ABSTRACT

Syadzaiffat Chikita, Gauca. 2016. *Subchronic Exposure Effect to Kelud Volcanic Ash Against Increased Cholesterol Levels Total Rat (Rattus norvegicus) Wistar strain Male Model Diabetes Mellitus*. Final Project, Program Medical Education, Faculty of Medicine, University of Brawijaya. Supervisor: (1) Dr. Elly Mayangsari, M. Biomed (2) dr I Putu Adi Santosa, Sp. PK.

In patients with diabetes mellitus, hyperglycemia circumstances trigger the formation of free radicals by the reaction of glucose and the redox imbalance autooksidasi. Residents around Mount Kelud and suffering from diabetes mellitus will be inhaling volcanic dust that can cause oxidative stress through the formation of free radicals. Free radicals formed due to the conditions of hyperglycemia and the effect of exposure to volcanic ash is causing damage to the hepatocyte cell membrane and increases total blood cholesterol. This study aims to prove that exposure to volcanic ash of Mount Kelud affect total cholesterol levels in the Wistar rat model of diabetes. Experimental studies using post-test only control group design performed on male Wistar rats. Samples have to be divided into five groups, namely the "K (-)" (n = 5), the group "K (+)" (n = 5), the "P1" (n = 5), a group of "P2" (n = 5), and a group of "P3". The variables measured were total cholesterol CHOD-PAP method. The results showed that the increase in total cholesterol of mice after being exposed to volcanic ash was significantly different (p=0.049; α=0,05). There is a strong relationship between the exposure dose of volcanic ash on the blood serum total cholesterol level of white rats (Rattus norvegicus) Wistar model DM (p=0.016, r=0,609). The conclusion of this study is volcanic ash of Mount Kelud increased total cholesterol level of rat model DM.

Keywords: volcanic dust, diabetes mellitus, total cholesterol