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One-Pot Synthesis of the Stable CdZnTeS Quantum Dots for the Rapid and Sensitive Detection of Copper-Activated Enzyme

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Abstract

Galactose oxidase is a copper-activated enzyme and have a vital role in metabolism of galactose. Much of the work is focused on determining the amount of galactose in the blood rather than measuring the amount of galactose oxidase to urge the galactosemia patients to restrict milk intake. Here, a simple and effective method was developed for Cu^{2+} and copper-activated enzyme detection based on homogenous alloyed CdZnTeS quantum dots (QDs). *Meso*-2,3-dimercaptosuccinic acid (DMSA) was used as the reducing agent for preparing QDs and the highest quantum yield of CdZnTeS QDs was 69.4%. In addition, the as-prepared CdZnTeS QDs show superior fluorescence properties, such as good photo-/chemical stability. The DMSA was the surface ligand of

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