Electronic Supplementary Material (ESI) for RSC Advances.

Highly sensitive cadmium sulphide quantum dots as a fluorescent probe for estimation of Doripenem in real human plasma: Application to pharmacokinetic study

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Materials and methods

Reagents and samples preparations

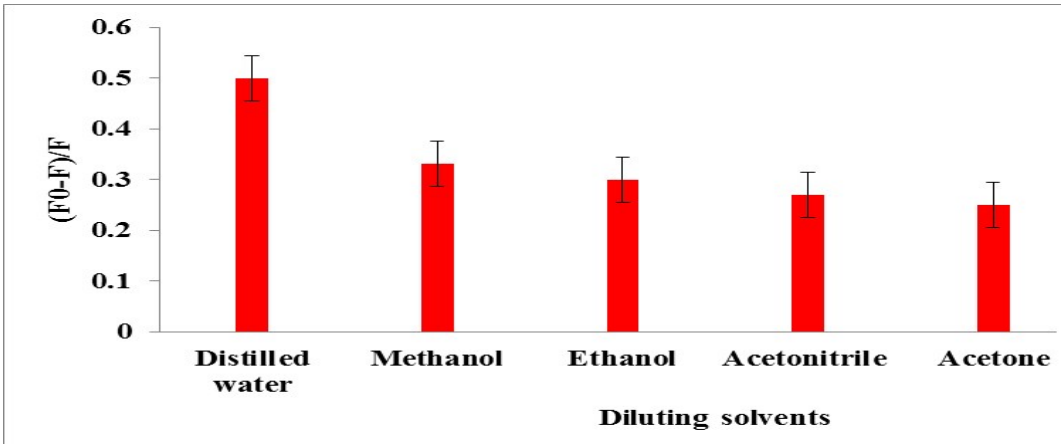
Tris-HCl buffer (0.08 M) was prepared by precise weighing 9.7 g of the powder into 1.0-liter volumetric flask containing 400 mL distilled water, then complete to the mark with the same solvent.

Cadmium chloride ($CdCl_2$,0.001 M) was prepared by precise weighing 183.0 mg of the powder into 1.0-liter volumetric flask containing 200 mL distilled water, then complete to the mark with the same solvent.

Sodium sulphide (Na_2S,0.002 M) was prepared by precise weighing 156.0 mg of powder into 1.0-liter volumetric flask containing 200 mL distilled water, then complete to the mark with the same solvent.

Sodium hydroxide (NaOH,0.1N) was prepared by precise weighing 4.0 g of NaOH flacks into 1.0-liter volumetric flask containing 200 mL distilled water, then complete to the mark with the same solvent.

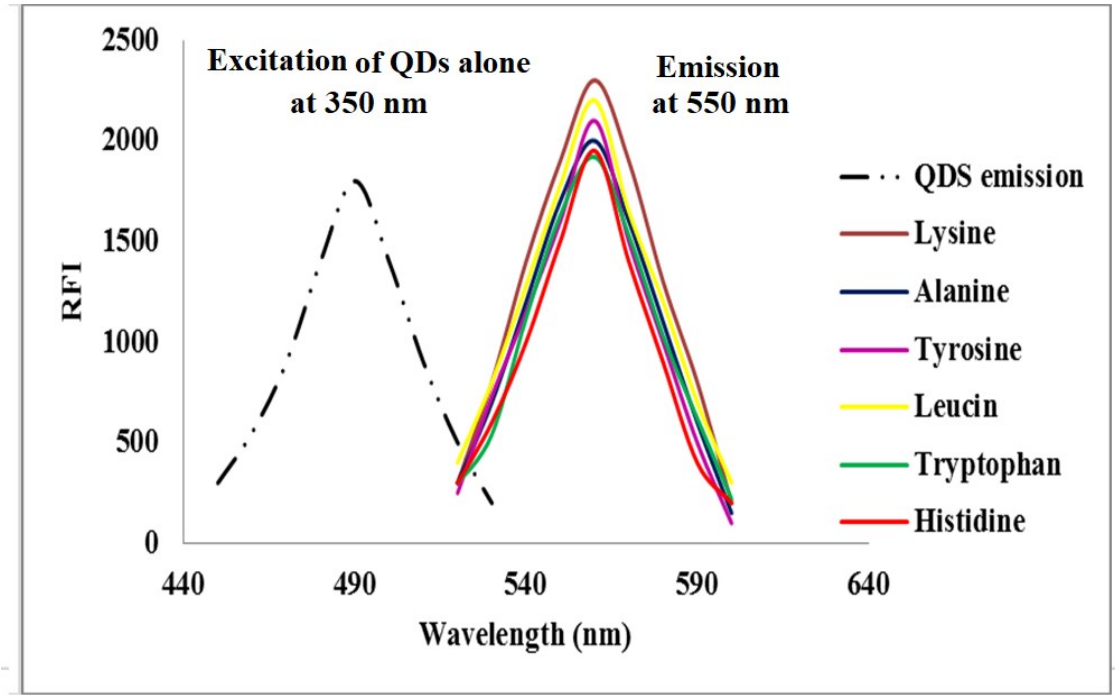
TGA-CdS QDs synthesis, the quantum dots were prepared[1] by mixing 1.5 mL from TGA (0.15 M) solution and 80 mL from $CdCl_2$ solution (0.001 M) in a round flask. Four milliliters of NaOH (0.1 N) was added to adjust the pH at 8.5. Further 20 mL of Na_2S (0.002 M) was added slowly and the mixture was kept for 20 min at room temperature under nitrogen atmosphere to remove H_2S gas. The synthesized TGA-CdS QDs were examined using TEM and were measured at 490 nm after excitation at 350 nm.



SM1: Effect of diluting solvents

SM2 Accuracy and precision of the method for determining DOR in human plasma.

	Intra-day assay (n=6)		**Inter-day assay (n=18)**	
Taken (ng mL^{-1})	**Accuracy (%Recovery)**	**Precision (%RSD)**	**Accuracy (%Recovery)**	**Precision (%RSD)**
10	96.43	1.70	96.12	1.77
30	97.54	1.89	97.10	1.88
50	96.99	1.66	96.85	1.10
100	98.00	1.52	97.40	1.95
300	97.11	1.77	98.06	1.89
500	96.07	1.55	96.01	1.60



SM3: Effect of different amino acid on fluorescence spectra of TGA-CdS QDs at λ_{ex} =350 nm and λ_{em} =550 nm (the concentration of each amino acid is 1mM)

References of Supplementary material:

1. L. Wang, L.Wang, C. Zhu, X. W. We, X. Kan, *Anal.Chim. Acta*, 2002, 468, 35–41, https://doi.org/10.1016/S0003-2670(02)00632-3.