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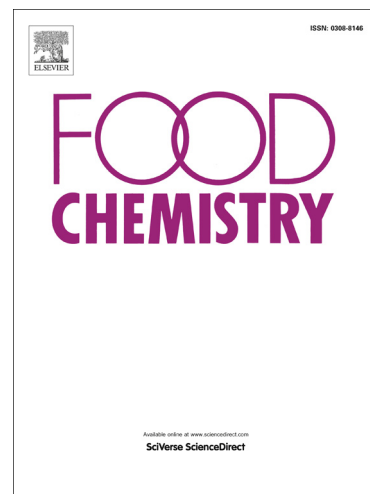
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Optimized and validated method for simultaneous extraction, identification and quantification of flavonoids and capsaicin, along with isotopic composition, in hot peppers from different regions

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Abstract

Nineteen hot pepper (*Capsicum annuum* L.) samples from five countries and twenty samples from Romanian producers were analyzed. Concentrations of flavonoids and capsaicin were simultaneously quantified for the first time with the method developed and validated in the present paper. $\delta^{13}\text{C}$, $\delta^2\text{H}$, and $\delta^{18}\text{O}$ isotopic values were also measured. Maximum concentrations of studied compounds were detected in methanol extracts, after 12 h incubation of the samples assisted by ultrasound, at the 1:8 ratio of sample to solvent. The extraction recovery ranged from 90.60 % to 115.05 %. Capsaicin and four flavonoids were quantified in studied samples at different concentration ranges: capsaicin (28.23 – 2322.35 $\mu\text{g/g}$), vitexin (2.93 – 33.46 $\mu\text{g/g}$), isoquercetin (3.19 – 155.58 $\mu\text{g/g}$), kaempferol-3-glucoside (2.31 – 2462.25 $\mu\text{g/g}$) and myricetin (1.55 – 78.79 $\mu\text{g/g}$). The association between these analytical techniques and chemometric tools

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