



CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Dilute acid pretreatment is an essential step for practical cellulose conversion, which is altering the structure of cellulose to an active form in order to improve enzymatic accessibility that convert polysaccharide into fermentable sugar. Moreover, dilute acid pretreatment can remove hemicellulose, decrease the cellulose crystallinity, and increase surface area. Therefore, the important variables such as pretreatment temperature, time, acid concentration, and LSR in pretreatment process should be optimized in order to enhance sugar yields in both pretreatment and enzymatic hydrolysis step. A high overall total sugar yield in both pretreatment and enzymatic hydrolysis was obtained under an optimal conditions of 140 °C, 10 min pretreatment time, 2 % (w/w) H₃PO₄ at 10:1 LSR. The secondary biofuels like ethanol that obtained from fermentable sugar in both pretreatment and enzymatic hydrolysis step also were presented in this research.

5.2 Recommendation

For future work, the inhibiting compound like furfural which is an inhibitor, affecting microorganism growing in fermentation step should be removed from prehydrolysate prior to fermentation.