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## Effect of Pd/C addition on direct liquefaction of cellulosic biomass using light oil solvent

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Cellulosic biomass is attracting attention as a fossil alternative resource. Therefore, we examined direct liquefaction of woody biomass using light oil as a solvent. When light oil is used as a solvent, the mixing step of the drop in fuel can be omitted, so that the drop in fuel can be manufactured by a simple process. However, there is a problem that the yield of liquefied oil is low. Previous studies have suggested that hydrogen donation promotes the formation of liquefied oils. In this study, the catalytic effect was investigated using Pd/C catalyst with hydrogen donating effect. Cedar was used as a raw material of cellulosic biomass. The cedar, light oil and Pd/C were charged into a batch autoclave and the contents were heated to 673 K with stirring and held for 60 minutes. The solvent/cedar ratio was 5 and the catalyst content was 5 wt%. The experimental results suggested that the catalyst promoted the water gas shift reaction of H<sub>2</sub>O and CO generated by pyrolysis of cellulose. It is considered that hydrogen generated by the water gas shift reaction stabilizes the thermal decomposition fragment. As a result, generation of the residue was suppressed by hydrogen donation.

### Biography

Yusuke Kakuta has completed his PhD from Nihon University. His specialties are chemical engineering and environmental sciences, and he works for department of material applied chemistry, college of science and technology, Nihon University as an Associate Professor. He is conducting research on direct liquefaction of wood for biofuel production and recycling of plastics.

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