

## **ABSTRACT**

*The potential of renewable energy from biohydrogen is easy to convert and eco-friendly because it has water vapor as the burning of. Anaerobic digestion is biochemical process in which organic waste is biodegradables in oxygen free environment through. Small-scale production, semi continuous anaerobic digesters have been developed to improve volume of gas production. From basic parameters that influences gas production, one of the important parameter is HRT (Hydraulic Retention Time). It means the time of substrate can live and became nutritions for microorganisms. In order to prevent the lack of nutrition for the microorganism, should be feeding fresh substrat onto the digester. In this experiment was divided into 3 sections. The sections were: 1) an experiment to investigate optimum levels for semi-continuous digester, 2) an investigation in time frequency variation for feeding, and 3) to test the production of gas production for 20 days. Results of these studies showed that during the semi-continuous mesophilic anaerobic digestion is 65% levels of substrate given the best result of volume gas production. By using of 65% levels and HRT of semi-continuous digester, the time frequency feeding and volume feeding was experiment and the best results was 2 days and 9.5 liters volume of feeling. The initial substrate is 65% level (12,35 liter) was consumed after two days and subsequently feeding were begun. As an experiments of stability gas production, it was experiments at the longer feeding interval 20 days that achieved gas volume production 5.9015 liters.*

*Keywords: biohydrogen, volume feeding, semi-continuous, HRT.*