

On the understanding of bio-oil formation from the hydrothermal liquefaction of organosolv lignin isolated from softwood and hardwood sawdust

Petter Paulsen Thoresen¹, Jonas Fahrni², Heiko Lange^{1,3,4}, Jasmine Hertzog⁵, Vincent Carré⁵, Ming Zhou⁶, Anna Trubetskaya⁷, Frédéric Aubriet⁵, Jonas Hedlund⁶, Tomas Gustafsson², Ulrika Rova¹, Paul Christakopoulos¹, Leonidas Matsakas^{1,*}

¹ *Biochemical Process Engineering; Division of Chemical Engineering; Department of Civil, Environmental and Natural Resources Engineering; Luleå University of Technology, 971-87, Sweden*

² *RISE Processum AB; Department Biorefinery and Energy, Division of Bioeconomy and Health, Research Institute of Sweden, 981 22 Örnsköldsvik, Sweden*

³ *Department of Earth and Environmental Sciences, University of Milano-Bicocca, Piazza della Scienza 1, 20126 Milan, Italy*

⁴ *NBFC – National Biodiversity Future Center, 90133 Palermo, Italy*

⁵ *Université de Lorraine, LCP-A2MC, 57000 Metz, France*

⁶ *Chemical Technology, Luleå University of Technology, 971 87 Luleå, Sweden*

⁷ *Department of Biosciences, Nord University, 7713 Steinkjer, Norway*

***Author for correspondence:** Leonidas Matsakas, Department of Civil, Environmental and Natural Resources Engineering, SE-971 87 Luleå Sweden, leonidas.matsakas@ltu.se, tel.: +46 (0) 920 493043.

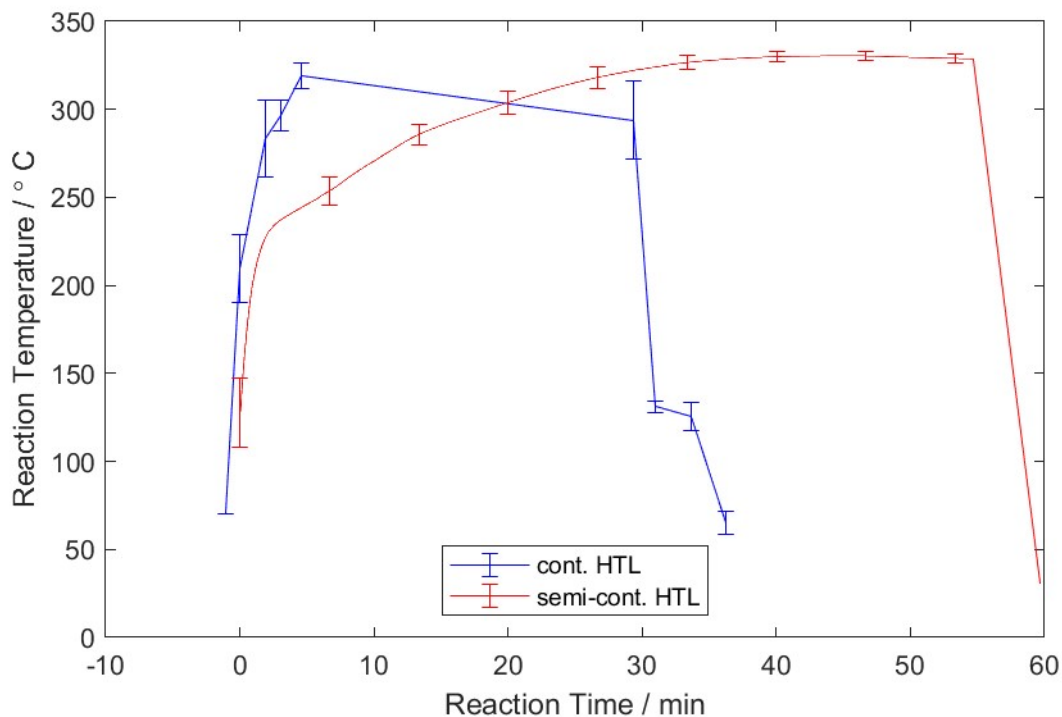


Figure S1: Example of heat profile in the semi-continuous mode (semi-cont. HTL; SU-BA) and continuous system (cont. HTL).

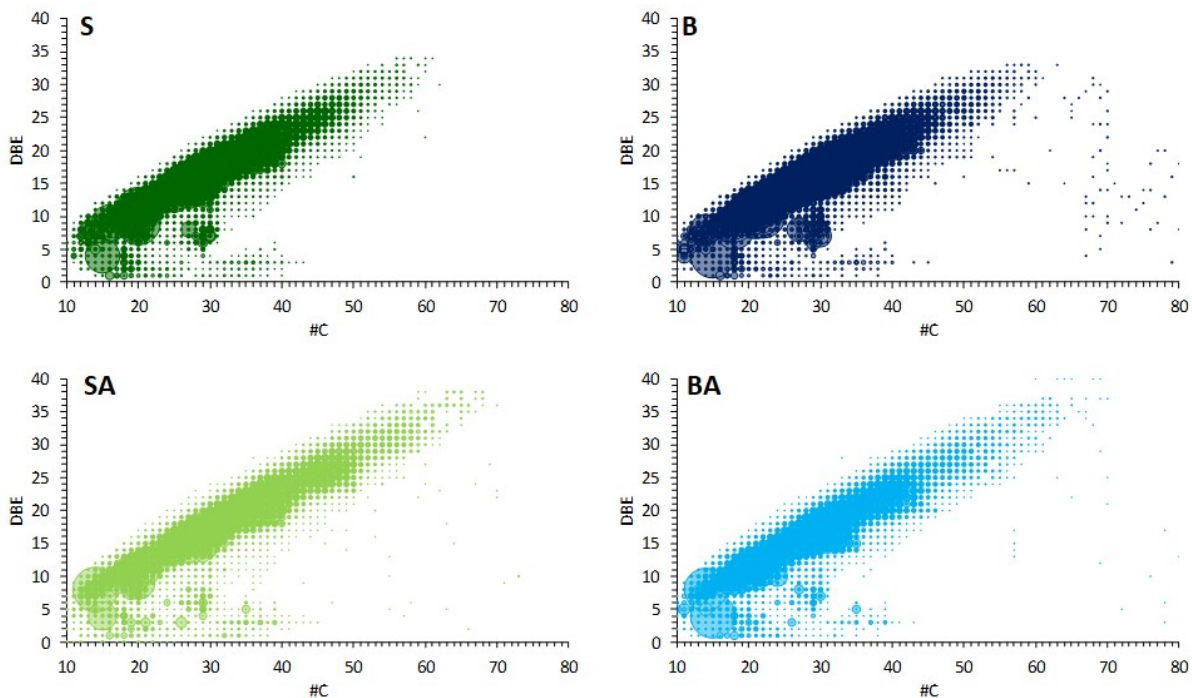


Figure S2: DBE vs. carbon number graph of CHO compounds detected by APPI FT-ICR MS of the four different HO obtained from spruce and birch lignins isolated in the absence (S, B) and presence (SA, BA) of acid-catalyst.