Production of Hydrogen, Methane and Ethanol by Fermentation under the Biorrefinery's Scheme

Torres Lopez, Carlos

Roque Salinas, Maria

Mexico faces gradual reduction in main energy source (petroleum), because of their non-renewable natural; however, energy demanded increases at exorbitant steps. This joined with the problem of environment degradation caused by the generation of greenhouse gases, released into the atmosphere after of energy use. This is to look for technological alternative that provide renewable, abundant, clean and decentralized energy. Implementation of biorefineries is proposed for the conversion of biomass into energy reducing environmental impact, using renewable biomass, implement processes in serie to obtain a different product at each stage, due to incertitude in the availability of petroleum price (Sacramento R.,2010). This project aims for: Produce hydrogen, methane and ethanol from the banana rejection; this banana is generated in the producer areas of the country, through fermentation, under biorefinery scheme. We evaluate will: reducing sugars, pH, temperature,H2S,CO2,H2, CH4 and C2H6O to determine the most viable process to produce biofuels. For data analysis will handle a correlation and regression liner with significance level of 95% ANNOVA and the test HSD of Tukey. In viable processes a productivity of 21.610 ml/Ld for the ethanol, 169.5 ml/Ld and 234 g/Ld for the hydrogen and 53ml/Ld for the methane. The novel alternative to develop a biorefinery scheme to produce bioenergy, using low cost technologies and easy handling, contributing to the improvement and preservation to the environment and adds value to the treatment of solid waste, we have been obtained.

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