

Matrix of the Month

January, 2014:
**Aflatoxins B/G and
Ochratoxin A
in Potato Chips**



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!

Protocol

20 g homogenised potato chips are mixed with 2 g sodium chloride and extracted with 100 mL 80/20 (methanol/water (v/v)) and 50 mL n-hexane (5-10 min).

The extract is filtrated and centrifuged for 10 min at 2000xg to support phase separation of aqueous and n-hexane phase. 2 mL of the aqueous phase (lower phase) are diluted with 12 mL PBS buffer containing 8% Tween20.

The extract is applied to the immunoaffinity column Afla-OtaCLEAN, afterwards the sample reservoir is rinsed with 10 mL of de-ionised water. This washing solution is also applied to the immunoaffinity column.

The column is dried and eluted with methanol (2 mL). The methanol should incubate on the column bed for 5 minutes to be sure that the antibody is entirely denaturated.

The eluate is diluted to HPLC conditions and measured.

HPLC Conditions

Aflatoxins B/G

HPLC: Dionex Ultimate 3000 isocratic

Column oven: 36 °C

Separation column: RP C18

Flow rate: 1.2 mL/min, water/methanol/acetonitrile (60/30/15 (v/v/v))

Fluorescence detection: photochemical derivatisation with UVE

Excitation wavelength: 365 nm

Emission wavelength: 460 nm

Ochratoxin A

HPLC: Dionex Ultimate 3000 isocratic

Column oven: 40 °C

Separation column: EC125/3 Nucleosil 120-3 C-18 RP

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

Excitation wavelength: 335 nm

Emission wavelength: 465 nm

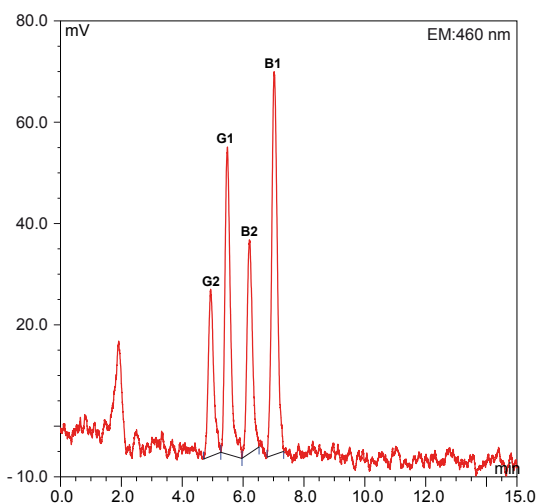
Recovery Rates

Content of Aflatoxins B1, B2, G1 and G2 as well as Ochratoxin A in Potato Chips					
	Aflatoxin				Ochratoxin A
	B1	B2	G1	G2	
Standard*	100	100	100	100	100
Recovery rate* Potato chips 10 ppb	103	91	106	101	84

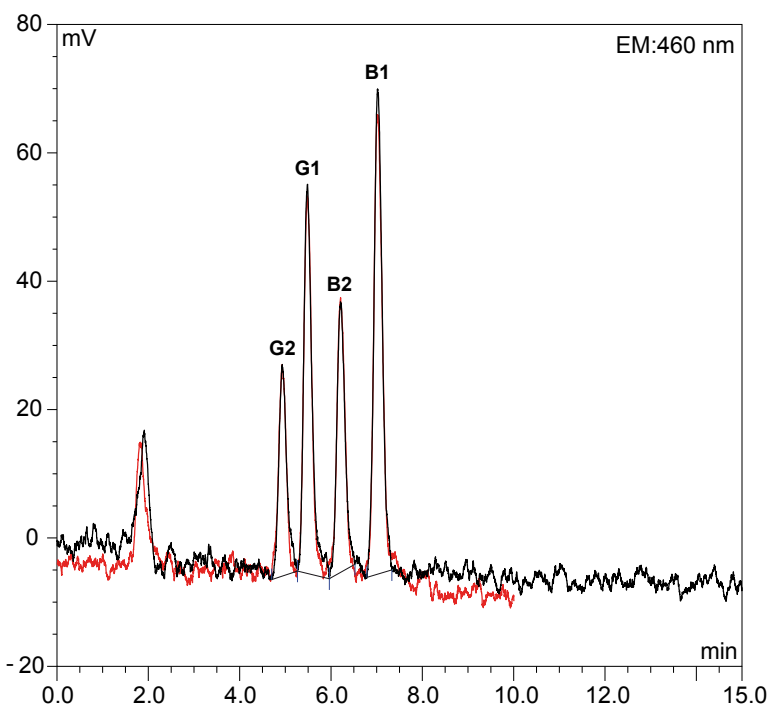
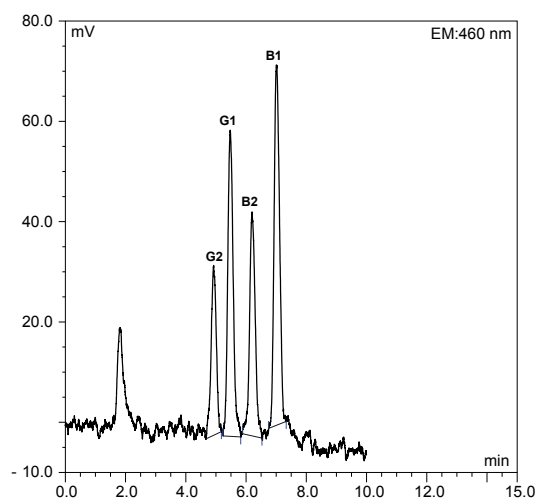
* Standard is set = 100 % , ** corrected with non-spiked sample

