

ABSTRACT

Increase in the demand for fruit has led to more wastes to contend with. The build-up of this waste typically signifies an economic and environmental nuisance owing to disposal problems. This study focuses on assessing biogas generation potential of mixed-fruit solid waste comingled with cow dung for biogas production. Fruit wastes consisting of pineapple peels, watermelon peels, banana peels, and orange peels were used for the experiment. Comparison between the mixture of pineapple peels, banana peels, and cow dung with the mixture of watermelon peels, banana peels, and cow dung was carried out in an experiment by anaerobic digestion at a laboratory scale. Tyre tube storage method was used to measure the amount of the biogas yield. The result from the experiment indicated that pineapple peels, banana peels, and cow dung produced more yield of biogas of (1.4 kg) than that of watermelon peels, orange peels, and cow dung of (1 kg). The results show the effect of digested fruit wastes as substrate and that of cow dung as a co-digester. The effects of concentration of the mixed-fruit solid waste has potential for biogas production, which would reduce financial burden on users in buying commercial gas for cooking, and its digestate can be used as manure for farmers.