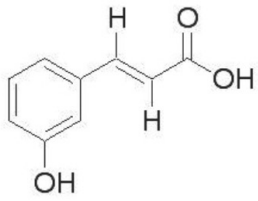
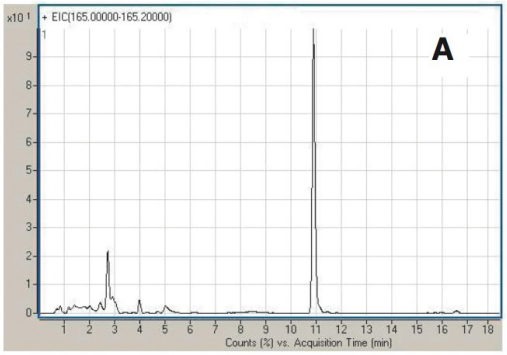
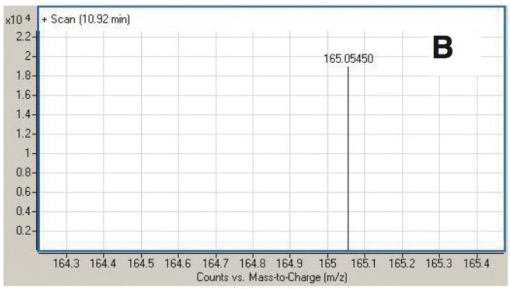
Antioxidants in Human Urine

Trans-3-hydroxycinnamic acid (3-HCA) known antioxidant analyzed



trans-3-Hydroxycinnamic acid





Notes: Hydroxycinnamic acids exhibit antioxidative activity and are present in plants. It is important to determine the antioxidant capacity of plant extracts by measuring the concentration levels of hydroxicinnamic acids before and after enzymatic treatments. The determination of the concentration of 3HCA is essential when determining protective effects against free radical- induced damage.

Method Conditions

Column: Cogent Diamond Hydride™, 4µm, 100Å

Catalog No.: 0000-15P-2

Dimensions: 2.1 x 150 mm

Solvents: A: DI H_2O/ 0.1% formic acid
B: Acetonitrile/ 0.1% formic acid

Gradient:

time (min.)	%B
0	95
0.2	95
12	75
13	75
13.1	50
14	50
14.1	95
20	95

Flow rate: 0.4 mL/min

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

Sample: Human urine – after simple extraction

Peak: 1. Trans-3-hydroxycinnamic acid 165.05405 m/z $(M+H)^+$, RT = 10.92 min

t_0: 1.44 min

Discussion

Polar metabolites are reproducibly retained using an MS friendly, ANP (inverse gradient) mobile phase. The sample preparation required is very easy and cost effective ($3 per sample to $0.35 per sample of urine) compared to ordinary methods. The sample is diluted with the ANP solvents and ready to inject in 5-10 minutes. With this method, investigating metabolite excretion of laboratory animals or determining endogenous urinary biomarkers or working on phenolic composition of plant extracts is simple and easy.

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