

The catalytic performance of Suzuki-Miyaura reaction in water using heterogeneous catalyst made by N-rich polymer

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The palladium-catalyzed Suzuki-Miyaura coupling reaction is one of the most important organic transformations for the construction of carbon-carbon bonds. Its widespread use in the synthesis of natural products, pharmaceuticals, agrochemicals, electrodes, and polymers is a testament to its broad impact on chemical science. However, most Suzuki-Miyaura reaction proceeds inorganic or mixed organic/aqueous solvents that of expensive, flammable and toxic. Water is non-toxic, cheap and eco-friendly solvents that exist anywhere on the planet. However, porous polymers are not effective as heterogeneous catalyst in water because general porous polymers are composed of aromatic rings, which prohibits their stable dispersion. In this study, we prepared five heterogeneous catalysts that composed of palladium complex with various nitrogen-rich porous polymer, respectively. We analyzed pore structure, structure properties, thermal properties of polymers by TEM, BET, FT-IR, TGA, and XPS.