



Chapter 6

Conclusions

Based on the results obtained in this study, the following conclusions were made :

- 1) Granular sludge could be formed within 2 weeks in the single-step UASB reactor feeded with brewery wastewater. Filamentous and rod-type granules were found in the bed.
- 2) Within the HRT range of 4 to 24 hrs and the organic loading range from 2.2 to 12.4 KgCOD/m³-d, the COD removal ranged from 90 to 94% for unfiltered COD and 91 to 95% for filtered COD.
- 3) The total amount of sludge blanket of 9300 gTSS and 5100 gTVSS, which corresponded to 37 KgSS/m³ and 20 KgVSS/m³ could be retained in the reactor. While the sludge retention time (SRT) was as low as 67.8 days and HRT was as short as 4 hours.
- 4) The UASB worked well in the F/M ratio range of 0.35 to 0.95 KgCOD/KgVSS-d and SRT range of 67.8 to 826 days.
- 5) Most of COD removal was accomplished within the height of 1.5-2 m. A greater height had minor improvement of COD removal.
- 6) The efficiency of BOD removal was in the range of 94-97%. Mean effluent BOD were in the range of 47-61 g/m³.
- 7) The methane yield varied from 188 to 316 l(STP) per

KgCOD removed and the methane content of the biogas varied from 74 to 80.9%.

8) The granular sludges under a long unfed period could regain its activity in a few hours after the substrate was fed again.



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