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## Development of biofuels from biowastes via an emerging technology: Hydrothermal liquefaction

**Quan Sophia He**
Dalhousie University, Canada

Development of biofuels is largely driven by the depletion of fossil fuels and increasing concerns over environmental problems caused by extensive use of fossil fuels. Biomass as a renewable source is promising, however current practices use edible crops (vegetable oils for biodiesel and sugarcane/corn for bioethanol), which competes with food and feed supplies. This research addresses the dilemma "Food vs. Fuel" through the utilization of biowastes, including agricultural and forest residues, manure, food processing waste and municipal waste. Hydrothermal liquefaction is a thermochemical process, being able to convert wet biowaste into crude bio-oil. The resulting crude bio-oil, similar to fossil crude, can be further refined to gasoline, diesel and a variety of chemicals. A number of biowastes such as spend coffee ground, K-cup, waste paper, corn stalk and pine bark have been studied in the Bioenergy and Bioproduct Lab at Dalhousie University, Canada. The yields and HHVs of the crude bio-oil are in the range of 20-60 wt.% and in the range of 18-38.9 MJ/Kg respectively. Hydrothermal liquefaction was demonstrated a feasible starting point for biomass conversion in the biorefinery value chain.


### Biography

Qaun Sophia He has her expertise in the development of biofuels from low value biomass and non-conventional energy crops. Her research interests include biodiesel synthesis and application in non-energy sectors; hydrothermal liquefaction of biomass; and catalyst development and application. She has established the Bioenergy and Bioproducts Lab at the Dalhousie University, Canada. She is a seasoned Chemical Engineer with more than 20 years' research and industrial experience in China, Germany and Canada.

quan.he@dal.ca

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