Chromatograms

Aflatoxins:
Potato chips, 10 ppb



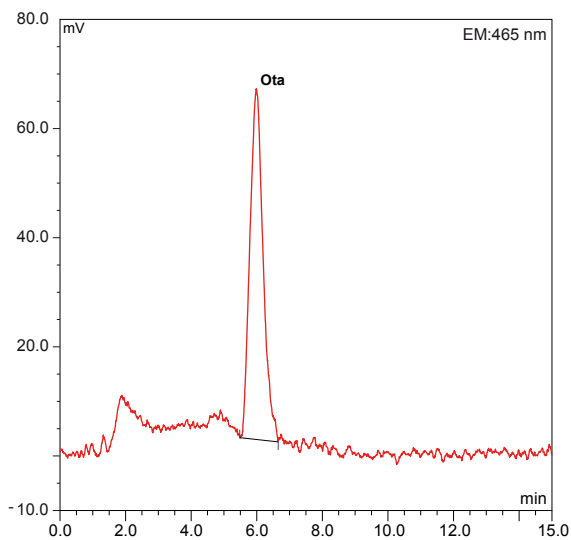
Aflatoxins:
Standard, 10 ppb, (4 ng/2 mL)



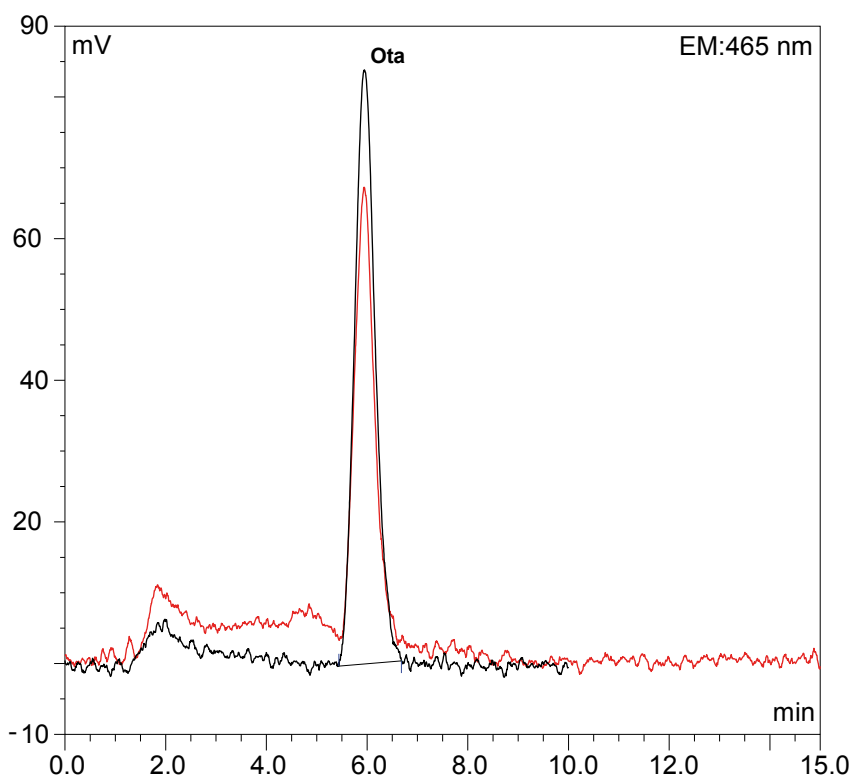
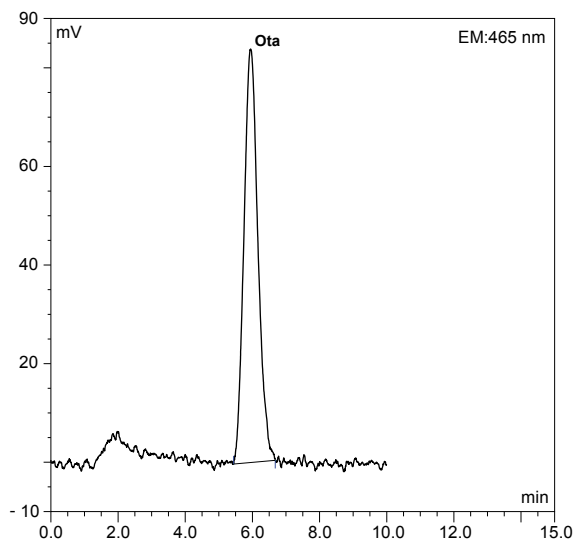
Aflatoxins:
Overlay of both
chromatograms

Chromatograms

**Ochratoxin A:
Potato chips, 10 ppb**



**Ochratoxin A:
Standard, 10 ppb, (4 ng/2 mL)**



**Ochratoxin A:
Overlay of both
chromatograms**

These LCTech products were used:

AflaCLEAN,
Immunoaffinity column
for the Aflatoxins B1, B2, G1, G2
P/N 10514

UVE,
Photochemical reactor
for the analysis of Aflatoxins
P/N 10519

HPLC column,
for the analysis of Aflatoxins
P/N 10522

OtaCLEAN,
Immunoaffinity column
for Ochratoxin A
P/N 10515

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