

## Accepted Manuscript

Title: Characterization of a fluorescent hydrogel synthesized using chitosan, polyvinyl alcohol and 9-anthraldehyde for the selective detection and discrimination of trace  $\text{Fe}^{3+}$  and  $\text{Fe}^{2+}$  in water for live-cell imaging

Authors: Santu Maity, Nira Parshi, Chandraday Prodhan, Keya Chaudhuri, Jhuma Ganguly

PII: S0144-8617(18)30337-0  
DOI: <https://doi.org/10.1016/j.carbpol.2018.03.073>  
Reference: CARP 13423

To appear in:

Received date: 20-7-2017  
Revised date: 18-3-2018  
Accepted date: 22-3-2018

Please cite this article as: Maity, Santu., Parshi, Nira., Prodhan, Chandraday., Chaudhuri, Keya., & Ganguly, Jhuma., Characterization of a fluorescent hydrogel synthesized using chitosan, polyvinyl alcohol and 9-anthraldehyde for the selective detection and discrimination of trace  $\text{Fe}^{3+}$  and  $\text{Fe}^{2+}$  in water for live-cell imaging. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2018.03.073>

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.



# Characterization of a fluorescent hydrogel synthesized using chitosan, polyvinyl alcohol and 9-anthraldehyde for the selective detection and discrimination of trace $\text{Fe}^{3+}$ and $\text{Fe}^{2+}$ in water for live-cell imaging

Santu Maity<sup>a</sup>, Nira Parshi<sup>a</sup>, Chandraday Prodhana<sup>b</sup>, Keya Chaudhuri<sup>b</sup> and Jhuma Ganguly<sup>a,\*</sup>

<sup>a</sup>Department of Chemistry, Indian Institute of Engineering Science and Technology, Howrah-711103, India

<sup>b</sup>Molecular Genetics Department, CSIR-Indian Institute of Chemical Biology, Kolkata 700032, India

\*Corresponding author.

E-mail: jhumaiiest@gmail.com (J. Ganguly)

## Highlights

- A chitosan based hydrogel with superior fluorescence properties has been synthesized.
- The emission intensity of the hydrogel enhanced remarkably for  $\text{Fe}^{3+}$  and strongly quenched for  $\text{Fe}^{2+}$ .
- The fluorometric detection limits for  $\text{Fe}^{3+}$  and  $\text{Fe}^{2+}$  were found to be 0.124 and 0.138 nM respectively.
- The probe is also promising as a selective sensor of  $\text{Fe}^{3+}$  and  $\text{Fe}^{2+}$  in the fluorescence imaging of living cells.

## Abstract

A three-dimensional fluorescent hydrogel based on chitosan, polyvinyl alcohol and 9-anthraldehyde (ChPA) has been successfully designed and synthesized for the selective detection and discrimination of  $\text{Fe}^{3+}$  and  $\text{Fe}^{2+}$  in aqueous environment. The unique characteristics of ChPA

Download English Version:

<https://daneshyari.com/en/article/7782544>

Download Persian Version:

<https://daneshyari.com/article/7782544>

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