

**ChemTech**

International Journal of ChemTech Research
CODEN(USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.6, pp140-147,2017

Formulation and Evaluation of Wound Healing of Alginate-Chitosan and Calcium Alginate-Chitosan Membran in Guinea Pigs

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Abstract: Guinea pigs wound healing has been investigated by using calciumalginate-chitosan and alginate-chitosan membrane. Membrane strength tested with a universal testing machine type: SC-2DE. Skin wound made by cutting the abdominal skin to the dermis of guinea pigs with a size of 1 x 1.5 cm. The wound was treated by adhering the membrane to the wound. Then, the wound was covered by using sterile bandage. Every 3 days the wound area was measured. The inflammation, the dryness of the wound, the presence of the pus were observed. Furthermore, it was also performed the histopathological observation of the wound that has been treated at 0 day and 12th day by using chitosan-alginate membrane and calcium chitosan-alginate membrane. The result of macroscopical observation showed that the wound healing by calcium chitosan-alginate membrane and chitosan-alginate was faster than untreated wound (control). The wound healing by calcium chitosan-alginate membrane was faster than by chitosan-alginate membrane. The result of tensile strength test showed that calcium chitosan-alginate membrane was stronger than that of chitosan-alginate membrane. The result of histopathological observation the untreated (control) showed that at the 12th day, it was found the epidermis hasn't been dense, the hair follicle hasn't been formed, and has a lot of fibroblast. But, the wound healing by calcium chitosan-alginate and chitosan-alginate was found that the epidermis was dense, the hair follicles were formed and fibroblast was less. It was found that the wound that healing by calcium chitosan-alginate the epidermis was more dense and the fibroblast was lesser.

HafizhatulAbadi /International Journal of ChemTech Research, 2017,10(6): 140-147.
