Mycotoxins: Sample Preparation and Analysis

Matrix of the Month

November 2014:

Aflatoxin M1
in Condensed Milk

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!

www.LCTech.de

Protocol

Centrifuge condensed milk for 10 minutes at 3000 x g separating the fat. Take off the fat and pipette 10 g of the condensed milk in an 100 mL measuring cylinder. Adjust the solution with PBS- buffer to 100 mL. Filtrate the diluted solution to delete any particulate matter.

Apply 50 mL of the homogeneous mixture (represents 5 g condensed milk) to the immunoaffinity column AflaCLEAN M1 Select and rinse afterwards the sample reservoir with 2 x 5 mL of de-ionised water. Apply this washing solution onto the IAC column, too.

Dry the column and elute with 2 mL methanol. Pay attention that the methanol incubates within the column bed for 5 minutes to ensure that the antibody is entirely denaturated.

Dilute and measure the eluate to HPLC conditions.

HPLC Conditions

Aflatoxin M1

HPLC: Isocratic
Column oven: 36 °C
Separation column: RP C18 (e.g. P/N 10522)
Flow rate: 1.2 mL/min, water/methanol/acetonitrile (60/30/15 (v/v/v))
Fluorescence detection: without derivatisation
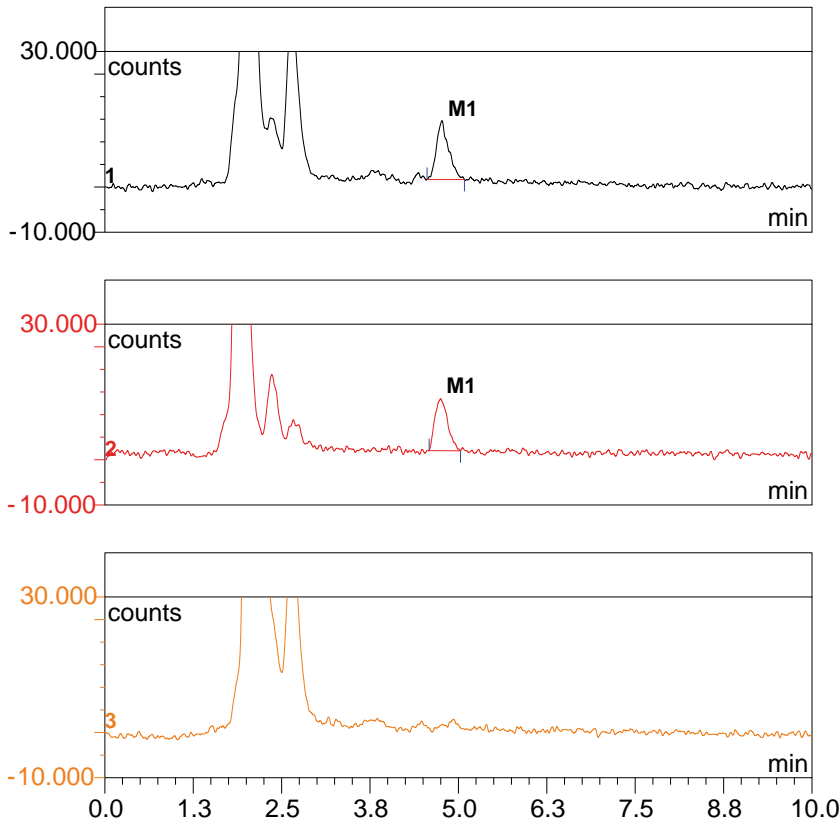Excitation wavelength: 365 nm
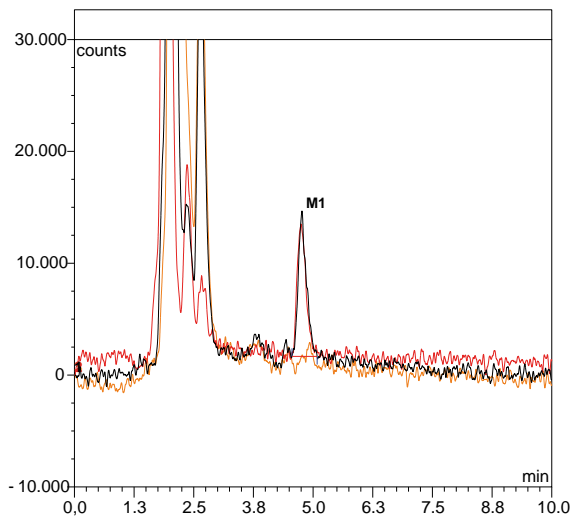Emission wavelength: 435 nm

Recovery Rates

Content of Aflatoxin M1 in Condensed Milk	
Aflatoxin	**M1**
Standard*	100
Recovery rate** Condensed milk 10 ppt	101

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

Chromatograms ⟶

30.000 counts

min

-10.000

1

M1

30.000 counts

min

-10.000

2

M1

30.000 counts

min

-10.000

3

0.0 1.3 2.5 3.8 5.0 6.3 7.5 8.8 10.0

Condensed milk, spiked with 100 ppt Aflatoxin M1 (black)
Standard 0,5 ng / 2 mL, represents 100 ppt sample (red)
Condensed milk, not spiked (orange)

30.000 counts

20.000

M1

10.000

0

-10.000

0,0 1.3 2.5 3.8 5.0 6.3 7.5 8.8 10.0

min

Overlay of the three chromatograms shown above

For faster processing ...

... just take the immunoaffinity column
AflaCLEAN M1 SMART.

The small column format brings down the manual processing time under 20 minutes and reduces the solvent consumption by more than 80 %.

The concentration of the toxin remains constant compared to the 3 mL format of the column.

These LCTech products were used:

AflaCLEAN M1 Select
Immunoaffinity column
for Aflatoxin M1

P/N 14202 / 14201

HPLC column,
for mycotoxin analysis

P/N 10522

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