

**Penambahan Starter (Cairan Rumen Sapi, Em4, Molase) pada Pembuatan Biogas dari Campuran Kotoran Sapi dan Eceng Gondok (Addition of Starter (Cow's Rumen Liquid, Molasses, EM4) on Biogas Production from the Mixture Of Cow Manure and Water Hyacinth)**

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**ABSTRACT**

*Biogas is one of renewable energy sources which is produced through the anaerobic fermentation process of organic materials such as livestock manure, agricultural waste or a mixture of both inside a digestive room. Biogas in this study derived from a mixture of cow manure and water hyacinth with the addition of cow's rumen liquid starter, EM4 (Effective Microorganism-4), and molasses. This study aims to determine the effect of addition of starter in the process of biogas formation. The method used is experimental method with parameters the day starts to produce gas, the volume of biogas produced, flame test, and biogas production rate. The results of this study indicate that the addition of stater can accelerate the occurrence of gas formation on the fermentation process. In treatment B with the addition of molasses starter is the fastest gas produces on day-3, treatment C with EM4 stater produces gas on day-4 and treatment A with the cow rumen liquid stater produces gas on the day-5. While treatment D as control produces gas on day-7.*

**Keywords:** Biogas, Water Hyacinth, Cow Manure, Starter