Supporting Information

An efficient "off–on" carbon nanoparticle-based fluorescent sensor for recognition of chromium(VI) and ascorbic acid based on inner filter effect

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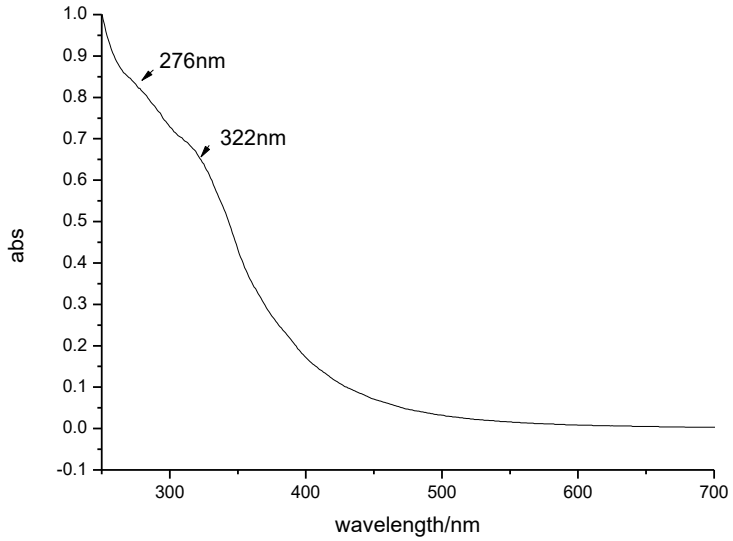


Fig S1. UV–vis absorption spectra (abs) of CDs.

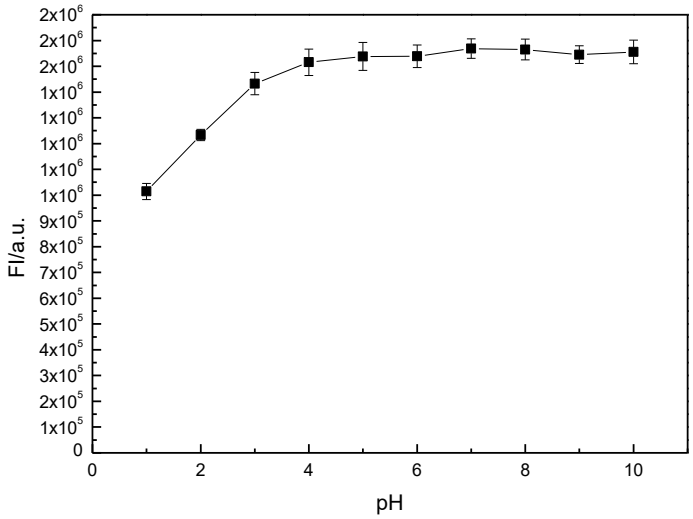


Fig S2. pH effect of N-CNPs.

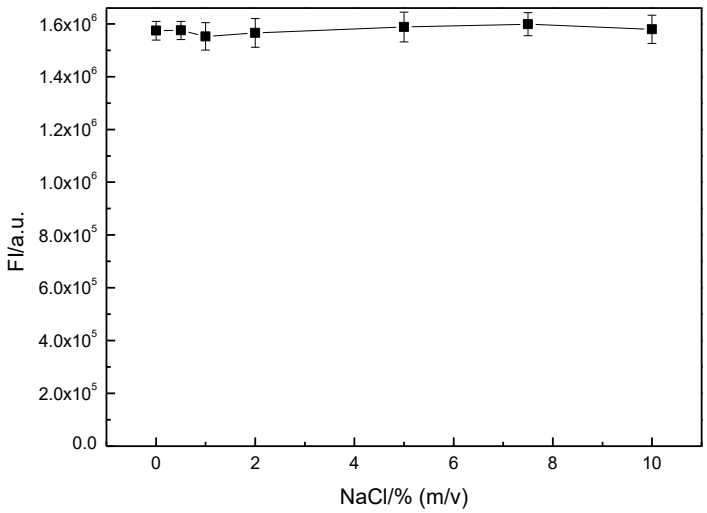


Fig. S3 Effect of ionic strength on the fluorescence intensity of N-CNPs.

