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POSTER PRESENTATIONS

[15] PRODUCTION OF VALUE-ADDED COMPOUNDS FROM LIGNOCELLULOSIC BIOMASS

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Undoubtedly humanity faces various challenges related to the extensive use of fossil feedstocks including global warming and environmental pollution. As a step towards a more sustainable and circular economy, lignocellulosic biomass was proposed as a potential renewable feedstock for fermentations to replace fossil fuel-dependent production lines.

However, despite tremendous research efforts, the valorisation of second-generation lignocellulosic biomass by fermentation is still not industrially feasible. Different aspects make the valorisation of this biomass more difficult than once anticipated. The heterogeneity between different biomass sources, the presence of inhibitory compounds and the limited effectiveness of valorising the sugars concomitantly are challenging. Nevertheless, the anticipated benefits of valorising lignocellulosic biomass by fermentation persist.

The goal of this project is thus to precisely engineer microorganisms to be able to robustly grow and valorise different lignocellulose fractions derived during a novel fractionation process.
In the second stage, the aim is to implement the production of a value-added compound at industrially relevant titers with said microorganisms. The products will be selected to fit the profile of the used lignocellulose fraction. The cleaner cellulose fraction is aimed to be used for higher value products like amino acids while the heterogenous hemicellulose fractions will be used to produce lower-value bulk chemicals.

Finally, investigations on downstream processing steps and potential implications thereof when using lignocellulosic biomass are anticipated. Overall, we hope to contribute to the future production of sustainable chemicals from renewable recourses.