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Czech J. Food Sci.

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J.

Determination of bisphenol A, bisphenol F, bisphenol A diglycidyl ether and bisphenol F diglycidyl ether migrated from food cans using Gas Chromatography-Mass Spectrometry

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Varnishes used for the inner coatings of food cans are mostly based on epoxy resins or vinylic organosols. The epoxy resins are produced from bisphenol A and bisphenol F and they also contain BADGE or BFDGE as stabilising components. A simple method for the quantitative determination of bisphenol A (BPA), bisphenol F (BPF), bisphenol A diglycidyl ether (BADGE), and bisphenol F diglycidyl ether (BFDGE) migrated from food packaging materials was optimised.

The can sample was extracted with acetonitrile or with food simulants (distilled water, 3% acetic acid and 10% ethanol) and the extract obtained was analysed by gas chromatography coupled with mass spectrometric detector. The limits of detection and quantification ranged between 0.15 – 0.86 and 0.51 – 2.77 μg/dm2, respectively. The migrating levels of bisphenols found in various can samples were for BPA and for BADGE in the range from 0.63 × 10 – 3 to 0.34 mg/dm2, and from 1.49 × 10 – 3 to 3.67 mg/dm2, respectively. BPF and BFDGE were practically not detected in the can samples.

Keywords:

bisphenol A; bisphenol F; bisphenol A diglycidyl ether; bisphenol F diglycidyl ether; migration; gas chromatography; mass spectrometry

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