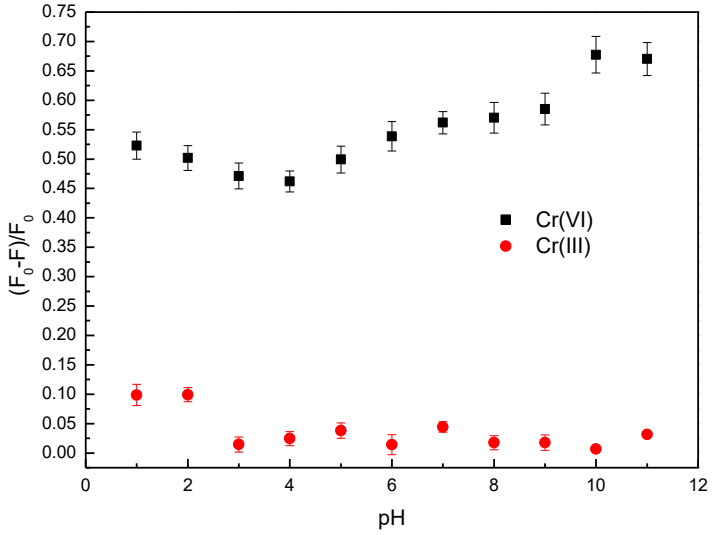


Fig S4. pH effect on quenching efficiency of N-CDs by Cr(VI). Cr(VI) concentration: 80 μmol/L; response time: 5 min.

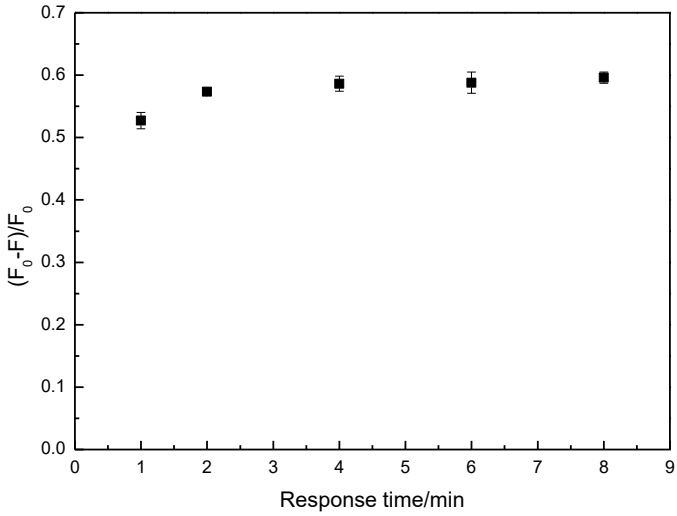


Fig. S5. Response time on quenching efficiency of N-CDs by Cr(VI). Cr(VI) concentration: 80 μmol/L; pH 7.0.

