

Comparative study of essential oil composition and biological activities of pink pepper (*Schinus molle* L.) plant organs from Tunisia

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The antioxidant, antibacterial, and repellent activities of essential oils from different plant parts of Tunisian *Schinus molle* were determined. Gas chromatography-mass spectrometry (GC-MS) analyses revealed that the stems' essential oils are dominated by Geraniol (20.94%), α -eudesmol (28.42%), and Germacrene B (13.6%). Leaves and seeds were characterised by α -limonene (30.43 and 37.66%, respectively) and α -eudesmol (12.48 and 8.55%, respectively) as the most abundant compounds. The antioxidant activity of essential oils was assessed using two techniques: inhibition of the free radical DPPH and the iron reduction effect (FRAP). Considerable levels of antioxidant activities of the investigated essential oils were highlighted. Stems essential oils revealed the best activity with 0.42 mg/mL for the antiradical capacity and 35.52 μ mol TROLOX/g HE for the FRAP assay. Based on the determination of the diameter of inhibition, the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC), a high antibacterial activity was observed against Gram-positive strains *Staphylococcus aureus* and *Enterococcus faecium* (57 and 53 mm, respectively) in the presence of stems' essential oils. For repellent activity, the essential oils of stems showed the best potential, followed by the oils of seeds. The differences in the biological activities of the tested essential oils were attributed to their essential oil compositions. Consequently, *S. molle* stems essential oil can serve as a natural source of bioactive compounds for use in the food and pharmaceutical industries.

Keywords: Antimicrobial, Antioxidant, Essential oil, Repellent activity, *Schinus molle* L.

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