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HYDROTHERMAL LIGNIN LIQUEFACTION

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Hence, the focus of the presented work is to get a better knowledge of lignin as a starting material to produce chemicals. Therefore, the different influences of temperature and reaction times, the reaction pathways and the therefore necessary analytics need to be understood. But lignin brings a lot of challenges with it. The first is, that every lignin has a different composition, depending on the wood source and the degradation method applied to gain the lignin which has a significant influence on the lignin structure. And with this, a lot of changes come e.g. in the handling of the biomass.

To liquefy lignin towards high functional molecules, hydrothermal conditions are used.

To understand the challenges (reaction pathways, analytic, and so on) of lignin better it is important to have a look at different lignins and lignin sources, so to see if the behavior of lignin under several conditions are the same, and to see if with every lignin the same challenges are coming. Therefore, different lignins were used, e.g. bark or a kraft lignin.

It is also considered that already degraded lignin products molecules repolymerise to oligomers, and so the yield of monomeric phenolic compounds decreases. To have an influence on this, different experiments are run. Fresh medium and feed get in contact with solutions directly after the hydrothermal liquefaction. The repolymerisation shall be influenced and stopped through this and the yields of e.g. catechol shall get higher. Also this shall lead to a process for different biomasses, to gain platform chemicals.

Biography

Julia Schuler is born on 22nd January, 1988 in Heilbronn, Germany. Actually, she is doing her PhD at the Karlsruhe Institute of Technology at the Institute of catalytical research and technology. She has a master degree from the University of Kaiserslautern (MSc Bioprocess Engineering University of Kaiserslautern). Before her master studies, she studies process and environmental engineering at the University of Applied Sciences Heilbronn (B.Sc. Process & Environmental Engineering). She also gained experience at her study abroad at the University of Wollongong, Australia and at the Seoul National University, South Korea. She participated in a lot of conferences (e.g. EUBCE 2016 plenary presentation, ECO BIO 2016, Conference in Kazan, Russia, etc.).

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