

Author's Accepted Manuscript

Propyl phthalimide-modified
thiacalixphenyl[4]arene as a “turn on” chemosensor
for Hg(II) ions

Krunal Modi, Urvi Panchal, Viren Mehta, Manthan
Panchal, Anita Kongor, V.K. Jain



PII: S0022-2313(16)30190-9
DOI: <http://dx.doi.org/10.1016/j.jlumin.2016.07.019>
Reference: LUMIN14112

To appear in: *Journal of Luminescence*

Received date: 11 February 2016
Revised date: 15 June 2016
Accepted date: 8 July 2016

Cite this article as: Krunal Modi, Urvi Panchal, Viren Mehta, Manthan Panchal Anita Kongor and V.K. Jain, Propyl phthalimide-modified thiacalixphenyl[4]arene as a “turn on” chemosensor for Hg(II) ions, *Journal of Luminescence*, <http://dx.doi.org/10.1016/j.jlumin.2016.07.019>

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 galley proof before it is published in its final citable 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

Propyl phthalimide-modified thiacalixphenyl[4]arene as a “turn on” chemosensor for Hg(II) ions

Krunal Modi, Urvi Panchal, Viren Mehta, Manthan Panchal, Anita Kongor, V K. Jain*

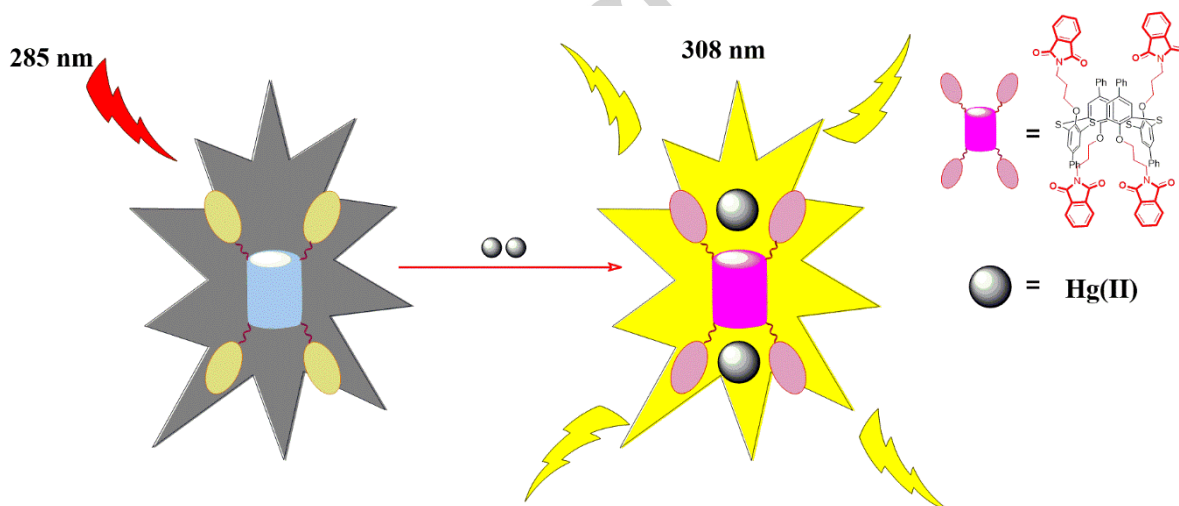
Department of Chemistry,
University School of Sciences, Gujarat University,
Ahmedabad – 380009, Gujarat, INDIA.

* Corresponding author. Tel.: +91 79 26303263; fax: +91 79 26303263
Email: drvkjain@hotmail.com

Abstract:

Thiacalixphenyl[4]arene tetra N-(3-propyl) phthalimide (TPTN3PPh), a novel thiacalixarene bearing a N-(3-bromopropyl) phthalimide group, was synthesized and characterized by Electrospray Ionization Mass spectrometry (ESI-MS) and NMR. The ability of TPTN3PPh to recognize the cations Fe(III), Cu(II), Cd(II), Zn(II), Cr(II), Ca(II), Co(II), Mg(II), Ag(I), Pb(II), Sr(II), Hg(II), Th(II), Ba(II), Bi(II), K(I), and Na(I) was evaluated. Only Hg(II) was selectively and sensitively detected using a spectrofluorimetric method, with a detection limit as low as 3.10×10^{-9} M. Analysis of the binding behavior of TPTN3PPh with Hg(II) revealed 1:2 complex formation. Real sample analysis detected nano levels of mercury ions in a waste water samples.

Key-words: Thiacalixphenyl[4]arene; Mercury; spectrofluorimetry; binding behaviour



Graphical Abstract

1. Introduction:

Detecting harmful and toxic metal ions is of high global importance [1]. Mercury exists in various chemical forms, including elemental mercury, methylmercury, and inorganic and organic mercury [2, 3]. Elemental mercury can enter the environment in a variety of ways. For example, industrial and defense-related accidents can generate liquid Hg(0) [4]. This

Download English Version:

<https://daneshyari.com/en/article/5398340>

Download Persian Version:

<https://daneshyari.com/article/5398340>

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