

Magnetic Pd- and CuO-Catalyzed Regioselective Direct Arylation of Anilides

Category

Polymer-Supported Synthesis

Key words

palladium catalysis

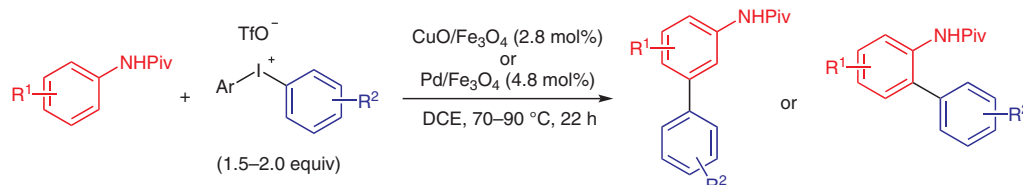
copper catalysis

magnetite

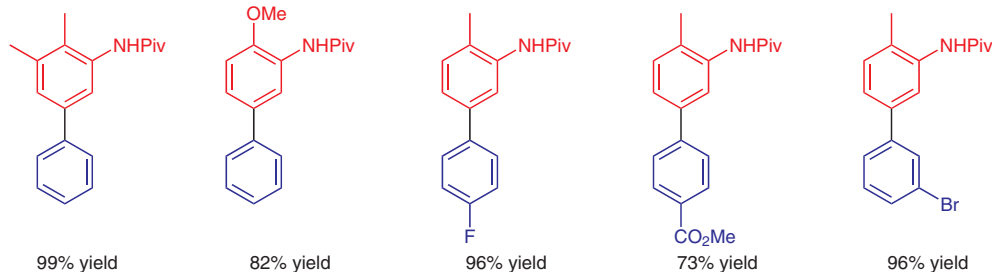
arylation

anilides

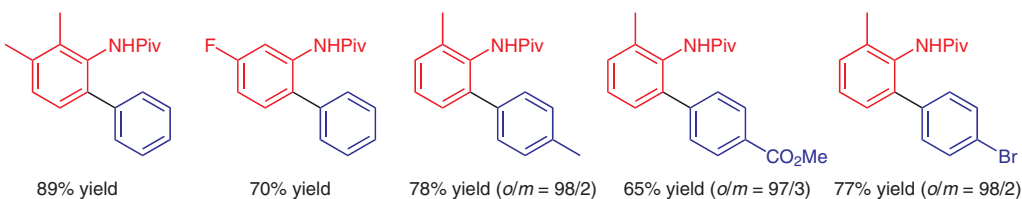
Synfact
of the month



With CuO/Fe₃O₄, selected examples:



With Pd/Fe₃O₄, selected examples:



Significance: Magnetite-supported copper oxide (CuO/Fe₃O₄) or palladium nanoparticles (Pd/Fe₃O₄) catalyzed the regioselective direct arylation of anilides with diaryliodonium triflates in 1,2-dichloroethane. CuO/Fe₃O₄ exclusively afforded the *meta* arylation products in up to 99% yield, whereas Pd/Fe₃O₄ gave *ortho* arylation products in up to 89% yield.

Comment: In the direct arylation of *N*-(*o*-tolyl)pivalamide with diphenyliodonium triflate, CuO/Fe₃O₄ was magnetically recovered and reused four times without loss of its catalytic performance. On the other hand, the catalytic activity of Pd/Fe₃O₄ decreased after one recycling. Hot filtration tests and TXRF analysis indicated that catalytically active soluble species were generated in situ from CuO/Fe₃O₄ and Pd/Fe₃O₄ during the reaction.