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Chemical Characterization of Bio-oils from Cellulose, Hemicellulose and Lignin Pyrolysis

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Pyrolysis bio-oils are promising renewable feedstock that can be used as biofuels and for the production of valuable oxygen-containing chemicals. A more widespread use of bio-oils from a lignocellulosic biomass requires more detailed knowledge of their composition. In this work, we prepared bio-oils via the pyrolysis of cellulose, hemicellulose and lignin (i.e. main building blocks of lignocellulose). For the obtained bio-oils, we performed analyses of basic physical and chemical properties and a comprehensive chemical characterization also. The results obtained for these structurally less complex bio-oils can be helpful to understand the chemical composition of whole bio-oils in more detail.

Recent Publications

1. Staš, M., Kubička, D., Chudoba, J., and Pospíšil, M.: Overview of Analytical Methods Used for Chemical Characterization of Pyrolysis Bio-oils. Energy & Fuels 2014, 28, 385-402.
2. Staš, M., Chudoba, J., Kubička, D., and Pospíšil, M.: Chemical Characterization of Pyrolysis Bio-oil: Application of Orbitrap Mass Spectrometry. Energy & Fuels 2015, 29, 3233-3240.
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Biography

Martin Staš obtained his MSc. degree in Analytical chemistry in 2011 and Ph.D. in Chemistry and Technology of Fuels and Environment in 2015 at the University of Chemistry and Technology Prague (UCTP). Since 2014, he has been working as a scientific co-worker at the Department of Petroleum Technology and Alternative Fuels at UCTP. For four years, he also worked for Research Institute of Inorganic Chemistry (UniCRE) Ústí nad Labem. His main research areas are Biofuels, Pyrolysis Bio-oil Characterization and Petroleomics. Martin Staš is author or co-author of about ten papers published in impact journals and author or co-author of about ten other papers published in peer-reviewed journals or conference proceedings.

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