Aflatoxins B/G and Ochratoxin A in Oat Cakes
Cleaned-up with ***Afla-OtaCLEAN***

Oat Cake

Oat cakes are a popular sweetness worldwide and are available in many different varieties: with chocolate chips, with flaked almonds and many more creations. The basis of oat cakes are, as the name already suggests, oat or oat flakes.

The name „oat“refers to the spelt or husked grain. Inside the grain you will find the core. For the production of flakes, the oat core is humidified and then rolled out by a flaking roller. Only after the drying process, the typical oat flakes are ready to use.

The main growing areas are Ireland, Germany and Scotland. Other growing areas are also located in North America and West Asia.

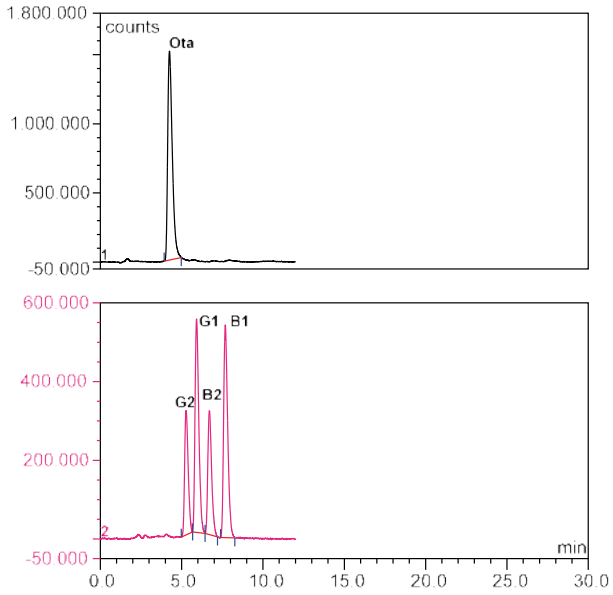
One for All - Combined Immunoaffinity Column ***Afla-OtaCLEAN***

Aflatoxins B/G and ochratoxin A are produced by fungi in wet storage and are often found together in many food and feed products, such as oat cakes. LCTech offers the perfect solution to save you time during the clean-up process. Analyse your sample for several mycotoxins in only one step.
LCTech's combined immunoaffinity column ***Afla-OtaCLEAN*** makes it possible.
The column is suitable for manual processing but also for automated clean-up with the robotic system FREESTYLE SPE. You can also combine the practical SMART columns from LCTech. Plug an AflaCLEAN SMART column and OtaCLEAN SMART column on top of each other and start the manual clean-up of aflatoxins B/G and orchatoxin A at once.

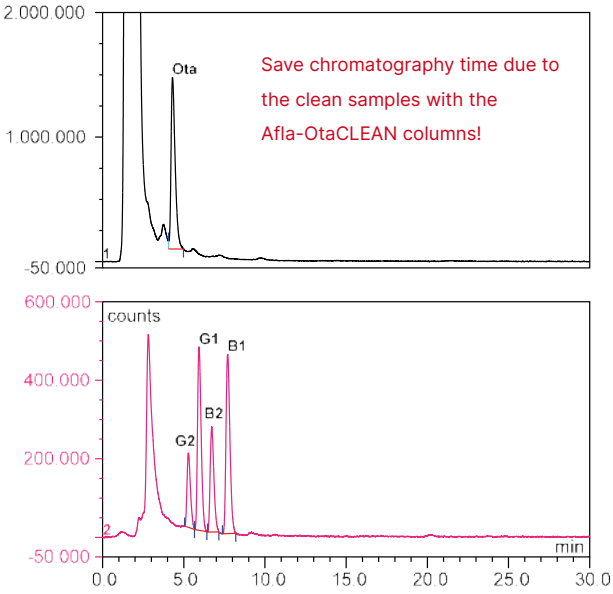
Processing Protocol

Homogenise 20 g of oat cakes with 2 g of sodium chloride. Extract the sample with 100 mL methanol/water (80/20/ (v/v)) and 50 mL of n-hexane in order to remove fat and oil. For high extraction effiecincies, continue the extraction (depending on extraction device) for at least 30 minutes.
Filtrate the raw extract and dilute 7 mL of the n-hexane free phase with 43 mL PBS. For a better phase separation between the methanolic phase and the n-hexane phase, centrifuge the extract for 5 minutes at 3000 x g. The reduction of the methanol content may cause turbidity in the diluted sample. Therefore, filter the sample again to avoid clogging of the column.
Load 50 mL of the sample (correspond to 1.4 g matrix equivalents) onto an Afla-OtaCLEAN immunoaffinity column. Wash the vial with 5 mL deionised water.
Load the rinsing solution onto the column. Wash the column again with 5 mL deionised water. Then remove any remaining liquid from the column by flushing air through it.
Elute the column with 2 mL methanol. Ensure that the methanol is allowed to act on the column bed for 5 minutes to ensure a fully denaturation of the antibodies and release of toxins.

Chromatograms



Black: Standard 20 µg/Kg Ochratoxin A
Red: Standard 20 µg/Kg Aflatoxins B/G



Black: Oat Cake 20 µg/Kg, cleaned-up with Afla-OtaCLEAN
Red: Oat Cake 20 µg/Kg, cleaned-up with Afla-OtaCLEAN

Conditions	
Mycotoxin	**Aflatoxin B/G**
HPLC	isocratic
Column oven	36 °C
Separation column	RP C-18
Flow rate, Running medium	1,2 mL/min; HPLC-water/ methanol/acetonitrile (60/30/15 (v/v/v))
Fluorescence detection	derivatisation with UVE photochemical reactor
Excitation wavelength	365 nm
Emission wavelength	460 nm
Mycotoxin	**Ochratoxin A**
HPLC	isocratic
Column oven	40 °C
Separation column	EC125/3 Nucleosil 120-3 C-18
Flow rate, Running medium	0,6 mL/min; HPLC-water/ methanol/acetonitrile (40/55/5 (v/v/v)) + 1 % acetic acid
Fluorescence detection	without derivatisation
Excitation wavelength	335 nm
Emission wavelength	465 nm

Recovery rates				
Aflatoxin	**B1**	**B2**	**G1**	**G2**
Standard*	100	100	100	100
Recovery rates** Oat cake, 10 ppb	80	92	93	91
Mycotoxin	**Ochratoxin A**			
Standard*	100			
Recovery rates** Oat cake, 10 ppb	89			

* Standard wurde gesetzt = 100% gesetzt
** Korrigiert mit nicht gespikter Probe / Die Ergebnisse stimmen mit den Performancevorgaben der EC 401 / 2006 (Abschnitt 4.3.1) überein.

Save Time and Money Cleverly!

The chromatograms below show that with LCTech immunoaffinity columns excellent chromatographic results can be achieved even in highly contaminated matrices, as shown by good recoveries.
For the clean-up of aflatoxins B/G and ochratoxin A in one matrix, Afla-OtaCLEAN also reduces the working time by half and saves money at the same time, because with the combined immunoaffinity column both toxin groups can be cleaned-up in one step.

LCTech products used:

11022 / 11771	Afla-OtaCLEAN Immunoaffinity Columns for Aflatoxins B/G and Ochratoxin A
10522	HPLC Separation Column RP-C18
10523	Precolumn for Aflatoxin Analysis
10519	UVE Photochemical Reactor
10519	Precolumn cartridge holder

Do you have a special request as to which matrix we should test for you?
Contact us by e-mail at: info@LCTech.de

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