

CHAPTER I

PRELIMINARY

1.1 Background of the Study

Islam is a religion that regulates all aspects of life including how to maintain cleanliness and health. Hygiene and health of the body need to be considered especially in the mouth. The mouth is one of the main digestive organs of food because it is the place where food enters the stomach. Food scraps that are not cleaned, this will lead to the appearance of bacteria that damage teeth and cause unpleasant odors (Apriansi, 2017).

The practice of the Sunnah which is most often and most pleasantly carried out by the Messenger of Allāh is a civet. Wearing *miswak* is a simple and light work, but has very many benefits both worldly and hereafter. As the words of the Prophet Muhammad:

السِّوَاكُ مَطْهَرَةٌ لِلْفَمِّ مَرْضَاةٌ لِلرَّبِّ (رواه أحمد)

Meaning: “*Miswak is cleanliness for the mouth and pleasure for Rabb*” (H.R. Ahmad in *Irwaul Ghalil* no. 66 and *Syarhul Mumti* '1/120 and *Taisir* ' Alam 1/62).

The above hadith explains that *miswak* has benefits both worldly and hereafter. The benefits of *miswak* are worldly in the form of oral hygiene, health, freshness, teeth whitening, eliminating bad breath and others. While the benefits that are hereafter are *ittiba'* (following) to the Prophet Muhammad SAW and getting pleasure from Allah *Subhanahu wata'ala* (Ahmad, 2013).

Miswak (*Salvadora persica* L.) is a green leafy halofit plant that is usually used by Muslims to clean teeth. The Ulema said that women and certain people are allowed to use other media besides *miswak* because the gums and teeth of women and children are very soft, they are afraid that if they use *miswak*, then in order to continue to get the Sunnah he must

intend to use *miswak* even if he is allowed to use other media than *miswak*. (Maulana, 2008; Zaki, 2015).

Some studies suggest that *miswak* has antibacterial properties against *Streptococcus mutants*, *Streptococcus aureus*, *Streptococcus pyogenes*, and *Candida albicans*. (Abdel, *et al.*, 2002; Al-Bayati and Sulaiman, 2008). With the development of modern science and technology, *miswak* has rarely been used and switched to toothbrush media or tools plus cleaning agents or toothpaste. Besides, it is also found now oral cleansing fluids commonly used after brushing your teeth to increase dental hygiene and freshness of the mouth.

The pharmaceutical preparations made in this study were lozenges. The suction tablet has a local effect on the mouth and its use is found for the prevention and treatment of oral and jaw chamber infections as a drug predominantly antiseptic, disinfectant, analgesic and oral anesthetic. (Lachman, 1994; Voight, 1994). Making lozenges is intended to provide a form of treatment that can be easily given to children or parents who find it difficult to swallow whole drugs, and can mask the unpleasant or bitter taste of the drug (Voight, 1994).

Binder is the most important element in making lozenges. Hydroxypropyl Cellulose (HPC-SSL-SFP) is the latest variant of HPC which has a special low viscosity with very fine particle size (super fine powder) which was developed to provide excellent tablet properties in the direct press method (Muria, 2012).

Research on lozenges was made in three formulations which varied the concentration of Hydroxypropyl Cellulose (HPC-SSL-SFP) as a binder using the direct compress method. Research by (Muria, 2012) stated that the formulation of lozenges of betel leaf extract using binder (HPC-SSL-SFP) obtained the best formulation at a concentration of 10%, but the optimum concentration of the physical properties of *miswak* extract produced on *miswak* extract tablets was not known.

1.2 Formulation of the Problem

Based on the research background, the formulation of the research problems are as follows:

1. Can the ethanol extract of Miswak (*Salvadora persica* L.) be formulated into lozenges in the form of a direct compress method so that lozenges can be obtained to meet physical quality requirements?
2. What is the effect of the variation of the concentration of Hydroxypropyl Cellulose (HPC-SSL-SFP) as a dry binder on hardness, friability, and disintegration of lozenges in the ethanol extract of *miswak*?
3. Which formulation is the best among the three variations of the concentration of HPC-SSL-SFP binder on the lozenges of the *miswak* ethanol extract?

1.3 Research Objectives

Based on the formulation of the problem, the objectives of this study are:

1. Knowing that the ethanol extract of Miswak (*Salvadora persica* L.) can be formulated into lozenges in the form of direct compressing so that lozenges can be obtained to meet physical quality requirements.
2. Knowing the effect of variations in the concentration of Hydroxypropyl Cellulose (HPC-SSL-SFP) as a dry binder on hardness, friability, and disintegration of lozenges in ethanol extract of *miswak*.
3. Knowing the most optimum formulation among the three variations of the concentration of Hydroxypropyl Cellulose (HPC-SSL-SFP) binder on lozenges of ethanol extract of *miswak*.

1.4 Benefits of Research

1.4.1 Theoretical Benefits

The benefits of this research theoretically for the University is that the results of the research can be a useful academic document to be

used as a reference for further research, while for female students the results of this study can be a reference for further research.

1.4.2 Practical Benefits

The practical benefits of this research are:

1. For industry, research can be a development of the traditional drug industry with a new formulation of lozenges made from active extracts of *miswak* stem.
2. For the community, this research can be an important information for the use of *miswak* formulations as antibacterial in the mouth.