THE INFLUENCE OF HYDRAULIC RETENTION TIME (HRT) AND THE CIRCULATION OF BIOGAS PRODUCTION IN ANAEROB REACTOR

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Abstrac

The Anaerobic processing is performed in the anaerob bioreactor using type of Up Flow anaerobic filter which has volume 500 L, this reactor uses sponge filter media that functions as a place for microorganisms attachment. Waste which we have uses is a waste of cooking factory (CARIN) with COD concentration of 150,000 ppm.

The objective of this research is to understand the influence of variations of Organic Loading Rate (OLR) and the time of circulation of the production of biogas produced. The method for this research is to enter the feed into bioreactor in accordance with the HRT variables, namely 4, 6, 8,and 10 days, and then its circulated in accordance with the variable of its circulation time.

Biogas produced from HRT 10 is 0.38 m3/day with the percentage of COD removal of the resulting is 72 %. HRT 8 for produce of biogas is 0.43 m3/days and the percentage of COD removal of the resulting is 71 %.HRT 6 days produced 0.56 m3/day and the percentage of COD removal of the resulting is 69 %. Maximum production of biogas from HRT 4 is 0.66 m3/day with the percentage of COD removal of the resulting is 68 %. This circulation done on variables of 30, 45, 60, 75, and 90 minutes. The variable results the optimumo output that for 75 minutes circulation can increase the production of biogas higher than other variables. Yhe increased production of biogas is 13.2 % with 386.1 kcal produced and yhe energy required is 220.05 kcal.

key words : Hydraulic Retention Time (HRT), Circulation, Bioreactor ANaerob