Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary

Figure legend

Fig. S1. (a) FTIR of pure TGA, CdTe $QD_{(D)}$ and CdTe/CdS $QD_{(A)}$, (b) FT-IR spectra of CdTe $QD_{(D)}$, $QD_{(D)}$* conjugated with mAb and CdTe/CdS $QD_{(A)}$, $QD_{(A)}$* conjugated with pAb

Fig. S2- Dependence of $(ahn)^2$ of CdTe core and CdTe/CdS coreshell thin films upon the incident photon energy ($h\nu$).

Fig. S3. (a) Absorption spectra and fluorescence of QD(D) alone and QD(D)-mAb, QD(A) alone with QD(A)-pab. (b) Fluorescence spectra of $QD_{(D)}$ and (b) $QD_{(D)}$-mAb, $QD_{(A)}$ and $QD_{(A)}$-pAb.

1 **Fig. S4.** DLS measurement of (a), QD(D) alone (b)QD(D)-mAb, (c)QD(A) alone and (d) QD(A)-pab

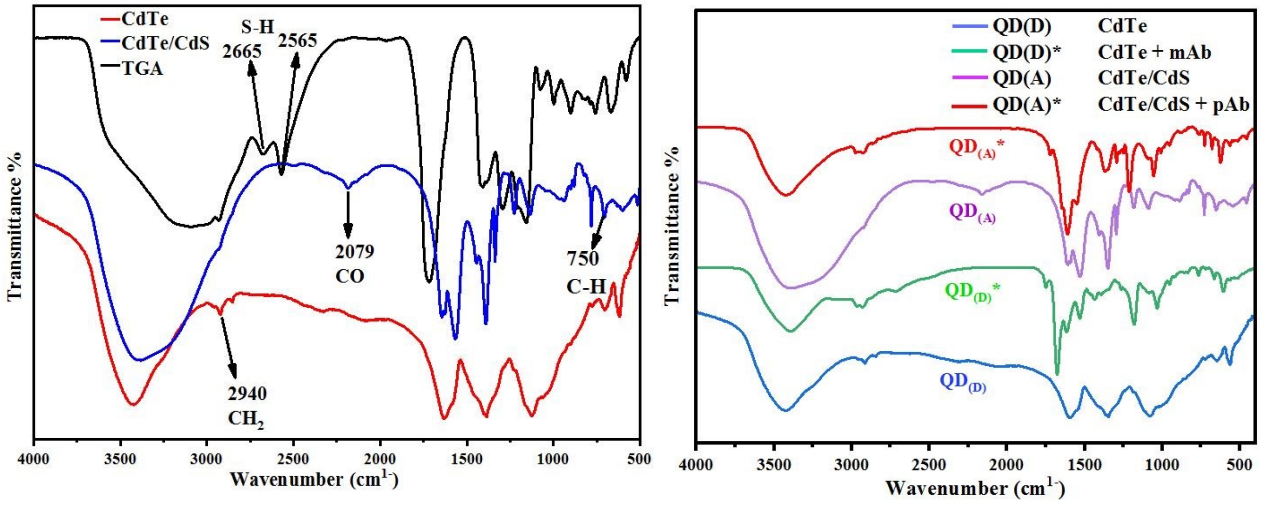
Fig. S5- Stability of the FRET based method for detection of NMP22.

Fig. S6- Study the effect of interferences on FRET based method for detection NMP22.

Table legend

Table S1- The comparison with other methods for NMP 22.

Table S2- determination of NMP 22 in urine real samples.



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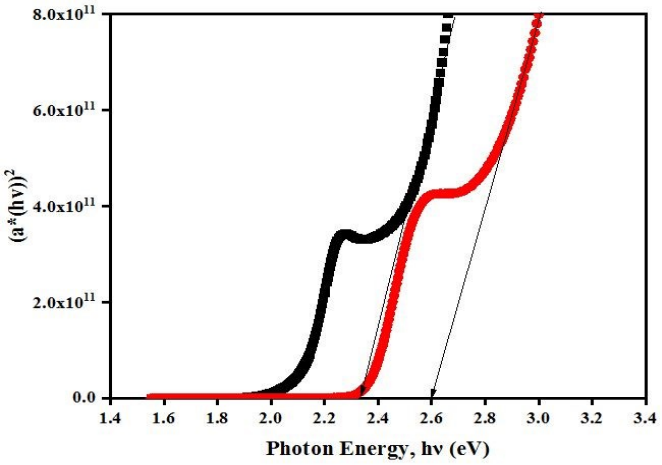

