

## Author's Accepted Manuscript

Development and application of molecularly imprinted polymer – Mn-doped ZnS quantum dot fluorescent optosensing for cocaine screening in oral fluid and serum

María Pilar Chantada-Vázquez, Carolina de-Becerra-Sánchez, Alba Fernández-del-Río, Juan Sánchez-González, Ana María Bermejo, Pilar Bermejo-Barrera, Antonio Moreda-Piñeiro



PII: S0039-9140(18)30022-5  
DOI: <https://doi.org/10.1016/j.talanta.2018.01.017>  
Reference: TAL18240

To appear in: *Talanta*

Received date: 28 November 2017  
Revised date: 4 January 2018  
Accepted date: 7 January 2018

Cite this article as: María Pilar Chantada-Vázquez, Carolina de-Becerra-Sánchez, Alba Fernández-del-Río, Juan Sánchez-González, Ana María Bermejo, Pilar Bermejo-Barrera and Antonio Moreda-Piñeiro, Development and application of molecularly imprinted polymer – Mn-doped ZnS quantum dot fluorescent optosensing for cocaine screening in oral fluid and serum, *Talanta*, <https://doi.org/10.1016/j.talanta.2018.01.017>

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.

## Development and application of molecularly imprinted polymer – Mn-doped ZnS quantum dot fluorescent optosensing for cocaine screening in oral fluid and serum

María Pilar Chantada-Vázquez<sup>1</sup>, Carolina de-Becerra-Sánchez<sup>1</sup>, Alba Fernández-del-Río<sup>1</sup>, Juan Sánchez-González<sup>1</sup>, Ana María Bermejo<sup>2</sup>, Pilar Bermejo-Barrera<sup>1</sup>, Antonio Moreda-Piñeiro<sup>1\*</sup>

(1) Trace Element, Speciation and Spectroscopy Group (GETEE) - Health Research Institute of Santiago de Compostela (IDIS), Department of Analytical Chemistry, Nutrition and Bromatology. Faculty of Chemistry. University of Santiago de Compostela. Avenida das Ciencias, s/n. 15782 – Santiago de Compostela. Spain.

(2) Department of Pathologic Anatomy and Forensic Sciences. Faculty of Medicine. University of Santiago de Compostela. Rúa de San Francisco, s/n. 15782 – Santiago de Compostela. Spain.

### Abstract

A molecularly imprinted polymer – Mn-doped ZnS quantum dot-based fluorescence probe for cocaine abuse screening has been prepared and applied to complex samples such as serum and oral fluid. The fluorescent sensing material was prepared by anchoring a selective MIP for COC on the surface of polyethylene glycol (PEG) modified Mn-doped ZnS quantum dots (QDs). Simple and low cost methods have thus been optimized for assessing cocaine abuse in serum and oral fluid by monitoring fluorescence quenching when cocaine (COC) is present (optimized operating conditions with 1.5 mL of 200 mg L<sup>-1</sup> MIP-coated QDs solution, pH 5.5, and 15 min before fluorescence scanning). The matrix effect was found to be important when analyzing oral fluid and serum, and several strategies based on centrifugation for oral

---

\*Corresponding author: E-mail address: antonio.moreda@usc.es

Download English Version:

<https://daneshyari.com/en/article/7677071>

Download Persian Version:

<https://daneshyari.com/article/7677071>

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