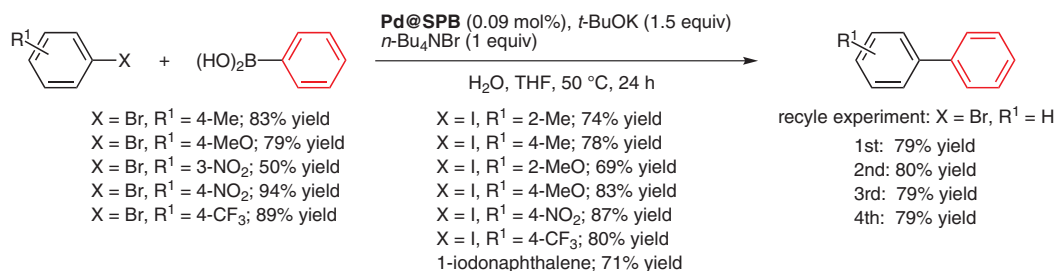
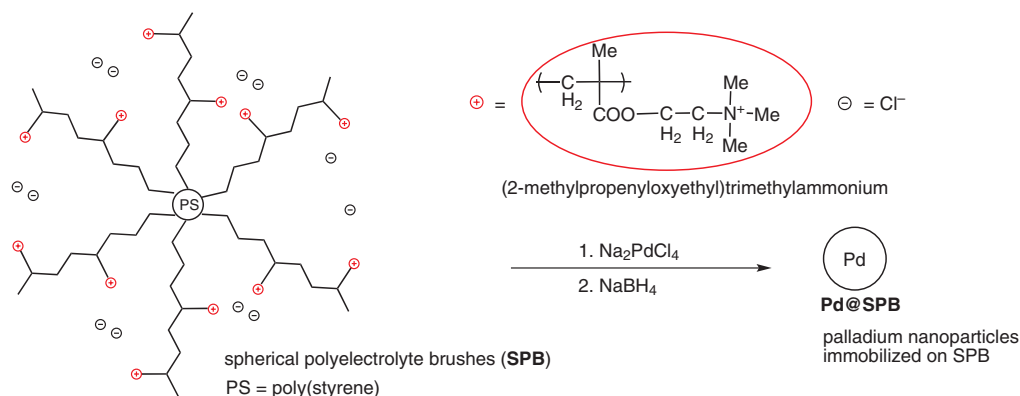


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 Suzuki- and Heck-Type Cross-Coupling with Palladium Nanoparticles Immobilized on Spherical Polyelectrolyte
 Brushes
Adv. Synth. Catal. **2008**, 350, 493-500.

Suzuki–Miyaura Coupling Reaction Using Palladium Nanoparticles Immobilized on SPB



Significance: Palladium nanoparticles immobilized on spherical polyelectrolyte brushes (Pd@SPB) were synthesized and found to promote the Suzuki–Miyaura cross-coupling reaction. Thus, the spherical polyelectrolyte brushes having the (2-methylpropenyloxyethyl)trimethylammonium cation were prepared according to the reported procedures (Y. Mei, G. Sharma, Y. Lu, M. Ballauff *Langmuir* **2005**, 21, 12229). The reaction of SPB with Na₂PdCl₄ followed by reduction with NaBH₄ gave the palladium nanoparticles immobilized in the SPB matrix (Pd@SPB). The Suzuki–Miyaura coupling reaction of aryl halides with phenylboronic acid was carried out in the presence of Pd@SPB (0.09 mol% Pd) in H₂O–THF to give the corresponding biphenyls in good yield (14 examples, 50–94% yield).

Comment: Recently, the authors have reported the preparation of platinum nanoparticles immobilized on SPB (Pt@SPB), which was found to be an effective catalyst for the reduction of *p*-nitrophenol with NaBH₄. The present report described that the palladium nanoparticles (Pd@SPB) exhibited good activity for the Suzuki–Miyaura coupling reaction. This catalyst was recovered and reused for four times without any loss of catalytic activity. Heck reaction using the palladium nanoparticles (Pd@SPB) was also described.

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 Synfacts 2008, 5, 0541-0541 Published online: 23.04.2008
 DOI: 10.1055/s-2008-1072559; Reg-No.: Y03908SF