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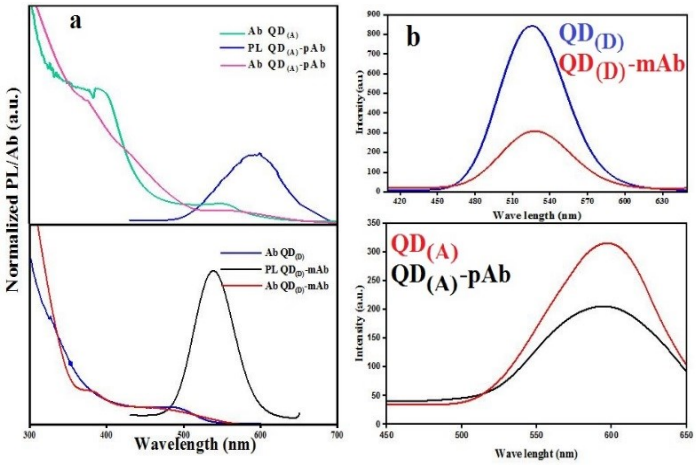

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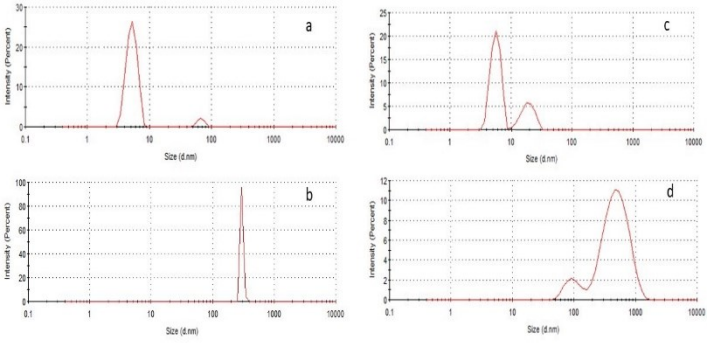

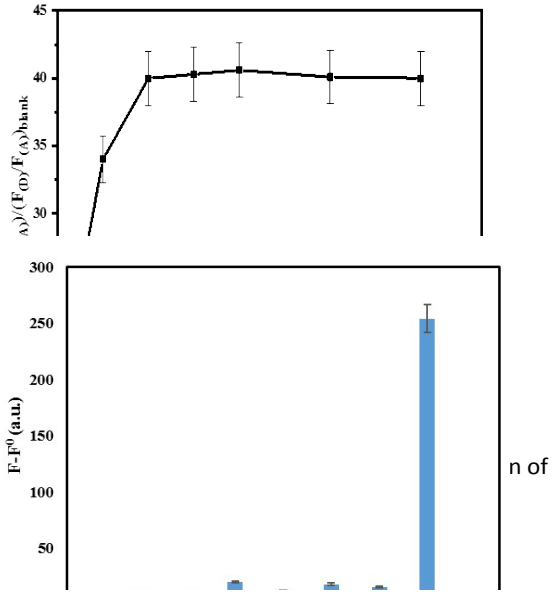

Fig. S6. Study the effect of interferences on FRET based method for detection NMP22

Table S1. The comparison with other methods for NMP 22

Detection technique	Materials used	Linear range	LOD pg.mL^{-1}	References
Sandwich electrochemical immunoassay		(1.2–200)ng.mL^{-1}	500	[31]
Alere NMP22 Test reagent kits	HRP-Ab-NMP 22/Fe3O4/Au/CoPc CME	(4–232) ng.mL^{-1}	-	[32]
ECL immunoassay	-	(0.05–2) ng.mL^{-1}	10	[1]
FRET immunosensor	g-C3N4@Au-Ab-NMP22 $QD_{(D)}$-mAb-NMP22	(2-22) pg.mL^{-1}	0.05	This work

Table S2. determination of NMP 22 in urine real samples

#	FRET method (pg.mL^{-1})	Standard method (pg.mL^{-1})	Recovery%	RSD% n=5
1	18.87	18	104.84	2.35
2	12.01	12	100.07	1.85
3	6.30	6	105.00	3.00
4	3.03	3	101.00	2.56