

عنوان مقاله:

The first report of biochar as heterogeneous support for immobilization of Pd as efficient and reusable biocatalyst in C-C coupling reactions

محل انتشار:

بیست و یکمین سمینار شیمی معدنی انجمن شیمی ایران (سال: ۱۳۹۸)

تعداد صفحات اصل مقاله: ۱

نویسندگان:

Parisa Moradi - Department of Chemistry, Faculty of Science, Ilam University, Ilam, Iran

Maryam Hajjami - Department of Chemistry, Faculty of Science, Ilam University, Ilam, Iran

خلاصه مقاله:

Biochar is made via pyrolysis of biological source such as woody materials, agricultural wastes, green waste, animal manures and other waste products, therefore it is inexpensive and environmentally friendly. Biochar can be used as a support for immobilization of catalyst or other substances due to existence of high density of carbonyl, hydroxyl and carboxylic acid groups on its surface. In this work, surface of biochar nanoparticles (BNPs) was modified by ۳-chloropropyltrimtoxysilane (۳-CPTMS) and further ۲-(thiophen-۲-yl)-۱H-benzo[d]imidazole (TBA) was anchored on its surface. Then, palladium nanoparticles were fabricated on the surface of modified BNPs and further its catalytic application was studied as recyclable biocatalyst in carbon-carbon coupling reactions such as Suzuki-Miyaura and Heck-Mizoroki cross-coupling reactions. The structure of this catalyst was characterized by SEM, EDS, TGA, N₂ adsorption-desorption isotherms, XRD, and AAS techniques. This catalyst can be reused for several times without decreasing in the catalytic efficiency. Despite several advantages of this work, application of [biochar as catalyst support for the first time is a major novelty of the present work. [۱,۲

کلمات کلیدی:

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