

A SHORT REVIEW ON FEEDSTOCK CHARACTERISTICS IN METHANE PRODUCTION FROM MUNICIPAL SOLID WASTE

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Abstract

The increase in population and industrialization leads to an increase in the solid waste year by year. The limited availability, increasing cost and adverse effect of climate change on fossil fuel leads to encouraging the research in the field of finding alternatives for energy sources. The organic fraction of municipal solid waste (OFMSW) can be utilized as a bio-energy source, which reduces the environmental impact and the requirement of landfill areas to dispose of municipal solid waste. Anaerobic digestion is the widely used sustainable approach to treat OFMSW. In recent years, the generation of methane from municipal solid waste has received increasing attention in research. This paper reviews literature published in recent years considering various characteristics of input feedstock parameters like pH, total solids, volatile solids, and water content which affect the digestion quality of the OFMSW and increase the production of methane. A regression model is developed to identify the relationship between methane production and various feedstock parameters. When the chemical compositions of feedstock were used as independent variables, the percentage variation accounted for by the model is low ($r^2 = 0.63$) and also the important observation from the analysis is that the pH of the feedstock influences majorly methane production.

Keywords: **Bioenergy; Climate change; Fossil fuel; Organic fraction; Regression model.**