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Antioxidant Properties and Total Phenolic Content of Three Varieties of Carob Tree Leaves from Morocco

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Abstract: The in vitro antioxidant activity and the total phenolic content (Folin–Ciocalteu method) of three successive extracts of three varieties of *Ceratonia siliqua* L. leaves (grafted female, spontaneous female, spontaneous male) grown in Morocco were investigated by using in-vitro antioxidant models including 1,1-diphenyl-2-picrylhydrazyl (DPPH) scavenging assay, reducing power and total antioxidant capacity. The global polyphenols concentration ranged from 0.45 to 2.64 (g/L GAE) in the three categories of the extracts. In each variety, ethyl acetate fraction exhibited the highest antioxidant activity compared to other fractions. Grafted female trees globally showed a higher polyphenols concentration than the spontaneous female and spontaneous male ones. Our results clearly demonstrate that all extracts have antioxidant capacity. Among the categories, the ethyl acetate extracts of carob tree leaves exhibited strong scavenging effect on 1,1-diphenyl-2-picrylhydrazyl radical (DPPH) than the diethyl ether and dichloromethane extracts. Carob leaf extracts contain high amounts of polyphenols with strong antiradical, antioxidant capacity and reducing properties which might constitute an important source of natural antioxidants.

Keywords: Antioxidant activity; Phenolic content; *Ceratonia siliqua* L.

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