Original Paper

The synergic effect of alcoholic eucalyptus and nanosilver on colony count of *Aspergilus Niger*

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Abstract

Background and Objective: Nanosilver particles are one of functional nanotechnology filed. These nanoparticles have antibacterial and antifungal characteritic. Combination therapy is one of new and specific method for therapy of diseases in medicine and pharmacology. Some plants are useful in growth inhibition of *Aspergilus Niger*. This study was done to evaluate the synergic effect of alcoholic eucalyptus and nanosilver on colony count of *Aspergilus Niger*.

Materials and Methods: In this laboratory study PAN were cultured in PDA medium. Five experimental and one control group were designed for the comparison of synergic effect of alcoholic eucalyptus and nanosilver, nanosilver 50ppm, nanosilver 12.5ppm, eucalyptus ethanolic extract 100%, eucalyptus ethanolic extract 100% mixed with nanosilver 12.5ppm, eucalyptus ethanolic extract mixed with 50ppm, and double distilled water were given to group 1, 2, 3, 4, 5 and control group respectively. Morphological, diameter, and colony numbers in various culture media were compared subsequently. The repeated number of *Aspergilus Niger* were 24, and they were chosen randomly. Data were analyzed using SPSS-15 and ANOVA test.

Results: The *Aspergilus niger* colony were reduced 8 days following treatment from 200 colony in control group to 90, 75, 55 and 43 in nanosilver group in 12.5 ppm, nanosilver group in 50 ppm, nanosilver group in 50 ppm mixed with eucalyptus ethanolic extract and finally eucalyptus ethanolic extract group, respectivley ($P<0.05$). The colony count 24 day following treatment were reduced from 200 colony in control group to 42, 14 and 2 in eucalyptus ethanolic extract group, nanosilver group in 12.5 ppm mixed with eucalyptus ethanolic extract and finally nanosilver group in 50 ppm mixed with eucalyptus ethanolic extract, respectivley ($P<0.05$).

Conclusion: This study showed that nanosilver with 50 ppm concentration mixed with eucalyptus ethanolic extract have synergic effect on reducing the *Aspergilus niger* growth rate.

Keywords: Nanosilver, Eucalyptus ethanol extract, *Aspergilus niger*

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