Enhanced ethanol production by removal of cutin and epicuticular waxes of wheat straw by plasma assisted pretreatment - DTU Orbit (13/10/2019)

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The removal of cutin and epicuticular waxes of wheat straw by PAP (plasma assisted pretreatment) was investigated. Wax removal was observed by Attenuated Total Reflectance-Fourier Transform Infrared (ATR-FTIR) as chemical change on the surface of most intensively pretreated samples as well as with Scanning Electron Microscopy (SEM) imaging. Compounds resulting from wax degradation were analyzed in the washing water of PAP wheat straw. The wax removal enhanced enzymatic hydrolysis yield and, consequently, the efficiency of wheat straw conversion into ethanol. In total, PAP increased the conversion rate of the raw material carbohydrate content up to 67%, compared to untreated raw material.

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