

CHAPTER 1

INTRODUCTION

1.1 Background of the Problem

Dense daily activities become one of the triggers of the problem that occurs that is body odor, the onset of excessive sweating is caused by a lot of activities and also dense activities, this makes the lack of confidence in daily activities. Discomfort in activities especially with the many activities that cause the appearance of unpleasant odors called body odor. Body odor comes from a combination of sweat and bacteria (Zahra, I. 2018). Maintaining physical appearance and cleanliness will affect social life.

Prevention of body odor by using soap and water as a cleanser and body wash is less effective in preventing this problem. The preparations and products that are specially formulated as body odors are effective to help in maintaining the cleanliness of the body. One of a product to maintain cleanliness is the antiperspirant deodorant preparation. Deodorant preparations have various forms including liquid, aerosol, gel, powder and stick (Maftuhah, et al., 2015).

However, seeing the problems that occur that it is difficult for people to get deodorant preparations with natural and economical ingredients. Thus, triggering researchers to make deodorant preparations made from natural and economical. So, one way to maintain and utilize plants in Indonesia that have benefits as anti-body odor and can cure infectious diseases of the skin is betel plants. The types of plants that are included in the group of medicinal plants reach more than 1000 species, one of the most widely grown medicinal plants in Indonesia which have recently been used is red betel (*Piper crocatum*) (Yulianti, et al., 2010). Red betel leaf contains chemical compounds such as alkaloids, anthocyanins, flavonoids, tannins, and essential oils which are suspected as potential antibacterial, antioxidant and anti-allergic power (Candrasari, et al., 2012). So, the content of the red betel leaf can prevent body odor. Besides, betel leaf extract contains

slarge number of bioactive compounds including polyphenols, alkaloids, steroids, saponins, and tannins. This saponin has the ability as a cleaner so it is effective as an antibacterial. While tannins can be used as a prevention against wound infections because they have antiseptic properties. Flavonoids have antiseptic activity. The essential oil content of betel leaves, a phenol, is called chavicol which has strong antiseptic properties (Muthoharoh, et al., 2011). Moreover, the number of antiseptic contents and various activities of the compounds contained in these leaves disrupts or damages the cell membrane or bacterial cell wall. The compound is thought to reside in the red leaves (Farida, et al., 2018). Therefore, extracts from red betel leaves can be used as a deterrent to body odor and an odor due to dense activities.

In the betel leaf content which will be used as the main of antibacterial ingredient which antibacterial will help in eliminating odor on the body. In research (Berta, 2015) by adding aluminum potassium sulfate in the formulation, which is a good antiperspirant in the deodorant formulation. The content of alum which is aluminum salt as an antiperspirant in the preparation of deodorant. On the other mind, people often use alum in various forms which are pollinated and used directly on the armpits. However, this powder dosage form is less effective because it can be dissolved in sweat and affects the comfort of its use, and also It is considered ancient and traditional, alum's reputation as a substitute for deodorant is lost and has rarely been used by people to this day. With this, the addition of alum is shown to add a better variation and will attract the attention of the community by making it in the form of spray preparations as an antiperspirant in deodorant products. Based on the above understanding, the purpose of this research is to create a spray deodorant product that can control odors in the body. The advantage of using this spray are more practical in the use and alternative deodorants can made from natural such as betel leaves which are safer and more natural. For taking the advantage of the benefits of red betel leaf (*Piper crocatum*) to increase the economic value and the addition of aluminum potassium sulfate / alum for the development and variety of a product.

1.2 Formulation of the problem

Based on the background description, the following problem formulation is obtained:

- a. Can aluminum potassium sulfate be combined with red betel extract (*Piper crocatum*) to be used as an antiperspirant deodorant spray?
- b. What is the physical stability of the antiperspirant deodorant spray from the red betel leaf extract (*Piper crocatum*) with aluminum potassium sulfate?
- c. Which formulation is the best among the three variation of the concentration of aluminum potassium sulfate on the spray of red betel extract deodorant with aluminum potassium sulfate (alum)?

1.3 Research Objectives

Based on the description of the problem formulated, the objectives to be obtained are:

- a. Formulate spray deodorant preparations of extracts of red betel leaf (*Piper Crocatum*) with aluminum potassium sulfate which is physically and chemically stable can be formulate spray formulation.
- b. Determine and test the physical stability of the antiperspirant deodorant spray preparations from extracts of red betel leaf (*Piper crocatum*) with aluminum potassium sulfate.
- c. Knowing the most optimum formulation among the three variations of the concentration of aluminum kalium sulfate on the spray deodorant formula of red betel extract (*Piper crocatum*) with aluminum potassium sulfate.

1.4 Benefits of Research

- a. Provide information to the public that red betel extract (*Piper Crocatum*) and aluminum potassium sulfate can be combined as an antiperspirant deodorant spray.
- b. Provide information on physical stability testing of antiperspirant spray deodorant preparations from red betel leaf extract (*Piper Crocatum*) with aluminum potassium sulfate.

- c. Provides the most optimal formulation information among the three variations of the concentration of aluminum potassium sulfate in the formula of the red betel extract (*Piper crocatum*) deodorant spray with aluminum potassium sulfate