

Lestari, A. F., 2019. Produksi Biogas dari Biokonversi Hidrolisat Sampah Pasar Tradisional dengan Kotoran Ayam. Skripsi ini di bawah bimbingan Drs. Agus Supriyanto M, Kes dan Nita Citrasari S. Si, M.T. Program Studi S-1 Teknik Lingkungan, Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui hasil variasi perbandingan konsentrasi hidrolisat sampah pasar tradisional dengan kotoran ayam (A_1 100%:0%; A_2 90%:10%; A_3 85%:15% dan A_4 80%:20%), variasi waktu fermentasi ($W_1=7$ hari, $W_2=14$ hari dan $W_3=21$ hari) dan kombinasi dari kedua variasi terhadap volume biogas (ml) dan kadar metana (% CH_4) yang dihasilkan selama proses fermentasi. Parameter yang diukur adalah volume biogas menggunakan metode mikrovolumeter gasometri, kadar gas metana menggunakan metode absorpsi, rasio C/N menggunakan metode pengabuan dan gunning, suhu menggunakan termometer serta pH menggunakan pH meter. Analisis data penelitian meliputi analisis deskriptif dan analisis statistik menggunakan uji anova, duncan, *brown forsythe*, *games-howell*. Hasil penelitian dari variasi perbandingan konsentrasi hidrolisat sampah pasar dengan kotoran ayam yang optimal terhadap volume biogas (ml) dan kadar metana (% CH_4) terdapat pada perlakuan A_4 dengan nilai sebesar 527,33 ml dan 60,00%, sedangkan variasi waktu fermentasi yang optimal terhadap volume biogas (ml) dan kadar metana (% CH_4) terdapat pada perlakuan W_2 dengan nilai sebesar 563,01 ml dan 57,49%. Kombinasi variasi campuran substrat (A) dan waktu fermentasi (W) yang optimal terhadap volume biogas (ml) dan kadar metana (% CH_4) terdapat pada perlakuan kombinasi A_4W_1 dengan nilai sebesar 658,43 ml dan 59,90%.

Kata kunci: hidrolisat sampah pasar, kotoran ayam, volume biogas (ml), kadar metana (% CH_4)

Lestari, A. F., 2019. *Biogas Production by Bioconversion of Traditional Market Waste Hydrolyzate with Chicken Manure*. The script was supervised by Drs. Agus Supriyanto M, Kes and Nita Citrasari S. Si, M.T. Undergraduate Program Study of Environmental Engineering, Department of Biology, Faculty of Science and Technology, Univertas Airlangga.

ABSTRACT

The purpose of this research was to know the difference in result from variation of comparision between traditional market waste hydrolyzate with chicken manure concentration (A₁ 100%:0%; A₂ 90%:10%; A₃ 85%:15% dan A₄ 80%:20%), fermentation time (W₁=7 days, W₂=14 days dan W₃=21 days) and combination between both variation against biogas yield (ml) and methane content (%CH₄) that produced during fermentation process. The parameters measured are biogas yield using mikrovolumeter gasometri method, methane content using absorbs method, Ratio C/N using pengabuan and gunning method, temperature using termometer and pH using pH meter. These data analyzed such as descriptive analyze and statistic analyze that used anova, duncan, brown forsythe, games-howell analyze. The results of this research were the best variations in the ratio of market waste hydrolyzate concentration with chicken manure to the biogas yield (ml) and methane content (%CH₄) was found in the A₄ with value of 527.33 ml and 60.00%, while variations in fermentation time the best for the biogas yield (ml) and methane content (%CH₄) was found in W₂ with value of 563.01 ml and 57.49 %. The best combination of variations in substrate (A) and fermentation time (W) against to the biogas yield (ml) and methane content (%CH₄) was found in the A₄W₁ with values of 658.43 ml and 59.90 %.

Keywords: *traditional market waste hydrolyzate, chicken manures, biogas yield (ml), methane content (% CH₄)*