

CHAPTER IV

CONCLUSIONS

The hydrolysis of α -chitin from shrimp shell with concentrated hydrochloric acid (conc. HCl) at high temperature, above 90 °C, gave GlcNHCl. There is no significant difference^{ee} in the yield of GlcNHCl between different dissolution techniques, the sonication and the pre-warming of acid, although the sonication method produced slightly higher yield at most conditions. At chitin/conc. HCl ratio of 1:1 (w/w), the optimum hydrolysis temperature and time were 120 °C and 120 minutes, respectively, which gave 64% isolated yield of GlcNHCl. When the hydrolysis was conducted at low temperature, 30-40 °C, using ultrasonic wave assisted dissolution, the reaction afforded GlcNAc as a major product. GlcNAc was produced in 37% isolated yield with 95% pure when the hydrolysis was performed at 30 °C for 4 hours. Higher temperature or longer hydrolysis time caused deacetylation^{ee} to form GlcNHCl that reduced the yield of GlcNAc. The results illustrated that selective hydrolysis of glycosidic bond over the amide bond of chitin is possible by controlling the hydrolysis temperature and time.