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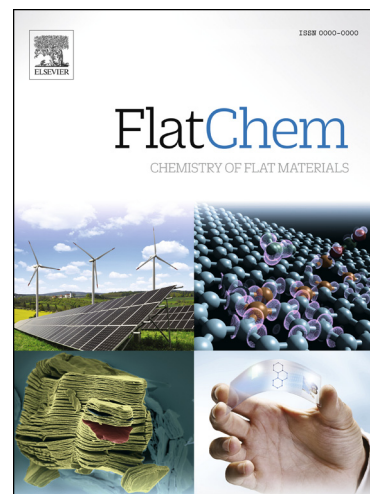
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Conversion of Furfuryl Alcohol into Butyl Levulinate with Graphite Oxide and Reduced Graphite Oxide

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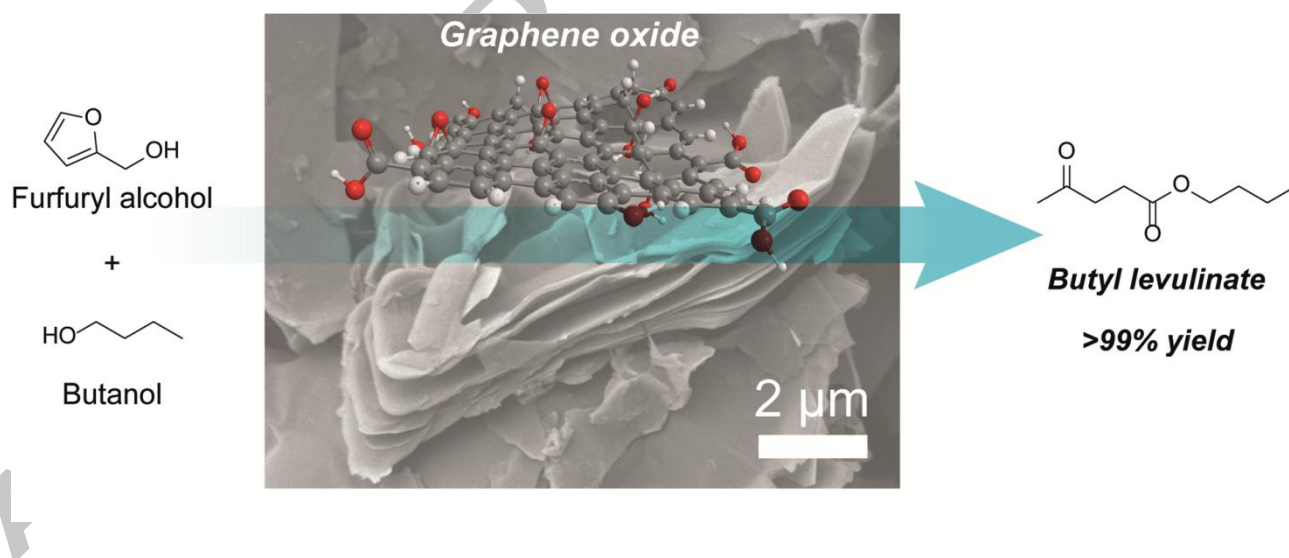
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Abstract

Levulinate esters are important chemical compounds usually obtained by esterification of levulinic acid derived from cellulose. We studied the synthesis of levulinate esters from furfuryl alcohol using graphite oxide (GO) and reduced graphite oxide (rGO) catalysts. The GO and rGO provided close to 100% selectivity to levulinate of reactions at 110 °C. The reaction rate and selectivity were largely influenced by changing the number of oxygen-containing groups on the catalyst surface. With an increased supply of biomass-derived chemicals, the demonstrated catalytic features of the family of graphite makes them good candidates for application in biorefineries.



Keywords

Biomass, levulinate ester, furfuryl alcohol, esterification, graphite oxide, reduced graphite oxide

Introduction

Feedstock of many chemicals used today is limited and depleting. New and preferably renewable feedstocks need to be developed. From this sustainable point of view, conversion of biomass into fuels and chemicals is very much desirable and therefore is widely performed and reported in scientific literature. Biomass is defined as any organic matter, including energy crops and trees,

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