BIOGAS FROM SOLID WASTE OF TOFU PRODUCTION AND COW MANURE MIXTURE: VOLATILE SOLID EFFECT

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ABSTRACT

The increasing of energy demand and the decreasing of fossil fuel cause the energy crisis. Therefore, the innovation is needed to invent an alternative energy. One of the alternative energy is biogas which can be produced from solid waste of tofu production (SWTP). The SWTP utilizing to produce biogas can reduce the fossil fuel consumption and reduce the environmental pollution because the majority of SWTP directly discarded to environment. The decreasing of pH biogas production process from SWTP cause the methanogen cannot be survive therefore it needs buffer, one of material that can be used as buffer is cow manure. The biogas is produced trough organic compound cracking which employ anaerobe microorganism activity in a biodigester.

The experiment was done in a batch anaerobic reactor. As many as 800 ml of sample was entered to the reactor with the capacity of 1 L, then incubated in an anaerobic condition in the room at the temperature of 25-30°C within 30 days. There are 5 variation apply in this research, they are CM:SWTP 50:50 at TS of 2%, 3%, 4% and 5%. The measured parameter is the biogas volume, methane concentration, carbon dioxide concentration, the ratio of C vs N, total solid (TS) and volatile solid content (VS), volatile fatty acid (VFA) PH and temperature. The gas volume measurement was done every day using gasholder while methane concentration was measured by gas chromatography (GC).

The experiment result shows that the composition of cow manure and SWTP at VS of 3\% KS:AT = 50:50 shows the highest methane concentration compared to the other compositions.

Key words: solid waste of tofu production, cow manure, biogas.