Synthesis and Crystal Structure of a Green Photoluminescent 1D Cobalt(II) Coordination Polymer Constructed from 2,2′ Bibenzimidazole

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Hydrothermal reaction of $Co(NO_3)_2 \cdot 6H_2O$ with H_2bibm and H_4cta at 120 °C yielded a novel 1D Co(II) coordination polymer, $[Co(H_2bibm)(cta)]_n \cdot nH_2O$ (**1**) [H_2bibm = 2,2′-bibenzimidazole, cta = citrate], in which distorted CoN_2O_4 octahedra are linked by the cta ligands in a tetradentate bridging mode to construct a zigzag chain with Co···Co distances of 7.510(1) Å. A 2D supramolecular network is formed by π-π stacking with a face-to-face distance of 3.55 Å between the imidazole rings of the 2,2′-bibenzimidazole ligands and interchain O-H···O and N-H···O hydrogen bond interactions. Complex **1** displays strong green fluorescence emissions at 538 nm in the solid state upon photoexcitation at 395 nm at room temperature.

Key words: Cobalt(II) Complex, Crystal Structure, Fluorescence