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# A simple modeling approach for characteristics analysis of hydrothermal liquefaction products from low-lipid aquatic plants

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**Abstract:** Hydrothermal liquefaction (HTL) product distributions highly depend on reaction temperature and holding time. This paper provided a new method to establish the isothermal model on the relationship between HTL product characteristics and severity factor (combined temperature and time). The results showed that the yields of the HTL bio-oil and aqueous-phase product presented strong correlations with reaction severity and could be modeled by Lorentz (or Gaussian) function, while the HTL solid char decreased gradually with increase of reaction severity, and could be modeled by the Dose-response function. All the mean *adj. R*<sup>2</sup> values of the models were greater than 0.89. The H/C, O/C ratio, dry ash-free carbon recovery (energy recovery) could be described by Bi-Dose-response, Dose-response, Dose-response, and Lorentz models,

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