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Title: Essential oils of *Origanum vulgare* L. subsp. *glandulosum* (Desf.) letswaart from Tunisia: chemical composition and antioxidant activity

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Abstract: BACKGROUND: Characterisation of the essential oils from *O. glandulosum* collected in three locations of Tunisia, chemical composition and the evaluation of their antioxidant activities were carried out.

RESULTS: The essential oils from *Origanum vulgare* L. subsp. *glandulosum* (Desf.) letswaart collected from three localities of north Tunisia - Krib, Bargou and Nefza - were obtained in yields of 2.5, 3.0 and 4.6% (v/w), respectively. The essential oils were analysed by GC and GC/MS and assayed for their total phenolics content, by the Folin-Ciocalteu method, and antioxidant effectiveness, using the 2,2-diphenyl-1-picrylhydrazil (DPPH) radical scavenging assay. The main components of these essential oils, from Nefza, Bargou and Krib, were p-cymene (36%, 40% and 46%), thymol (32%, 39% and 18%), gamma-terpinene (24%, 12% and 16%) and carvacrol (2%, 2% and 15%), respectively. The ability to scavenge the DPPH radicals, expressed by IC₅₀, ranged from 59 to 80 mg L⁻¹. The total phenolic content, expressed in gallic acid equivalent (GAE) g kg⁻¹ dry weight, varied from 9.37 to 17.70 g kg⁻¹ dw. CONCLUSIONS: A correlation was identified between the total phenolic content of the essential oils and DPPH radical scavenger capacity. The occurrence of a p-cymene chemotype of *O. glandulosum* in the northern region of Tunisia is demonstrated. (C) 2010 Society of Chemical Industry

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