



March 2016

Aflatoxins B/G in Pistachio Paste

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

Immunoaffinity Columns AflaCLEAN for Aflatoxins B1, B2, G1 and G2



The immunoaffinity columns AflaCLEAN are developed for the sample preparation within the food analysis by HPLC with fluorescence detection and LC-MS, respectively. They are designed for the clean-up of aflatoxins B1, B2, G1 and G2 in food and feed. The columns possess a very high matrix tolerance and are able to bind aflatoxins with a very high specificity. With only three provided extraction protocols, all matrices from A, for Apricot, to Z for Zest, can be tested whilst obtaining excellent recovery rates.

The AflaCLEAN columns are available in a practical 3 mL polypropylene format. Special advantages of the columns include their shelf life of 24 months from the date of manufacture, and storage at room temperature without compromising quality. The loading capacity is 150 ng B1 with recoveries of > 90 %.

Automated Preparation via FREESTYLE SPE

Every manual method that has proved successfully in your laboratory can be automated without any problems.

With FREESTYLE SPE you can process many different SPE-column formats from 1 to 15 mL, like e. g. the immunoaffinity columns AflaCLEAN of LCTech.

Extract, filtrate and dilute the pistachio paste according to the description of the manual processing. Put your samples into the FREESTYLE SPE, equip the racks with the AflaCLEAN columns, choose the method from the software and press the start button.



Robotic System FREESTYLE SPE with EVAporation Module

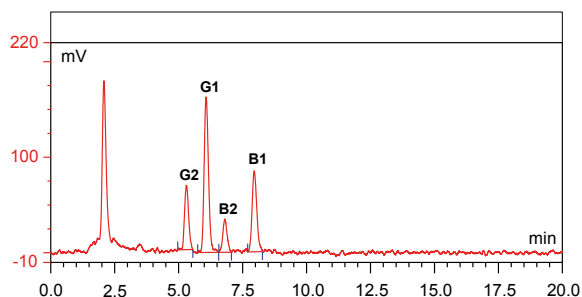
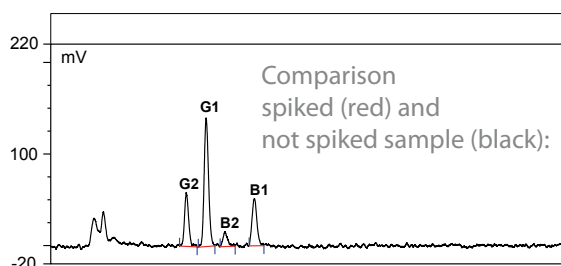
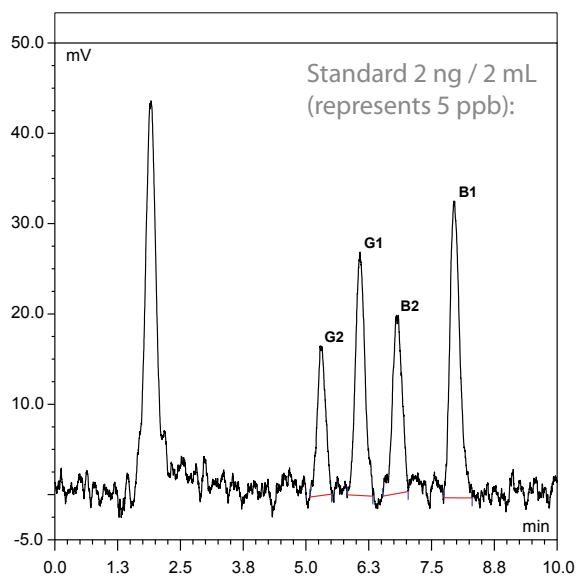
Protocol of Manual Processing

Homogenize 20 g of pistachio paste and add 2 g sodium chloride. Extract the sample material with 100 mL (methanol/water (80/20 (v/v)) and 50 mL n-hexane to remove fat and essential oils. The extraction should be conducted for at least 10 minutes.

Filtrate the raw extract and dilute 2 mL with 12 mL PBS (contains 8 % Tween). Load 14 mL (represents thereof 0.4 g) onto the AflaCLEAN and wash the immunoaffinity column with 10 mL deionized water.

Dry the column by flushing air through it and elute the toxins afterwards 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.

Chromatograms



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 Pistachio Paste

Aflatoxin	B1	B2	G1	G2
Standard*	100	100	100	100
Recovery Rate** Pistachio Paste, 5 ppb	99	96	100	91

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

AflaCLEAN SMART for a faster processing of your samples

AflaCLEAN is also available in a small 3 cm SMART-format. With the use of this format you can save more than 80 % of the solvents in extraction, dilution, rinsing, sample loading and elution. Processing time is also reduced when using AflaCLEAN SMART.

Clean-up with AflaCLEAN SMART can be done either manually or fully automated with the robotic system FREESTYLE ThermELUTE™.



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