Original Paper

Inhibitory effect of alcoholic eucalyptus extract with nanosilver particles on *E.coli* growth

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Abstract

Background and Objective: Nanosilver particles are one of the functional nanotechnology filed. These nanoparticles have antibacterial characteritics. Combination therapy is one of new and specific therapeutic regiment in medicine. Eucalyptus plant is useful in growth inhibition of bacteria. This study was done to evaluate the inhibitory effect of alcoholic eucalyptus extract with nanosilver on *E.coli* growth.

Materials and Methods: In this laboratory study, *E.coli* was cultured in nutrient agar medium. Primarily 50 µl of bacteria was inocolulated in each plate, antibiograms disc contiminated with 3.1, 6.25, 12.5, 25 and 50 ppm concentration of nanosilver accompanied with 100% of etanolic extract of eucalyptus were placed in each plate subsequently. Diameter of inhibitory zone were evaluated following 24, 48, 72 hrs in 6^{th} and 8^{th} days. Data were analyzed using SPSS-15, ANOVA and Tukey tests.

Results: After six days, inhibitory growth zone diameter of *E.coli* was 0.5 mm. This diameter in experimental group with 3.1, 6.25, 12.5, 25 and 50 ppm of nanosilver in combination with etanolic extract of eucalyptus were 0.55, 0.58, 0.82, 0.83 and 1.02 mm. Inhibitory growth zone in group of 12.5, 25 and 50 ppm of nanosilver was significant in compared to the control ($P<0.05$).

Conclusion: The most proper time of inhibitory effect on *E.coli* growth is six day after treatment in combination of 50 ppm nanosilver particles with extract of eucalyptus.

Keywords: Nanosilver, Alcoholic eucalyptus extraction, Inhibition effect, *E.coli*

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