

Accepted Manuscript

A Turn-on Fluorescence Probe Based on Post-modified Metal-Organic Frameworks for Highly Selective and Fast-response Hypochlorite Detection

Yanping Li, Ke Jiang, Jun Zhang, Tifeng Xia, Yuanjing Cui, Yu Yang, Guodong Qian

PII: S0277-5387(18)30168-2
DOI: <https://doi.org/10.1016/j.poly.2018.04.001>
Reference: POLY 13102

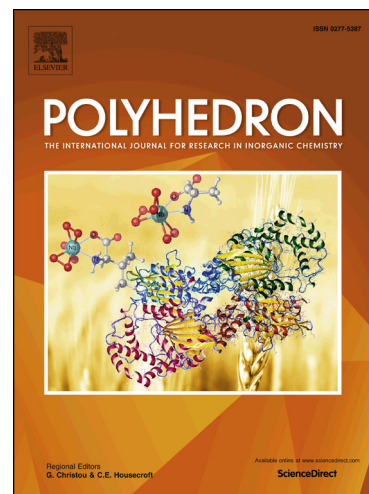
To appear in: *Polyhedron*

Received Date: 28 February 2018

Accepted Date: 1 April 2018

Please cite this article as: Y. Li, K. Jiang, J. Zhang, T. Xia, Y. Cui, Y. Yang, G. Qian, A Turn-on Fluorescence Probe Based on Post-modified Metal-Organic Frameworks for Highly Selective and Fast-response Hypochlorite Detection, *Polyhedron* (2018), doi: <https://doi.org/10.1016/j.poly.2018.04.001>

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.



**A Turn-on Fluorescence Probe Based on Post-modified
Metal-Organic Frameworks for Highly Selective and Fast-response
Hypochlorite Detection**

Yanping Li, Ke Jiang, Jun Zhang, Tifeng Xia, Yuanjing Cui, Yu Yang, Guodong Qian**

State Key Laboratory of Silicon Materials, Cyrus Tang Center for Sensor Materials and Applications,

School of Materials Science & Engineering, Zhejiang University, Hangzhou 310027, China

Email: cuiyj@zju.edu.cn; gdqian@zju.edu.cn

ABSTRACT: Hypochlorite / hypochlorous acid has been commonly regarded as one of the most vital reactive oxygen species in various physiological and pathological processes. However, the highly efficient detection of OCl^- still remains a challenging work. Here, we fabricated a fluorescent MOF-based OCl^- probe (ZIF-90-BA) by post-functionally modifying ZIF-90 with the Schiff base group. ZIF-90-BA features water stability, porous structures and functional sites. This probe was successfully used for OCl^- turn-on fluorescence sensing. The Schiff base group on the ZIF-90-BA could be oxidized by OCl^- and the flexible alkyl chain would put off, resulting in the turn-on fluorescence behavior. ZIF-90-BA exhibited high selectivity over other potentially interfering species, and it showed high sensitivity (detection limit: 6.25 μM) and fast response (15 s). It is anticipated that ZIF-90-BA can be a promising material for OCl^- fluorescence sensing.

Keywords: Hypochlorite detection; Turn-on fluorescence detection; Metal-organic frameworks; Post-synthetic modification

Download English Version:

<https://daneshyari.com/en/article/7762770>

Download Persian Version:

<https://daneshyari.com/article/7762770>

[Daneshyari.com](https://daneshyari.com)