or more depending on the spread of the disease and severity. Today, it has developed the use of drugs made from herbs that are used as alternative medicine and is considered more secure and have benefits of more than the treatment of other chemical substances. The one commonly used alternative medicine is green betel leaf (*Piper betel*). In this study, the content of secondary metabolites used is volatile oil (*Clavikol*).

According to research done by John (2000) reported to have the effect of essential oils *cytophylactic* and stimulates the immune system to prevent infection. Green betel plant has been known since 600 years and is widely used as an antiseptic. Besides as an antiseptic, contains oil that is in the green betel can act as insecticides and acaricides. (Herawati,

2009) Besides, further studies of the main constituent of essential oil as a bactericide and acaricides have been carried out by Heyne (1987) which states that *Clavikol* was a phenol derivative compounds of the essential oil of green betel leaf that has five times more potent insecticides (Pelczhar, 2018). Research result (Herawati, 2009) stating that the content *Clavikol* on betel leaves apart as a bactericidal nature can also be antiparasitic for betel leaves taste hot or spicy. Compounds *Clavikol* in the womb secondary metabolites betel leaf can be trusted and used for this disease, especially in healing wounds caused by bacteria. This compound works by killing microorganisms to eliminate or weaken the cell proteins, so the cells are not active, and also because it feels very spicy, clavicle compounds can be used as a bactericidal and anti-parasitic. (Herawati, 2009)

Yunita (2009) stated that the essential oil contained in the green betel leaf has a strong potential as an insecticide and fungicide. Additionally, Mulyantama (2013) in his research to explain the potential of green betel leaf essential oil has an insecticidal effect against more than 30 kinds of insects. Besides the essential oil of betel leaf can inhibit the proliferation of protozoa and parasites. Saponins and tannins in green betel leaf plants have the potential to be toxic to the insect's body. Flavonoids in addition to functioning as a bacteriostatic also serve as an anti-inflammatory in the wound (Mursito, 2002)

Manufacture of dosage formulations made as antibacterial lotions also been carried out by Rahma Yuanita Caesar (2014). This formulation is made from essential oils of fennel fruit (*Foeniculum vulgare Mill*). The results of the characteristics of the preparation have a good texture with a white color that emits aromas such as fennel fruit. Also , the formulation lotion has be done by Sri Luliana (2018). This formulation is made from essential oil of meniran leaves (*Phyllantuss niruri*). The result of the characteristic of the preparation have a good texture white colour that emits aroma such as leaves (*Phyllantuss niruri*).

Mitsui (1997) confirmed that cosmetic preparation with oil in a water emulsion system called lotion. The lotion is intended for external use as a protective skin. The resulting consistency allows the user quickly and evenly on the surface of the skin, making it easy to spread and can be dried immediately after basting as well as leaving a thin film on the surface of the skin (Ansel, 1989). Selection of the use of the preparation lotion in this study is this preparation having several advantages than the dosage others which have a water content that is sufficiently large so, they are easy to apply, power distribution and penetration is high enough, do not give a greasy taste, give cool effects, it is also easily washable with water and having the consistency of a good preparation (Aultons, 2007). Besides preparations have the light texture lotion so easily without any sense of irritation, have good dispersive power. (Barel, 2001),

Many verses of Quran that will discuss the use of medicinal plants as a treatment, such as in Surat an - Nahl verse 16, which reads:

ينبت لكم به الزرع والزيتون والنخيل والأعناب ومن كل الثمرات إن في ذلك لآية لقوم يتفكرون  
 Meaning: He grows for you with rainwater plants; olives, dates, grapes and all kinds of fruits. Verily in this is *true* there are signs (power of God) for people who reflect.

## 1.2. FORMULATION of THE PROBLEMS

1. How dosage formulations of ethanolic extract of green betel leaf lotion (*Piper betle*) ?
2. How do the results of organoleptic tests, measurement of pH, stability test preparation, emulsion type, coverage and test of homogeneity of the preparation lotion?
3. What is the concentration of ethanol extract of betel leaf (*Piper betle*) used as a lotion dosage formulation in terms of the physical quality of the preparation as a treatment anti scabies?

### **1.3. RESEARCH PURPOSES**

1. Knowing the lotion dosage formulations of ethanol extract of betel leaf (*Piper betle*) as an anti-scabies treatment
2. Knowing the results of the test preparation valuation dosage form organoleptic tests, measurement of pH, stability testing, emulsion type, coverage and homogeneity test preparation
3. Knowing the concentration of ethanol extract of betel leaf (*Piper betle*) used as a lotion dosage formulation in terms of the physical quality of the preparation as a treatment anti scabies

### **1.4. BENEFITS OF RESEARCH**

1. The theoretical benefits

In theory, this research can be used as a reference for further research

2. Practical benefits

Practically, this research can be a source of information for the public about the benefits of betel leaf as an alternative treatment scabies disease