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Preliminary phytochemical screening and antioxidant activities of solvent extracts from *Daucus crinitus* Desf., from Algeria

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ABSTRACT

The presence of natural antioxidant in plants is well known. Plant phenolics constitute one of the major groups of components that act as primary antioxidant free radical terminators. This paper reports the antioxidative activity of methanolic and water extract of *Daucus crinitus* Desf. Phytochemical screening of the crude extracts of stems/leaves revealed the presence of different kind of chemical groups such as tannin, flavonoids, phenolic acids and coumarins. The amounts of total phenolics and flavonoids in the solvent extracts (methanol and water extract) were determined spectrometrically. From the analyses, methanolic extract had the highest total phenolic content (130.19 µg GA/mg extract) and antioxidant activity (89.82 %) using DPPH method. Increasing the concentration of the extracts resulted in increased ferric reducing antioxidant power for both extracts tested. Finally, a relationship was observed between the antioxidant activity potential and total phenolic and flavonoid levels of the extract.

Keywords: *Daucus crinitus* Desf., Solvent extract, Phytochemical screening, Antioxidant activity, DPPH, Reducing power.

INTRODUCTION

In the last years, interest in medicinal plants as an alternative to synthetic drugs is more and more increasing, particularly against oxidative stress. Phenolic compounds are the main agents that can donate hydrogen to free radicals and thus break the chain reaction of lipid oxidation at the first initiation step (Agraval, 1989). This high potential of phenolic compounds to scavenge radicals may be explained by their phenolic hydroxyl groups (Havsteen, 2002). Polyphenolic compounds are also known for their ability to prevent fatty acids from oxidative decay (Fecka *et al.*, 2007). The oxidation is caused by the rancidity of unpreserved aliments rich in unsaturated fatty acids (Li *et al.*, 2008). Furthermore, many synthetic antioxidant components (BHA and BHT) have shown toxic and/or mutagenic effects; therefore, plant antioxidants are suggested as an interesting alternative. Numerous studies exhibited a strong relationship between total phenolic content and antioxidant activity in fruits, vegetables, and medicinal plants (Dorman *et al.*, 2003; Velioglu *et al.*, 1998). Flavonoid constituents possess a wide spectrum of chemical and biological activities, including radical scavenging properties (Shimoi *et al.*, 1996). Indeed, Shimoi *et al.* (1996) reported that plant flavonoids that show antioxidant activity in vitro also function as antioxidants in vivo. Malkowski (2006) showed the role of these compounds in the defense mechanism against oxidative stress from oxidizing agents and free radicals.