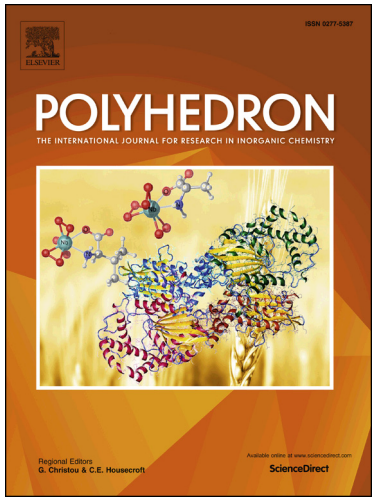

A Salamo-type fluorescent sensor for selective detection of Zn^{2+}/Cu^{2+} and its novel Cd^{2+} complex with triangular prism geometry

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A Salamo-type fluorescent sensor for selective detection of Zn^{2+}/Cu^{2+} and its novel Cd^{2+} complex with triangular prism geometry

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Abstract: A highly sensitive and selective fluorescence sensor for the detection of Zn^{2+} and Cu^{2+} was derived from a Salamo-type bisoxime ligand. The developed sensor is capable of detecting Zn^{2+} and Cu^{2+} in aqueous media through fluorescence turn on and off, respectively. In addition, the complexes of Zn^{2+} and Cu^{2+} could successfully sense the presence of H^+/OH^- via increase (ON)/decrease (OFF) in fluorescence intensity. Single crystal structures of Cu^{2+}, Ni^{2+} and Cd^{2+} complexes have been characterized using X-ray crystallography, respectively. The Cu^{2+} complex forms a dinuclear structure with both Cu^{2+} being five-coordinated with square pyramidal geometries; the Ni^{2+} and Cd^{2+} complexes are both tetranuclear structures where the Ni^{2+} and Cd^{2+} are almost six-coordinated with slightly distorted octahedral geometries. More specifically, one of the Cd^{2+} forms a novel six-coordinated triangular prism geometry which is rarely reported.

Keywords: Salamo-type bisoxime, Fluorescence sensor, Detection, Crystal structure

1. Introduction

The development of fluorescent sensors with high sensitivity, selectivity and low

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