

β -Cyclodextrin/alkylthiol inclusion compounds crystals as substrates for the formation and immobilization of gold nanoparticles produced by magnetron sputtering

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© Springer Science+Business Media Dordrecht 2014. In this work, we report the nanodecoration of microcrystals of inclusion compound (IC) of β -cyclodextrin (β -CD) that contain octanethiol, decanethiol and dodecanethiol. Crystals of these ICs provide a suitable environment for nucleation, growth and immobilization of gold nanoparticles that were obtained by the magnetron sputtering technique. The use of β -CD IC substrates with a specific surface morphology (i.e., the functional group of the guest molecule faces outward preferentially from a crystal plane) is an efficient method for the preparation of AuNPs with low size dispersion, which is due to the high affinity between the functional group of the surfactant alkylthiol guest with the metal nanoparticles.