ABSTRACT

ENERGY POTENCY OF THE UTILIZATION OF BIOETHANOL INDUSTRIAL WASTEWATER MADE FROM CASSAVA AND MOLASSES

By

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Bioethanol is one of the alternative sources of energy made from recycle material using the coals fossil fuel for production process. Wastewater resulted from the bioethanol production process which is made from cassava (called by thinslop) and molasses (called by vinasse) is one of potencial biomasses to produce biogas. Therefore it could be utilized to diminish the use of limited avalaibility of fossil fuels and produce environmentally friendly energy.

The research was implemented by using the study of literature, collecting the data from the observation result towarded COD, gas volume, and methane gas concentration of thinslop and vinasse. The type of data used in this research was secondary data. The collected data was presented in form of tabulation and chart analyzed descriptively. The aim of this research is to identify the potency of biogas, methane gas, and energy of thinslop and vinasse which is theoritically calculated.

Based on the calculation, it is concluded that one kL of ethanol could produce thinslop as much as 7,22 m^3/kL of ethanol which could produce energy as big as 2.166,07 MJ/kL of ethanol as it is utilized. As a result it could diminish the use of electrical energy from coals in its production process to be 281,01 kWh/kL of ethanol. Energy potency as resulted from vinasse utilization could produce 11.151,05 MJ/kL of ethanol from 14,41 m^3/kL of ethanol. It could subtitute 100 percent of the use of electrical energy from coals and produce more excess electrical power as big as 397,10 kWh/kL of ethanol, equal with Rp. 287.127,50/kL of ethanol.

Key Words: Bioethanol, thinslop, vinasse, and energy potency.