Supporting Information

High-Throughput Trace Melamine Analysis in Complex Mixtures

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Experimental Section:

Melamine was purchased from TCI America (9211 N. Harborgate St. Portland). Melamine stock solution was made as 2.5mg/mL in methanol and water (1:1). Stock solution was diluted with water to the concentration wanted.

LTP detection: All conditions are the same as other LTP detection method as we reported in our previous work [1.Jason D. Harper, Nicholas A.Charipar, Christopher C. Mulligan, R. Graham Cooks and Z. Ouyang, *Analytical Chemsitry*, In press.] unless otherwise mentioned.

The LTP probe consists of a glass tube (O.D. 6.35 mm and I.D. 3.75 mm) with an internal grounded electrode (stainless steel, diameter: 1.57mm) centered axially and an outer electrode (copper tape) surrounding the outside of the tube. The wall of the glass tube serves as the dielectric barrier. An alternating high voltage, 5 kV at a frequency of 1.9 kHz, is applied to the outer electrode with the center electrode grounded to generate the dielectric barrier discharge.

Thermo Fisher LTQ mass spectrometer (Thermo Fisher, San Jose, CA, USA) was used in the entire study.

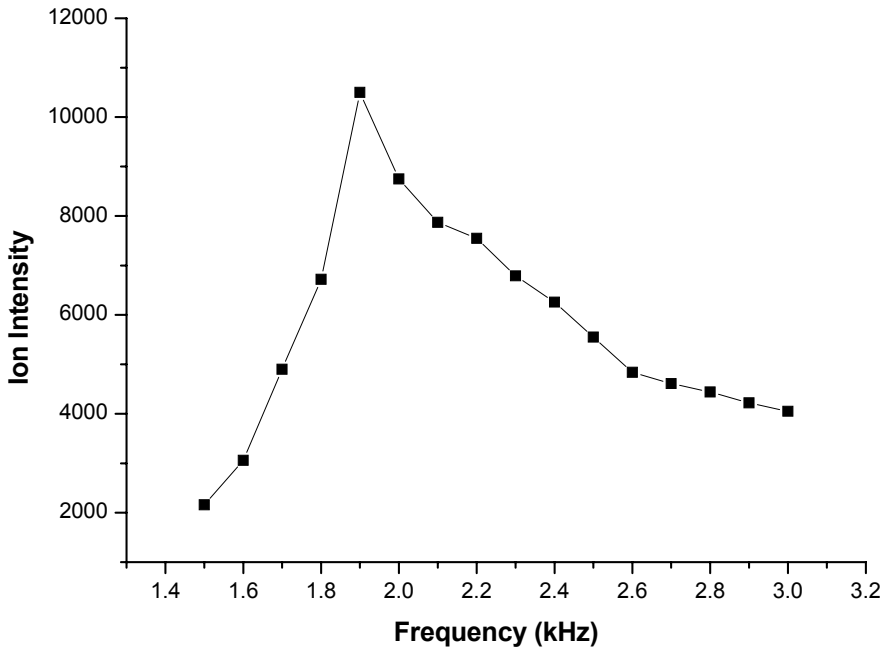

Figure S1. Effect of the frequency of the high voltage used to drive the plasma on the intensity of characteristic fragment ion (m/z 85) obtained via CID from the protonated melamine (m/z) (20 ng pure melamine on glass slide)

