Analysis of glyphosate residues in cereals using liquid chromatography-mass spectrometry (LC-MS/MS)

A fast and specific method for the determination of glyphosate in cereals is described. The method is based on extraction with water by ultrasonication. The samples are cleaned up and separated by high-performance liquid chromatography on a polystyrene-based reverse-phase column (clean-up) in series with an ion chromatography column (separation) using NaHCO3 as eluent. A micro-membrane suppressor was inserted after the separator column to remove the Na+ ions before detection by electrospray ionization mass spectrometry in the negative-ion mode. In MS/MS, mode the following transitions were monitored m/z 168→150 (glyphosate) and 170→152 (internal standard 2-13(CN)-N-15-glyphosate) for quantification. The mean recovery was 85% (n=32) at spiking levels from 0.03 to 0.33 mg kg(-1). From 1998 to 2001, from the analysis of about 50 samples per annum, a reduction in the glyphosate residues was observed owing to a Danish trade decision not to use grain with glyphosate residues for milling or bread production.

General information
Publication status: Published
Organisations: Division of Food Chemistry, National Food Institute
Contributors: Granby, K., Johannesen, S., Gabrielsen, M. V.
Pages: 692-698
Publication date: 2003
Peer-reviewed: Yes

Publication information
Journal: Food Additives and Contaminants
Volume: 20
Issue number: 8
ISSN (Print): 0265-203X
Ratings:
Scopus rating (2003): SJR 0.946 SNIP 1.176
Web of Science (2003): Indexed yes
Original language: English
Source: orbit
Source ID: 239287
Research output: Contribution to journal › Conference article – Annual report year: 2003 › Research › peer-review