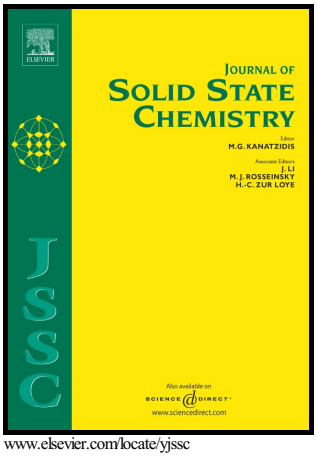

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Anchoring of Cu(II) onto surface of porous metal−organic framework through post-synthesis modification for the synthesis of benzimidazoles and benzothiazoles

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Abstract- Efficient synthesis of various benzimidazoles and benzothiazoles under mild conditions catalyzed by Cu(II) anchored onto UiO-66-NH_2 metal organic framework is reported. In this manner, first, the aminated UiO-66 was modified with thiophene-2-carbaldehyde and then the prepared Schiff base was reacted with $CuCl_2$. The prepared catalyst was characterized by FT-IR, UV-vis, X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), N_2 adsorption, inductively coupled plasma atomic emission spectroscopy (ICP-AES) and field emission scanning electron microscopy (FE-SEM). The UiO-66-NH_2-TC-Cu was applied as a highly efficient catalyst for synthesis of benzimidazole and benzothiazole derivatives by the reaction of aldehydes with 1,2-diaminobenzene or 2-aminothiophenol. The Cu(II)-containing MOF was reused several times without any appreciable loss of its efficiency.

Keywords: Metal-organic framework; Thiophene-2-carbaldehyd; UiO-66-NH_2; Benzimidazoles; Benzothiazoles.

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