Matrix of the Month

May 2016

Ochratoxin A in Rice

Do you have a special matrix that we should test for mycotoxins? Please let us know and write an e-mail to: mycotoxins@LCTech.de

Sample Preparation and Analysis

MYCOTOXINS

Ochratoxin A

Ochratoxin A is a naturally occurring mycotoxin, which is produced by various Aspergillus and Penicillium species as primary contaminant in various food and feed stuffs.

Immunoaffinity Column OtaCLEAN

LCTech developed the OtaCLEAN immunoaffinity column for sample preparation in routine analysis using HPLC with fluorescence detection or LC-MS. It has been designed for the purification of ochratoxin A in food and feed and achieves very good recovery rates in difficult matrices.

OtaCLEAN possesses a very high matrix tolerance and is able to bind ochratoxin A highly specific. The columns are available in both, 3 mL format or the convenient SMART-format, and are thus suitable for manual or automated processing.

The Next Generation Automated Sample Preparation

You achieve a easier, more effictive and faster clean-up of your samples using the robotic system FREESTYLE with SPE module. It takes over your routine work at laboratory during day and night, even at weekends. This reduces the manual effort extremly and increases the sample throughput.

Our Mission:
The cleaner the Extract – the better the Result

Unique - Safe - Versatile

The FREESTYLE-system enables a controlled pressurisation up to 4 bar as well as a permanent pressure control of the flowrates during loading and eluting of the sample. When excessive pressure interrupts the processing of a sample, the system will clean itself and continues with the next sample. Hence, long sample sequences can be worked overnight and during weekends.

All types of mycotoxin columns and SPE-standard formats (1, 3, 6, 8, 15 mL) can be automated on the FREESTYLE-system.

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Protocol of Manual Processing

Homogenise 20 g of rice and extract it with 100 mL methanol/ water (80/20 (v/v)) for at least 10 minutes. Filtrate the crude extract and dilute 12 mL with 48 mL PBS.

Load the sample onto the OtaCLEAN column (50 mL represent 2 g matrix). Wash the column with 10 mL deionised water. Dry the column. Afterwards elute the toxin with 2 mL methanol. Keep in mind that the column bed is incubated with methanol for at least 5 minutes in order to ensure the complete denaturation of the antibodies.

Dilute the eluate, adjust it to the fluidic conditions of the HPLC, and inject it.

HPLC-Conditions
(Ochratoxin A)

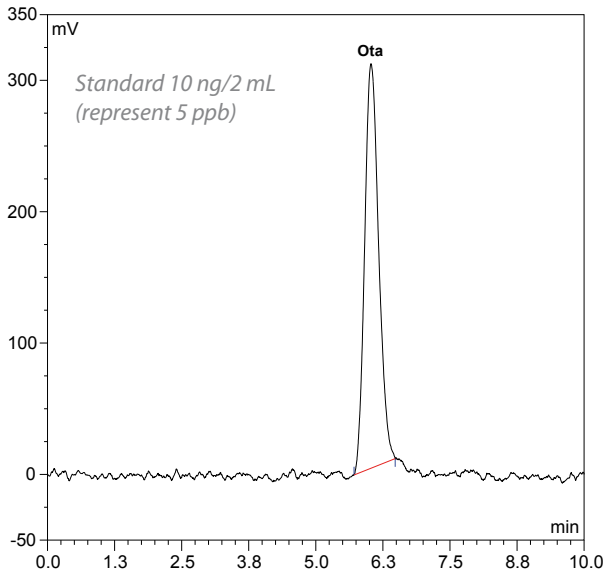
HPLC:	isocratic
Column Oven:	40 °C
Separation Column:	RP EC 125/3 nucleosil 120-3 C18
Flow Rate:	0.6 mL/min
Eluent:	HPLC-water/methanol/ acetonitrile + 1 % acetic acid (40/55/5 (v/v/v))
Fluorescence Detection:	without derivatisation
Excitation Wavelength:	335 nm
Emission Wavelength:	465 nm

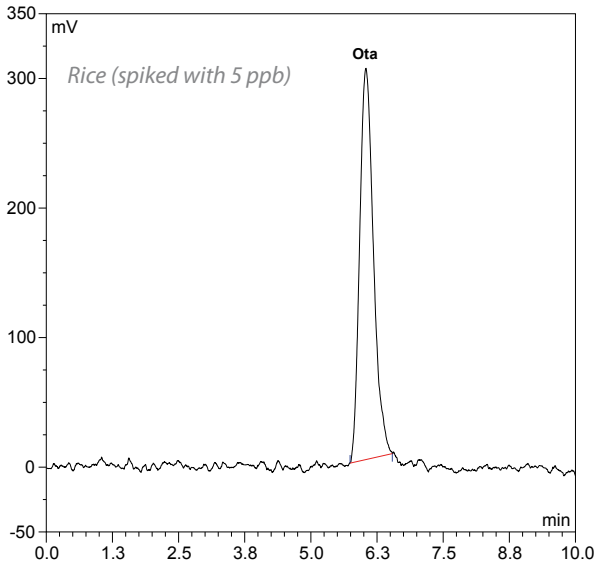
Recovery Rates
Content of Ochratoxin A in Rice

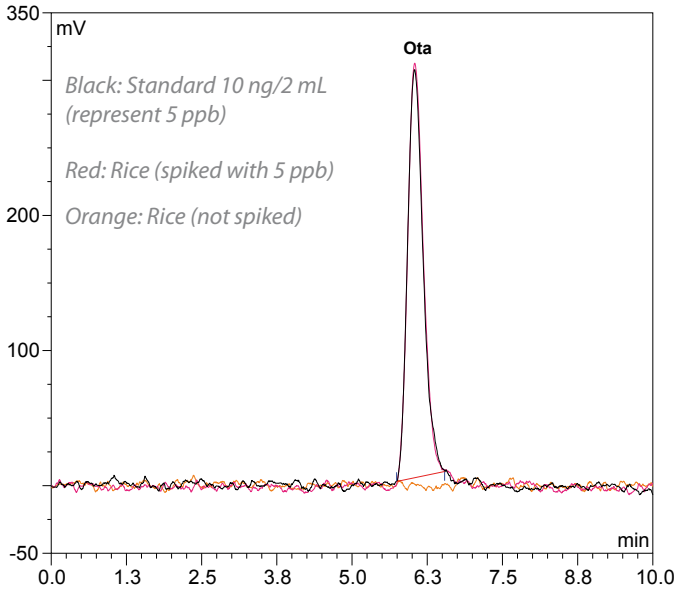
Mycotoxin	Ochratoxin A
Standard*	100
Recovery Rate Rice, 5 ppb**	96

*Standard is set = 100 %, **Corrected with non-spiked sample/
The results correspond to the performance specifications of EC 401/2006 (Section 4.3.1)

Chromatograms







These LCTech products were used:

OtaCLEAN,
Immunoaffinity Columns for Ochratoxin A
P/N 10515 / 11535

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