

## عنوان مقاله:

Effect of Allicin and Silver Nanoparticles on Skin Infections Due to Staphylococcus aureus in Mouse Model

## محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان، دوره 23، شماره 97 (سال: 1394)

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## خلاصه مقاله:

**Background and Objective:** Staphylococcus aureus is an important pathogen causing a wide range of infections in hospitals and is known due to its resistance to antibiotics. Novel methods of nanotechnology and the effective combination of different antimicrobial mechanisms can be compelling approaches to treat infectious diseases. The aim of this study was to investigate the antimicrobial effect of silver nanoparticles, allicin and their combination on skin infections due to Staphylococcus aureus in mouse model. **Materials and Methods:** Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of silver nanoparticles, allicin and their combinations were measured based on the microdilution susceptibility test. Skin infection was induced in ۲۰ Syrian mice with Staphylococcus aureus and the effect of silver nanoparticles, allicin along with the synergistic effect of allicin as well as silver nanoparticle combinations were investigated. **Results:** The results showed that minimum inhibitory concentration and minimum bactericidal concentration of silver nanoparticle for S. aureus were ۶.۲۵ and ۱۲.۵ ppm, respectively. MIC and MBC of allicin for S. aureus were ۱۰.۶۸ and ۲۱.۳۷ μg/ml, respectively. MIC and MBC combination of allicin and silver nanoparticles on S. aureus were ۱.۳۳ μg/ml, ۳.۱۲ ppm and ۲.۶۷ μg/ml, ۶.۲۵ ppm, respectively. Anti microbial effect of allicin, silver nanoparticles and the synergistic effect of their combination against skin infections due to Staphylococcus aureus confirmed in mouse model. **Conclusion:** The results showed that allicin in combination with silver nanoparticles exhibit synergistic effect on skin infections due to Staphylococcus aureus. **References** ۱- Mccaig F, Clifford Mcdonald L, Mandal S, Jernigant B. Staphylococcus aureus associated skin and soft tissue infections in ambulatory care. Emerg Infect dis. ۲۰۰۶ ۱۲: ۱۷۱۵-۲۳. ۲- Harris G, Foster J, Richards G. An introduction to Staphylococcus aureus, and techniques for identifying and quantifying S. aureus Adhesins in relation to adhesion to biomaterials: review. Eur cells Material. ۲۰۰۲ ۴: ۲۹-۶۰. ۳- Uwazuoke J, Aririatu L. A survey of antibiotic resistant Staphylococcus aureus strains from clinical sources in Owerri. J Appl Sci Environ. ۲۰۰۴ ۸: ۶۷-۶۹. ۴- Kokoska L, Polesny Z, Rada V, et al. Screening of some Siberian medicinal plants for antimicrobial activity. J Ethnopharmacol. ۲۰۰۲ ۸۲: ۵۱-۵۳. ۵- Kathi J, Kemper M. Garlic (Allium sativum). Longwood Herbal Task Force. ۲۰۰۰: ۱-۴۹. ۶- Aala F, ... Yusuf U, Jamal F, Rezaie S. Antimicrobial effects of allicin and ketoco

## کلمات کلیدی:

Keywords: Skin infection, Staphylococcus aureus, Allicin, Silver nanoparticles, Synergistic effect

## لینک ثابت مقاله در پایگاه سیویلیکا:

