Conversion of Cellulose into Sorbitol over Ruthenium Supported Sulfonated Activated Carbon

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Cellulose is the most abundant chemical in ligneous biomass, which is not edible species. Though cellulose occupies almost half of ligneous biomass, high crystalline structure and water-insoluble property hinder developing its application. But recently, several researches were presented about cellulose cracking into useful molecules, for example, sugars and sugar-alcohols. Especially, sugar-alcohol sorbitol is a promising platform molecule, through which hydrogen, liquid alkanes can be obtained.

In this study, selective conversion of cellulose into sorbitol over Ru nanoparticles and sulfonic group functionalized activated carbon was carried out. A high yield of sorbitol could be achieved, and a little of hydrocarbon molecules except sorbitol were detected. In addition, we found that the used catalyst is active up to three cycle with little deactivation. This catalyst was characterized by TEM, TGA and NH_3-TPD.