

Study the effect of silver nanoparticle functionalized with thiosemicarbazone on norA and norB genes expression pattern in Staphylococcus aureus bacteria

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Staphylococcus aureus is one of the most successful pathogens in hospital infections around the world. At present, the excessive use of antibiotics has led to the spread of bacterial resistance. One of the mechanisms of resistance of *S. aureus* bacteria to antibiotics is the presence of an apophysis pump such as *norA* and *norB*. In order to overcome bacterial resistance today, the design of new antimicrobial agents is needed and today, due to the multipurpose and unique function of nanoparticles, attention has been paid. **Material and Methods:** In this study, 45 samples were collected. Tehran and Rasht hospitals. *Staphylococcus aureus* strains were isolated using phenotypic methods. Antimicrobial resistance pattern and minimum inhibitory concentration of silver nano-particle-activated carbon-thawed carbazone strain on *Staphylococcus aureus* strains were determined by Microdilution And Expression and expression of *norA* *norD* pump genes were investigated by PCR and Real Time PCR. **Findings:** The results show that the microbial nanoparticles with carobazone Thiosamine have inhibited bacterial growth at low concentrations of MIC. **Coclusion:** Reducing the expression of *norA* and *nor B* genes by Ag-TSC results in more drug efficacy and inhibition of bacterial growth.

Keywords : *Staphylococcus aureus*, Silver nanoparticle, Tiosemicarbazone , Efflux pumps, *norA*, *norB*

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