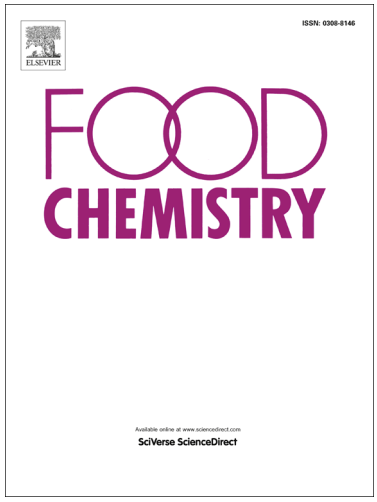

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Quantification of Capsaicinoids in Chillies by Solid-Phase Extraction Coupled with Voltammetry

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Abstract

Capsaicinoids were extracted from a range of spices and chillies using methanol, prior to concentrating the compounds using solid-phase extraction cartridges and water/methanol (50:50% *v/v*) as the solvent, followed by elution with acetonitrile. The primary extraction procedure, involving only sonication of the spices in methanol, gave results comparable to a procedure that used a combination of sonication, stirring and centrifuging. The voltammetric quantification of the capsaicinoids, at approximately +0.5 V *vs.* ferrocene$^{0/+}$ that were transferred from methanol/water into acetonitrile/water *via* solid phase extraction, was carried out in microcentrifuge tubes. Linear calibration curves for voltammetry measurements were obtained from low ppm up to at least 1400 ppm of capsaicinoids, with concentrations being detected in the different source extracts (paprika, tabasco sauce, cayenne pepper, and fresh chillies) from approximately 17 to 430 ppm, which corresponded to values of between approximately 130 to 4000 ppm, respectively, present in the original samples.