

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

An initial gauze dressing was developed by coated with calcium alginate incorporated with mangosteen extracts. The efficacy of absorption was increased by coated with calcium alginate. However, the concentrations of calcium alginate solution affected on swelling behaviors and surface of the gauze. The gauze with sodium alginate concentration more than 1.0%w/v had a rough surface. The oxygen permeability was also studied. From the results, the increase of alginate concentrations decreased oxygen permeability of the coated gauze. Moreover, the concentration of calcium alginate likewise affected on blood clotting. The BCI use to represent the blood clotting of gauze, decrease of BCI value means increase of blood clotting. From the experiment, the BCI value decreased with increased calcium alginate concentration. The result was similar with Ding *et al.*, 2013 and Blair *et al.*, (1990). So the calcium alginate can enhance the haemostatic clots. The antibacterial efficacy of gauze dressing was improved by the mangosteen extracts. The MIC and MBC value use to display antibacterial efficacy of the extracts. We found that the mangosteen extract inhibited both negative and positive bacteria. Thus, the effect of mangosteen extracts concentration was investigated. Increase the extract concentration enhance the antibacterial properties of the dressing, it shows in the increase the clear zone of the coated gauze from dish diffusion method. The Bacterial reduction method use to insist the antibacterial properties of the dressing, No bacterial growth was detected after 24 hours for coated gauze combined with mangosteen extractes. Thus, we succeeded in enhance the antibacterial properties of the coated gauze dressing. Finally, the cytotoxicity of the extracts also investigated. The increase of mangosteen extract shows some toxicity in HaCat and FB cell. In our summary, the initial gauze successfully enhance in swelling, blood clotting and antibacterial activity by coating with calcium alginate and mangosteen extracts. In the further study, the coated gauze with lower concentration of alginate than 0.5% w/v will be studied. We should also study effects of alginate concentration on mechanical properties and try to increase interaction between gauze and alginate.