Matrix of the Month

April 2016

Aflatoxins B/G in Paprika *(Capsicum Annuum)*

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

Updating Regulation on Imports of Food and Feed

2016 the regulations (EG) nr. 669/2009 and (EU) nr. 884/2014 have been updated. This regulations stipulate, that peanut products from brazil, nutmeg and paprika *(capsicum annuum)* from india and indonesia must be subject to stricter controls concerning aflatoxins. On this occasion our laboratory provides a fast and efficient extraction protocol with recovery rates and chromatograms for the analysis of aflatoxins (B/G) in paprika on page 2.

Fast and Efficient Sample Clean-up
Immunoaffinity Columns AflaCLEAN for Aflatoxins B/G

The immunoaffinity columns AflaCLEAN of LCTech optimise sample preparation in the laboratory. The columns possess a very high matrix tolerance and are able to bind aflatoxins highly specific. With only three provided extraction protocols, all matrices from A to Z, can be tested whilst obtaining excellent recovery rates, paprika too.

AflaCLEAN columns are suitable for sample preparation in aflatoxin analysis using HPLC with fluorescence detection or LC-MS. They are designed for clean-up of aflatoxins B1, B2, G1 and G2 in food and feed.

The AflaCLEAN™columns of LCTech are suitable for both, manual and automated processing e. g. with the robotic system FREESTYLE SPE. This system enables an automated processing of samples whilst obtaining excellent reproducibility and a high sample throughput around the clock, even at weekends!

Beside the analysis of mycotoxins, FREESTYLE SPE can be also used for doping control, H53-analysis or soil samples.

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Protocol of Manual Processing

Homogenise 10 g of paprika (capsicum annuum) and add 1 g of natrium chlorid. Extract the sample material with 50 mL methanol/water (80/20 (v/v)) to remove fat and essential oils. The extraction should be conducted for at least 20 minutes.

Filtrate the raw extract and dilute 2 mL with 12 mL PBS (contains 8% tween). Load 14 mL of the matrix onto the immunoaffinity column AflaCLEAN (for aflatoxins B/G) and 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 antibody.

HPLC-Conditions
(Aflatoxins B/G)

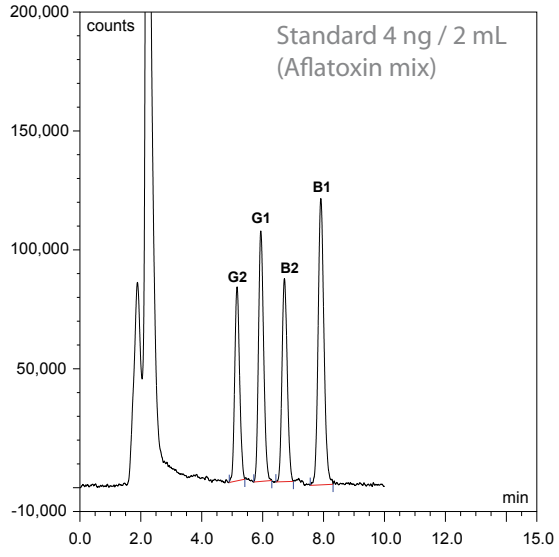
HPLC:	isocratic
Column Oven:	36°
Separation Column:	RP C-18 (P/N 10544)
Flowrate:	1.2 mL/min
Eluent:	HPLC-water/methanol/ acetonitrile (60/30/15 (v/v/v))
Fluorescence Detection:	with derivatisation (UVE/photochemical)
Excitation Wavelength:	365 nm
Emission Wavelength:	460 nm

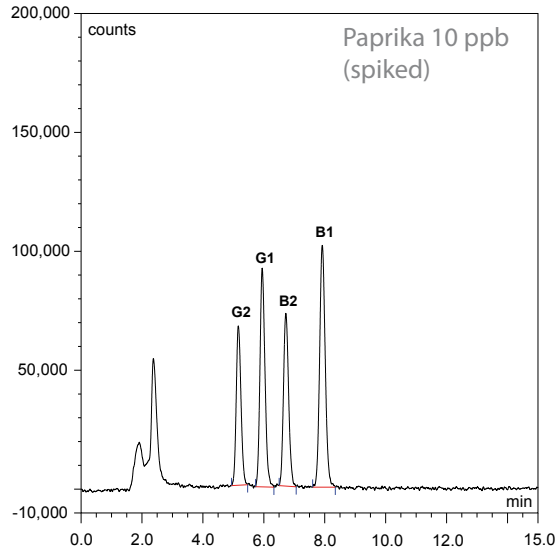
Recovery Rates
Content of Aflatoxin B1, B2, G1 and G2 in Paprika

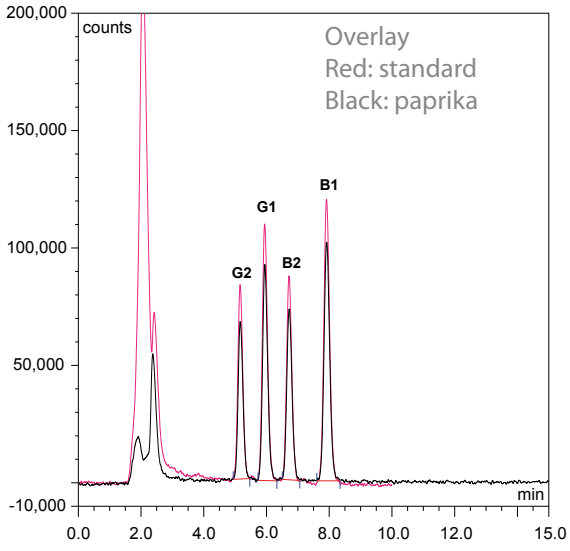
Aflatoxin	B1	B2	G1	G2
Standard*	100	100	100	100
Recovery Rate Paprika, 10 ppb**	86	87	86	84

***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:

AflaCLEAN, Immunoaffinity Columns
for Aflatoxins B1, B2, G1 and G2
P/N 10514 / 11721

UVE Photochemical Reactor
for the Derivatisation of Aflatoxins with UV-Light
P/N 10519 / 10742

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