

عنوان مقاله:

Phytochemical, antioxidant and antibacterial properties of Melissa officinalis and Dracocephalum moldavica essential oils

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خلاصه مقاله:

Aromatic plants are rich in essential oils with considerable antimicrobial properties. The aim of this study was to investigate chemical composition, antimicrobial activity and antioxidant properties of *Melissa officinalis* and *Dracocephalum moldavica* essential oils (EOs). The identification of chemical constituents of the EOs was carried out using gas chromatography-mass spectrometry analysis and antimicrobial activity of the EOs was evaluated by disc diffusion assay as well as determination of minimal inhibitory concentration (MIC) and minimal bactericidal concentration against four important food-borne bacteria: *Salmonella typhimorium*, *Escherichia coli*, *Listeria monocytogenes* and *Staphylococcus aureus*. Antioxidant activity of the EOs was also determined by ۲,۲-diphenyl-۱-picrylhydrazyl, ۲,۲-azinobis ۳-ethylbenzo thiazoline-۶-sulfonic acid and β -carotene bleaching tests. The major compounds of *D. moldavica* were geranial (۲۸.۵۲%), neral (۲۱.۲۱%), geraniol (۱۹.۶۰%), geranyl acetate (۱۶.۷۲%) and the major compounds of *M. officinalis* EO were citronellal (۳۷.۳۳%), thymol (۱۱.۹۶%), citral (۱۰.۱۰%) and β -caryophyllene (۷.۲۷%). The underlying results indicated strong antimicrobial effects of the oils against tested bacteria. *Staphylococcus aureus* with the lowest MIC value (۰.۱۲ mg mL^{-۱}) for both EOs was the most sensitive bacterium, although, antibacterial effect of *M. officinalis* EO was stronger than *D. moldavica*. In addition, the results of the antioxidant activity showed that both EOs had notable antioxidant properties. In conclusion, both EOs are appropriate alternatives as potential sources of natural preservative agents with the aim of being applied in food industries.

کلمات کلیدی:

β -carotene bleaching tests, *Dracocephalum moldavica*, *Melissa officinalis*, Micro dilution

