

## ABSTRAK

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### **STUDI TENTANG PENGARUH VARIASI KOMPOSISI KOTORAN SAPI DAN KOTORAN KAMBING TERHADAP PRODUK BIOGAS.**

viii + 55 halaman + 13 tabel + 12 gambar + 2 lampiran

Pemanfaatan dan pengolahan kotoran ternak di era global ini masih belum maksimal, sehingga dibutuhkan teknologi tepat guna untuk pengolahannya seperti biogas yang dapat mengolah kotoran ternak sebagai produksi gas. Biogas dapat dibuat dengan menggunakan bahan baku kotoran sapi dan kotoran kambing. Tujuan penelitian ini yaitu untuk mengetahui pengaruh kotoran sapi dan kotoran kambing terhadap produk biogas berupa mulai munculnya gas metan ( $\text{CH}_4$ ), kuantitas biogas yang dihasilkan, lama proses produksi gas, serta uji nyala api.

Penelitian ini dilakukan dengan desain penelitian studi kasus (*case study*) yang menggunakan bahan baku dari kotoran sapi dan kotoran kambing dengan variasi komposisi bahan baku pada formula 1 (2 kg kotoran sapi + 0 kg kotoran kambing + 2lt air), formula 2 (0,5 kg kotoran sapi + 1,5 kg kotoran kambing + 2lt air), formula 3 (1 kg kotoran sapi + 1 kg kotoran kambing + 2lt air), formula 4 (1,5 kg kotoran sapi + 0,5 kg kotoran kambing + 2lt air), formula 5 (0 kg kotoran sapi + 2 kg kotoran kambing + 2lt air) dengan menggunakan sistem curah dan dengan waktu fermentasi sampai digester berhenti memproduksi gas. Penelitian ini dilakukan dengan 3 kali replikasi disetiap formulanya.

Hasil penelitian menunjukkan mulai munculnya gas metan ( $\text{CH}_4$ ) pada masing-masing formula pada hari ke-7 dan ke-8 dengan kuantitas gas yang dihasilkan yang tertinggi sebanyak 4,787 lt pada formula 4 dengan komposisi 1,5 kg kotoran sapi + 0,5 kotoran kambing + 2 lt air, sedangkan yang terendah sebanyak 2,206 lt pada formula 5 dengan komposisi 0 kg kotoran sapi + 2 kotoran kambing + 2 lt air, kemudian lama waktu proses produksi gas di hari ke-20 dan ke-21 sudah berhenti dan dari pengujian nyala api yang dihasilkan berwarna biru seperti LPG.

Kata Kunci : Kotoran Sapi, Kotoran Kambing, Produk Biogas

Kepustakaan : 27 Bacaan (2001 - 2017)

## **ABSTRACT**

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### **STUDY ABOUT THE EFFECT OF VARIATION OF COW MANURE COMPOSITION AND GOAT MANURE ON BIOGAS PRODUCTS.**

viii + 55 pages + 13 tables + 12 images + 2 attachment

The utilization and processing of livestock manure in this global era is still not optimal, so that appropriate technology is needed for processing it such as biogas which can process livestock manure as gas production. Biogas can be made using raw materials from cow dung and goat manure. The purpose of this study was to determine the effect of cow dung and goat manure on biogas products in the form of knowing the emergence of methane gas (CH<sub>4</sub>), the quantity of biogas produced, the length of the gas production process, and the flame test.

This research was conducted with a case study design that uses raw materials from cow dung and goat manure with variations in the composition of raw materials in formula 1 (2 kg cow dung + 0 kg goat manure + 2 liters of water), formula 2 (0, 5 kg cow manure + 1.5 kg goat manure + 2 liters of water, formula 3 (1 kg cow manure + 1 kg goat manure + 2 liters of water), formula 4 (1.5 kg cow manure + 0.5 kg goat manure + 2lt water), formula 5 (0 kg cow manure + 2 kg goat manure + 2 liters of water) using a bulk system and with fermentation time until the digester stops producing gas. This research was conducted with 3 replications in each formula.

The results showed the emergence of methane gas (CH<sub>4</sub>) in each formula on the 7th and 8th day with the highest quantity of gas produced as much as 4.787 lt in formula 4 with a composition of 1.5 kg cow dung + 0.5 impurities goat + 2 liters of water, while the lowest is 2,206 lt in formula 5 with a composition of 0 kg cow manure + 2 goat manure + 2 liters of water, then the length of the gas production process on the 20th and 21st day has stopped and from testing the resulting flame is blue like LPG.

Keywords : Cow Manure, Goat Manure, Biogas Products

Libraries : 27 Readings (2001 - 2017)