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Simulation Study for Economic Analysis of Biogas Production from Agricultural Biomass (Conference Paper)

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Abstract

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A process of anaerobic digestion of agricultural biomass was simulated by SuperPro Designer software v 8.5 to analyze the cost of production. The simulated project used fruits and vegetable wastes as a feedstock. The concentration of methane produced is 55% (v/v) from a total of 936.8 $m^3 \cdot h^{-1}$ biogas and after purification, the concentration of methane is upgraded up to 95% (v/v). The system was designed to treat the agricultural waste, and was able to reduce more than 60% of the initial COD (chemical oxygen demand). From the study, economic analysis shows that the profit margin is achieved at 11% and the rate of return of investment is at 12% which gives a payback period of 8.2 years. © 2015 The Authors.

Author keywords

biogas biomass economic analysis simulation

Indexed keywords

Engineering controlled terms: Agricultural wastes Agriculture Anaerobic digestion Biogas Biomass Chemical analysis Chemical oxygen demand Earnings Energy conservation Investments Methane

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