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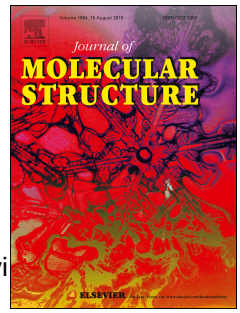


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# Synthesis, crystal structures and luminescence properties of new multi-component co-crystals of isostructural Co(II) and Zn(II) complexes

Adedibu C. Tella*[a], Samson O. Owalude[a], Mary F. Omotoso[a], Sunday J. Olatunji[a], Adeniyi S. Ogunlaja[b], Lukman O. Alimi[c], Olugbenga K. Popoola[d], and Susan A. Bourne[e]

[a]*Department of Chemistry, P.M.B.1515, University of Ilorin, Ilorin, Kwara State, Nigeria,*

[b]*Department of Chemistry, Nelson Mandela Metropolitan University, PO Box 77000, Port Elizabeth, 6031, South Africa.*

[c]*Department of Chemistry and Polymer Science, Stellenbosch University, Stellenbosch, South Africa*

[d]*Department of Chemistry, Ekiti State University, PMB 5363, Ado Ekiti, Ekiti State, Nigeria*

[e]*Centre for Supramolecular Chemistry Research, Department of Chemistry, University of CapeTown, Rondebosch 7701, South Africa*

*Author for correspondence; Tel.: +2348035019197; E-mail address: ac_tella@yahoo.co.uk

**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 $^1$H 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, α = 91.01(3)°, β = 100.54(3)°, and γ = 102.71(3)°). 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, *α* = 91.70(3)°, *β* = 100.26(3)°, γ = 102.90(3)°). 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