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UVE Photochemical Derivatisation

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Mycotoxins



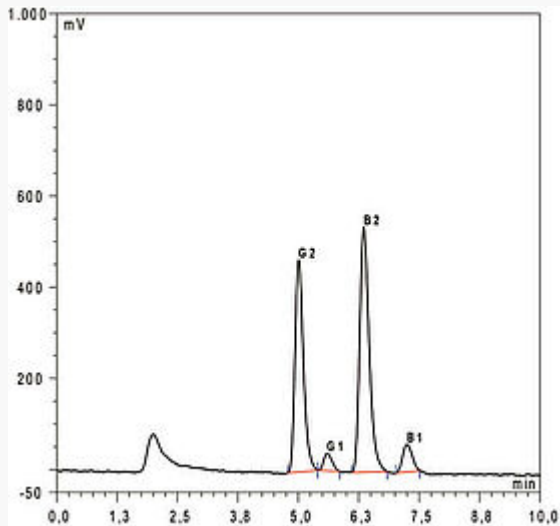
Photochemical Reactor for the Derivatisation of Aflatoxins with UV-Light

Due to the low aflatoxins limits in food and low inherent fluorescence of [aflatoxins B1 and G1](#), aflatoxin analysis needs to be optimised through derivatisation.

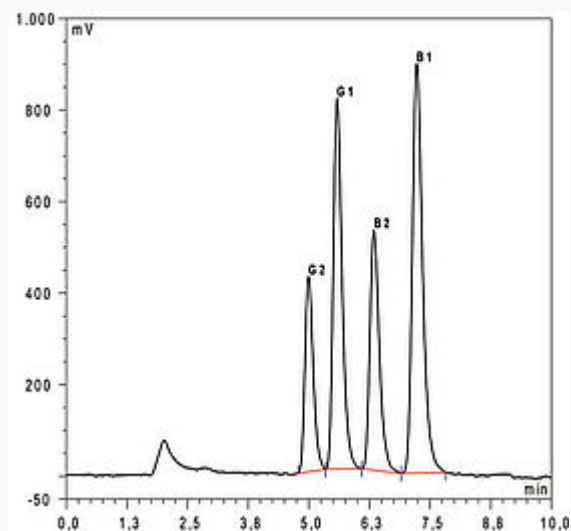
This is done photochemically with the UVE under UV light radiation at 254 nm.

Aflatoxins B1 and G1 are thereby hydroxylated and can then be measured through fluorescence spectrometry. The sensitivity of the measurement increases considerably.

Key advantage of using UVE over electrochemical bromination: the water, present in the eluent, is used as the reagent, hence neither iodine nor HNO₃ / KBr are required. In addition, the detector will not be contaminated and no variation in derivatisation will occur. This method is accepted by the AOAC, has been used successfully in collaborative trials and is in use worldwide in accredited laboratories.



