

Supporting Information

Straightforward green synthesis of “naked” aqueous silver nanoparticles

Salvatore Giuffrida,* Giorgio Ventimiglia and Salvatore Sortino*

Dipartimento di Scienze Chimiche, Università di Catania, I-95125 Catania, Italy, CCI Group-Microfluidic Division-Molecular Diagnostic Business Unit STMicroelectronics, I-95128, Catania, Italy

E-Mail: ssortino@unict.it

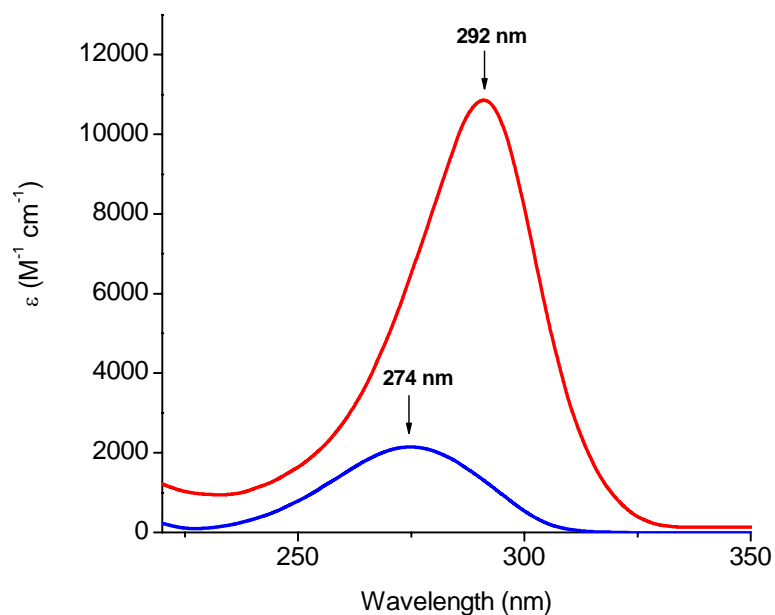
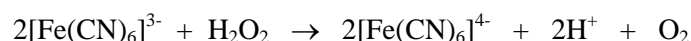


Figure 1S. Extinction spectra of Ag(acac) and Hacac in water

H₂O₂ detection.

H₂O₂ was detected by a highly sensitive (detection limit on the order of the nanomoles) spectrophotometric assay^{1S} based on the reduction of ferricyanide by H₂O₂ according to the reaction:



and subsequent reaction of the ferrocyanide with ferric chloride to form the highly absorbing Prussian blue. Briefly, after the formation of the AgNPs was complete, the final solution (3 mL) was added of 100 μL of an aqueous solution containing equal parts of 0.8% K₃Fe(CN)₆ and 0.4% FeCl₃ and, after 2 min, an absorption spectrum was run. Figure 2S shows representative results of the assay performed on a solution of Ag(acac) at the end and, for comparison, at the beginning of its thermal decomposition leading to AgNPs. The observation of the typical, absorption spectrum of the Prussian blue extending in the visible region with maximum at ca. 730 nm only in the former case confirmed the generation of H₂O₂ during the AgNPs formation.

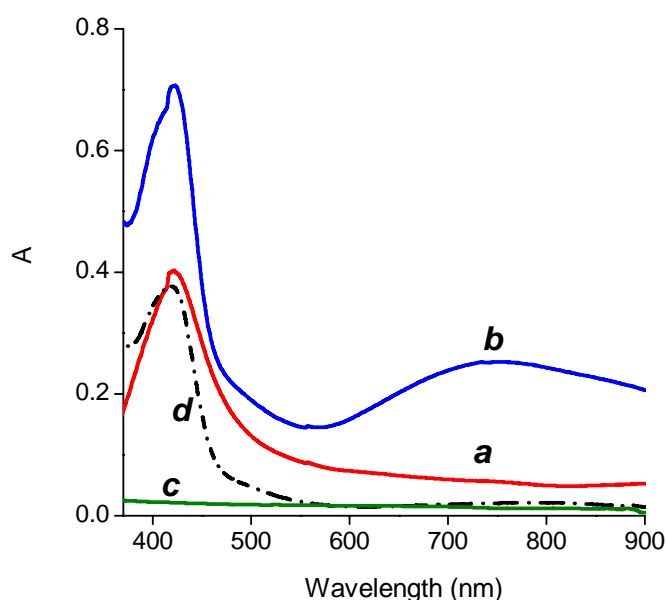


Figure 2S. Absorption spectra recorded before (*a*) after (*b*) addition of 100 μL of an aqueous solution of 0.8% K₃Fe(CN)₆ and 0.4% FeCl₃ to 3 mL of aqueous AgNPs. The absorption spectra of a solution of unreacted Ag(acac) before (*c*) and after (*d*) addition of the same amount of iron salts, is also shown as a control experiment.

1S. F. Feigl, and V. Anger, *Spot Tests in Inorganic Analysis*. 6th Edition. Elsevier, New York, 1972.