

## A biorefinery approach to the separation and application of the products of lignocellulose pyrolysis

Project contract No. 1.1.1.2/16/I/001

Project number: 1.1.1.2/VIAA/3/19/388

Operational Programme “Growth and Employment”

Activity 1.1.1.2 “Post-doctoral Research Aid”

### Project progress over-view from May 1st 2020 to September 30th 2020

Implementation of WP1 has been started: Comprehensive analysis of pyrolysis condensates obtained from lignocellulose.

In the first quarter of the project at LSIWC work has been commenced according to plan. In-depth analysis of literature has been carried out to successfully plan experiments and draw up a draft of a scientific article. For further research, samples of pyrolysis liquids have been prepared and analysed with a UHPLC system for several pyrolysis product determination – furfural, 5-hydroxymethylfurfural, vanillin, vanillic acid, syringic acid, syringic aldehyde, levoglucosan and cellobiosan. Quantitative analysis methods have been partly validated to achieve the result of WP1 “Validation protocol”. The qualitative composition of fractions of pyrolysis by-products has been compared. The fractions were obtained by consecutive solid phase extraction in a column with different solvents, and it was observed that with the decrease of the polarity of the solvent, the content of aromatics in the fractions increased.

Information about the progress of the project implementation has been placed on the LSIWC homepage (<http://kki.lv/zinatniskie-virzieni/projekti/biorafinesanas-pieeja-lignocelulozes-pirolizes-produktu-izdalisana-un>), the beginning of the project has been acknowledged on the social network *ResearchGate* (<https://www.researchgate.net/project/A-biorefinery-approach-to-the-separation-and-application-of-the-products-of-lignocellulose-pyrolysis>), and on *Facebook* a blog/ personal page has been created for communication with the general public (<https://www.facebook.com/postdocwithkids/>) with the #postdoclatvia reference. The post-doctorate Kristīne Meile is the supervisor of Danielas Godiņa’s (scientific assistant at LSIWC) PhD thesis and correspondingly organised a seminar for the students employed at LSIWC (<http://kki.lv/aktualitates/seminars-studentiem-studiju-darbi-koksnes-kimijas-konteksta>).

**Leading partner** – Latvian State Institute of Wood Chemistry

**Cooperation partner** – Kaunas University of Technology, the Department of Food Science and Technology

**Project duration:** 36 months.

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