ABSTRACT

THE INFLUENCE OF SPIRULINA IN NUMBER OF MACROPHAGES AND ACTIVATED PLASMA CELLS ON WOUND HEALING PROCESS OF TOOTH EXTRACTION IN Cavia cobaya.

Background: Spirulina which grows abundantly in Indonesia have been investigated to enhance immune system. The administration of Spirulina in tooth extraction sockets was expected to optimise the function of immunocompetent cells. Therefore, wound healing process could be accelerated and well occured.

Purpose: The aim of this study is to prove that administration of Spirulina could enhance immune system through increasing the number of macrophages and activated plasma cells in tooth extraction sockets.

Methods: There were 28 Cavia cobaya were used in this study and were put in group of four. Mandibular left incisive were extracted from each of them. The basis made from mixture of PEG 400 and PEG 4000 was administrated into each socket in group 1. In addition, Spirulina 12% was administrated into group 2, Spirulina 24% was administrated into group 3, and Spirulina 48% was administrated into group 4. All of the Cavia cobaya were decapitated and the jaws were removed in day 5 after tooth extraction. The jaws were decalcified in EDTA solution, formed into paraffin block, processed for Hematoxylin Eosin (HE) and immunohistochemistry staining afterwards. Data was analysed statistically using ANOVA method.

Results: There was an augmentation in the number of macrophages and activated plasma cells after Spirulina application. The administration of higher concentrations of Spirulina leads to greater amount of macrophages and activated plasma cells in each groups.

Conclusion: Spirulina 48% is effectively increasing the number of macrophages and activated plasma cells on wound healing process after tooth extraction in Cavia cobaya.

Keywords: Spirulina, macrophages, plasma cells.