

Ordered arrangement of gold nanoparticles on an α -cyclodextrin-dodecanethiol inclusion compound produced by magnetron sputtering

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Supporting Information Available

Commercially available Aldrich reagents were used as received. (Pelco SC-6 Sputter Coater). Working conditions: Direct current (dc) mode with a discharge of 220 V, argon pressure of 10^{-2} mbar. The gold target was sputtered at an applied power of 5.5 W. The gold deposits prepared by short- time (5 - 10 s). The size of the deposited AuNPs can be estimated with the time of exposition of the substrate.

Powder X-ray diffractograms were recorded in the range $2^\circ < 2\theta < 80^\circ$ on a Siemens D-5000 diffractometer using Cu-K α radiation (40 KV, 30 mA) and a graphite monochromator ($\lambda = 1.540598 \text{ \AA}$).

UV-Vis Reflectance diffuse Spectroscopy were measured in the range 700 to 400 nm on a Shimadzu UV-2450 with ISR-2200 Integrating Sphere Attachment, this instrument is controlled by the software UVProve Version 1.10.

The TEM image and diffraction pattern was recorded in a 200keV JEOL2000FX.

The AuNPs were characterized by using a Leo 1420VP scanning electron microscopy.

The Raman spectra at 514 nm were obtained using a Renishaw Raman microscope (System RN 1000) equipped with a Leica DMLM microscope and an electrically refrigerated CCD camera. The output laser power was in range 1.0-3.0 mW.

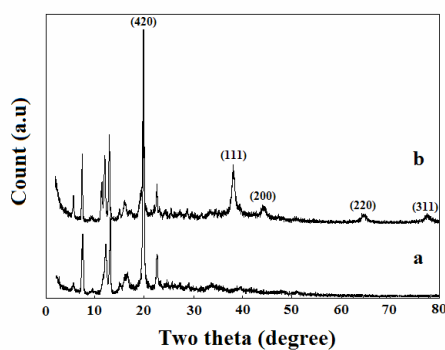


Figure 1. Powder X-ray diffractogram for the 2 α CD-DDT inclusion compound interacting with different size AuNPs 10 s(a) and 45s (b).

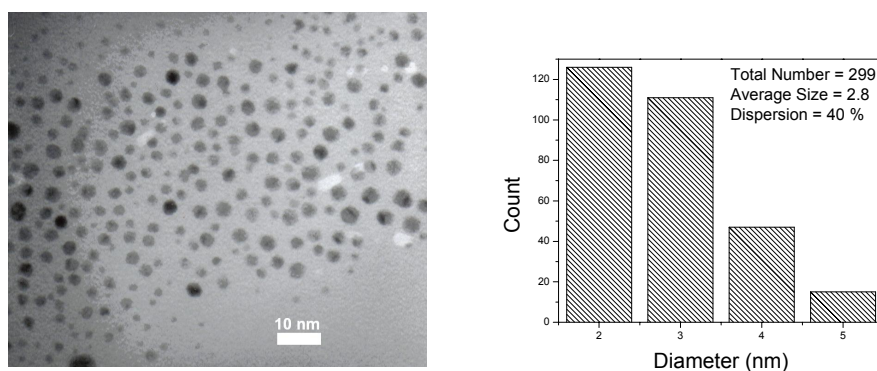


Figure 2. TEM image and histogram of AuNPs onto 2 α CD-DDT

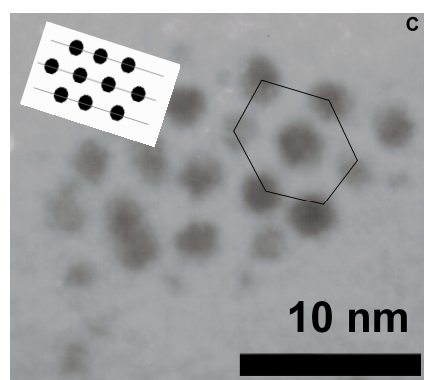


Figure 3. TEM image of the AuNPs hexagonal nanoarrangement onto 2 α CD-DDT.

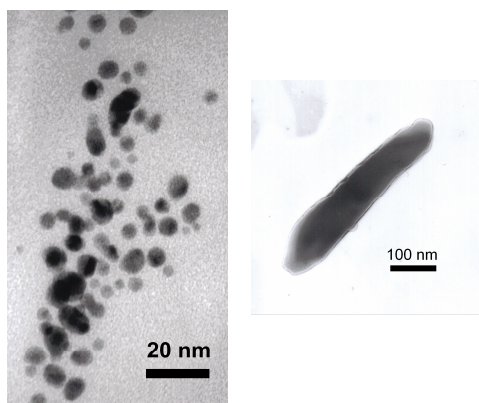


Figure 4. The assembly of gold nanoparticles on pure CD. AuNPs aggregates (A) and (B) a solitary nanorod.