

ABSTRACT

Introduction: Hypercholesterolemia is a condition of high cholesterol in the blood that is characterized by elevated levels of LDL without elevated triglyceride levels. Such conditions can lead to atherosclerosis and coronary heart disease (CHD), which can cause mortality. Hypolipidemic drugs such as simvastatin is a drug commonly used to control the levels of LDL cholesterol in the blood, but the use of chemical drugs in the long term can cause serious side effects. Thus, currently the use of herbal medicines by utilizing plant biotic compounds being developed. *Petiveria Alliaceae* or known as singawalang believed to help lowering levels of LDL cholesterol in the blood because of the content of antioxidant compounds such as flavonoids, alkaloids, and tannins that may prevent LDL oxidation. In addition to working as an antioxidant, all these compounds also have another mechanism that can also help lowering LDL cholesterol in the blood. Flavonoids can work as inhibitors of HMG-CoA reductase enzyme that decreases cholesterol synthesis. Alkaloids inhibits pancreatic lipase activity, increasing secretion of fat in the feces and inhibit absorption of fat by the liver to be converted into cholesterol. Tannins can inhibit the absorption of fat in the intestine by reacts with the protein mucosal and intestinal epithelial cells.

Methods: This study is a laboratory experimental research with pre and posttest control group design. Sample using rats (*Rattus norvegicus*) males, aged 2-3 months with body weight \pm 150 grams.

Results and Analysis: The average LDL cholesterol level of negative control group (KN) is 3.40 ± 2.07 , which means there is no significant increase. In the simvastatin group (S), the treatment group 1 (K1), group 2 (K2), and treatment group 3 (K3) the average of LDL cholesterol results showed a decrease with the result S = -71.10 ± 31.35 , K1 = -53.60 ± 26.80 , K2 = -67.05 ± 23.98 , and K3 = -51.06 ± 20.27 . By using One Way Anova obtained significance value of $p < 0.05$, which showed significant differences.

Conclusion: Singawalang leaf extract can reduce levels of LDL cholesterol in the blood.

Keywords: Hypercholesterolemia, LDL, *Petiveria alliacea*, Simvastatin