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Title: The combination of different parts of Oregano and water mint revealed antioxidant synergy

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Water mint (Mentha aquatica L) and oregano (Origanum vulgare L) are industrially important perennial medicinal plants from the family Lamiaceae. Aerial parts of both herbs are used not only in traditional medicine but also in the food industry and cosmetics. The aim of this study was to analyze and compare the secondary metabolites in their rhizomes, leaves and flowers and to determine their antioxidant effects separately and in different combinations. The usage of underground parts is not known yet. We used the LC-MS method for the identification and quantification of polar phenolic compounds in analyzed herbal parts and the DPPH method for the evaluation of antioxidant capacity. Phytochemical fingerprints of methanol extracts revealed the presence of phenolic esters (oregano A, oregano C), flavonoids (luteolin, apigenin, chrysoeriol derivatives) and phenolic acids (rosmarinic acid, caffeic acid) in oregano and flavonoids (eriodictyol derivatives, hesperidin) and phenolic acids (rosmarinic acid) in water mint. The presence and quantifies of mentioned phenolic compounds differ among the herbal part. While aerial parts were rich in all phenolic compounds, rhizomes contained predominantly phenolic acids. The antioxidant activity of water mint organs varied from 21.8 µg/mL to 28.8 µg/mL and in oregano parts ranged from 8.9 µg/mL to 19.3 µg/mL. The interaction study revealed a synergy of mixtures of oregano organs and moderate synergy when combining oregano leaves and mint leaves (Table 1). The rest of the combinations were mostly additive. The study brings new information about containing compounds in underground parts of water mint and oregano and furthermore, it presents advantageous mixtures for the strong antioxidant properties of their organs.

Table 1. Antioxidant effect (IC50 μ g/mL) of various mixtures of rhizomes flowers and leaves of oregano and water mint with interaction analysis.

Biography

Silvia Bittner Fialova is an Associate Professor at the Department of Pharmacognosy and Botany, Faculty of Pharmacy, Comenius University in Bratislava. Her Expertise includes phytochemical analysis of plant extracts (HPLC-DAD, LC-MS), the antioxidant activity and antibacterial and anti-biofilm activity of natural products focusing on pathogens from burns, catheter-related infections, surgery wounds, oromucosal and dental infections.