CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In this research, the steam-explosion pretreatment by varying the impregnation agents (H_2O and H_2SO_4) and times (1,2, and 3 h). The microbial hydrolysis of the untreated corncob and sugarcane bagasse and steam-explosion pretreated corncob and sugarcane bagasse by using bacterial strains A 002, isolated from Thai higher termites, *Microcerotermes* sp., were investigated. The glucose is found to be a major monosaccharide produced from the hydrolysis. It was found that for H_2O impregnated steam-explosion pretreatment of corncob at 2 h provides the highest amount of glucose 0.262 g/L at 5 h of the hydrolysis time, while in the sugarcane bagasse at the 1 h steam-explosion pretreatment provides the glucose, about 0.369 g/L at 6 h of the hydrolysis time. In addition, the highest amount of produced glucose from the H_2SO_4-impregnated steam-explosion of corncob is 0.265 g/L at 1 h of steam-explosion time, while for the H_2SO_4-impregnated steam-explosion pretreatement of sugarcane bagasse is 0.6 g/L at the 1 h of pretreatment time. In conclusion, the H_2SO_4-impregnation steam explosion pretreatment provides the higher in glucose concentration and faster hydrolysis time than using H_2O, especially in the sugarcane bagasse. The results suggested that the structure of the sugarcane bagasse can be further break down especially when it is pretreated with the H_2SO_4 as a preimpregnation agent than H_2O.

5.2 Recommendations

For the future work, the enzymatic hydrolysis of lignocellulosic materials using these bacteria should be carried out in continuous process and the effect of the steam-explosion pretreatment temperature should be investigated.