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Aminobenzimidazole Schiff base incorporated onto the pores of HNTs: An efficient heterogeneous catalyst for the regioselective synthesis of 1, 2, 3-triazoles *via* click reaction

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In the last decades, Schiff bases have become interesting ligands due to the presence of both oxygen and nitrogen atoms in their structure which can bind to the different metal. So far various medical and non-medical properties of Schiff base ligands have been reported. A complex of the Copper-Schiff base is known for its versatile catalytic effect in organic reactions. Unfortunately, such complexes are homogeneous and thus, their recovery from the reaction mixture and also purification of the product become difficult. Therefore, in recent years, some chemists modified the structure of Copper-Schiff base to produce the heterogenized ones which are formed from the Schiff base complexes anchored onto a solid support through covalent bonds. Halloysite nanotubes (HNTs) is a natural inorganic structure with the general formula of $(Al(OH)_4Si_2O_5.2H_2O)$. The interior composition of HNTs' surface is different from its exterior surface's composition. HNTs has a porous structure with the high surface area and mechanical strength is capable to exchange cations and is biocompatible. Due to the widespread applications of this class of clay, it has been used in various research fields, including enzyme immobilization, catalysis and drug delivery. The surface of HNTs is modifiable due to the presence of silanols, hence, not only its surface can be functionalized, but also some active species such as nanoparticles can be immobilized onto its pores. In continuation of our research to develop and design new efficient heterogeneous catalysts for organic transformations, herein, a complex of aminobenzimidazole Schiff base was prepared and then incorporated into the pores of HNTs. Afterward, the catalytic activity of the prepared catalyst, CuI@ HNTs-Schiff base, was determined in the regioselective synthesis of 1,4-disubstituted-1, 2, 3-triazoles.

Biography

Majid M Heravi was born in 1952 in Mashhad, Iran. He received his BSc degree from the National University of Iran in 1975 and his MSc and PhD degrees from Salford University, England, in 1977 and 1980. He completed his Doctoral thesis under the supervision of late Jim Clarck in Salford University, England. He started his career as a Research Fellow in Daroupakhsh (a pharmaceutical company) in 1981, Tehran, Iran and joined as an Assistant Professor to Ferdowsi University of Mashhad, Iran, in 1983 and was promoted to Associate Professor in 1993 and Full Professor in 1997 in the afore mentioned university. In 1999, he moved to Alzahra University of Tehran, Iran, as Professor of Chemistry where he is still working in. His research interests focus on heterocyclic chemistry, catalysis, organic methodology and green synthetic organic chemistry. He has published more than 760 ISI cited papers, so far.

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