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Aflatoxins B/G in Figs

Mycotoxins

The Fig

The „true fig“ is a plant species of the mulberry family. It is one of the oldest domesticated useful plants on earth. Already 3600 years ago, the plant was cultivated by the Assyrians and the Egyptians. Nowadays, commercial cultivation of figs is concentrated in the Mediterranean region, but also takes place in Iran, the USA and Brazil.

Fresh figs are a real „superfood“ and were already a popular fruit in ancient times. In addition to potassium, calcium, magnesium and iron, the plant also provides a lot of vitamins as well as digestive enzymes and satiating fiber. Dried figs are popular with consumers because of their sweetness and flavor, such as in muesli. Mycotoxins can be formed in dried fruit and especially in dried figs due to incorrect storage conditions and during the drying process. Since these can be harmful to humans and animals, figs and other dried fruits are regularly tested for mycotoxins.

Two in One - Combined Immunoaffinity Column Afla-OtaCLEAN

Aflatoxins B/G and Ochratoxin A are the most regulated mycotoxins and are produced by molds of the genus Aspergillus and Penicillium. They are often found together in many food and feed products, such as figs. In order to facilitate the extraction and to halve the working time, it is a good idea to analyze the extracts for several mycotoxins in one work step.

LCTech offers the best solution with the combined immunoaffinity column Afla-OtaCLEAN, which was developed for the clean-up of Aflatoxin B1, B2, G1, G2 and Ochratoxin A at once. The column is suitable for manual processing as well as for automated clean-up, for example with the FREESTYLE SPE robotic system.

Below you will find a processing protocol for the use of an Afla-OtaCLEAN immunoaffinity column.

Processing Protokoll

Homogenise 10 g figs with 1 g of sodium chloride and extract through 50 mL methanol/water (80/20(v/v)) and 25 mL of n-hexane to defat and remove oils. Run the extraction for at least 30 min to achieve maximum extraction efficiency.

Filtrate the raw extract and dilute 10.5 mL of the n-hexane free phase with 64.5 mL of PBS. If precipitates are present, filtrate the sample through a glass fiber filter to prevent coelution of matrix components from the column.

Load 50 mL of the diluted sample (equivalent to 1.4 g) onto an Afla-OtaCLEAN immunoaffinity column to quantitatively bind Aflatoxin B/G and Ochratoxin A. Wash the column with 10 mL of deionized water. Use the wash solution to rinse the sample vessel and Afla-OtaCLEAN column. Then elute the column with 2 mL of methanol. Ensure that the methanol incubates into the column bed for 5 min to ensure complete denaturation of the antibodies. Dilute the eluate to HPLC solvent conditions and inject up to 100 mL.

Simplify the process of loading and washing by using the EluVac Vacuum Manifold. Process up to 20 columns in parallel at individual column flow rates.

Find more details, recovery rates, HPLC-conditions and chromatograms here.

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Details for download

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