

Carbonylative Suzuki coupling reaction catalyzed by a hydrospirophosphorane palladium complex.

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Streszczenie

A Pd complex with the H-spirophosphorane ligand, $\text{PdCl}_2\{\text{P}(\text{OCMe}_2\text{CMe}_2\text{O})\text{OC}_6\text{H}_4\text{NH}_2\}$ (Cat. 1), was used as the catalyst in the carbonylative Suzuki coupling of substituted iodobenzenes with arylboronic acids and with sodium tetraphenylborate. Substituted diarylketones were obtained in good to excellent yields and a selectivity over 95 % under 1 atm of CO with 1.5 mol % of the catalyst. The promoting role of the H-spirophosphorane ligand in the catalytic process was evidenced. We used X-ray photoelectron spectroscopy, TEM, and ^{31}P NMR spectroscopy to reveal that during the reaction Cat. 1 undergoes transformation into Pd complexes that bear the spirophosphorane ligand or other P ligands formed by its dealkylation and to Pd nanoparticles. All these Pd species contribute to the high productivity of the system.

Słowa kluczowe

cross-coupling, ketones, nanoparticles, palladium, ligands

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