Poster

SYNTHESIS, CHARACTERIZATION AND STABILITY OF CARBOXYLATE-MODIFIED SILVER CLUSTERS POWDERS DISPERSIBLE IN WATER

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Water-dispersible carboxylate-modified silver clusters have been synthesized in a single-phase system by reduction of silver nitrate with sodium borohydride in tetrahydrofuran, using several thio-carboxylic acids (mercaptoundecanoic acid, mercaptosuccinic acid, L-glutathione reduced and N-(2-mercaptopropionyl)-glycin) as stabilizing ligands. This method is based on the formation of polymeric precursors, Ag(I)- thiolates, which generate carboxylate-stabilized metal clusters by chemical reduction. Fast precipitation of the reaction products prevented growth and coalescence enabling the synthesis of small silver clusters. The samples were characterized by several techniques, like UV-vis and fluorescence spectroscopies, TEM, X-ray diffraction, light scattering and others. This procedure opens new ways for biological applications of the silver clusters.

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