Synthesis of catalysts for conversion of cellulose and performance evaluation

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Biomass is widely recognized as substitute energy for petroleum because of the readily available and renewable properties. Cellulose occupied most of the biomass is indigestible for humans and well-timbered. Thus, Catalysts for conversion of cellulose have been researching. To increase yield of conversion, Pt/γ-Al_2O_3, mesoporous Pt/Al_2O_3, sulfonated SBA-15, which is mesoporous silica and Al-SBA-15 as catalysts for conversion of cellulose were synthesized. The characterization of catalysts was performed using transmission electron microscopy(TEM), nitrogen sorption, and Inductively coupled plasma atomic emission spectroscopy(ICP-ACS). The conversion of ball milled cellulose into sugar or sugar alcohol was conducted in an autoclave with each catalyst and then yields were analyzed by Liquid chromatography-mass spectrometry (LC-MS) to evaluate the catalysts.