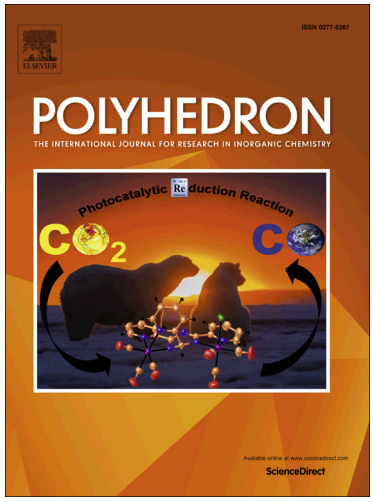
Accepted Manuscript



Syntheses, crystal structures and luminescent properties of three metal coordination polymers based on aromatic carboxylic acids and 2-(pyridine-4-yl)-(1*H*)-benzoimidazole

Shi-Jie Zhan, Yu Sun, Shu-Ping Li, Gui-Mei Tang, Yong-Tao Wang, Yue-Zhi Cui

PII: S0277-5387(16)30513-7
DOI: http://dx.doi.org/10.1016/j.poly.2016.10.016
Reference: POLY 12269

To appear in: *Polyhedron*

Received Date: 10 May 2016
Revised Date: 6 October 2016
Accepted Date: 8 October 2016

Please cite this article as: S-J. Zhan, Y. Sun, S-P. Li, G-M. Tang, Y-T. Wang, Y-Z. Cui, Syntheses, crystal structures and luminescent properties of three metal coordination polymers based on aromatic carboxylic acids and 2-(pyridine-4-yl)-(1*H*)-benzoimidazole, *Polyhedron* (2016), doi: http://dx.doi.org/10.1016/j.poly.2016.10.016

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Syntheses, crystal structures and luminescent properties of three metal coordination polymers based on aromatic carboxylic acids and 2-(pyridine-4-yl)-(1*H*)-benzoimidazole

Shi-Jie Zhan[a], Yu Sun[a], Shu-Ping Li[a], Gui-Mei Tang*[a], Yong-Tao Wang*[a] and Yue-Zhi Cui[a]

[a]*Department of Chemical Engineering, Shandong Provincial Key Laboratory of Fine Chemicals, Qilu University of Technology, Jinan, 250353, P. R. China*

*Corresponding authors. E-mail: ceswyt@qlu.edu.cn (Y.-T. Wang); meiguit@163.com (G.-M. Tang) Fax: int code +86 0531 8963 1207. Tel: +86 0531 8963 1207.

Abstract

Three new metal coordination complexes, namely [Co(**IPA**)(**4PBI**)]·H_2O (**1**), [Cd(**IPA**)(**4PBI**)(H_2O)] (**2**) and [Cd(**TPA**)(**4PBI**)(H_2O)] (**3**) [**4PBI** = 2-(pyridin-4-yl)-(1*H*)-benzoimidazole), **IPA** = isophthalate and **TPA** = terephthalate], were obtained under hydrothermal conditions by reacting cobalt and cadmium salts with **4PBI** and **IPA** or **TPA**. Complexes **1-3** were structurally characterized by X-ray single-crystal diffraction, EA, IR and PXRD. All of these complexes display low dimensional features with one-dimensional (1D) motifs. Complex **1** is a 1D tape-like structure containing bi-nuclear units, which is further extended into a 3D supramolecular architecture through intermolecular hydrogen bonds and stacking interactions. Complex **2** shows a 1D structural motif, which is further assembled into a 3D supramolecular architecture by hydrogen bonds and packing interactions. Complex **3** is also a 1D chain. Through intermolecular hydrogen bonds and π···π packing interactions, a 3D supramolecular network is also generated for **3**. The luminescent properties of complexes **2** and **3** were investigated in the solid state at room temperature. Additionally, thermogravimetric analysis (TGA) of **1**-**3** has been discussed in details.

Keywords: hydrothermal reaction; 2-(pyridin-4-yl)-(1*H*)-benzoimidazole; aromatic carboxylic acid; luminescence; crystal structure

Download English Version:

https://daneshyari.com/en/article/5154401

Download Persian Version:

https://daneshyari.com/article/5154401

Daneshyari.com