

Accepted Manuscript

Title: Supramolecular strategy to construct quantum dot-based sensors for detection of paraoxo

Authors: Ruslan R. Kashapov, Alina M. Bektukhametova, Konstantin A. Petrov, Irek R. Nizameev, Marsil K. Kadirov, Lucia Ya. Zakharova



PII: S0925-4005(18)31201-2
DOI: <https://doi.org/10.1016/j.snb.2018.06.096>
Reference: SNB 24933

To appear in: *Sensors and Actuators B*

Received date: 8-2-2018
Revised date: 13-6-2018
Accepted date: 21-6-2018

Please cite this article as: Kashapov RR, Bektukhametova AM, Petrov KA, Nizameev IR, Kadirov MK, Zakharova LY, Supramolecular strategy to construct quantum dot-based sensors for detection of paraoxo<CHK-Error value=Ärticle Title is Mismatching from Order./>, *Sensors and Actuators: B. Chemical* (2018), <https://doi.org/10.1016/j.snb.2018.06.096>

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.

Supramolecular strategy to construct quantum dot-based sensors for detection of paraoxon†

Ruslan R. Kashapov^{a,b,*}, Alina M. Bektukhmetova^{a,b}, Konstantin A. Petrov^c, Irek R. Nizameev^{a,b}, Marsil K. Kadirov^{a,b}, Lucia Ya. Zakharova^{a,b}

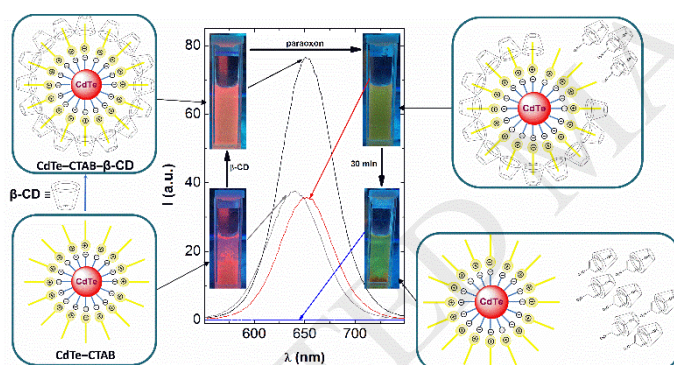
^a A.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Scientific Center of Russian Academy of Sciences, 8 Arbuzov str., Kazan 420088, Russia

^b Kazan National Research Technological University, 68 K. Marks str., Kazan 420015, Russia

^c Kazan Federal University, 18 Kremlevskaya str., Kazan 420008, Russia

* Corresponding author at A.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Scientific Center of Russian Academy of Sciences, 8 Arbuzov str., Kazan 420088, Russia. Tel: +7 8432 73 2293. Fax: +7 8432 73 2253. E-mail: kashapov@iopc.ru

Graphical abstract



Highlights

- A simple quantum dot-based sensor is developed for detection of paraoxon.
- This sensor is obtained by using the simple supramolecular method.
- The functionality of sensor is tested with blood samples of paraoxon-poisoned rats.
- Paraoxon sensing has been performed with low detection limit.

The development of advanced tools for sensing specific materials remains an ongoing challenge. Detailed below is a new quantum dot (QD)-based sensor via supramolecular interactions, demonstrating a novel simplicity of design to obtain sensitive QDs while avoiding their covalent cross-linking. A simple label-free and turn-off method for the detection of paraoxon and its degradation products in aqueous media was proposed by using the fluorescent QD/surfactant/cyclodextrin supramolecular system. This nanocomposite was prepared from 3-mercaptopropionic acid-capped CdTe QDs coated with cetyltrimethylammonium bromide (CTAB)

Download English Version:

<https://daneshyari.com/en/article/7138994>

Download Persian Version:

<https://daneshyari.com/article/7138994>

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