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A Bright Carbon-dot-based Fluorescent Probe for Selective and Sensitive Detection of Mercury Ions

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Abstract

In this work, we demonstrated a convenient and green strategy for the synthesis of bright and water-soluble carbon dots (CDs) by carbonizing sodium citrate and glutathione together in a hydrothermal method for the first time. Without post surface modification, the as-synthesized CDs display fluorescence quantum yield (QY) as high as 21.03% and show superior stability not only in concentrated salt solutions but also in neutral and alkaline media. The probe exhibits selective and sensitive recognition capability towards mercury ion (Hg^{2+}) in aqueous solution. The fluorescence of CDs can be quenched by Hg^{2+} through an effective electron energy

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