

Effect of inhibitory compounds with crude glycerol on ethanol production by *S. cerevisiae*

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In recent year, with the global warming and shortage of fossil fuels, there has been a rapid increase in biodiesel production. Many researches related to transformation to value-added compounds from biomass including lignocellulosic materials, waste biomass and other carbon sources have been studied. In this study, we investigated the effect of inhibitors derived waste and crude glycerol from biodiesel production process on the cell growth and the ethanol production by *Saccharomyces cerevisiae*. During the transesterifications of vegetable oils or fats, FAME and by-product, such as glycerol and salt (NaCl, KCl), are formed and released. To identify effect of inhibitors, various concentrations of glycerol, NaCl, KCl and pH were investigated. The trend of ethanol production was similar in ranging from 5 to 25 g/L glycerol. However, the ethanol production increased when the 10 g/L glycerol was added. There were no significant inhibition effects on the cell growth and the ethanol production when different concentrations (5 g/L - 20 g/L) of NaCl and KCl were added. The cell growth and glycerol consumption rate decreased in the case of over pH 7.