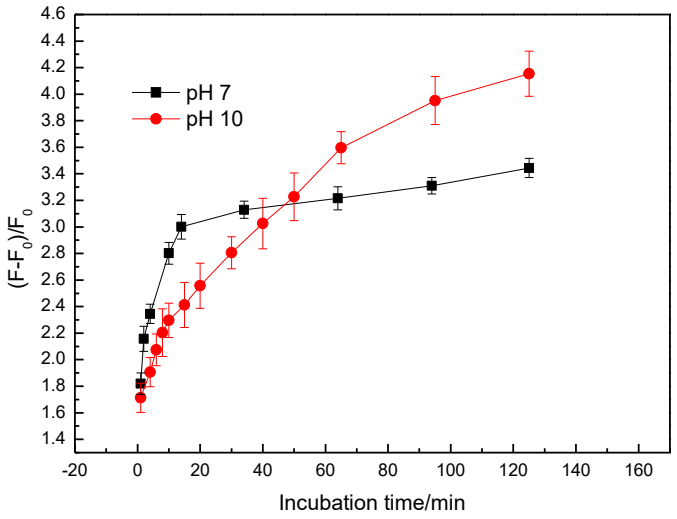
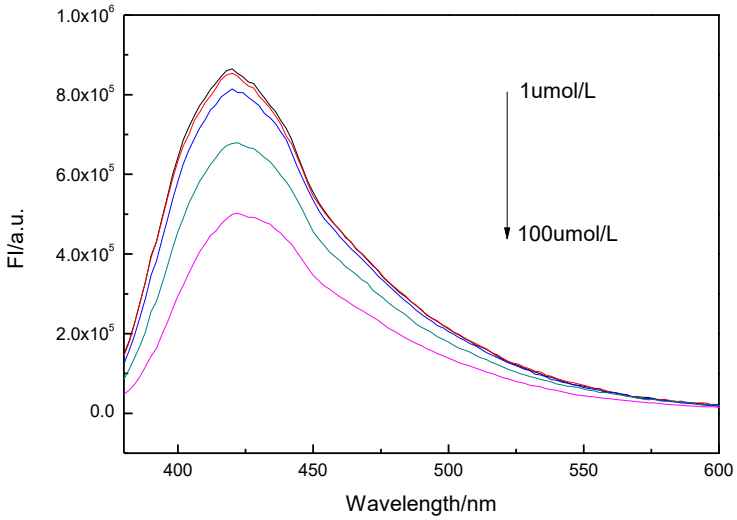
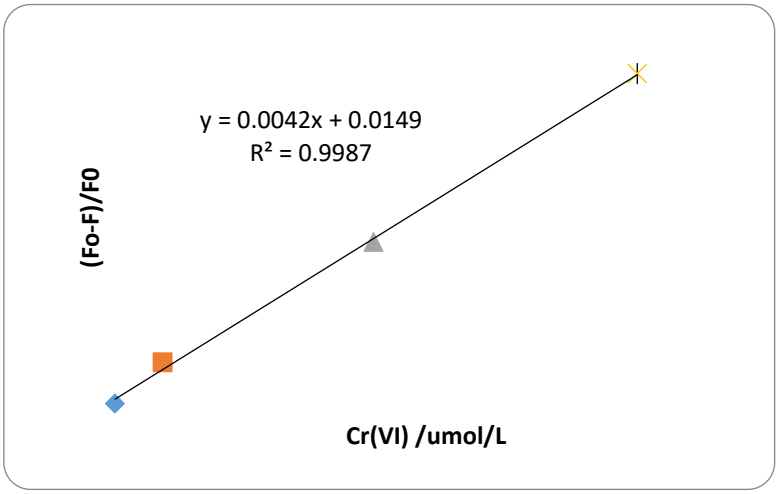


Fig. S6. Incubation time on recovery efficiency of N-CDs by Cr(VI) at pH 7 and pH 10.0. Cr(VI) concentration: 200 μmol/L.



(A)



(B)

Fig. S7. (A) Fluorescence spectra of N-CDs dispersion in the presence of different concentrations of Cr(VI) (from top to bottom: 1-100 μmol/L) in reservoir water. **(B)** Dependence of $(F_o\text{-}F)/F_o$ on the concentrations of Cr(VI) within the range of 1-100 μmol/L. (F_o and F are the fluorescence intensities of N-CDs aqueous solution at 420 nm in the absence and presence of Cr(VI)).

Table S1. Quantum yield (QY) calculation of the CDs at 370 nm

Sample	Integrated fluorescence intensity(F)	UV Absorbance	Quantum yield (**ϕ**)
Quinine sulfate	7566666	0.069	0.54
CDs	3158158	0.029	0.537

Table S2 Determination of Cr(VI) in water samples and AA in healthy human serum samples.

Sample	Cr(VI) /μmol/L	RSD/% (n=3)	Sample	AA /μmol/L	RSD/% (n=3)
Reservoir water	N.D.	2.45	Serum 1	1.23±0.03	3.24
Tap water	N.D.	3.64	Serum 2	0.87±0.12	3.11
Rain water	N.D.	2.15	Serum 3	1.92±0.14	4.12