

Electronic supplementary information

INCREASED STABILITY OF SILVER NANOPARTICLES IN SALINE AND OXIDIZING MEDIA IN THE PRESENCE OF BIOGENIC AMINES

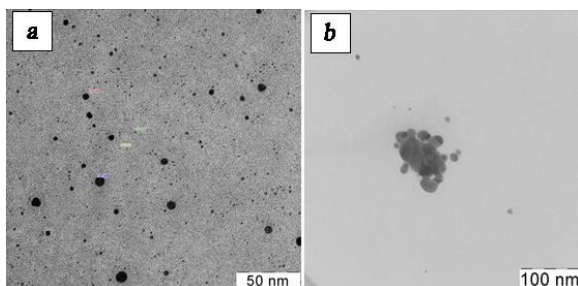
E. A. Kurskaya,* A. A. Askadskii, O. A. Serenko, and N. A. Samoilova

*Nesmeyanov Institute of Organoelement Compounds, Russian Academy of Sciences,
ul. Vavilova 28, str. 1, Moscow, 119334 Russia*

Synthesis of silver nanoparticles stabilized by the maleic acid copolymers with ethylene or styrene

Our research group has described the synthesis of copolymer-stabilized silver nanoparticles based on the alternating copolymers of maleic acid with ethylene earlier [1]. The synthesis was carried according to the following procedure. Freshly prepared solutions of AgNO_3 (0.1 M) and the maleic acid copolymer (0.01 M; herein, the molar concentration of the copolymer refers to the maleic acid monomeric units) in water at pH = 7 (titration with 5% aq. NaOH) were mixed in an equimolar ratio under vigorous stirring. In 5–10 min, a freshly prepared aqueous solution of NaBH_4 (0.1M, double excess relative to silver ions) was added to the stirred solution of the polymeric salt. The reaction mixture was left at room temperature for 24 h. The dried samples of the EM/Ag^0 and SM/Ag^0 were obtained by the ultrafiltration through the Diaflo YM5 membrane (Amicon corp.) and freeze drying.

Below are the micrographs of stabilized silver nanoparticles in the samples obtained by the above-mentioned method in double distilled water (*a*) or a NaCl solution (154 mM) after 24 h exposure (*b*).



References

1. N. A. Samoilova, I. V. Blagodatskikh, E. A. Kurskaya, M. A. Krayukhina, O. V. Vyshivannaya, S. S. Abramchuk, A. A. Askadskii, I. A. Yamskov, *Colloid J.*, **2013**, 75, 409–420. DOI: 10.1134/S1061933X1304008X