Oxidative Esterification of Aldehydes with Alcohols by Supported Catalyst

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Esters are widely used as raw materials for resins, paints and adhesives. In industry, esters are mainly synthesized by the esterification of carboxylic acid (or their derivatives) with alcohols. But these methods are becoming increasingly impractical due to a multistep process and generation of large amounts of undesired byproducts. As an ideal alternative, an eco-friendly and simple way to synthesize esters is using direct oxidative esterification reaction of aldehydes with alcohols. For this oxidative esterification, supported metal nanoparticle catalysts are highly effective. In this study, supported nanoparticle catalysts presented high catalytic activity for the oxidative esterification under mild reaction conditions. It also showed good recyclability for repeated reactions without deactivation. The high catalytic stability and activity were attributed to the size and chemical state of metal nanoparticles, the property of support, and interaction between metal nanoparticle and support. The details of reaction and the results are going to be discussed in the poster.