



October 2016

Ochratoxin A in Goji Berries - Manual and Automated -

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

MYCOTOXINS

Goji Berries and their Effect

Goji berries are member of the so-called „Superfoods“, since they contain many vitamins and minerals. Among other things the berries strengthen the immune system and regulate the blood pressure, so they are associated with many health issues. Goji berries are mostly offered as dried fruit or component of breakfast cereal.

Immunoaffinity Columns OtaCLEAN for Ochratoxin A



Ochratoxin A is a naturally occurring mycotoxin, which is produced by *Aspergillus* and *Penicillium* species as primary contaminant in various food and feed stuffs, so in goji berries, too. For food and feed analysis and application clean-up purposes, LCTech developed the immunoaffinity columns OtaCLEAN. The columns guarantee best results even at difficult matrices .

Automated Processing with FREESTYLE SPE

The FREESTYLE robotic system with SPE module assumes routine laboratory tasks around the clock and even at weekends. The system processes unattended, yet reliably, various applications for mycotoxin analysis. All types of mycotoxin columns and SPE-standard formats can be automated on the FREESTYLE. The options for sample loading are as diverse as they are for elution. For convenience, even elution into a volumetric flask with 2 or 5 mL is possible, so that the eluted volume can be quickly adjusted to an exact value.

The most important element of the FREESTYLE SPE is the solid connection of the SPE column with the robotic arm affording free mobility across the entire system. Hence, this allows for controlled pressurization and pressure controlled flow-rates during loading and eluting of the sample.

*Automated Solid Phase Extraction
... SPE can be so simple and ingenious*



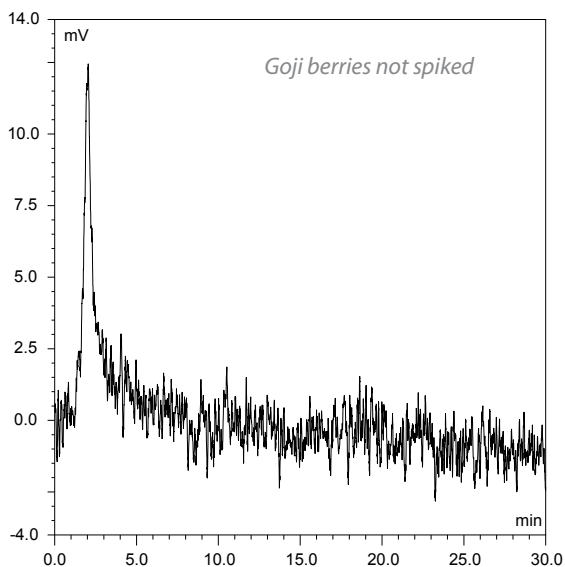
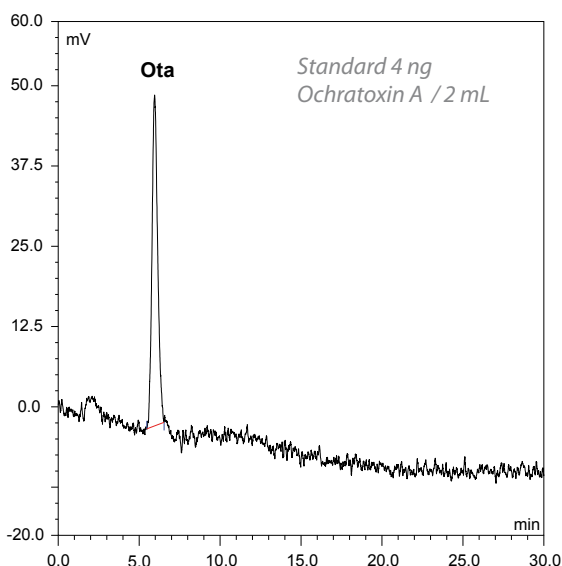
Protocol of Manual Processing

Homogenise 20 g of goji berries and add 2 g of sodium chloride. Extract the sample with 100 mL methanol/water (80/20 (v/v)) and add 50 mL n-hexane to remove fat and essential oils. The extraction should be conducted for 20 minutes in order to exclude extraction efficiencies.

Filtrate the crude extract and dilute 2 mL with 12 mL PBS (contains 8 % tween20). Load the sample onto the immunoaffinity column OtaCLEAN and wash the sample reservoir with 2 x 5 mL. Load the wash solution onto the OtaCLEAN column, too.

Elute the toxin with 2 mL methanol. Keep in mind that the column bed is incubated with methanol for at least 5 minutes to ensure the complete denaturation of the antibodies.

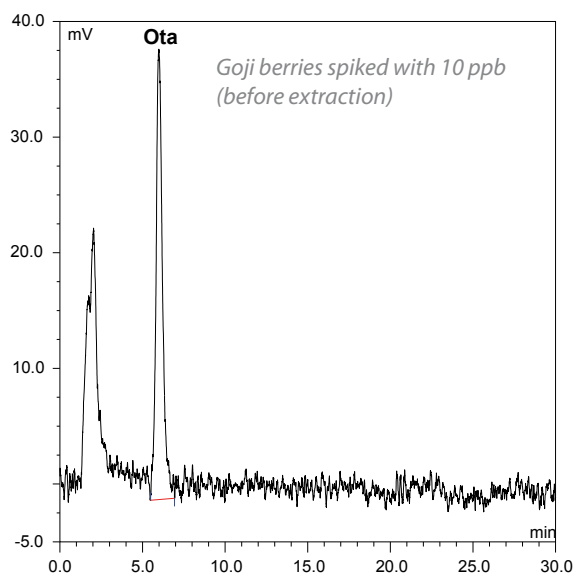
Chromatograms



HPLC-Conditions (Ochratoxin A)	
HPLC:	isocratic
Column Oven:	40 °C
Separation Column:	RP EC 125/3 nucleosil 120-3 C18
Flow Rate:	0.6 mL/min
Eluent:	HPLC-water/methanol/ acetonitrile + 1 % acetic acid (40/55/5 (v/v/v))
Fluorescence Detection:	without derivatisation
Excitation Wavelength:	335 nm
Emission Wavelength:	465 nm

Recovery Rates Content of Ochratoxin A in Goji berries	
Mycotoxin	Ochratoxin A
Standard*	100
Recovery Rate** Goji berries, 10 ppb	83

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



These LCTech products were used:

OtaCLEAN,
Immunoaffinity Columns for Ochratoxin A
P/N 10515 / 11535



FREESTYLE SPE, Robotic System
for automated Sample Preparation
P/N 12663 / 12668