Discrete molecular complex, one and two dimensional coordination polymer from cobalt, copper, zinc and (E)-4-hydroxy-3-((quinoline-8-ylimino)methyl)benzoic acid: Synthesis, structures and gas sensing property

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Abstract

(E)-4-hydroxy-3-((quinolin-8-ylimino)methyl)benzoic acid, (H₂L), was synthesized and employed in the synthesis of metal complex or coordination polymers (CPs) namely, [Co(HL)₂]NO₃·3DMF, **1**, {[Cu(L)(H₂O)]·H₂O}_n, **2**, and {[ZnL]·DMF}_n, **3**. Compounds have been characterized by CHN analysis, ¹H NMR and IR and UV–Vis spectroscopy. Structures of **1**, **2** and **3** were determined by X-ray crystallography. Compound **1** is a discrete mononuclear complex, compound **2** consists of infinite one-dimensional zig-zag chains and compound **3** displays a two-dimensional coordination polymer, uninodal shubnikov tetragonal plane network with (44_62) point symbol. Compound **3** exhibits strong fluorescence emission upon excitation at room temperature. In addition, gas sensing property of compound **3** as a thin film on one side of double sided tap on the glass substrate have also been discussed.

Keywords: Acid-functionalized Schiff base, Quinolin-8-ylamine, Coordination polymer, Crystal structure, Gas sensing.

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