Short Communication

Synthesis of Gold Nanoparticles in Aqueous Solutions by Electrochemical Reduction Using poly(ethylen glycol) as Stabilizer

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A simple electrochemical method to produce gold nanoparticles (AuNPs) in aqueous media is presented. This method is based on the potentiostatic reduction of auric ions in the bulk of a potassium nitrate solution containing poly(ethylene glycol) (PEG_{20,000}) as a stabilizer. The electroreduction process is obtained when a negative polarization potential is applied to the system. To our knowledge, this is the first time that PEG_{20,000} is used as a stabilizer, and its influence on the synthesis of gold nanoparticles is examined. The analysis and characterization of the synthesized AuNPs by cyclic voltammetry, XRD and TEM is presented.

Keywords: Gold nanoparticles, electrochemical method, poly(ethylene glycol), electroreduction

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