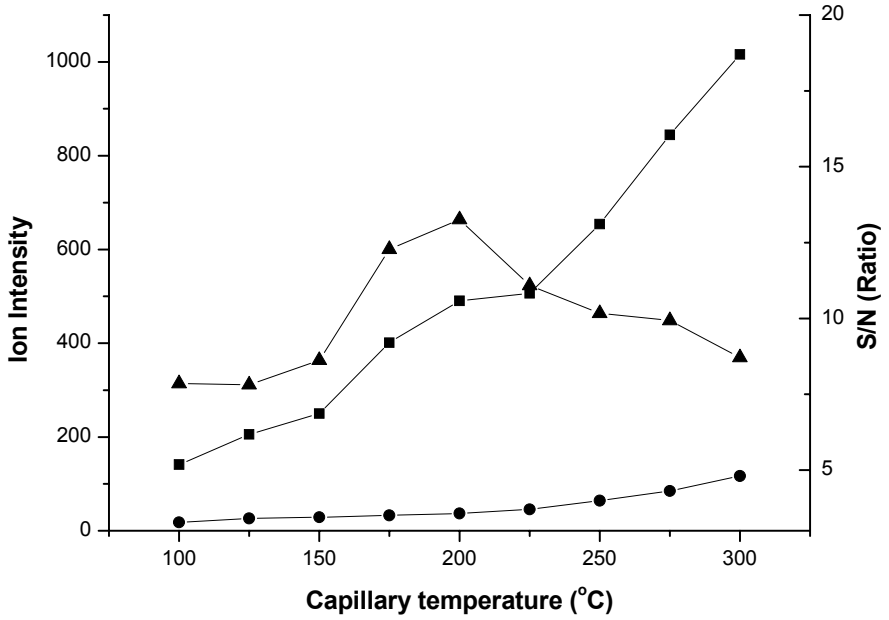

Figure S2. Effect of the capillary temperature on a) Ion intensity (Squares), b) Noise (Circles) and c) Signal to noise ratio (Triangles). Characteristic fragment ion (m/z 85) obtained via CID from the protonated melamine (m/z) (0.5 ng pure melamine on glass slide)

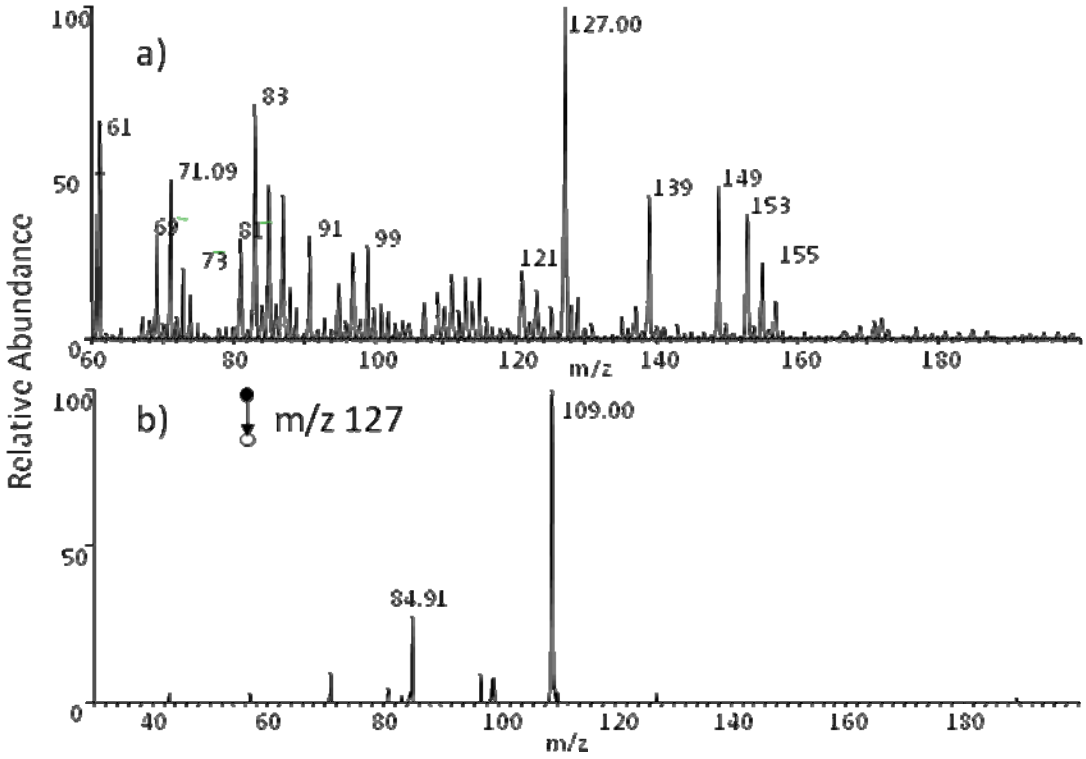

Figure S3.a) LTP mass spectrum and b) MS/MS product ion spectrum of the protonated molecule recorded using 5µL raw milk spiked with 5 ng melamine

