

## عنوان مقاله:

Chemical Composition and Antibacterial and Anti-biofilm Activity of Acetone Extract of Pistacia atlantica Leaf, Fruit, and Gall

## محل انتشار:

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## خلاصه مقاله:

Background: Bacterial infectious diseases caused by antibiotic resistance and biofilm formation agents are one of the most important challenges researchers and doctors face. Therefore, many studies have been done on medicinal plants to find phytochemical antibacterial and anti-biofilm agents. Objectives: In this study, the antibacterial and anti-biofilm activities of the acetone and aqueous extract of Pistacia atlantica leaf, fruit, and gall were evaluated against some bacteria. Methods: The leaves, fruits, and galls of P. atlantica were collected from the forests of Lorestan province, Iran. Antibacterial effects of extracts were studied by well diffusion method against Staphylococcus aureus, Bacillus cereus, Enterococcus faecalis, Pseudomonas aeruginosa and Escherichia coli. Microdilution method was used to evaluate the minimum inhibitory concentration and minimum bactericidal concentration of extracts. Anti-biofilm activity of acetone and aqueous extracts in sub-lethal concentration was investigated by crystal violet-stained microtiter method. Results: Acetone extract of P. atlantica had significant antibacterial effects against tested bacteria except for E. coli. There was a significant relationship between antibacterial activity and extract concentration ( $P < 0.05$ ). The minimum inhibitory concentration of acetone and aqueous extract of leaf, fruit, and galls ranged from ۳-۱۲.۵ mg/mL. The acetone extract of P. atlantica galls had a high inhibitory effect on S. aureus and P. aeruginosa biofilm formation at a concentration of ۱۲.۵ and ۲۵.۰ mg/mL, respectively. Conclusions: The gall extracts of P. atlantica have a significant inhibitory effect against bacteria, which is probably related to certain active compounds. These extracts inhibited biofilm formation of S. aureus and P. aeruginosa.

## کلمات کلیدی:

Plant extract, Pistacia atlantica, Antibacterial agent, Anti-biofilm

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