CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The simultaneous production of hydrogen and methane from alcohol wastewater using two-stage upflow anaerobic sludge blanket reactors (UASB) was investigated. To maximize the CH_4 production, the system has to be operated at a COD loading rate of 48 kg/m^3d. Under this optimum COD loading rate, the methane yields and COD removals were 164.2 and 427.5 l CH_4/kg COD removed and 41.7 and 64.9 % for the first and second UASB units, respectively. To maximize the H_2 production, the system should be operated at a COD loading rate of 270 kg/ m^3d to yield 22.2% H_2 in the produced gas from the first UASB unit with the hydrogen yield of 2.31 l H_2/kg COD removed.

5.2 Recommendations

For further research, it is interesting for the study of a recycle ratio of feed to effluent from methane-producing stage to improve hydrogen production.