
Ullmann Homocoupling Catalysed by Gold Nanoparticles in Water and Ionic Liquid


Ullmann Homocoupling in Water or Molten TBAOAc with Gold Nanoparticles

Significance:
Gold nanoparticles, generated in situ from Au(OAc)₃ and glucose, catalyzed the Ullmann homocoupling of aryl iodides or β-bromostyrene in aqueous tetrabutylammonium hydroxide (TBAOH) or in molten tetrabutylammonium acetate (TBAOAc) at 90 °C to afford the corresponding coupling products in up to 98% yield (10 examples) or in up to 96% yield (10 examples), respectively.

Comment:
The gold nanoparticles were characterized with TEM, UV/Vis, DLS, and XPS. The particle size of the nanoparticles was about 1 nm in aqueous TBAOH and 20 nm in TBAOAc, respectively. The smaller nanoparticles showed higher catalytic activity because of their larger surfaces.

SYNFACTS Contributors: Yasuhiro Uozumi, Noboru Kobayashi

Category: Polymer-Supported Synthesis

Key words: gold nanoparticles, Ullmann homocoupling, aryl iodides, β-bromostyrene