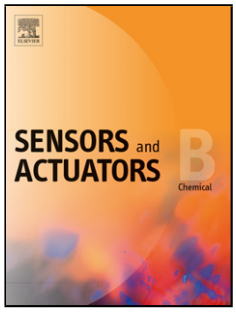

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Ratiometric fluorescence detection of mercuric ions by sole intrinsic dual-emitting gold nanoclusters

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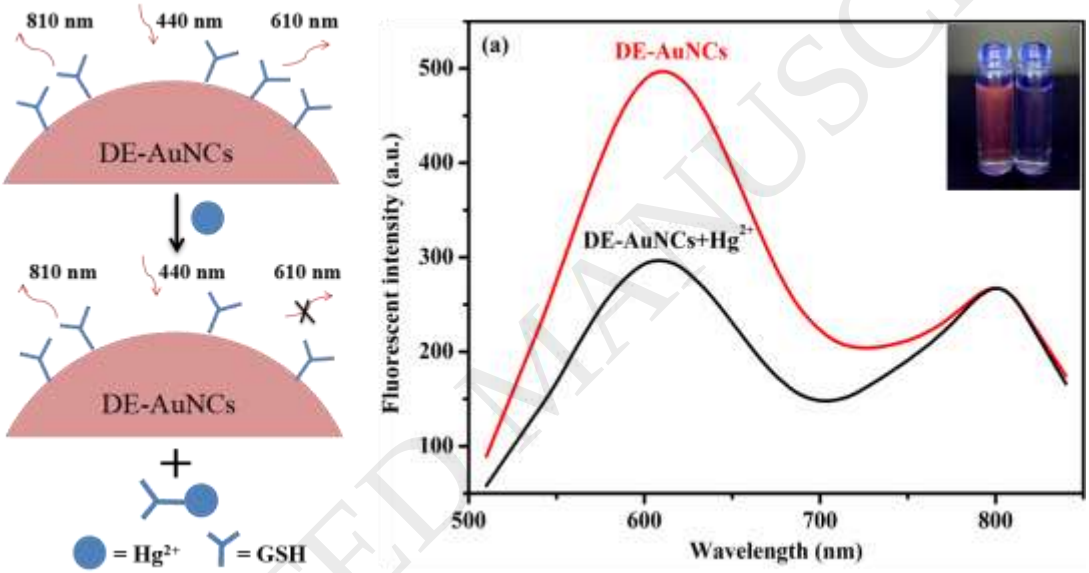
Graphical abstract:



A ratiometric fluorescence assay for detection of mercuric ions (Hg^{2+}) has been developed using sole intrinsic dual-emitting gold nanoclusters (DE-AuNCs). The addition of Hg^{2+} quenched the 610 nm emission, and the 810 nm emission remained unchanged.

Highlights:

- Intrinsic dual-emitting AuNCs were prepared by glutathione reduced chloroauric acid.
- A ratiometric fluorescence sensor without auxiliary fluorophore for Hg^{2+} was provided.
- The proposed ratiometric method exhibited high sensitivity and selectivity.
- 0.19 ppb Hg^{2+} LOD of AuNCs was much lower than the WHO drinking-water guideline.