

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study has successfully produced ethanol from mission grass by utilizing *Saccharomyces cerevisiae* as the fermentative microorganism. The highest yield of ethanol concentration was 17 g/l where *S. cerevisiae* TISTR 5596 was exploited to produce ethanol. In addition, the highest ethanol concentration fermented by this strain happened within 24 h, which was faster than ethanol production capability of other strains in this study. The ability of the yeast strain to produce high ethanol yield could be due to its high tolerance to toxic compounds as well as high resistance to osmotic stress.

Overliming method offers one of the most effective techniques to remove inhibitory compounds in the grass hydrolyzate. The most suitable overliming pH occurred at pH 10. Conditioning at pH 10 could eliminate adequate amount of inhibitory compounds yet does not drastically remove glucose, which is the best compromise in order to obtain the highest amount of ethanol.

Recommendations

1. Simultaneous saccharification and fermentation (SSF) should be studied to shorten ethanol fermentation time and further optimize the production of ethanol.
2. Other methods of lignocellulosic hydrolyzate detoxification could be experimented to discover the most appropriate method for grass hydrolyzate.