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Synthesis of TGA capped CdTe quantum dots as luminescent probe for carbazochrome sodium sulfonate determination**Yanhua Liu, Zhengyu Yan, Juan Shu and Jianqiu Chen**
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Quantum Dots (QDs) are spherical or close spherical nanoparticles often consisting of elements from groups II–VI or III–V of the periodic table. Their grain diameter is general less than 10nm. They have many advantages over traditional organic dyes, such as high quantum yield, good photochemical stability and high photobleaching threshold. Recently, QDs as a new kind of fluorescence probe for small molecular compound, biomacromolecule and heavy metal iron have interested analytical workers. Fluorescence quenching of QDs is often used in common application. In our study, water-soluble CdTe QDs were synthesized with TGA as a modifying agent in aqueous solution. Based on the quenching effect of carbazochrome sodium sulfonate on the fluorescence of CdTe quantum dots, a new method for determination of carbazochrome sodium sulfonate was developed with CdTe quantum dots as a fluorescence probe. Under the optimal condition, fluorescence quenching of CdTe QDs had a good liner with concentration of carbazochrome sodium sulfonate, in the concentration range of 1–12 ug/ml. The equation was: $\ln(F_0/F) = 44.577 - 0.0139C$, $R^2 = 0.9999$. The detection limit is 0.67ug/ml. Average recovery was 100.1%. In this paper, water-soluble CdTe QDs were synthesized and capped with TGA by using a simple method. Reaction between QDs and carbazochrome sodium sulfonate was studied. A new method based on the fluorescence quenching of CdTe QDs was developed for carbazochrome sodium sulfonate determination. All experimental data indicated that this method was simple, rapid and exact.

Biography

Yanhua Liu has graduated from China Pharmaceutical University (CPU) with a Master's degree in Microbiology and Biochemistry in the year 2015. She is currently pursuing her PhD in Pharmaceutical Analysis at CPU. She has published more than 3 papers in reputed journals.

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