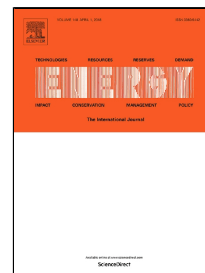


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# Magnetically recoverable catalysts for the conversion of inulin to mannitol

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## Abstract

Inulin is a naturally occurring polysaccharide, widely available as plant biomass. Here, we report utilization of a magnetically separable Ru-containing catalyst based on magnetic silica ( $\text{Fe}_3\text{O}_4\text{-SiO}_2$ ) in the inulin hydrolytic hydrogenation to mannitol (a sweetener used in diabetic foods). The influence of the reaction parameters on the selectivity to mannitol has been studied. Under the optimal conditions the maximum selectivity to mannitol reached 44.3% at 100% conversion of the initial polysaccharide, exceeding that obtained with conventional Ru/C. The catalyst used in this work is stable under hydrothermal conditions of the process. It can be easily magnetically separated from the reaction mixture and reused without any loss of selectivity and activity, making this catalyst promising for practical applications in biomass conversion.

## Key words

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