

عنوان مقاله:

Investigating the antimicrobial and antibiofilm effects of Euphorbia hebecarpa extract on some pathogen bacteria resistant to antibiotics

محل انتشار:

بیستمین کنگره بین المللی میکروب شناسی ایران (سال: 1398)

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خلاصه مقاله:

Introduction and Objectives: Spurge, also known as Euphorbia hebecarpa, belongs to Euphorbiaceae family. Euphorbia hebecarpa is mostly located in humid areas, along streams and in wheat or barley farms and cause disturbance like a weed. This plant is distributed all around the world while some species are exclusively seen in Iran. Alkaloids, saponin, tannin, flavonoids and cardiac glycosides are among the known compounds in this plant. **Materials and methods:** This study aimed to assess the effects of Euphorbia hebecarpa on Gram-positive bacteria of Staphylococcus aureus, Bacillus cereus and Streptococcus pneumonia and Gram-negative bacteria of Pseudomonas aeruginosa, Escherichia coli and Klebsiella pneumoniae. The anti-biofilm effect of this plant was determined using microtiter plate. In addition, the effects of this plant on the dehydrogenase activity of bacteria was also investigated. **Results:** Euphorbia hebecarpa was mostly effective on the planktonic forms of Bacillus and E. coli. Assessment of plant's capacity to form biofilm using BATH and microtiter plate tests showed that Streptococcus pneumonia has the strongest biofilm while the weakest biofilm is formed by Bacillus cereus. Considering their inhibitor effects on biofilm formation, the most inhibiting effect was seen in ethanol extract of Euphorbia hebecarpa on Staphylococcus aureus (99.5%) while the ethanol extract on Bacillus cereus was effective in elimination of biofilm structures. Moreover, the lowest level of dehydrogenase activity was observed in Bacillus cereus treatment with ethanol extract of Euphorbia hebecarpa (98.58%). **Conclusion:** In this study, the role of herbal extracts in the elimination of biofilm structures was shown and these extracts were presented as an appropriate alternative to address the various properties of biofilms

کلمات کلیدی:

Biofilm, Resistance, Inhibition, Plant extract, Antibiotics

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