



INFLUENCE OF SLUDGE ADDITION ON RICE STRAW CONVERSION TO BIOGAS

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ABSTRACT

The principal problems which have become the main focus of society are environmental problem and energy scarce. The main cause of the problems is the high consumption of fossil fuels. The purpose of this research is to find out effect of sludge composition on rice straw conversion to biogas. The fermentation were conducted with 1.5 L reactors and fermentation during 30 days. This aims to determine the effect of the use of sludge on the conversion of rice straw into biogas. Activated sludge were use as additional substrate with two composition, 225 g on the composition rice straw:sludge 5:3 and 375 g in composition rice straw:sludge 3:5. The maximum gas production was reached 18.382 L/kg TS in 1st running and 11.602 L/kg TS in 2nd running or 27.67816 L/g VS (1st running) and 18.93871 L/g VS (2nd running) by composition rice straw:sludge 3:5. The highest phosphate levels produced by rice straw:sludge 5:3 was 0.60 %, the carbon highest in rice straw:sludge 3:5 was 38.40 %, and nitrogen in rice straw:sludge 5:3 was 1.80 %.

Keywords: rice straw, sludge, biogas, digestate, leachate

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