

Comparative Study of Biogas from Cattle Dung and Mixture of Cattle Dung with Plantain Peels

¹Yaru, S. S., ²Adewole, K. A. and ³I. K. Adegun

^{1,2}Department of Mechanical Engineering, School of Engineering and Engineering Technology, Federal University of Technology, Akure, Nigeria. ³Department of Mechanical Engineering, Faculty of Engineering and Technology, University of Ilorin, Ilorin, Nigeria

Abstract

This paper compares the rate of biogas production of cattle dung and a mixture of plantain peels with cattle dung. 18kg of cattle dung mixed with 36kg of water were charged to a digester while 9kg each of cattle dung and plantain peels mixed together with 36kg of water were charged to a separate digester. Both digesters were filled to three quarter of their capacity of 88litres. They were subjected to anaerobic digestion for forty days. The digesters were made of mild steel 2mm thick. 297K more characteristic of the ambient temperature was the lowest and 303K which was more of the digesters temperatures were the maximum temperatures recorded. 13998.88N/m² and 27864.44N/m² were respectively the initial and highest pressures for the cattle dung digester while 19331.79N/m² and 27931.10N/m² were observed as the initial and highest pressures for that of the cattle dung and plantain peels mixture. Also 8.4m³/kg and 17416.2m³/kg of estimated specific volumes were obtained for the cattle dung digester in the same manner. Conversely 6.1m³/kg and 27480.7m³/kg were estimated initial and cumulative specific volume for the biogas in cattle dung with plantain peels mixture digester. It was therefore concluded that the mixture of cattle dung with plantain peels produced more biogas than only the cattle dung.

Keywords: Comparative, study, biogas, cattle dung, mixture, plantain peels

E-mail: ssyaru@yahoo.com (Tel: +2348055815552), abiiodunpraise68@yahoo.com, kadegun@unilorin.edu.ng.

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