

Modelling of an Anaerobic Digester Using Food Waste as Feedstock

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ABSTRACT

Today's world is striving towards technological developments, which requires huge amount of energy in day-to-day life. Biogas is a clean and renewable source of energy which could be associated with various forms of environmental remediation and are highly desirable. Biogas is an eco-friendly economic alternative to fossil fuel and a way of sustainable energy production. In this paper, we tried to model biogas reactor operations. Optimization and performance analysis of process parameters during anaerobic digestion of food waste for maximising biogas yield using four factor- four level Taguchi design for varying temperature, solid concentration, pH and co-digestion of Senthkumar paper was thoroughly studied. Additionally, the optimum conditions based mathematical modelling for anaerobic digestion in a bioreactor using MATLAB-SIMULINK software was performed and rate curves were generated.

Keywords: Anaerobic digestion; biogas reactor; mass balance; methane production; MATLAB Simulink

