SINGLE DOSE INDUCTION OF SPIRULINA AND CHITOSAN ON TOOTH SOCKET TO THE AMOUNT OF COLLAGEN (Cavia cobaya)

ABSTRACT

Background: Spirulina contains a variety of nutrition, such as C-phycocyanin, cytokines, Super Oxide Dismutase (SOD), beta carotene, and other trace elements as well as natural phytochemicals that can accelerate wound healing process on tooth extraction socket. Chitosan contains N-acetyl-D-glucosamine which its polymer structure similar to hyaluronic acid classified into glycosaminoglycan group (GAGs), that is important for wound healing. Objective: This research is aimed to study the effects of single dose induction spirulina and chitosan applied topically on tooth extraction socket. Method: Using post test only control group design with 49 cavia cobayas, were divided into 7 groups. Control group treated with Carboxyl Methyl Celulosa (CMC Na) 3%, first group spirulina 9%, second group spirulina 12%, third group spirulina 15%, fourth group chitosan 15%, fifth group chitosan 20%, sixth group chitosan 25%. After 30 days, mandibles were cut and tooth socket area was sectioned for histopathology assessment to count the amount of collagen. Result: There was significant different between spirulina 15% group and control group based on the results of One-way ANOVA and Tuckey HSD, it was known that all data obtained were normally distributed with Sig < 0.05. Then, there was increased amount of collagen between the control group and those three treatment groups of spirulina extract. However, only in the third treatment group was found significantly increase the amount of collagen (Sig < 0.05). Conclusion: The application of single dose induction spirulina topically on the third treatment group by administering spirulina 15% in the socket after tooth extraction can increase the amount of collagen.

Keywords: spirulina, chitosan, wound healing, collagen, tooth extraction