

## عنوان مقاله:

Antibacterial activities and ciprofloxacin potentiation of *Melissa officinalis* extracts against some gram negative pathogenic bacteria

## محل انتشار:

دوفصلنامه طب گیاهی پیشرفته، دوره 5، شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 7

## نویسندگان:

Azizollah Ebrahimi - Dept. of Pathobiology, Vet. College, Shahrekord University

Maryam Shahrokhi - Msc student of Bacteriology, Dept. of Pathobiology, Veterinary College, Shahrekord University, Iran

Saied Habibian - Dept. of Pharmacology, Veterinary College, Shahrekord University, Iran

Sharareh Lotfalian - Department of Pathobiology, School of Veterinary Science, Shahrekord University

## خلاصه مقاله:

Background and aims: In bacteria using inhibitors of efflux pumps (EPIs) is one of several strategies to combat with bacterial resistance. It is well documented that most medicinal plants especially those with antimicrobial properties composed of elements (EPIs) that disturb the efflux pumps of bacteria. The current work was designed to evaluate antibacterial activities of ethanol and chlorophorm extracts of *Melissa officinalis* and also synergistic effects of the extracts with ciprofloxacin against some gram negative pathogenic bacteria. We also examined the inhibitory effects of the extracts on efflux pumps. Methods: Minimum inhibitory concentrations (MICs) of the extracts alone or in association with ciprofloxacin or phenylalanine arginine  $\beta$ - naphthylamide (PA $\beta$ N) were determined using broth micro dilution method. Effects of the extracts on efflux pumps of the examined bacteria detected by using ethidium bromide in well diffusion assays. Results: The extracts from *M. officinalis* showed antibacterial activities against all examined bacteria in a range of ۳۱۲۵ to ۲۵۰۰۰  $\mu$ g/mL as determined by MIC determination. The extracts from *M. officinalis* showed synergistic effects with ciprofloxacin on *Salmonella enteritidis* and *Escherichia coli*. In *Pseudomonas aeruginosa* and *Acinetobacter baumannii* PA $\beta$ N had no effect on MIC of ciprofloxacin but the association of extracts decreased it. In *S. enteritidis* and *E. coli* both extracts of *M. officinalis* increased the amount of ethidium bromide accumulation (i.e. reduced efflux). Conclusion: The overall results show that associations of fluoroquinolones with extracts of *M. officinalis* may potentiate the antibacterial effects of fluoroquinolones.

## کلمات کلیدی:

Antibacterial activities, *Melissa officinalis*, Gram-negative bacteria, Efflux pumps

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1223817>



