ABSTRACT

Rice waste is organic waste that can be easily found in Indonesia. With high organic content, this waste has the potential to become an alternative energy source using the anaerobic digestion method to produce biogas. This research was conducted by fermenting stale rice and EM4 using a simple biogas reactor with semicontinous method. This study aims to determine the effect of substrate filling time span differences on the amount of gas produced. The variation of the substrate filling time span applied in this research was ½, 1, and 2 days. The result shows that the substrate filling time span of 2 days is the most optimal by successfully accumulating up to 18.5 liters gas which consist methane gas around 8.6 ml within ten days. The average volume of the produced gas was 1.85 liters / day and methane gas was around 0.86 ml / day or 0.046% of the total gas.

Keywords: *hydraulic retention time, anaerobic digestion, biogas, semicontinuous filling, filling time span.*