

Esterification of α -Pinene to Terpinyl acetate and Bornyl Acetate Using Heterogeneous Catalyst †

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Abstract: Esterification of α -pinene gives value-added products such as terpinyl acetate, bornyl acetate, and fenchyl acetate. Terpinyl acetate and bornyl acetate are monoterpene esters. They are widely used as fragrance ingredients in various food and cosmetic products. A solvent-free process has been developed for the selective conversion of α -pinene to terpinyl acetate and bornyl acetate using Pd- β -zeolite at room temperature. The effect of different loading of Pd over β -zeolite on conversion percentage of α -pinene was studied. α -Pinene has attained 99% conversion with the selectivity of terpinyl acetate (61.2%) and bornyl acetate (27.6%) at room temperature in 2 h using 1wt%Pd- β -zeolite. The synthesized catalyst (1%Pd/ β -Zeolite) shows the excellent catalytic activity for α -pinene esterification at very mild reaction conditions. As the reaction is carried out without any organic solvents makes the overall process eco-friendly.

Keywords: α -pinene; terpinyl acetate; bornyl acetate; catalyst.

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Conflicts of Interest

The authors declare no conflict of interest.