

## **D1-8 Report on optimized pre-treatment condition for wheat straw**

An efficient pre-treatment is necessary to ensure a fractionation of biomass prior to use in a biorefinery. Thus more research is needed in optimising the pre-treatment to deliver an applicable substrate for the subsequent processes. With wheat straw as model substrate, the pre-treatment is optimized with regard to temperature, acid concentration and residence time. The pre-treatments were evaluated based on xylose release, cellulose availability, and toxicity of the resulting pre-treated biomass to the fermenting micro-organisms. Based on the evaluation of the pre-treatments, the optimal pre-treatment severity was approximately 0.4. With the optimal pre-treatment severity in mind, the maximal release of xylose is obtained, while more than 90% of the cellulose was hydrolysed with minimal inhibition of the fermenting micro-organisms.

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