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Cross-coupling reactions in aqueous media

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We have studied in the last 15 years the efficiency of oxime-derived palladacycles as pre-catalysts in carbon-carbon forming reactions such as, Heck, Suzuki, Stille, Hiyama, Ullmann, Sonogashira and Glaser reactions by *in situ* generation of palladium nanoparticles. Interestingly, they exhibit increasing catalytic activity when water is used as solvent due to the formation of three- and four-palladium atom clusters as has been recently found out by Corma and col. In this talk recent challenge applications of these palladacycles working in aqueous media will be presented. Matsuda-Heck reactions have been performed efficiently in water at rt. In the case of the Suzuki-Miyaura reaction, deactivated aryl chlorides and imidazolylsulfonates can be cross-coupled with boronic acids or potassium trifluoroborates using water as solvent. The copper-free Sonogashira reaction has been also performed with deactivated aryl chlorides and with aryl imidazolylsulfonates under copper-free conditions using water as solvent. The head to head dimerization of terminal alkynes in water allows the stereoselective preparation of (E)-1, 4-enynes in the presence of an imidazolinium salt.

Biography

Carmen Nájera has studied Chemistry at the University of Saragossa in 1973 and pursued PhD at the University of Oviedo in 1980. She performed Postdoctoral work at the ETH (Zurich), Dyson Perrins Laboratory (Oxford), Harvard University, and Uppsala University. She was Associate Professor at the University of Oviedo in 1985 and Prof. of Organic Chemistry at the University of Alicante in 1993. She is also managing director of MEDALCHEMY a spin-off of the University of Alicante devoted to R&D of APIs and new drugs. She has published more than 300 papers and supervised more than 40 PhD theses.

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