

عنوان مقاله:

Improving biodegradability of sugarcane bagasse substrates by process optimization of diluted acid hydrolysis

محل انتشار:

هشتمین کنفرانس بین المللی کشاورزی پایدار در محیط زیست، غذا، انرژی و صنعت (سال: 1396)

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خلاصه مقاله:

Lignocellulosic biomass contains 70-80% carbohydrates. If properly hydrolyzed, these carbohydrates can be considered as an ideal feedstock for biofuel and value-added chemical production. In this research, the influence of heating time (5-180 min) and acid nitric concentration (0.5-10%) was examined on the hydrolysis (fermentable sugars) of sugarcane bagasse substrate at 121 °C and the optimized values were determined by response surface methodology (RSM). The acid concentration of 4.14% and heating time of 142.8 min were found as the optimum conditions for releasing of reducing sugar from acid nitric hydrolysis process. At the above optimum conditions, the amount of released reducing sugar in hydrolysate was 30.74 g/L. This study shows that diluted acid nitric can be an effective hydrolysis method for improving biodegradability of sugarcane bagasse substrates and their utilization in food and fuel industries as the cheap and abundant agricultural waste feedstock.

کلمات کلیدی:

Sugarcane bagasse, Acid pretreatment, reducing sugar, Biodegradability, Hydrolysis

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