عنوان مقاله:

Rhus coriaria extracts inhibit quorum sensing related virulence and biofilm production in drug-resistant Pseudomonas aeruginosa recovered from burn wounds

محل انتشار:

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خلاصه مقاله:

Objective(s): Numerous studies have confirmed sumac's ability to inhibit pathogens and even eradicate chronic drug-resistant infections. Current research was conducted to demonstrate the action of various sumac extracts at sub-inhibitory concentrations in modulating pathogen-related characteristics instead of killing them.Materials and Methods: The influence of sumac extracts on the quorum sensing dependent virulence of multidrug-resistant isolates of Pseudomonas aeruginosa recovered from burn wounds was considered by detecting the effect on biofilm development, various virulence factors, and expression of bacterial exotoxin A and quorum sensing related genes. Results: Experiments to characterize and measure sumac extract's impact on the P. aeruginosa growth, biofilm, exoproteases, pyocyanin, motility, and the quorum sensing networks revealed that all studied characteristics were reduced by concentrations below inhibition without affecting bacterial growth. Furthermore, the expression of exotoxin A, rhl, and las glucons was declined or even inhibited by lower levels of sumac fruit fractions. Conclusion: The findings revealed that sumac fights infections either by its inhibitory effect on the bacterial cells or by reducing bacterial signaling and virulence by disruption of the bacterial signal system.

کلمات کلیدی:

Biofilm, Exotoxin A, Pseudomonas aeruginosa, Quorum sensing, Sumac