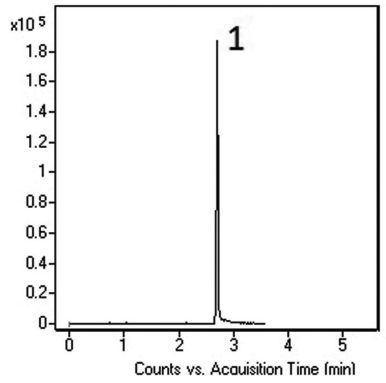
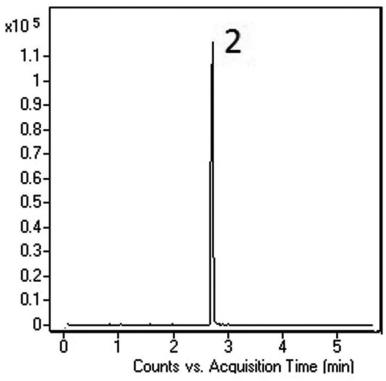
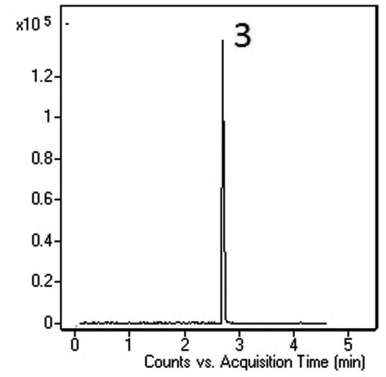
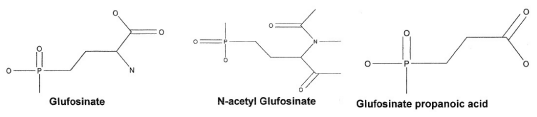
Herbicide and Metabolites by LC-MS

Glufosinate, N-acetylglufosinate, and glufosinate propanoic acid









Note: Glufosinate is an herbicide which acts by interference with the ammonia detoxification metabolic pathway. Trade names of formulations featuring the compound include Rely®, Finale®, and Ignite®.

Method Conditions

Column: **Cogent Diamond Hydride 2.0™**, 2.2µm, 120Å

Catalog No.: 70200-05P-2

Dimensions: 2.1 x 50 mm

Mobile Phase: A: DI H_2O / 10mM ammonium acetate
B: 95% acetonitrile / 5% DI H_2O / 10mM ammonium acetate (v/v)

Gradient:

time (min.)	%B
0	90
1	90
1.2	5
5	5
6	90

Post time: 3 min

Injection vol.: 1 microL

Flow rate: 0.4 mL/min

Detection: ESI – NEG - Agilent 6210 MSD TOF mass spectrometer

Samples: Glufosinate (1720.64 ppm), N-acetylglufosinate (639.2 ppm), and glufosinate propanoic acid (1302.5 ppm) stock solutions were diluted 1:100 with 4:1 DI H_2O: methanol

Peak: 1. Glufosinate m/z 180.0431 $[M-H]^-$
2. N-Acetylglufosinate m/z 222.00 $[M-H]^-$
3. Glufosinate Propanoic Acid m/z 151.00 $[M-H]^-$

t_0: 0.6 min

Discussion

Analysis of these compounds can be problematic with other methods and poor peak shape may occur. In contrast, the peaks obtained with the Cogent Diamond Hydride 2.0 column are very sharp and symmetrical. The column is a near-UHPLC phase and consequently efficiency is very good. The method can be applied to food products containing these types of compounds.

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