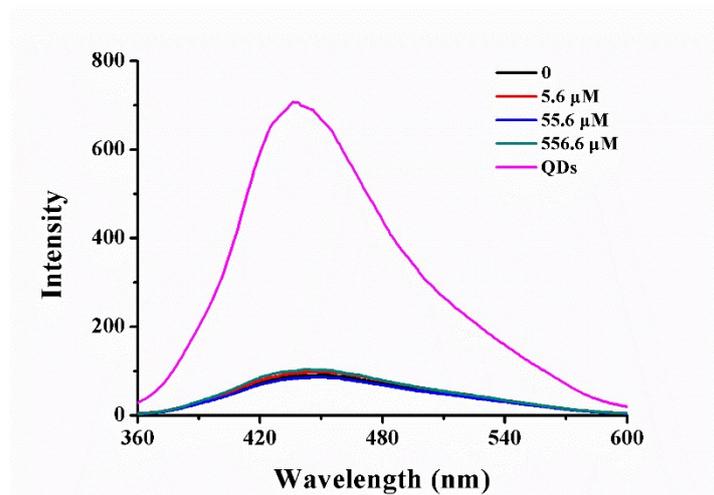
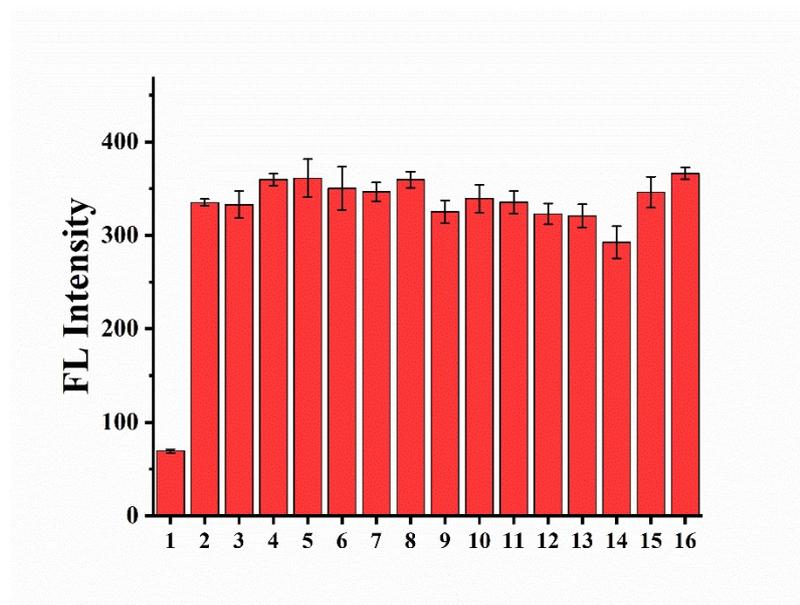


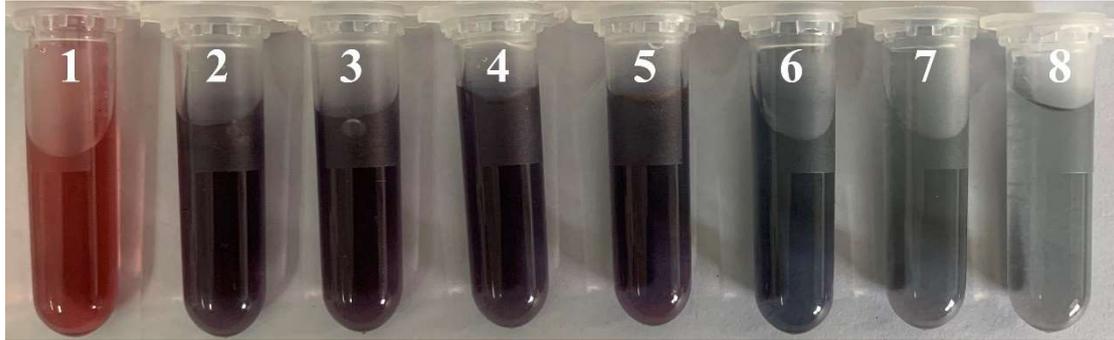
**Figure S1.** (A) Photograph and fluorescence spectra of CQDs with different concentrations of Fe<sup>3+</sup>. (B) The variation relationship between different concentrations of Fe<sup>3+</sup> and fluorescence intensity at 440 nm.



