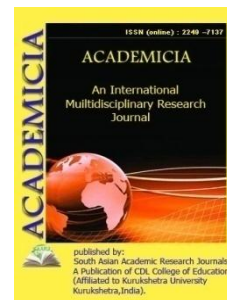




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AN EVALUATION OF BIOMASS GASIFICATION MODELLING

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ABSTRACT

Corn fermentation competes with the world food supply, while sugarcane fermentation contributes to deforestation. As a result, even if it is economically possible, the renewable and sustainable development of these two bio-based energy sources may not be desired. Biomass gasification, on the other hand, is far more versatile in terms of the bio-feedstock or waste that may be used to create biofuels or co-generate power and heat on demand. Downdraft gasifiers are well-suited for small-scale heat and power co-generation, whereas fluidized bed and entrained flow gasifiers currently reach promising economies of scale for fuel production. The frequency of different modeling options used, as well as the patterns shown by this data, are presented. This article offers a concise guide to the modeling decisions that must be made early in a modeling study or project for novice researchers. A comprehensive technique characterization is presented, which includes important modeling decisions that have not been clearly addressed in previous assessments. This survey gives seasoned researchers their first statistical snapshot of what their peers are working on.

KEYWORDS: *Biomass Gasification Equilibrium model Stoichiometric model Kinetic model Tar.*

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