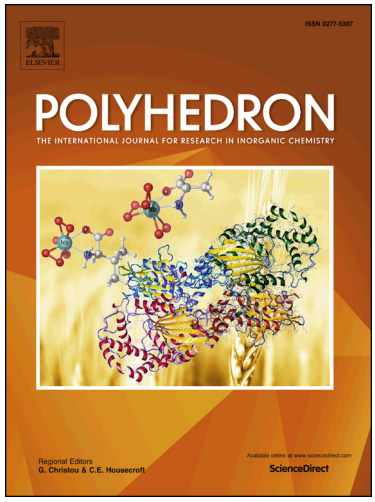

Synthesis, structure, and luminescent properties of Zinc(II) complexes based on flexible phenylenediacetate ligand

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Synthesis, structure, and luminescent properties of Zinc(II) complexes based on flexible phenylenediacetate ligand

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Abstract. Four new Zn(II) coordination complexes, [Zn(opda)(obiyb)] (**1**), [Zn(opda)(pbiyb)$_{0.5}$] (**2**), [Zn(opda)(mbib)]·H_2O (**3**), [Zn(opda)(pbib)] (**4**), (H_2opda = 1,2-phenylenediacetic acid, obiyb = 1,2-bis(imidazol-1-ylmethyl)benzene, pbiyb = 1,4-bis(imidazol-1-ylmethyl)benzene, mbib = 1,3-bis(1-imidazoly)benzene, pbib = 1,4-bis(1-imidazoly)benzene), have been synthesized by using zinc salt and 1,2-phenylenediacetic acid in the presence of different bis(imidazole) ligands under hydrothermal conditions, and characterized by elemental analysis, IR spectroscopy, single-crystal X-ray crystallography and powder X-ray diffraction (PXRD) analysis. For all of complexes, the Zn(II) atom has the same (ZnO_2N_2) tetrahedrally coordinated geometry, however, they show diverse structure network. The flexible bis(imidazole) ligands in **1** and **2** afford the 2D corrugated layer, which are further stacked in an offset fashion with an ABAB sequence to propagate into a 3D supramolecular architecture through strong C–H···π and C–H···O interactions. Differently, the rigid bis(imidazole) ligands in **3** and **4** give rise to the 3D porous network. Furthermore, the relationship between molecular conformation, packing modes and fluorescence properties have also been investigated.

Keywords: Cordination complexes; Porous network; Fluorescent properties