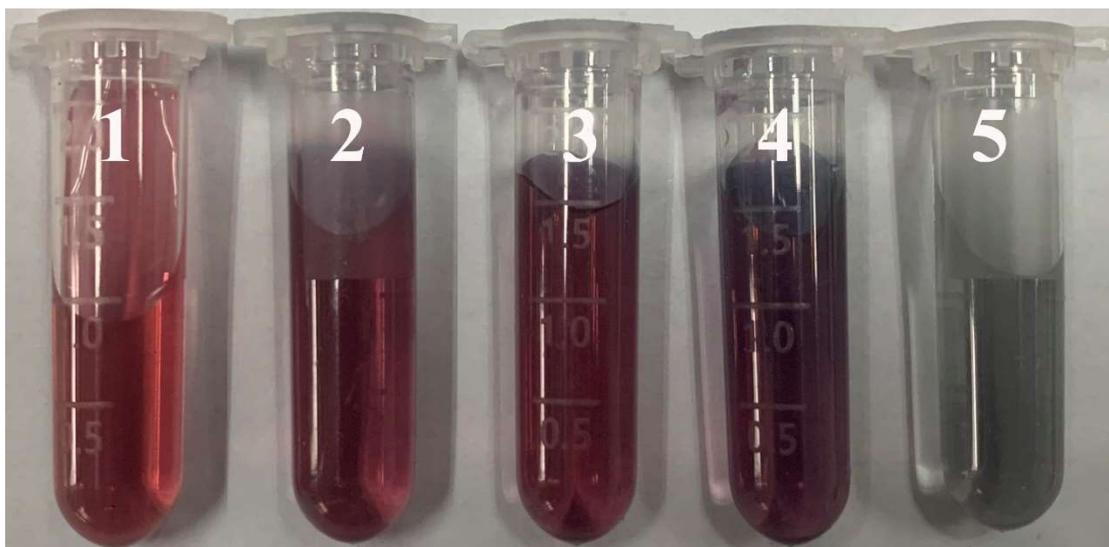
**Figure S2.** Fluorescence spectra of CQDs-Fe<sup>3+</sup> system with different concentrations of gentamicin (0, 5.6 μM, 55.6 μM and 556.6 μM). And pink line was fluorescence spectrum of CQDs as a comparison.



**Figure S3.** Anti-interference capability of CQDs-AuNPs system for gentamicin. 1 was FL intensity of CQDs-AuNPs system. 2-15 were amoxicillin, erythromycin, clarithromycin, ampicillin, penicillin, roxithromycin, norfloxacin, ofloxacin, thiamphenicol, clindamycin, trimethoprim, sulfapyridine, tetracycline, cefodizime sodium mixed with gentamicin. 16 was gentamicin. The concentrations of norfloxacin, ofloxacin, and methotrexate were 5  $\mu\text{M}$ . The concentration of clindamycin was 1  $\mu\text{M}$ . The concentration of gentamicin was 200 nM. The other antibiotic concentrations were 50  $\mu\text{M}$ .



**Figure S4.** Colorimetric photograph of after the addition of various concentrations of gentamicin in watermelon juice samples. The final concentrations of 1-8 respectively were 0, 0.56 nM, 2.80 nM, 5.56 nM, 27.80 nM, 55.56 nM, 555.56 nM and 5.56 $\mu$ M.



**Figure S5.** Colorimetric photograph of after the addition of various concentrations of gentamicin in cucumber juice samples. The final concentrations of 1-5 respectively were 0, 0.56 nM, 5.56 nM, 55.56 nM and 555.56 nM.