ABSTRACT

EXPRESSION OF FGF-2, FIBROBLAST CELL AND CAPILLARIES NUMBER AFTER APPLICATION SPIRULINA (Blue-green Algae) GEL ON TOOTH EXTRACTION HEALING

Background: Tooth extraction still occupy the top position of 54.3% as a measure to treat toothache. The process of wound healing after tooth extraction sometimes have problems and cause many complications such as bleeding, swelling, dry socket, and even the spread of infection. The use of herbal medicine in the wound healing process can minimize the complications that occur. Spirulina not only has anti-inflammatory and antioxidant capabilities, but also can stimulate Fibroblast Growth Factor-2 (FGF-2) in the wound healing process.

Purpose: To determine the effect of spirulina 6%, 12%, and 24% induced into tooth extraction sockets towards FGF-2 expression, fibroblast cells and capillaries number over wound healing process.

Methods: We have used the post test only control group design in this research. There have been 28 Cavia cobayas as research samples, and those were then divided into 4 groups, namely control group, group I (spirulina 6%), group II (spirulina 12%), and group III (spirulina 24%). Their left incisive tooth have extracted and applicated spirulina topically to the socket based groups. All samples were sacrificed after 3 days after tooth extraction to perform histological and immunohistochemistry evaluation among groups. The data were tabulated and analyzed statistically.

Result: The research has proven the relation among the increased growth of FGF-2 expression, fibroblast cells and capillaries number with spirulina gel application. The higher the doses, FGF-2 expression and cell number of fibroblasts more increasing. But, there is decrease in the number of capillaries group III, after increase in the number of capillaries on group II.

Conclusion: Spirulina could increase the expression of FGF-2, fibroblast cells and capillaries number over wound healing process after tooth extraction. In this research, the optimum dose to increase FGF-2 expression and cell number of fibroblasts is spirulina 24%, and the optimum dose to increase capillaries number is spirulina 12%.

Key words: FGF-2, fibroblast cells, capillaries, spirulina