

CELL 103: Valorization of hemicellulose hydrolyzates into eco-friendly surfactants

Abstract: Biorefining refers to the process of converting renewable raw materials into biobased chemicals and fuels. First generation biorefineries, focusing only on ethanol or related biofuel production, have limited opportunities for profitability. To achieve commercial viability, biorefineries have to integrate the production of low value fuel with that of high-value chemicals. Various pretreatment technologies that prepare biomass for further downstream processing within a biorefinery have been developed. However, most commercially viable pretreatment technologies suffer from significant cross-contamination. To enable profitable next-generation biorefineries, pretreatment must evolve into fractionation processes that fully separate lignocellulosic biopolymers in the yield and purity needed for the parallel production of both fuels and chemicals. Numerous uses and conversion processes exist for the cellulose fraction and the lignin fraction is receiving increasing attention. This study focuses on valorizing the hemicellulose fraction. Hemicellulose hydrolyzates will be a complex mixture of sugars and impurities. Here we will present our current efforts to analyze sugar mixtures and valorize hemicellulose hydrolyzates into high-value eco-friendly surfactants.

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