

Suzuki Reaction of Aryl Bromides Using a Phosphine-Free Magnetic Nanoparticle-Supported Palladium Catalyst

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摘要 A palladium catalyst immobilized on superparamagnetic nanoparticles was prepared with a palladium loading of 0.30 mmol/g. The catalyst was characterized using X-ray diffraction, scanning electron microscopy, transmission electron microscopy, vibrating sample magnetometry, thermogravimetric analysis, Fourier transform infrared, atomic absorption spectrophotometry, and nitrogen adsorption. The immobilized palladium catalyst was an efficient catalyst without added phosphine ligands for the Suzuki cross-coupling reaction of several aryl bromides with phenylboronic acid. The recovery of catalyst was simply by magnetic decantation in the presence of a magnet. The immobilized palladium catalyst can be reused many times without significant degradation in catalytic activity. No leaching of active palladium species into the reaction solution was detected.

关键词: [superparamagnetic nanoparticle](#) [Suzuki reaction](#) [palladium](#) [aryl bromide](#)

Abstract: A palladium catalyst immobilized on superparamagnetic nanoparticles was prepared with a palladium loading of 0.30 mmol/g. The catalyst was characterized using X-ray diffraction, scanning electron microscopy, transmission electron microscopy, vibrating sample magnetometry, thermogravimetric analysis, Fourier transform infrared, atomic absorption spectrophotometry, and nitrogen adsorption. The immobilized palladium catalyst was an efficient catalyst without added phosphine ligands for the Suzuki cross-coupling reaction of several aryl bromides with phenylboronic acid. The recovery of catalyst was simply by magnetic decantation in the presence of a magnet. The immobilized palladium catalyst can be reused many times without significant degradation in catalytic activity. No leaching of active palladium species into the reaction solution was detected.

Keywords: [superparamagnetic nanoparticle](#), [Suzuki reaction](#), [palladium](#), [aryl bromide](#)

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