Matrix of the Month

January 2018

Ochratoxin A in Carob Flour ~ manual and automated ~

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

MYCOTOXINS

Carob Flour

Carob flour is obtained from the fruit of the carob tree. The flour looks and tastes similar to cocoa, but it is not as bitter. Because of the low fat content and without any stimulating substances like caffeine or theobromine, it is also frequently used in the production of baby food. Especially in this case, good quality of our food is very important. If it is are contaminated with mycotoxins such as ochratoxin A, it can be a huge risk for the consumer.

In order to ensure this quality, strict legal regulations apply throughout the EU for the permitted level of mycotoxins. Therefore, an effective and meaningful analysis is essential. LCTech supports you in your daily laboratory routine with a range of reliable and high quality products at reasonable prices: from immunoaffinity columns and derivatisation devices to complete systems for fully automated mycotoxin analysis.

Automated Solid Phase Extraction with the Rotobic System FREESTYLE SPE

Our systems processes your samples during day, night, and even at weekends reliably and unattended. Each manual SPE method which has already proven in your laboratory can be transferred to the robotic system FREESTYLE SPE in a quick and easy manner. This saves more time for other important tasks.

The operation of the software is very easy and intuitive through drag & drop. Extract, filtrate and dilute the carob flour in accordance to the manual processing protocol, put the samples into the FREESTYLE SPE, equip the racks with immunoaffinity columns, configure your method in the software and start the system.

Automate your routine and save an enormous amount of time

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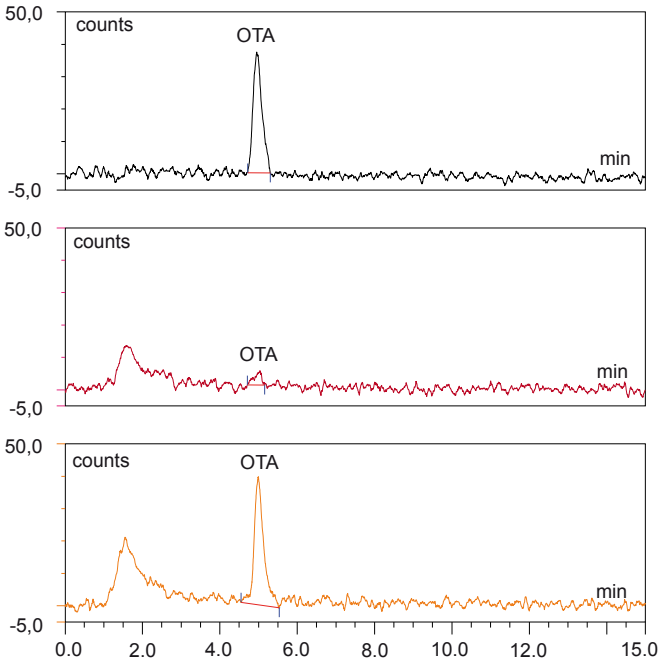
Protocol of Manual Processing

Homogenise 10 g of carob flour and add 2 g of sodium chloride. Extract the sample with 100 mL methanol/water (80/20 v/v)) and 50 mL n-hexane in order to remove fat and oil. Continue the extraction for at least 15 minutes to avoid lower extraction efficiencies.

Filtrate the raw extract and dilute 3 mL of it with 18 mL PBS (contains 8 % Tween20). Load 14 mL of the sample (represents 0.2 g matrix) with a maximum flow rate of 2 mL/min onto a immunoaffinity column OtaCLEAN. Wash the column afterwards with 2 x 5 mL deionised water, which was used for rinsing the sample reservoir before.

Dry the column with a short flush of air and elute it with 2 mL methanol. Keep in mind that the column bed is incubated with methanol for 5 minutes in order to ensure a fully denaturation of the antibodies and release of toxins.

Chromatograms



Black: *Standard 2 ng /2 mL*
Red: *Carob flour not spiked*
Orange: *Carob flour 10 ppb spiked before extraction*

Immunoaffinity columns OtaCLEAN

HPLC-Conditions
(Ochratoxin A)

Mycotoxin:	**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 (40/55/5 (v/v/v)) + 1 % acetic acid
Fluorescence Detection:	without Derivatisation
Excitation Wavelength:	335 nm
Emission Wavelength:	465 nm

Recovery Rates
Content of Ochratoxin A in Carob Flour

Mycotoxin:	**Ochratoxin A**
Standard*	100
Recovery Rate Carob Flour, 10 ppb**	92

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

These LCTech products were used:

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

FREESTYLE SPE, Robotic System
for Automated Sample Preparation
P/N 12663 / 12668

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