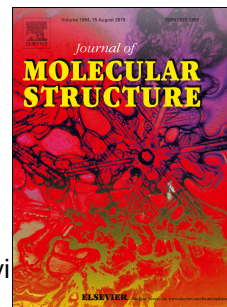


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Synthesis, crystal structures and luminescence properties of new multi-component co-crystals of isostructural Co(II) and Zn(II) complexes

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Abstract

Two novel isostructural compounds containing multi-component co-crystals $[M(C_6H_4NO_2)_2(H_2O)_2](C_9H_6O_6)_2$ ($M = Co$ (**1**), Zn (**2**), $C_6H_4NO_2 =$ Picolinic acid, $C_9H_6O_6 =$ Trimesic acid) have been synthesized. The compounds were characterized by elemental analysis, FT-IR, UV-Visible and 1H NMR spectroscopy as well as thermal and single crystal X-ray diffraction analyses. Single crystal X-ray diffraction analysis reveals that **1** and **2** are isostructural. Compound **1** crystallizes in triclinic space group ($P-1$, with $a = 5.154(10)$ Å, $b = 11.125(2)$ Å, $c = 14.113(3)$ Å, $\alpha = 91.01(3)^\circ$, $\beta = 100.54(3)^\circ$, and $\gamma = 102.71(3)^\circ$). In a similar fashion, compound **2** crystallizes in triclinic space group ($P-1$, with $a = 5.1735(3)$ Å, $b = 11.0930(10)$ Å, $c = 14.1554(8)$ Å, $\alpha = 91.70(3)^\circ$, $\beta = 100.26(3)^\circ$, $\gamma = 102.90(3)^\circ$). The metal(II) cation presents distorted MN_2O_4 octahedral geometry with H_2O molecules coordinated to the metal in equatorial position while the picolinic acid molecules are axially coordinated through the pyridine N atom. The two trimesic acid molecules are not part of the first coordination sphere. Compounds **1** and **2** constitute an example of a class of

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