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Title:	KIT-5 Supported Copper (II) Oxide Mesoporous Materials: An Efficient Catalyst for Regioselective Synthesis of 14- Disubstituted-1H-123- Triazoles in Water.
Authors:	Gautam, Ujjal K. (/jspui/browse?type=author&value=Gautam%2C+Ujjal+K.)
Keywords:	Mesoporous Materials Regioselective Synthesis KIT-5
Issue Date:	2022
Publisher:	Taylor & Francis
Citation:	Polycyclic Aromatic Compounds, 2101485.
Abstract:	We have synthesized copper-incorporated KIT-5 mesoporous materials which were characterized thoroughly by powder XRD, N <sub>2</sub> -sorption, UV-Vis, HR-SEM & EDS and HR-TEM techniques. The low angle PXRD with theta values of 0.609, 0.660, 0.704 and 0.746 confirmed the mesoporosity of the synthesized materials. In addition, the materials showed type-IV isotherms which are spherical in morphology and fringes with pores of materials supporting the formation of mesoporous materials. The catalytic activity of synthesized materials was also investigated. We have used our materials as catalyst for the synthesis of 1,2,3-triazole derivatives via three component reaction of alkyl/aryl halide, terminal alkynes and sodium azide in water as a solvent. The desired triazole products were obtained in very good yields. This study indicates the importance of Cu element, solid support with uniformity of metal nanoparticles over the materials. The recyclability study with PXRD data of the catalyst confirmed the existence of the mesoporosity of the catalyst after the reaction and the yield decreased marginally from 98 to 91% over three cycles. This reaction has broad substrate scope and is compatible for aliphatic, aromatic, allyl substrates giving high yield of triazole products.
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1080/10406638.2022.2101485">https://doi.org/10.1080/10406638.2022.2101485</a> ( <a href="https://doi.org/10.1080/10406638.2022.2101485">https://doi.org/10.1080/10406638.2022.2101485</a> ) <a href="http://hdl.handle.net/123456789/4421">http://hdl.handle.net/123456789/4421</a> ( <a href="http://hdl.handle.net/123456789/4421">http://hdl.handle.net/123456789/4421</a> )
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