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Analysis of Ochratoxin A Using the Hitachi LaChromUltra® HPLC System with Fluorescence Detection

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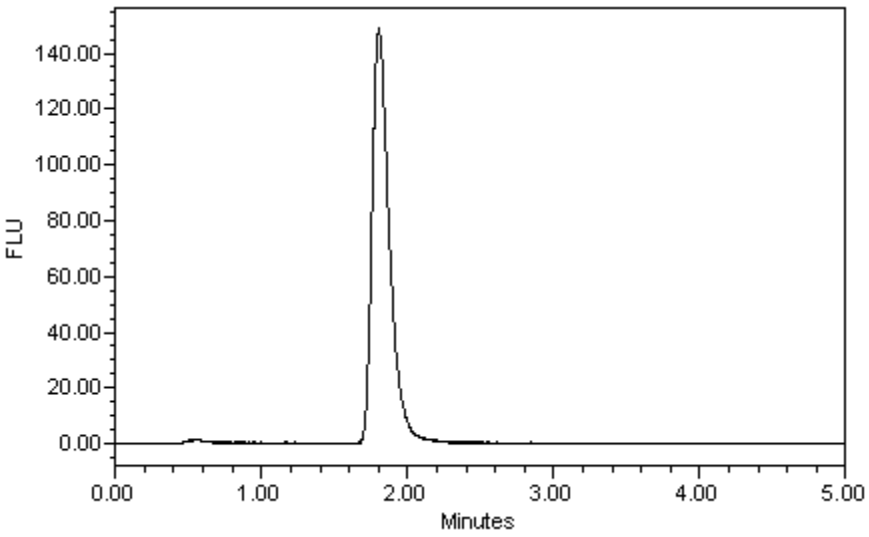
Ochratoxin A (OTA) is a mycotoxin found in food products such as cereals, coffee beans, and livestock feed. It is known to be nephrotoxic in both humans and animals, and is suspected of being carcinogenic, teratogenic, and immunotoxic. The maximum allowable limit of OTA, depending on the foodstuff in question and the government agency establishing the limit, can be as low as 0.5 µg/kg. Here we describe a method for rapid analysis of ochratoxin A using the highly flexible LaChromUltra® HPLC system with fluorescence detection within five minutes.

Experimental Conditions

Module	Conditions
Pump (L-2160U)	Mobile Phase: 70% CH_3OH, 2% acetic acid, 28% H_2O Flow Rate: 0.2 mL/min.
Autosampler (L-2200U)	Injection Volume: 10 µL
Oven (L-2300)	Temperature: 25 °C
Column	Symmetry® C8, 3.5 µm, 2.1 x 50 mm
Detector (L-2485U)	FLD: Excitation λ = 333 nm Emission λ = 460 nm

Results: Chromatograph of Ochratoxin A Standard, 25 ppb



Results: Linearity, Reproducibility, and Sensitivity

Linearity (0.5 – 200 ppb)	$R^2 = 1$
Reproducibility (25 ppb, N = 10)	Retention Time RSD (%) = 0.06 Peak Area RSD (%) = 0.54
Sensitivity (S/N ≥ 3)	0.5 ppb

Discussion

Hitachi's LaChromUltra® liquid chromatography system is effective at rapid analysis of ochratoxin A. The method has a limit of detection of 0.5 ppb, a linear response range of 0.5 to 200 ppb, and excellent reproducibility. It is also very rapid, with a complete analysis time of five minutes.

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