CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The improvement of methane production with added chelant ferric chloride and cobalt chloride in the cassava wastewater was investigated under the anaerobic digestion in the CSTR system at the total COD loading rate of 1.7 kg/m^3 d without temperature and pH control. The results indicated that the EDTA concentration of 5 ppm was considered to be the optimum concentration that could combine all of micronutrient for the growth of the enzyme for increasly degraded organic compound and converted to biogas. When compare with GLDA, only 3 ppm of GLDA concentration could perform well and enhance the methane production. That also resulted in the highest COD removal (63.1 %), methane production rate (917 mL/d), specific methane production rate of 229 mL CH_4/L d (or 23.16 mL CH_4/g MLVSS d), methane yield of 413 mL CH_4/g COD removed (or 152 mL CH_4/g COD applied), and total VFA concentration (322 mg/L as acetic acid), acetic acid concentration (98 mg/L). The produced biogas (917 mL/d) was mainly composed of methane (86.5 %) and carbon dioxide (13.44 %) with negligible amounts of nitrogen and oxygen. Moreover, the Added ferric chloride and cobalt chloride concentration affected the efficiency of desulphurization of the produced biogas. The hydrogen sulfide gas was reduced from 0.1 % to 0.00 %

5.2 Recommendations

It is interesting to study the enhancement of the methane production with added chelant mixed by ferric chloride and cobalt chloride in the cassava wastewater or mixed ferric chloride and cobalt chloride with residue under the anaerobic digestion.by using the CSTR system. In addition, ASBR (Anaerobic Sludge Blanket Reactor) and

UASB (Upflow Anaerobic Sludge Blanket Reactor) system under the optimum condition including the various types of wastewater that may be investigated.