

PENINGKATAN PRODUKSI BIOGAS FESES SAPI POTONG DENGAN PENAMBAHAN KOMBINASI LIMBAH PERTANIAN YANG BERBEDA

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan jerami, daun jati dan sisa pakan terhadap pembentukan gas metan dan proses fermentasi metanogenik berupa kandungan *Volatile Fatty Acid* (VFA) pada feses sapi potong. Percobaan ini dilakukan dengan empat perlakuan, yaitu tanpa penambahan substrat, penambahan jerami sebanyak 10%, penambahan serasah daun jati sebanyak 10% dan penambahan sisa pakan sebanyak 10%. Dilakukan sebanyak tiga kali ulangan dengan pengambilan sampel sebanyak empat titik setiap hari ke-10, ke-20, ke-30 dan ke-40. Variabel yang diukur adalah temperatur sludge biogas, volume biogas, kadar metan, pH sludge dan kadar VFA. Pengolahan data penelitian ini menggunakan analisis variansi pola searah. Hasil penelitian menunjukkan bahwa penambahan jerami 10%, sisa pakan 10% dan daun jati 10% dapat meningkatkan produksi volume biogas sebanyak 161,13 ml; 132,90 ml dan 117,77 ml. Optimasi volume biogas terjadi pada biogas dengan penambahan jerami 10%, hal ini disebabkan jerami padi mudah tercerna secara biologis dalam digester. Penambahan daun jati 10% menghasilkan lebih sedikit volume yaitu 117,77 ml/fermentor dibandingkan dengan jerami 10% dan sisa pakan 10% sebesar 161,13 ml/fermentor dan 132,9 ml/fermentor karena daun jati memiliki kandungan tanin dan memiliki tingkat fermentabilitas yang kurang baik.

Kata kunci : Biogas, Feses sapi potong, Jerami, Daun jati, Sisa pakan

**IMPROVEMENT OF FESES BIOGAS PRODUCTION WITH CUTS
ADDITION OF WASTE COMBINATION
DIFFERENT AGRICULTUR**

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ABSTRACT

This study has purpose to determine the effect of the use of straw, teak leaves and leftover feed to methane gas formation and methanogenic fermentation process that includes a substrate and enzyme activity content of Volatile Fatty Acids (VFA) in the feces of beef cattle. The experiment was conducted with four treatments that are without the addition of substrate, addition of straw as much as 10%, the addition of teak leaves by 10% and the leftover feed 10%. This experiment had three repetitions with sampling as many as four points each day to the 10th, 20th, 30th, and 40th. Variable measured was sludge biogas temperature, biogas volume, methane content, pH sludge and VFA levels. Processing of research data using a calculation variance analyst.. The results showed addition of 10% straw, 10% teak leaves and 10% leftover feed could increase the volume of biogas production by 161.13 ml; 132.90 ml and 117.77 ml. Optimization volume occurred in biogas with the addition of 10% straw, because rice straw is easily digested biologically in digester. Addition of 10% teak leaves produced less volume of 117.77 ml/fermentor compared to 10% straw and 10% leftover feed of 161.13 ml/fermentor and 132.9 ml/fermentor because teak leaves have tannin content and have a poor degree of fermentability.

Keywords: Biogas, Beef cattle feces, Straw, Teak leaves, Leftover feed