

# Matrix of the Month

April 2015:

## Ochratoxin A in Figs by FREESTYLE ThermELUTE™



Do you have a special matrix that we should test for mycotoxins  
Please let us know and write an e-mail to [info@LCTech.de](mailto:info@LCTech.de)!

Ochratoxin A is a dangerous mycotoxin for humans and animals. The frequency of occurrence of Ochratoxin A and the exceedance of limit values monitoring food and feed can be read in the context of the European Rapid Alert System for Food and Feed ([http://ec.europa.eu/food/safety/rasff/index\\_en.html](http://ec.europa.eu/food/safety/rasff/index_en.html)).

### FREESTYLE ThermELUTE™



**FREESTYLE ThermELUTE™ in combination with the SPE module**

**It can be so easy to achieve great results...  
just by automation!**

#### The Highlights of FREESTYLE ThermELUTE™

- Automation for sample processing round the clock
- High sample throughput > 70 samples/day; up to 120 samples can be loaded as a sequence, e.g. to make use of time during the weekend
- Incredible sensitivity in the lower ppt-range
- Reproducible results with excellent recovery rates for all matrices

Time is money. This particularly applies to mycotoxin analysis. Using the FREESTYLE ThermELUTE™ in combination with any HPLC, the process from raw extract to chromatogram can be completely automated and reaches excellent results.

The FREESTYLE BASIC equipped with a SPE module and a ThermELUTE™ module allows the fully automated and very fast processing of the practical SMART immunoaffinity columns.

These SMART columns have a loading capacity of 0.4 g sample. This is 5 times higher than shown in the subsequent processing. Therefore the sensitivity of the measurement increases far below the regulated limits for baby food.



**OtaCLEAN SMART columns with needle**

**Manual Processing →**

## Protocol of Manual Processing

Mix 20 g dried and homogenised figs with 2 g sodium chloride. Extract with 100 mL (methanol/water (80/20 (v/v)) and 50 mL n-hexane for at least 10 minutes for defatting. Filtrate the raw extract.

Centrifugate the extract for 10 minutes at 2000 x g to support the phase separation. Dilute 10 mL of the lower phase with 40 mL PBS. Filtrate the raw extract. In case of any turbidity remove them by further filtration. Dilute 3 mL of the filtrate with 12 mL PBS.

Apply 10 mL of the sample onto the OtaCLEAN SMART column (represents 0.08 g matrix) by FREESTYLE ThermELUTE™. The column is loaded automatically by FREESTYLE, washed with 2 mL de-ionized water (1.5 mL/min.) and heated. Afterwards the toxins in form of a large-volume, aqueous eluate, are directly injected into the HPLC sample loop via partial filling.

## HPLC Conditions

### Ochratoxin A

HPLC: Isocratic

Column oven: 40° C

Separation column: EC125/3 nucleosil 120-3 C18

Flow rate: 0.6 mL/min, HPLC-water/methanol/acetonitrile (40/55/5) + 1% acetic acid

Fluorescence detection without derivatisation

Excitation wavelength: 335 nm

Emission wavelength: 465 nm

## Recovery Rates

Content of Ochratoxin A in Figs	
	Ochratoxin A
Standard*	100
Recovery rate** Figs 10 ppb	93

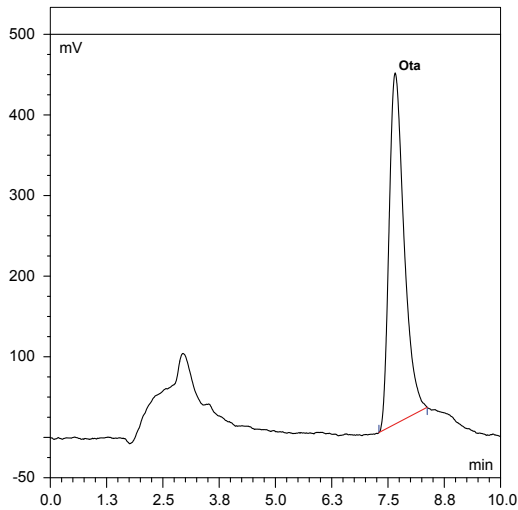
\* Standard is set = 100 % , \*\* corrected with non-spiked sample



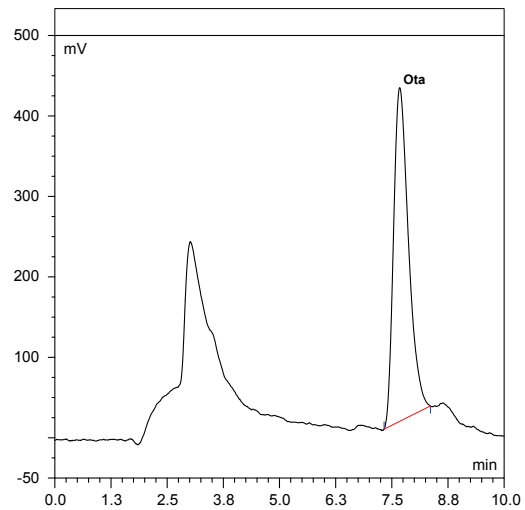
The immunoaffinity column OtaCLEAN is positioned into the ThermELUTE™ module.

Chromatograms →

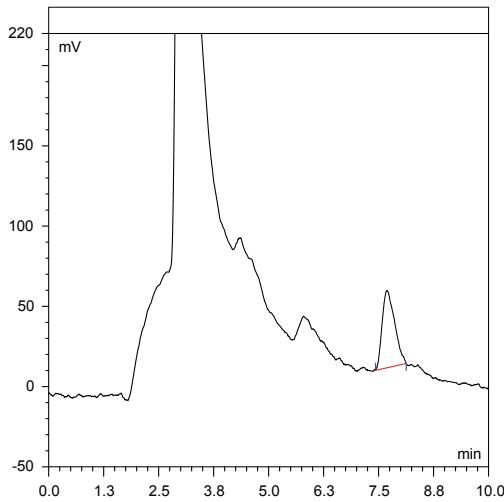
Chromatograms



OTA standard 10 ppb (0.8 ng/inj.)



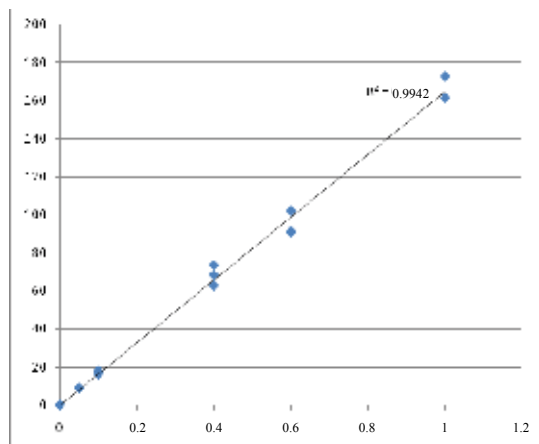
Figs 10 ppb (loaded with 0.08 g, spiked with 10 ppb OTA)



Figs 1 ppb OTA (0.08 g matrix injected).



FREESTYLE ThermELUTE™ module



Calibration curve OTA:  
this results in a measurement range of  
0-12.5 ppb; LOQ 0.03 ppb; (signal/noise 5:1)

These LCTech products were used:

OtaCLEAN SMART  
immunoaffinity column  
for Ochratoxin A

P/N 13346 / 13351

FREESTYLE ThermELUTE™,  
robotic system for  
sample preparation and  
analysis

P/N 12663, 12668

Do you have further questions?  
Please just write an e-mail to info@LCTech.de!