

HCl GAS ALCOHOLYSIS OF COTTON LINTER FIBERS

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Alcoholysis of lignocellulose has become an efficient method of conversion because it can significantly increase the solubility of biopolymers and their depolymerization rate, as well as inhibit humin formation and produce valuable platform chemicals, such as alkyl glucosides, xylosides and levulinate. Here, cotton-based Whatman 1 filter paper samples were first soaked in different alcohols (2-propanol, ethanol, T-butanol and ethylene glycol), and subsequently hydrolyzed by pressurized HCl gas in a gas/solid system. This is contrary to the previous efforts where fibers have usually been directly treated in acidic liquid alcohol. In the meantime, purification of the products was relatively unproblematic from a gas-solid mixture, and a gaseous catalyst was easier to recycle than the aqueous or liquid counterpart. The results lay down a basis for future practical solutions in cellulose hydrolysis where side reactions are controlled, conversion rates are efficient, and the recovery of products and reagents is effortless. [1]

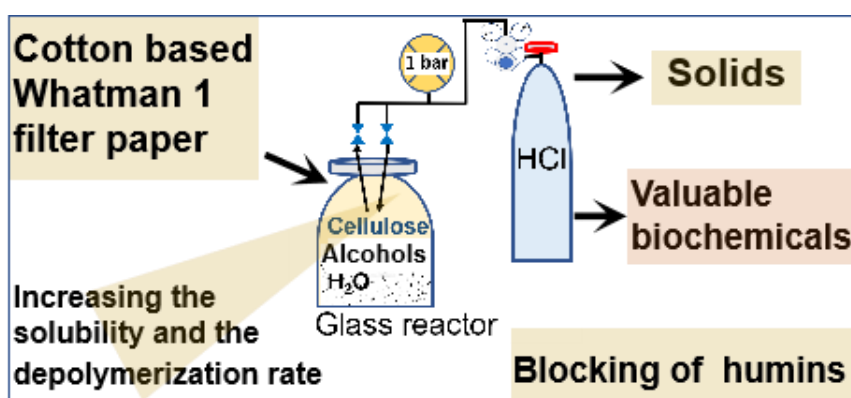


Figure 1 : The figure for abstract

[1] Yingfeng Wang., Timo Pääkkönen., Kim Miikki., Ndegwa H. Maina., Kaarlo Nieminen., Aleksi Zitting., Paavo Penttilä., Han Tao & Eero Kontturi., *Carbohydrate Polymers*, 302, 2023

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