

## عنوان مقاله:

Optimization of Chitosan Production from Iranian Medicinal Fungus *Trametes- Versicolor* by Taguchi Method and Evaluation of Antibacterial Properties

## محل انتشار:

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## خلاصه مقاله:

Background: Chitosan is a natural polymer with special properties that are prepared and purified in the industry of crustaceans. In this study, *Trametes versicolor* fungus, which was obtained from the forests of northern Iran, was used due to its medicinal properties, and the extracted chitosan of this fungus was optimized and its antimicrobial properties were investigated. Materials & Methods: To increase chitosan, four influential NaOH parameters, time, temperature, and biomass to NaOH ratio were performed by the Taguchi method. Fourier Transformed Infrared Spectrometry (FTIR) was identified, and the antibacterial properties of the disc release method were investigated against *Escherichia coli* and *Staphylococcus aureus* bacteria and the bacterial non-growth halo by millimeters. Results: The optimal conditions of the variables were: 5.94 Molar, 4 hours, and 40 minutes, 65.6 degrees Celsius, and 1:25 ratio, respectively. Under these conditions, the amount of chitosan produced was equal to 0.261 g/L and the degree of deacetylation 78% was obtained. The antibacterial properties against *E. coli* gram-negative bacteria and *S. aureus* gram-positive bacteria were found to be  $12 \pm 1$  and  $18 \pm 2$ , respectively. Conclusion: Evidence has shown that four parameters had a positive effect on more chitosan production and the *S. aureus* is more sensitive to the resulting chitosan.

## کلمات کلیدی:

Trametes versicolor, Optimization, Chitosan, Taguchi, Disc diffusion, ترامیتیس، ورسیکالر، بهینه سازی، کیتوسان، تاگوچی، انتشار دیسکی

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