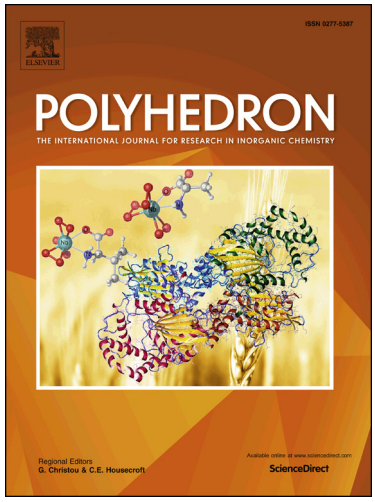

Zinc(II) and cadmium(II) complexes of long flexible bis(imidazole) and phenylenediacetate ligands, synthesis, structure, and luminescent property

Mei-Li Zhang, Yan-Jin Zheng, Zhen-Zhen Ma, Yi-Xia Ren, Jia Cao, Zhi-Xiang Wang, Ji-Jiang Wang

PII: S0277-5387(18)30125-6
DOI: https://doi.org/10.1016/j.poly.2018.03.005
Reference: POLY 13069

To appear in: *Polyhedron*

Received Date: 6 December 2017
Accepted Date: 6 March 2018

Please cite this article as: M-L. Zhang, Y-J. Zheng, Z-Z. Ma, Y-X. Ren, J. Cao, Z-X. Wang, J-J. Wang, Zinc(II) and cadmium(II) complexes of long flexible bis(imidazole) and phenylenediacetate ligands, synthesis, structure, and luminescent property, *Polyhedron* (2018), doi: https://doi.org/10.1016/j.poly.2018.03.005

Zinc(II) and cadmium(II) complexes of long flexible bis(imidazole) and phenylenediacetate ligands, synthesis, structure, and luminescent property

Mei-Li Zhang,* Yan-Jin Zheng, Zhen-Zhen Ma, Yi-Xia Ren,* Jia Cao, Zhi-Xiang Wang, Ji-Jiang Wang

Department of Chemistry and Chemical Engineering, Laboratory of New Energy & New Function Materials, Yan'an University, Yan'an, Shaanxi 716000, P. R. China.

Author for correspondence: Dr. Mei-Li Zhang and Yi-Xia Ren
Phone: (+86) 911-2332037
Fax: (+86) 911-2332037
E-mail: mlzhang8899@126.com; ydzml2332041@163.com

Abstract. Four new Zn(II) and Cd(II) coordination complexes, [Zn(*p*-pda)(*m*-bib)]·H_2O (**1**), [Zn(*m*-pda)(*o*-bib)]·H_2O (**2**), [Cd(*o*-pda)(*o*-bib)] (**3**), [Cd(*m*-pda)(*o*-bib)]·H_2O (**4**), (H_2pda = phenylenediacetic acid, bib = 1,4-bis(imidazol-1-ylmethyl)benzene), have been synthesized, and structurally characterized by elemental analysis, IR spectroscopy, single-crystal X-ray crystallography. Complex **1** exhibits a 3D porous network based on 2D loop-containing layer. Complex **2**–**4** possesses a 3D network extended by 2D net. Differently, in complex **3**, the 2D network stack in an ABAB mode, while equivalent wave-like 2D networks mutually interpenetrated with each other to generate a 2D→3D entangled system in **2** and **4**. Furthermore, the relationship between molecular conformation, packing modes and fluorescence properties have also been investigated.

Keywords: Cordination complexes; Porous network; Fluorescence properties

1. Introduction

Benefiting from their intrinsic tunability and modularity, coordination polymers, which are composed of metal ions and bridging organic ligands, have been recognized as an excellent