

Title

Rapid Detection of Melamine and Cyanuric Acid using a Novel High Capacity Ion Trap Mass Spectrometer.

Authors

L. J. Fremlin¹, M. Pelzing¹, L. Heintz²

¹Bruker Daltonics Division, Preston, Australia

²Bruker BioSpin GmbH, Rheinstetten, Germany

Abstract

Adulteration of food and beverages with industrial chemicals has become an issue of late, as evidenced in September 2008 with the contamination of infant milk formula in China with melamine. There is a requirement for rapid and sensitive methods to detect and quantify such chemicals in complete matrices. LC-MSMS methods, contrary to GC-MS methods require an easy sample preparation without need for sample derivatization. The novel high capacity ion trap mass spectrometer is a highly robust system capable of operating in full scan, MSn and MRM modes. A fast and sensitive method for the extraction, detection, and quantification of melamine and cyanuric acid residues has been developed. A wide dynamic range (linearity ranging from 1 to 10000 ppb for melamine), and a low limit of detection of 0.05 ppb were achieved. This method allows the detection and quantification of melamine at concentrations relevant to food authorities in less than five minutes.