

EFFECT OF SILVER NANOPARTICLES ON THE ANTIBACTERIAL ACTIVITY OF ANTIBIOTICS

SMÉKALOVÁ Monika, ARAGON Virginia, PANÁČEK Aleš, KVITEK Libor, ZBOŘIL Radek

Palacky University in Olomouc, Olomouc, Czech Republic, EU

Abstract

Antibiotics are excessively used to treat infectious diseases, which results in development and dissemination of bacterial resistance to antibiotics. Due to the decrease of antibiotics efficiency another ways of infection control has gained importance. Silver nanoparticles (AgNP) are well-known for their strong antibacterial activity, and therefore, we studied possible enhancement of antibiotic activity when combined with AgNP. For this purpose, antibiotics with different modes of action were used. The comparison of minimal inhibitory concentration of AgNP and antibiotics alone and in combination of each other was realized on the base of standard methods used in practice for evaluation of synergistic interaction of antibiotics with adjuvants. The results showed that AgNP possess synergistic, additive and indifferent activities against bacteria. Moreover, we observed in some cases restoring of antibiotic sensitivity when antibiotic is combined with AgNP. Our results point out to possibility of utilization of AgNP in combination with antibiotics for treatment diseases caused by antibiotic resistant bacteria.

Keywords: Silver, nanoparticles, resistant bacteria, synergy

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