

عنوان مقاله:

Antibacterial effects of combination of silver nanoparticles and extracts of Ghalghaf gall against Escherichia coli and Staphylococcus aureus

محل انتشار:

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خلاصه مقاله:

Introduction and Objectives: Escherichia coli and Staphylococcus aureus are the most common causes of hospital- and community-acquired infections and antimicrobial resistance among them has become a major health problem. Recently nanoparticles are among the compounds that have been most noticed due to their antimicrobial properties. It has been shown that the production of nanoparticles by using plant extracts leads to the acquisition of nanoparticles with increased antimicrobial activity. The purpose of current study was to evaluate antibacterial effects of combination of silver nanoparticles and extracts of Ghalghaf gall against the mentioned bacteria. **Materials and Methods:** In this study silver nanoparticles were synthesized using extracts of Ghalghaf gall. Antibacterial activity of these nanoparticles against the standard strains of Escherichia coli and Staphylococcus aureus were evaluated by determination of minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values by broth macro-dilution method according to Clinical and Laboratory Standards Institute (CLSI) procedures. **Results:** The MIC and MBC values of the combination of silver nanoparticles and extracts of Ghalghaf gall obtained for Escherichia coli were 78 µg/ ml and 156 µg/ ml respectively. The observed MIC and MBC values of the mentioned combination for Staphylococcus aureus were 156 µg/ ml and 1250 µg/ ml. **Conclusion:** According to the results of current study, the combination of silver nanoparticles and extracts of Ghalghaf gall showed remarkably higher antibacterial effects compared to silver nanoparticles alone especially against Escherichia coli.

کلمات کلیدی:

Antibacterial activity, Silver nanoparticles, Ghalghaf gall, Escherichia coli, Staphylococcus aureus

