

## **ABSTRACT**

Biogas is one of the innovations in the development of alternative energy. Can be obtained by anaerobic process. However, the production process and the extent to which the use of energy in biogas is still a problem in the production of biogas. The efficiency of various biogas production processes should be studied more deeply with the aim that the biogas produced can be as optimal as possible. One aspect that must be reviewed is energy efficiency.

Exergy analysis is a method that can identify the energy losses that occur in the biogas process. The identification of these losses is aimed at evaluating and improving the biogas process. An excess analysis can provide the information needed to improve the performance of the biogas system efficiently. The method in this research is to collect data from experimental biogas process, then analyze the exergy to determine energy degradation.

This method is applied to the biogas process using ABR (Anaerobic Baffled Reactor) using stale rice substrate done with 2 experimental types, without temperature conditioning and with temperature conditioning. The experimental results show that the extent of extermination ratios in the system and the relatively low efficiency of the biogas process.

**Keywords:** Biogas, Exergy Analysis, Anaerobic baffled reactor, Exergetic Efficiency.