

Evaluate to Antimicrobial Effect in Simultaneous Use of Silver Nanoparticles With Doxycycline, Streptomycin and Gentamicin on *Brucella abortus* S19 In Vitro

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Background & Objectives: *Brucella* is an intracellular pathogen that treatment of disease have with many problems. The newly use of nanoparticles with the antibiotics in the treatment of many infections has been used. The purpose of this study was to evaluate the antibacterial effect in simultaneous use of silver nanoparticles with simultaneous use of doxycycline, streptomycin and gentamicin on *Brucella abortus* S19 in vitro.

Methods: Disk diffusion Methods antibiogram for the antibiotics doxycycline, streptomycin and gentamicin according to CLSI guidelines for standard strain were performed. Also with micro-dilution Methods, MIC and MBC for the above antibiotics and silver nanoparticles were determined. For more to examine the effects of simultaneous use of nanoparticles and antibiotics above MIC and MBC were determined by microdilution Methods.

Results: The results showed that silver nanoparticles are even at low concentrations, inhibit bacteria growth (MIC= 6 µg/ml و MBC=8 µg/ml), thus As well results of the simultaneous use antibiotics and silver nanoparticles showed that Antimicrobial effects of silver nanoparticles and antibiotics at concentrations below the MIC can be seen.

Conclusion: Silver nanoparticles have antimicrobial effect on *B. abortus* strain S19 and thus increases the effectiveness of antibiotics. that is impressive. So that low concentrations of antibiotics, along with silver nanoparticle has the same effect of high dose antibiotics.

Keywords: *Brucella abortus*; Brucellosis; Silver Nanoparticles; Antibiotic