A blue luminescent binuclear cadmium-orotate coordination polymer : synthesis, crystal structure, and thermogravimetric analysis.

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Streszczenie

Assembly of orotic acid (H_3Or, 1,2,3,6-tetrahydro-2,6-dioxo-4-pyrimidinecarboxylic) and $Cd(NO_3)\cdot 6H_2O$ yielded a coordination polymer, $[(Cd(Hor)\cdot 2.5H_2O)_2]_n$ (**1**), which has been characterized by X-ray single-crystal diffraction, TGA, and fluorescence spectra. Single-crystal X-ray structural analyses reveal that **1** is a hydrogen-bonded binuclear Cd-orotate coordination polymer in which both Cd^{2+} ions have different coordination environments with identical distorted octahedral geometry. Crystal data for **1**: monoclinic, space group $P2_1/n$, a = 7.0209(10) Å, b = 13.974(2) Å, c = 17.541(3) Å, β = 98.842(2)°, V = 1700.5(4) Å, Z = 4, $R1$ = 0.0269, $wR2$ = 0.0612, θ_{max} = 25.960. The emission spectrum of the Cd-complex recorded with 265 nm excitation wavelength reveals the complex has strong blue luminescence with the peak maximum 420 nm (2.95 eV) as a result of the n–π^* and π–π^* transitions on the H_3Or ligand.

Słowa kluczowe

Cd-orotate, coordination polymer, hydrogen bonding

Adres publiczny

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