

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

For deacetylation in association with plasma treatment, the conversion of chitin to chitosan could be achieved with diluted NaOH solution. The factors that have an influence on the degree of deacetylation are type of alcohol, ratio of alcohol to water, NaOH concentration, and the number of deacetylation. By using solution plasma to produce chitosan from chitin hydrogel, not only *N*-deacetylation reaction was promoted, degradation caused by the residual NaOH and various radical reactive species generated by solution plasma also occurred resulting in the reduction of molecular weight of chitosan that facilitated the solubility and enhanced the antibacterial activity of chitosan.

5.2 Recommendations

During preparation of chitin hydrogel solution, methanol which exhibited low boiling point, is easy to evaporate and also showed problem that solution plasma cannot occur for a long time. During preparation of chitin hydrogel solution, sodium hydroxide mixed with ethanol or propanol and also showed problem in homogeneous dispersion of solution but methanol cannot dissolve in high concentration of sodium hydroxide.

5.3 Suggestion for future works

How to increasing degree of acetylation of chitin hydrogel by using solution plasma technique

- Increasing cycle of plasma treatment (Increasing reaction time)
- Changing type of alkaline such as KOH, Urea etc.
- Using UV spectrometer before treated chitin hydrogel by using plasma treatment