Without UVE



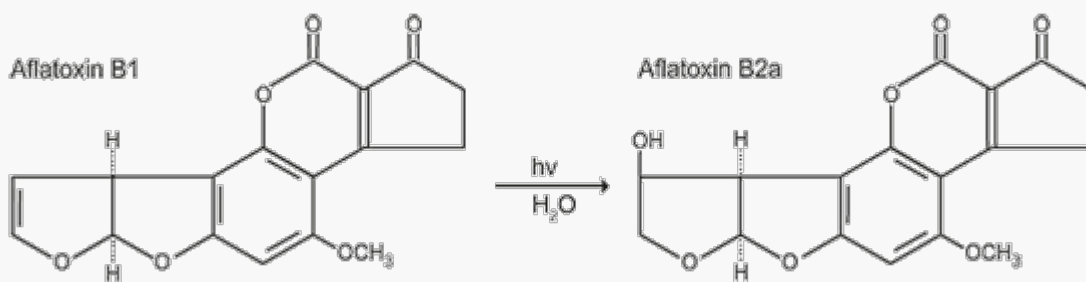
With UVE: high intensity of the signals

In Short, LCTech UVE

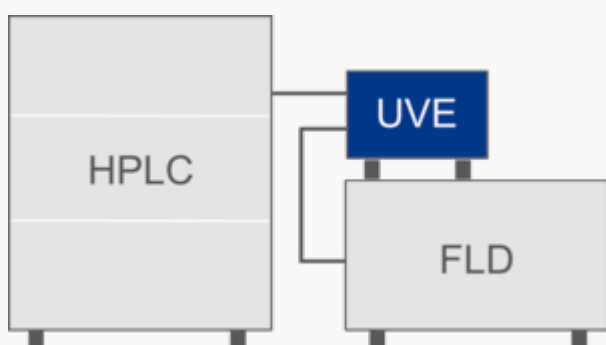
- The UV lamp is designed for an operation of over several thousand hours.
- No toxic reagents are necessary, because water is used as reagent.
- Increase of fluorescence of Aflatoxin B1 and G1 by UV light.
- Comparable to Cobra cell, but no reagents needed.
- Can be used with any HPLC.
- The HPLC system stays clean and is immediately ready for other applications; no more complex rinsing required.
- Easy Plug and Play installation: connect UVE with HPLC and detector, then turn on; the unit is ready for operation. Compact device: 15 cm wide, 9 cm high, 27 cm deep
- Low costs and maintenance
- European CE certificate and DIN ISO certified

Easy and Effective

The UVE derivatization module allows easily analysing aflatoxins with HPLC. The reaction is a simple derivatization of B1 to B2a.



The application can be done easily. Simply place the UVE between the HPLC and the fluorescence detector, switch on the system - ready:



Up to now reagents had to be added for the derivatization - whereas the photochemical reactor directly uses the HPLC eluent as reagent. The HPLC system remains clean and can immediately be used for other methods. Any tedious and long lasting rinsing of the system is no longer necessary.

A confirmation analysis of the aflatoxins B1 and G1 can be performed by switching off the system without any displacement of the retention times.

The system is very robust and long-living.

References

Muscarella, M. et al., Food Additives and Contaminants, Vol. 26, No. 10, October 2009, 1402-1410, Validation of a confirmatory analytical method for the determination of aflatoxins B1, B2, G1 and G2 in foods and feed materials by HPLC with on-line photochemical derivatization and fluorescence detection

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FAPAS Proficiency Test 04148 Report, Aflatoxins B & G in Maize, October - November 2009

FAPAS Proficiency Test 04143 Report, Aflatoxins Analysis in Baby Food, July - August 2009

Barricelli M, Kupfer R, Börner B, Deutsche Lebensmittel-Rundschau Spezial, Validated Method for Simultaneous Determination of Aflatoxins and Ochratoxin A in Paprika and Chilli Powder, September 2010

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Brochures

[Mycotoxin brochure \(pdf | 3 MB \)](#)

[Flyer UVE vitamin analysis \(pdf | 379 KB \)](#)

[Flyer UVE cosmetic analysis \(pdf | 425 KB \)](#)

Application notes

[Aflatoxin analysis via UVE \(pdf | 202 KB \)](#)

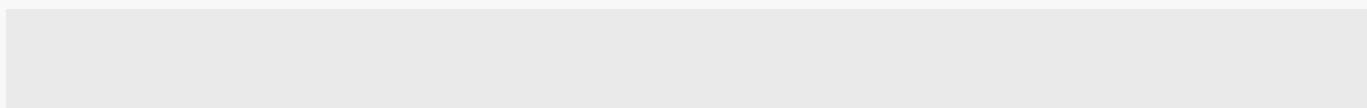
[Niacin \(vitamin B3\) analysis via UVE \(pdf | 117 KB \)](#)

Accessories for mycotoxin analysis

[HPLC column for the analysis of aflatoxins and ochratoxin A](#)

FAQs

[FAQs for photochemical derivatization of aflatoxin B1 and G1 \(pdf | 102 KB \)](#)



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