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BIOGAS PRODUCTION BY ANAEROBIC TREATMENT OF WASTE MIXTURE CONSISTING OF CATTLE MANURE AND VEGETABLE REMAINS

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Abstract

Waste is unwanted materials which are mainly produced by human activity. Biodegradable waste is one of the sources of environmental pollution. Currently, with the growth in population the amounts of produced waste are increasing. One of the most urgent problems encountered today is that the amounts of waste increase every year and therefore effective measures are to be taken to address it. The article presents the results of experimental tests carried out on cow manure and its mixtures with grassy waste. During the experiment the amount of biogas and methane, concentrations of hydrogen sulphide and oxygen were determined in a batch bioreactor under the mesophilic mode. Experimental tests have shown that cow manure supplemented with grassy waste yielded higher amount of biogas and methane concentrations compared to the processing of cow manure alone. Decomposition of pure cow manure yielded 0.33 m^3/m^3d of biogas. Anaerobic digestion of cow manure mixed with grassy waste mixture at the ratio of 98%: to 2% generated 0.50 m^3/m^3d of biogas; cow manure mixed with grassy waste mixture at a ratio of 95%:%:5%) generated0.56 m^3/m^3d of biogas and cow manure mixed with grassy waste mixture at a ratio 90%:%:10%) generated 0.67 m^3/m^3d of biogas. The content of methane in biogas reached 23.1%, 26.1%, 26.4% and 29.6%, respectively.

Key words: anaerobic processing, biodegradable waste, biogas, methane

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