



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In this research, the microbial hydrolysis of rice straw with two effective isolates (strain A 002 and M 015), from Thai higher termites, *Microcerotermes* sp., was investigated. Glucose was found to be a major monosaccharide produced from the hydrolysis. It was found that bacteria strain A 002 produced more glucose than strain M 015 at both 37 °C and 30 °C because of the higher β -glucosidase activity of strain A 002 over strain M 015. The hydrolysis temperature of 37 °C provided the highest cellulase activities for both strains, resulting in the higher glucose production. The amount of malt extract in production medium also played important role on glucose production because the bacteria require nitrogen source from malt extract to grow and hydrolyze the rice straw to glucose. The < 80 mesh rice straw provided the highest surface area for the enzyme to hydrolyze the rice straw which resulted in the higher glucose production. From the results, the maximum glucose production of 0.97 g/L was obtained at 9 h from the hydrolysis of < 80 mesh rice straw with strain A 002 at 37°C and 10 g/L of malt extract in production medium.

5.2 Recommendations

For the future work, the enzymatic hydrolysis of lignocellulosic material using these bacteria should be carried out in continuous process and the effect of the ratio of raw material to the production medium on glucose production should be investigated.