

Synthesis and Spectral Characteristics of Gold Nanoparticles Labelled with Fluorescein Sodium

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Abstract

The biological application of labeled nanoparticles is a rapidly developing area of nanotechnology that raises new possibilities in the diagnosis and treatment of human cancers. Gold nanoparticles (GNPs) have been prepared via wet chemical method. Fluorescein capped gold nanoparticles have been prepared by a reduction of the HAuCl_4 in boiling fluorescein sodium solution. The results indicated that the spectrum exhibits one curve with two absorption bands at $\lambda(\text{max.}) = 496, 585 \text{ nm}$, which corresponds to the absorption spectra of both fluorescein and GNPs, respectively. TEM, UV-Visible, fluorescence and IR spectroscopy confirm the formation of GNPs and fluorescein capped GNPs. These fluorescein capped gold nanoparticles can be used in labeling DNA and other imperative biological molecules.

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