

Antiradical and Anti-H₂O₂ Properties of Polyphenolic Compounds from an Aqueous Peppermint Extract

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Polyphenolic compounds such as eriocitrin, luteolin-7-*O*-rutinoside, diosmin, hesperidin, narirutin, isorhoifolin, rosmarinic and caffeic acids were identified in an aqueous extract (Ex) obtained from peppermint leaves (*Menthae × piperitae folium*). The content of polyphenols in Ex was as follows: eriocitrin 38%, luteolin-7-*O*-rutinoside 3.5%, hesperidin 2.9%, diosmin 0.8%, isorhoifolin 0.6%, narirutin 0.3%, rosmarinic acid 3.7% and caffeic acid 0.05%. The strongest antiradical activity (determined as DPPH• scavenging features) was observed for luteolin-7-*O*-rutinoside, eriocitrin and rosmarinic acid. Caffeic acid and hesperidin revealed a lower antiradical activity while isorhoifolin, narirutin and diosmin showed the lowest activity. The strongest anti-H₂O₂ activity was observed for eriocitrin, a little lower for rosmarinic acid. The rate of hydrogen peroxide scavenging activity displayed by luteolin-7-*O*-rutinoside and caffeic acid was lower than that of rosmarinic acids. Hesperidin appeared to be a very weak scavenger of hydrogen peroxide. Almost no anti-H₂O₂ activity was demonstrated for diosmin, narirutin and isorhoifolin. Among examined flavonoids, the strongest antiradical and anti-H₂O₂ activity was shown for compounds with two hydroxy groups bound to the B-ring in *ortho* position in relation to each other. Replacement of one hydroxy group in the B-ring with a methoxy group or removing one hydroxy group leads to decrease of antiradical and anti-H₂O₂ activity of flavonoids. Our results suggest that eriocitrin is a powerful peppermint antioxidant and a free radical scavenger.

Key words: Antiradical Activity, Plant Phenolics, *Mentha × piperita*