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Investigation on catalytic activity of Cu-complex immobilized on Modified Carbon Dots for Carbon-Carbon Homocoupling Reaction

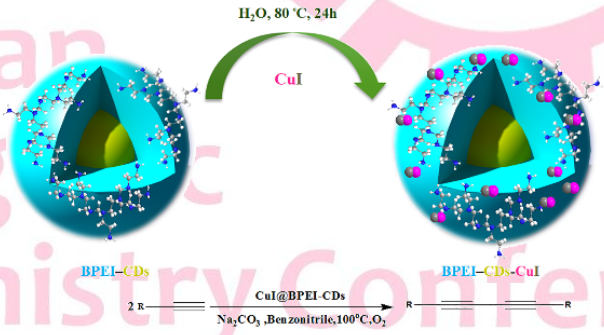
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In this study attempts has been made to prepare modified carbon dots (CDs) with branch poly (ethyleneimine) (BPEI) from citric acid, as carbon source, in water at 200 ℃, followed by immobilized different Cu compounds on it and designated as Cu-BPEI-CDs nanocomposites Then it was used as catalyst for the terminal alkynes homocoupling reaction. The straight approach for the synthesis some 1,3-diynes is the coupling of two terminal alkynes, as expanded by Glayser and Hay [1-4]. Due to the high abundance, low cost and low toxicity of copper, it has been widely considered as excellent catalyst for the synthesis of 1, 3-dieynes. After characterization of the prepared heterogeneous compounds by means of XRD, FTIR, SEM, TEM and XPS, they were tested as catalysts for the oxidative homo-coupling of phenylacetylene, 4-*tert*-butylphenylacetylene, 1-ethynyl-4-flourobenzene and 1- pent-1-yn-3ol. It was found that Cu (I) I and Cu (I) bipyridene show conversion yields of 67-100 % with excellent selectivities (95–100). The catalysts were also recovered and used for four runs without significant decrease in catalytic activities.

Keywords: Carbon Dots, Couper (I) Compounds, C-C Homocoupling, Polyethylene Imine, Citric Acid



References

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