

CHAPTER I

INTRODUCTION

1.1. Background of The Study

Modernization era brings various influences in people's lives, including lifestyles changes, especially in urban areas. Changes in habits and lifestyles can be seen in the number of fast food restaurants that sell food containing high cholesterol in which only contains a little containing nutrients (Debra, 2008). The trend of eating habits that are all practical and instant like fast food and preserved food has developed rapidly in society. This type of food is quite detrimental to the human body because it contains saturated fatty acids and high cholesterol (Nurcahyono, 2008). Cholesterol is a solid substance circulating in the blood, produced by the liver which is needed by the body (Listian, 2010).

The body needs cholesterol continuously which is synthesized in the liver (liver). About 70% of cholesterol in the blood is a result of synthesis in the liver, while the rest is a contribution of food intake (Tisnadjaja, 2006). Consumption of foods with high cholesterol content that takes place routinely increases blood cholesterol levels (hypercholesterolemia). This condition will form atherosclerosis which can cause hypertension, blockages in the blood vessels of the brain, as well as heart and blood vessels of the legs. Furthermore, obstructions in the blood vessels of the brain will cause cerebrovascular diseases such as strokes. Obstructions in the heart's blood vessels can cause cardiovascular disease such as coronary heart disease. Blockage of leg veins causes peripheral vascular disease that often occurs in the legs which can cause complaints of pain, cramps, numbness and even gangrene (Garnadi, 2012).

High cholesterol levels are influenced by carbohydrate, protein, fat, fiber, and cholesterol intake. High cholesterol levels can be reduced by regulating dietary patterns. Setting nutritional habits to reduce cholesterol

levels is done by controlling the absorption of nutrients in a balanced manner according to needs (Muchtadi et al., 1993). Large fiber intake can reduce cholesterol levels by increasing bile secretion (John, 2007). Bile secretion is closely related to blood total cholesterol content (Muslim, 1989).

The main pathway for removing cholesterol in the body occurs in the liver through its conversion to bile acids, namely khalat acid associated with glycine and taurine to form bile salts, then excreted through bile into the duodenum. Some bile acids will be reabsorbed by the liver through circulation and will then secreted into the bile. Bile acids that are not absorbed will be degraded by microbes in the large intestine and excreted into feces (Muchtadi et al., 1993). Eating foods that have high cholesterol content is a taboo in society. It aims to control cholesterol in the body. The results will be more effective if we also consume anti-cholesterol foods. One of the natural ingredients that have anti-cholesterol properties is okra fruit which is high in fiber and its flavonoid content (Axe, 2011).

Okra fruit is one example of a variety of plants that Allah SWT has created for the benefit of humanity. Both are useful for improving health and for curing diseases. In the Word of Allah SWT in Al-Qur'an which means:

“And do they not pay attention to the earth, how many do We grow on earth a variety of good plants.” (Asy-Syu'araa':7).

The chemical compounds contained in Okra are Vitamin C, phytosterol, pectin, and flavonoids. Flavonoids are compounds that have the potential to reduce cholesterol (Rusliyani, 2013). The potential content of phytosterol in Okra that can be found in plant cell membranes also has a structure similar to cholesterol but can dissolve in water. Therefore it can bind to blood cholesterol and get wasted in the digestive process into body waste (Axe, 2009).

Utilization of Okra fruit juice on cholesterol levels of mice has also been carried out by Fauziana (2016). In this study, mice were given 3 dose variations namely 0.2 mL/20g BW of mice, 0.4 mL/20g BW of mice and

0.8 mL/20g BW of mice which showed a significant effect on the decrease in total cholesterol levels of mice. Research conducted by Nugraha (2016) on the impact of Okra mucilage on blood sugar and cholesterol levels in diabetic dyslipidemia mice showed a significant decrease in the average blood sugar and blood cholesterol levels of the group doses. Hence it can be concluded that Okra mucilage could reduce blood sugar levels in mice and in line with a decrease in blood cholesterol levels in mice.

Gacia's (2016) study of the effects of Okra mucus on total cholesterol levels was carried out by giving okra mucus to mice. Obtained results of administration of mucus Okra affect to reduce blood total cholesterol. Adiwinata (2017) also conducted a study on the effect of Okra mucus on low-density lipoprotein cholesterol levels (LDL) which showed that administration of okra mucus could reduce LDL cholesterol levels in the blood in high-fat male mice. Research on Okra flour was also carried out by Febriyatna and Widiawati (2017). The results showed an increase in HDL cholesterol significantly and decrease cholesterol levels LDL in hypercholesterolemic rat. Research on the effect of okra seed extract on reducing blood total cholesterol levels has never been done in Indonesia. Based on this matter, the researcher is encouraged to examine the effect of okra seeds methanol extracts on reducing blood total cholesterol levels in hypercholesterolemic mice.

1.2. Problem Formulation

The formulation of the problem from this study are as follows.

1. How is the effect of okra (*Abelmoschus esculantus* L.) seeds methanol extract on reducing blood total cholesterol levels in hypercholesterolemic mice?
2. What is the most effective concentration of okra (*Abelmoschus esculantus* L.) seeds methanol extract on reducing blood total cholesterol levels in hypercholesterolemic mice?

1.3. Research Purposes

Based on the formulation of the problem above, the objectives of this research are:

1. Knowing the effect of okra (*Abelmoschus esculantus* L.) seeds methanol extract on reducing blood total cholesterol levels in hypercholesterolemic mice.
2. Knowing the most effective concentration of okra (*Abelmoschus esculantus* L.) seeds methanol extract on reducing blood total cholesterol levels in hypercholesterolemic mice.

1.4. Benefits of Research

1.4.1 Theoretical Benefits

The results of the research conducted are expected to:

1. Become a reference material for further research.
2. Become a reference for beneficial medicinal plants in Islam to support health.

1.4.2 Practical Benefits

The results of the research conducted are expected to:

1. Provide scientific information to the public about the benefits of okra (*Abelmoschus esculentus* L.) seeds methanol extract.
2. Reveal the effect of okra (*Abelmoschus esculentus* L.) seeds methanol extract on blood total cholesterol levels.
3. Increase the benefits of okra (*Abelmoschus esculentus* L.) seeds methanol extract to be more effective and give economical treatment for people with hypercholesterolemic.