

Cellulose Supported Heterogeneous Pd(II) Catalyst for Synthesis of Biaryls

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Abstract : The Suzuki C(sp²)-C(sp²) coupling reaction is considered to be one of the best ways for the synthesis of biaryl compounds. There are many studies reporting the catalytic performance of palladium catalyst in Suzuki coupling reactions. Natural biopolymer (such as zeolite, carbon, silica, and chitosan) supporting catalysts have been lately attracted interest because of their low-cost, nontoxicity, and eco-friendliness. One of the most important natural biopolymer is cellulose, which is widely considered as an eco-friendly biopolymer due to its biodegradable, non-toxic and renewable nature. In this study, (1) cellulose supported Pd(II) catalyst was synthesized (2) its chemical structure was characterized by FT-IR, SEM/EDAX, XRD, TG-DTG, ICP-OES techniques (3) to investigate the performance of the catalyst in Suzuki coupling reactions by using microwave irradiation technique (4) reusability of the catalyst was done under optimum conditions. This cellulose supported Pd(II) catalyst exhibited high selectivity and efficiency in Suzuki coupling reactions under mild conditions (50°C). High TON and TOF values were recorded for the catalyst. Also, the reusability tests showed the catalysts could be used for several times in consequence of reusability tests.

Keywords : palladium, cellulose, Schiff base, reusability

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