

## Transformation of biomass-derivatives using layered metal oxide solid acid catalysts

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Transformation of biomass derivatives into useful chemicals has been received much attention. Layered protonated niobium molybdate and tantalum molybdate, HNbMoO<sub>6</sub> and HTaMoO<sub>6</sub> were found to function as water-tolerant solid acid catalysts<sup>1,2</sup>. These solid acids have strong Brønsted acid sites within the interlayer, and a variety of reactants can be intercalated, resulting in high performance for acid-catalyzed reactions. These layered metal oxides could be applied for transformation of biomass-derivatives including hydrolysis of disaccharides<sup>3</sup> and aqueous-phase cyclodehydration of sugar alcohols<sup>4,5</sup>. Selective formation of 1,4-sorbitan from sorbitol was obtained by using these layered metal oxides, which was attributed to the selective intercalation. The high molecular recognition is a key for the selective formation of intermediates in consecutive reactions.

1) J. Am. Chem. Soc., 2008, 130, 7230. 2) J. Catal., 2010, 270, 206. 3) Chem. Commun., 2008, 5363. 4) ChemSusChem, 2014, 7, 748. 5) Catal. Sci. Technol., 2016, 6, 791.