Efficient Click-Polymer-Stabilized Palladium Nanoparticle Catalysts for Suzuki–Miyaura Reactions of Bromoarenes and Reduction of 4-Nitrophenol in Aqueous Solvents

**Suzuki–Miyaura Coupling Using Polymer-Stabilized Pd Nanoparticles**

**Significance:** Triazolyl-PEG polymer-stabilized palladium nanoparticles (PdNPs) 5 were prepared and applied to the Suzuki–Miyaura coupling. The reaction of aryl bromides 6 and phenylboronic acid (7) took place with 0.0001–0.01 mol% Pd of catalyst 5 to give the corresponding products 8 in 90–99% yield. The turnover number (TON) reached up to 990000.

**Comment:** The Pd(II) catalyst 4 showed lower catalytic activity than the reduced catalyst 5 for the formation of 8f with 0.001 mol% Pd. For a quantitative reaction of 4-bromoacetophenone and phenylboronic acid, 22 hours were needed with catalyst 4 instead of two hours with PdNP catalyst 5. The average diameter of the Pd nanoparticles of 5 is 1.6 ± 0.3 nm.

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