

CHAPTER I

INTRODUCTION

1.1. Background

Indonesia is one of the developing countries that has a lot of natural resources. Most natural resources are already used for healing various diseases. Almighty God created everything that exists on earth and in heaven with good condition. Human beings as living creatures that created him must take legal and benefits from him, for example by making use of the plants there are in the universe. Allah says in Surah Asy-syu'araa:7 which reads:

أَوَلَمْ يَرَوْا إِلَى الْأَرْضِ كَمْ أَنْبَتْنَا فِيهَا مِنْ كُلِّ زَوْجٍ كَرِيمٍ (٧)

Meaning: “*Do they not look at the earth, how many noble things of all kinds We have produced therein?*”

Based on the verse above it, explains that an awful lot of herbs that can be used in particular for healing disease. One of them is okra plants. One of the areas in Situbondo argues that consuming okra plant which is processed into a coffee can cure some diseases such as diabetes mellitus, decreasing cholesterol levels, uric acid, aphthous ulcers, cancer, kidney disease, rheumatism, antioxidants, and other diseases. According to research Delviana (2017), the screening of phytochemicals from okra leaves simplicia showed antioxidant compounds, namely flavonoids. The chemical content of okra includes 67.50% of α -cellulose and 15.40% of hemicellulose (Jain *et al.*, 2012), the chemical content of α -cellulose and hemicellulose has antidiabetic effect (Winarno, 1997).

Diabetes mellitus is a group of symptoms that arise in a person, characterized by increasing of glucose levels due to disruption of the insulin production function (Dipiro *et al.*, 2015). In 2015, Indonesia was ranked

7th of the world with the highest prevalence of diabetics in the world along with China, India, the United States, Brazil, Mexico, and Russia, with a population estimate of about 10 million people (IDF, 2015). There are four types of diabetes mellitus, there are DM type 1, DM type 2, DM gestational and other types of DM (ADA, 2010). DM type 1 occurs due to the damage of the β langerhans cells, making the production of insulin in the body stops. DM type 2 occurs because of 2 things, namely due to insulin resistance and functional damage in the β langerhans cells (Nugroho, 2012). DM gestational is diabetes that arises when the period of pregnancy and usually appears in the second or third trimester (Purnomo, 2009). The last classification of DM is another type of DM, and this DM happens because of infections due to drugs or chemical substances (Health Department, 2005). Prediabetes mellitus is a condition which is blood glucose levels are too high enough to be said diabetes mellitus (Merck, 2019). In 2030 diabetes mellitus is estimated at the 7th causes of death in the world. While in Indonesia, 21.3 million people is expected to have diabetes mellitus (Health Department, 2005)

Safitri (2015), has done some research on okra plant showed that the ethanol extract of the okra fruit could decrease blood glucose levels. Research of Desthia (2015) reported that ethanol extracts of okra leaves could reduce blood glucose levels. Zaenab (2017) also mentioned that even an infusion of okra fruit could reduce blood glucose levels. Based on the research before, the background research on the utilization of okra leaf infusion has never been done before. Therefore, researchers want to take the title “Potential Effect of Infusion From Okra (*Abelmoschus esculentus* L. Moench) Leaves to Reduce Blood Glucose Levels in Mice Induced by Alloxan.”

1.2. Problem Formulation

Based on the background already outlined above, problems in this research are :

1. Does the infusion from okra (*Abelmoschus esculentus* L. Moench)

leaves have the potentiation to decrease blood glucose levels in mice induced by alloxan?

2. What is the most effective concentration of infusion from okra (*Abelmoschus esculentus* L. Moench) leaves to decrease blood glucose levels in mice induced by alloxan?

1.3. Research Objective

The purpose of this research is :

1. Knowing the potential of infusion from okra (*Abelmoschus esculentus* L. Moench) leaves in decreasing blood glucose levels in mice induced by alloxan.
2. Knowing the most potential concentration of infusion from okra (*Abelmoschus esculentus* L. Moench) leaves to decrease blood glucose levels in mice induced by alloxan.

1.4. Benefits of Research

1.4.1. Theoretical Benefits

The theoretical benefit in this study could be used as a source of reference for the next researcher over the development of science and technology and make it more sophisticated.

1.4.2. Practical Benefits

The results of this study were expected to provide knowledge to the various parties about the benefits of okra leaves against the blood glucose levels.

