

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This study showed the sodium hydroxide pretreatment with microwave on corn cobs was effective in improving enzymatic hydrolysis accessibility. Although, higher NaOH concentration, higher temperature, and longer time during pretreatment result in higher solid loss and also higher lignin removal; therefore, leading to less total sugar concentration. Glucose and xylose were the major components in total sugars produced after hydrolysis with a fairly small amount of galactose and arabinose. The optimum conditions were found at 2% NaOH at 100 °C for 30 minutes which could reduce lignin by 66.27% and increased in surface area by 38.31%. And the highest glucose concentration can reach up to 32.53 g/L and total sugar was released 42.93 g/L. Moreover, microwave assists NaOH can be produce total sugar concentration at shorter pretreatment time and lower pretreatment temperature compared with autoclave. And also produce total sugar concentration higher total sugar concentration than conventional heating.

5.2 Recommendations

The monomeric sugar released from NaOH pretreatment should be improved by using two-stage pretreatment, such as treating corn cobs with sodium hydroxide, followed by acid (Zhao *et al.*, 2009).