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ANAEROBIC DIGESTION OF FOOD WASTE FROM RESTAURANT OF A FERMENTATION INDUSTRY AND POTENTIAL FOR METHANE GAS PRODUCTION

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Abstract

In the present study, anaerobic treatment of food wastes from restaurants of a fermentation industry and methane gas production yields produced during the treatment were investigated. For this purpose, food wastes with a Total Solid Contents (TS) ratio of 5-7-10% were digested in a 100l experimental reactor. Batch anaerobic digestion studies were conducted at mesophilic temperatures (36.5 °C) for 30 days and optimum Volatile Fatty Acids (VFA) and alkalinity values for methane gas production were ensured. Methane gas production yield was assessed with respect to Total Organic Carbon (TOC) and Chemical Oxygen Demand (COD) degradation. At the end of the study, methane yield was obtained as 466-501-498 l/kg VS according to initial mixtures of 5-7-10% TS. Degradation occurred in the interval of 40-46% for COD and in the interval of 25-65% for TOC. As a result, it was seen that food wastes have high biodegradability and high potential for methane gas production.

Keywords: anaerobic digestion, biogas yield, food waste, methane yield

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