

Antibacterial Activity of Copper Nanoparticles on Vancomycin Resistant Staphylococcus Aureus in Vitro and Animal Models

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Abstract : Staphylococcus aureus is one of the most important factors for nosocomial infections and infections acquired in a hospital setting role as is. Drug-resistant bacteria methicillin, which in 1961 was reported in many parts of the world, Made the role as the last drug, vancomycin, in the treatment of infections caused by the Staphylococcus aureus chain be taken into consideration. The aim of this study was to evaluate the antimicrobial effects of copper nanoparticles and compared it with antibiotics on Staphylococcus aureus resistant to vancomycin in vitro and animal model. In this study, this test was performed, and the most effective antibiotic for vancomycin-resistant Staphylococcus aureus was determined by disk diffusion method. After various concentrations of copper nanoparticles and antibiotics were prepared and vancomycin resistant Staphylococcus aureus bacteria with serial dilution method for determining antibiotic ciprofloxacin. Minimum Inhibitory Concentration and Minimum Bactericidal Concentrationcopper nanoparticles was performed. The agar dilution method for bacterial growth in different concentrations of copper nanoparticles and antibiotics ciprofloxacin was performed. The agar dilution method for bacterial growth in different concentrations of copper nanoparticles and antibiotics ciprofloxacin was performed. Then the broth dilution method for the antibiotic ciprofloxacin, nano-particles, and nano-particles of copper and copper-established antibiotic synergy MIC and MBC were obtained. MBC was obtained from the experimental animal model test method, and the results were compared. The results showed that copper nanoparticles compared with the antibiotic ciprofloxacin in vitro and animal model more effective in inhibiting the growth of Staphylococcus aureus resistant to vancomycin and ciprofloxacin and extent of the impact of the Synthetic effect of lower copper nanoparticles. Which can then be used to treat clinical research as a candidate.

Keywords : nanoparticles, copper, staphylococcus, aureus

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