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SILVER NANOPARTICLES, SYNTHESIS AND BIOLOGICAL ACTIVITY

Summary

The growing resistance of bacteria, especially those living in biofilms, to conventional antibiotics causes a broad search for new therapeutic agents. Silver nanoparticles, due to their known antibacterial activity, are intensively studied. Among several methods of nanosilver synthesis, the most friendly is the biogenic "green" synthesis. The targets and mechanisms of action of silver nanoparticles are pleiotrophic, and involve mainly destruction of cellular envelopes and induction of reactive oxygen species. Nanosilver particles are also able to interact with conventional antibiotics, thus enhancing their antibacterial activity. The data obtained both *in vivo* and *in vitro* demonstrate the toxic effect of nanosilver on Eukaryota, including its antitumor potential. The broad usage of silver nanoparticles calls for a restricted monitoring of their production and application.