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Commercialization of hydrothermal carbonization (HTC) to produce value-added bio-products

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Hydrothermal Carbonization (HTC) is one of the most promising methods for biomass treatment as a result of outstanding features. For example, the process can treat the biomass with high moisture content and remove alkali content from the products. Research on HTC in lab scale has progressed recently. However, due to complex reaction mechanisms and operating conditions (e.g., high temperature and pressure) of HTC, more improvements are required in order to account it as a commercial technology. This study, is an effort to find solutions for some of the impediments and gaps towards commercializing HTC. Reliable kinetic model of hydrothermal reactions, the time and the amount of energy released by exothermic reactions, the effects of the feed particle size and recycling of the water on the products and carrying out HTC process on a continuous reactor rather than batch reactor have not been thoroughly investigated yet. This research presents novel methods to address all of these barriers.

Biography

Mohammad Heidari has his expertise in improving performance of renewable and conventional energy systems. He has a Bachelor's degree in Mechanical Engineering, a Master's degree in Energy Engineering and now is a PhD candidate in University of Guelph. His current research focuses on understanding the kinetics of hydrothermal reaction and development of continuous hydrothermal system.

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