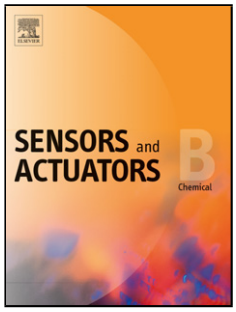

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S-doped Carbon Dots Capped ZnCdTe Quantum Dots for Ratiometric Fluorescence Sensing of Guanine

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Highlights

- S-doped carbon dots were used as capping ligands to synthesize ZnCdTe QDs for the first time.
- The dual-emitting CDs-ZnCdTe QDs could as a ratiometric fluorescence probe for guanine detection.
- The dual-emitting CDs-ZnCdTe QDs were more stable than traditional ratiometric fluorescence probes which were established by physical incorporation of two different nanoprobes.
- The proposed ratiometric fluorescence sensing method for guanine detection was highly sensitive and selective, and performed good reproducibility in practical DNA samples.

Abstract

Quantum dots (QDs)-based ratiometric fluorescence probe have drawn extensive attention in recent years. However, intrinsic dual-emitting QDs were rarely reported, and most of them were based on the metal doped-QDs. Herein, an intrinsic dual-emitting ZnCdTe QDs were synthesized by using fluorescence S doped-carbon dots (CDs) as capping ligands for the first time in this work, two emission peaks (derived from CDs and QDs respectively) were observed in CDs-ZnCdTe QDs and the probe