

**APLIKASI SERBUK NATURAL HIDROKSIAPATIT-CHITOSAN
TERHADAP PROLIFERASI MAKROFAG PADA PERBAIKAN
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**(HYDROXYAPATITE-CHITOSAN NATURAL POWDER APPLICATION
EFFECTS ON MACROPHAGE PROLIFERATION IN BONE
REMODELLING)**

ABSTRACT

***Background.** Periodontal disease happens approximately at 10% of adult populations, characterized by loss of attachment between tooth and bone, resulting in bone resorption and eventually bone loss. In the wound healing process to repair bone tissue, macrophage have an important role. To facilitate the healing process, bone graft is placed in the bone defect. Compounding hydroxyapatite-chitosan can result in better osteoconductivity properties and scaffold strength than both of material stands alone. **Purpose.** The aim of this study was to know the effect of hydroxyapatite-chitosan application on macrophage proliferation in bone remodelling. **Method.** This research was done in vivo experiment by creating a defect on rabbit's tibiae. 20 rabbits were divided into 4 groups. The 1st group treated with 70:30 hydroxyapatite-chitosan powder, examined after 4 days. 2nd treated with 30:70 hydroxyapatite-chitosan powder, examined after 4 days, 3rd group treated with 70:30 hydroxyapatite-chitosan powder, examined after 7 days and 4th group treated with 30:70 hydroxyapatite-chitosan powder, examined after 7 days. Macrophages were observed and counted under light microscope and outcome data were analyzed using statistical One-way Anova. **Results.** There were significant differences in the number of macrophage among groups. There were significant differences in the number of macrophage between two groups treated with 70:30 hydroxyapatite-chitosan powder at days 4th and 7th. **Conclusion.** In bone remodelling, Hydroxyapatite-Chitosan 70:30 graft powder better in controlling the proliferation of macrophages (in inflammatory and proliferative phase) than Hydroxyapatite-Chitosan 30:70 graft powder.*

***Key words :** Bone Graft, hydroxyapatite, chitosan, macrophage*