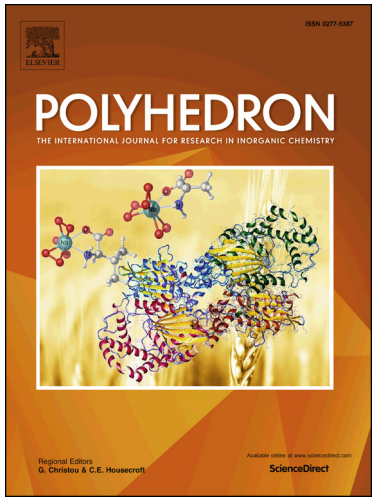

Three coordination compounds based on Tris(1-imidazolyl)benzene: Hydrothermal synthesis, crystal structure and adsorption performances towards organic dyes

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Three coordination compounds based on Tris(1-imidazolyl)benzene: Hydrothermal synthesis, crystal structure and adsorption performances towards organic dyes

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Abstract: Three coordination compounds, zero-dimensional $Co(tib)(ADC)_2$ (**BUC-60**), one-dimensional $Zn_3(tib)_2Cl_6$ (**BUC-61**) and three-dimensional $[Cu_2(tib)_2(MoO_4)Cl]Cl$ (**BUC-62**), were obtained from the reaction of 1,3,5-tris(1-imidazolyl)benzene (tib), 1,3-adamantanedicarboxylic acid (H_2adc), phosphomolybdic acid hydrate ($H_3PO_4 \cdot 12MoO_3$) and the corresponding metal salts under hydrothermal conditions. The as-prepared samples were characterized by single-crystal X-ray diffraction, Fourier transform infrared spectroscopy, CHN elemental analyses, thermal gravity analyses and photoluminescence spectroscopy. **BUC-60** and **BUC-61** exhibit good adsorption performances towards congo red (**CR**) and mordant blue 13 (**MB13**). The maximum adsorption capacities of **BUC-60** and **BUC-61** toward **CR** are 1949 and 1992 mg g^{-1}, respectively, along with those towards **MB13** being 564 and 209 mg g^{-1}, respectively. In addition, **BUC-60** can selectively capture anionic dyes molecules from a dye matrix.

Keywords: Coordination compound, 1,3,5-tris(1-imidazolyl)benzene, adsorption, organic dyes, separation

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