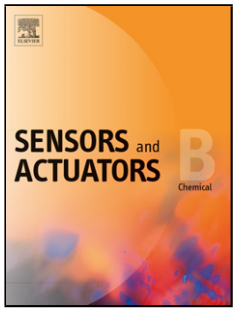

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Supramolecular strategy to construct quantum dot-based sensors for detection of paraoxon†

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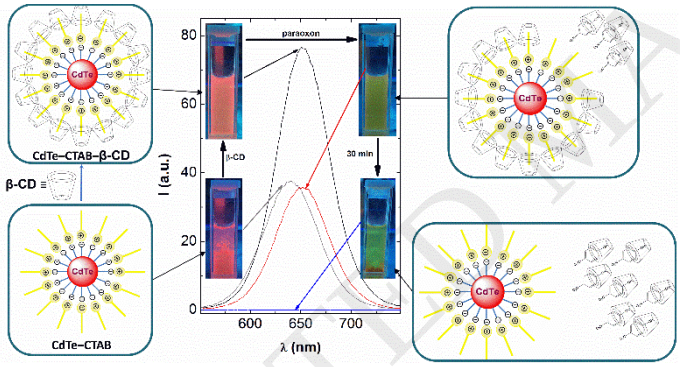
Graphical abstract



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)