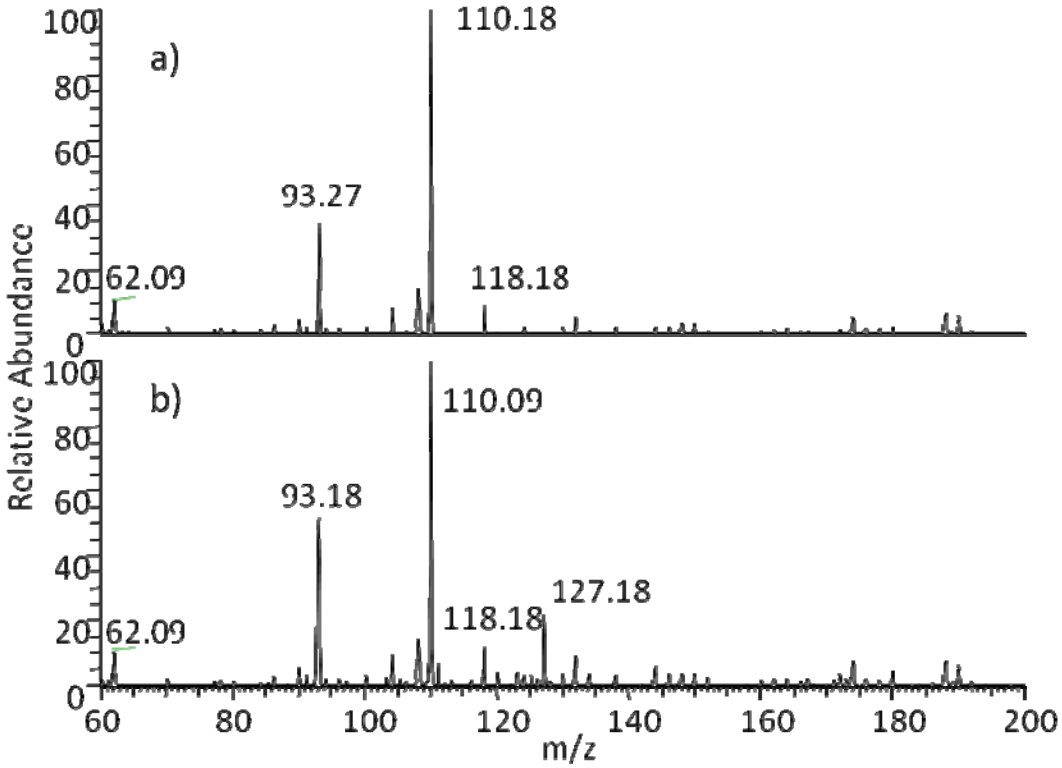

Figure S4. LTP mass spectra of 10 mg soy milk powders spiked with a) 0 and b) 10 ng melamine

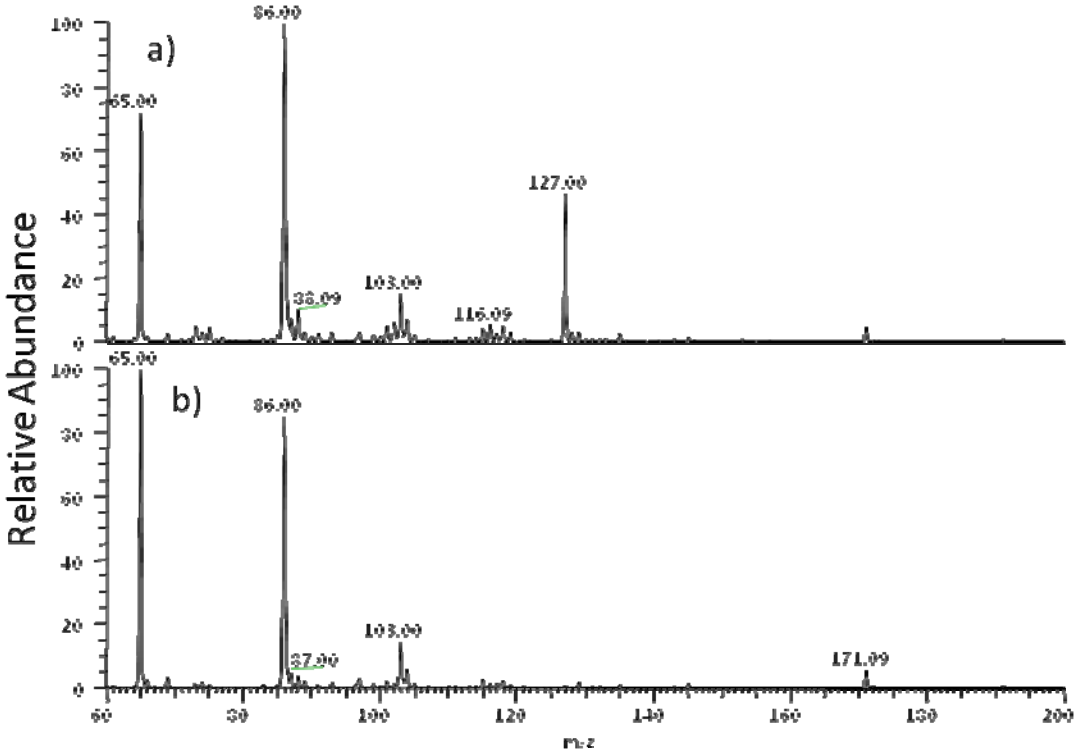

Figure S5. LTP mass spectra of 5µL synthetic urine spiked with a) 10 ng and b) 0 ng melamine