

Inhibitory effect test for ethanol fermentation from glycerol by *Enterobacter aerogenes*

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In this study, ethanol production from pure glycerol using *Enterobacter aerogenes* ATCC 29007 was evaluated in anaerobic culture condition. Also, inhibitory effects of substrate concentration, pH, and salt concentrations were investigated based on crude glycerol ingredients. Ethanol production was performed with pure glycerol concentration, ranging of 5 g/L - 30 g/L to evaluate effects of substrate concentration and osmotic pressure. The consumed glycerol was 3 - 5 g/L and conversion rate was more than 0.9 mol-ethanol/ mol-glycerol after 24 h of cultivation. To evaluate inhibitory effects of salts (NaCl and KCl), experiments were performed under 0 g/L - 20 g/L for each salt. Some inhibitory effects of salts were shown at the high salt concentration. Finally, inhibitory test to pH was performed in the pH range of 4 ~ 10 and cell growth and ethanol production were higher at pH 5 - 7 than other pH values.