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Thermodynamic Study on Hydrothermal Liquefaction of Biomass for Biocrude Oil Production: Review

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In recent years among the biomass conversion processes, hydrothermal liquefaction has been a significant process for biofuel production. Hydrothermal liquefaction (HTL) is thermochemical process for converting wet biomass into liquid fuel that called biocrude oil. The byproducts contain aqueous and gas phase, and solid residues. In thermodynamic studies of this research, the phase equilibria (VLE and VLLE) in the reactor and separator of HTL process and also estimation of entropy, enthalpy and exergy of biomass and biocrude in order to perform an exergy analysis have been investigated. Moreover, a review on equation of state to calculate the phase equilibria on HTL process and exergy analysis to optimize the production methods was studied. Finally, the best equation of state for description of the phase equilibria is suggested.