

عنوان مقاله:

Antimicrobial Activity of Combined Extracts of Trachyspermum, Thymus and Pistachio against Some Pathogenic Bacteria

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خلاصه مقاله:

Background: Microbial biofilms are responsible for many human infections and increase of antibiotic resistant bacteria. Therefore, finding an efficient way to prevent infection and biofilm formation of bacteria is essential. Medicinal plants are among suitable candidates to inhibit biofilm formation of bacteria. The aim of this study was to evaluate the antimicrobial effects of Trachyspermum, Thymus and Pistachio (T.T.P) combined extracts (methanolic and ethanolic) against six pathogenic bacteria in planktonic and biofilm forms. Methods: The antibacterial activities of T.T.P combined extracts against planktonic form of pathogenic bacteria were evaluated by disc diffusion and macro-broth dilution methods. Also, anti-biofilm activity of the combined extracts was evaluated by microtiter plate method. Results: The results of disc diffusion analysis (MBC and MIC) showed that both methanolic and ethanolic extracts of T.T.P combined extracts were efficient for inhibition of planktonic forms of bacteria, although ethanol extract was more effective compared to the methanolic extract. The T.T.P combined extracts had inhibitory effect against biofilm formation of pathogenic bacteria. Also, these extracts efficiently demolished biofilm formation and prevent metabolic activity of bacteria in biofilm structures. The concentration of each extract had a direct relationship with its inhibitory effect. The maximum inhibitory effects of T.T.P combined extracts on biofilm formation, demolish of biofilm structure and inhibition of the metabolic activity of bacteria in the biofilm were ۹۵.۳% for *P. aeruginosa*, ۹۷.۲% for *P. aeruginosa* and ۸۱.۱۶% for *E. coli*. Conclusion: The results of this research demonstrated that T.T.P combined extracts can be used as an alternative component with inhibitory effect against pathogenic bacteria in planktonic and biofilm forms.

کلمات کلیدی:

Antibiotic resistant, Antibacterial Activity, Biofilm, medicinal plants

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