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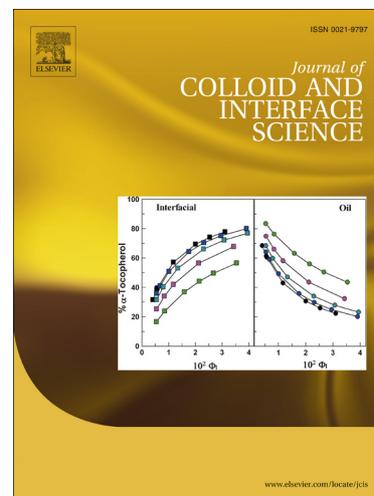
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A highly active recyclable Gold-Graphene nanocomposite material for oxidative esterification and Suzuki cross-coupling reactions in green pathway

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Abstract

A graphene based composite with gold nanoparticles has been synthesized *via* a simple chemical route and the structure and compositions of nanocomposite has been characterized. The catalyst was found to be remarkably stable and active for the oxidative esterification of alcohols under present reaction conditions using molecular oxygen as green oxidant and Suzuki cross-coupling reactions between aryl halides and phenylboronic acids using environmentally friendly water as solvent. The versatility of both the protocols was demonstrated by taking a number of substrates. This protocol offers several advantages like high yields, clean reactions, recyclability of the catalyst, reaction in water and use of green oxidant. This study suggests graphene, as an economical substitute for carbon nanotubes, could act as a prominent support in heterogeneous catalysis.

Keywords: graphene, gold nanoparticle, oxidative esterification, Suzuki cross-coupling reactions.

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