

ATL COBRA CELL



►► Introduction

- Confirmation of the presence of aflatoxins in a sample by HPLC requires derivatisation of aflatoxins B1 and G1 in order to enhance their natural fluorescence and make them more easily detected. Previously, the only options available for derivatising aflatoxins involved the use of trifluoroacetic acid (TFA), pyridinium bromide perbromide (PBPB) or iodine. All of these methods have significant limitations which can be overcome by use of the ATL COBRA CELL.

Pre-column derivatisation with TFA requires the solution containing aflatoxin to be blown to dryness under a stream of nitrogen, potentially leading to a loss of toxin. Further limitations are that the reaction takes 30 minutes at 50 °C, and the TFA reagent is itself corrosive and harmful to handle.

The post-column PBPB method involves addition of the diluted reagent into the eluate from the HPLC column. The limitations of this method are the use of a second pump and the difficulty in dissolving the PBPB as well as the hazardous nature of the reagent.

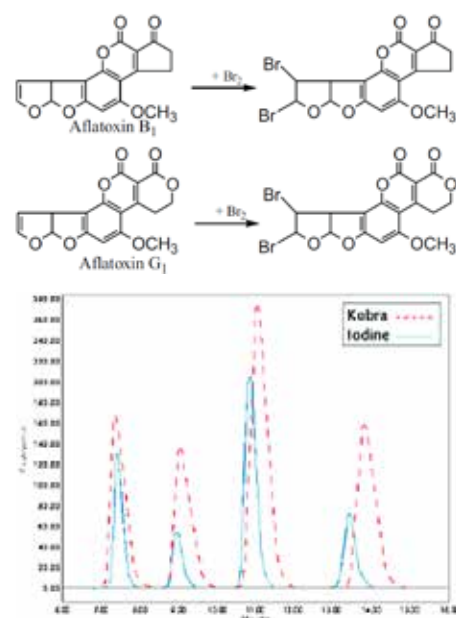
Post-column derivatisation with iodine also has some limitations including the need for a second pump, water bath or oven which can be expensive. It is necessary to clean the equipment regularly in order to avoid iodine crystals forming inside the reaction coil. Finally, the iodine must be prepared fresh each day due to its unstable nature.

The ATL COBRA CELL overcomes the problems relating to alternative derivatisation procedures. It is an electrochemical cell connected to an HPLC system downstream from the HPLC column and in line with the column effluent and the fluorescence detector. The ATL COBRA CELL generates a reactive form of bromine for derivatisation of aflatoxins B1 and G1, resulting in enhanced fluorescence and thus more sensitive detection.

The ATL COBRA CELL is used by hundreds of labs around the world and is mentioned in several EU and other international standard methods.

►► Derivatisation Reaction

The aflatoxins and the mobile phase enter the ATL COBRA CELL and the electrochemical reaction occurs generating the reactive form of bromine. The reaction between the reactive bromine and the aflatoxins must take place before the derivatised aflatoxins enter the fluorescence detector. Hence the length of the reaction coil is critical. A minimum reaction time of 4 seconds is required.



▶▶ HPLC Conditions

HPLC Conditions	
Derivatisation	ATL COBRA CELL at 100 µA setting
Guard Cartridge	Inertsil ODS-3 5 µm, 4 mm x 10 mm or (Hichrom) equivalent
Analytical Column	Inertsil ODS-3V 5 µm, 4.6 mm x 150 mm (Hichrom) or equivalent
Mobile Phase	Water : Methanol (60 : 40 v/v) Add 119 mg of potassium bromide and 350 µl 4 M Nitric Acid to 1 litre of mobile phase
HPLC Pump	To deliver mobile phase
Flow Rate	1.0 ml/minute
Fluorescence Detector	Excitation: 362 nm
	Emission: 425 nm (B1 and B2) 455 nm (G1 and G2)
Column Heater	Maintain guard and analytical columns at 40 °C
Integrator / Data Control System	From preferred supplier
Injector	Autosampler / Reodyne valve
Injection Volume	100 µl
Elution Order	G2, G1, B2, B1.

- **Analchrom Software**

Chromatography software for data acquisition and data processing

- **SW Package**

SW on a CD, HW key (dongle), cables, manuals, A/D converter

- **A/D converters**

Proprietary only – internal PCI, external USB, TCP/IP

- **Operating systems**

Proprietary only – internal PCI, external USB, TCP/IP

- **PC Requirements**

Refer to datasheet D016 – Compatibility Table for further information.

- **Number of connected instruments**

Up to 4 chromatography/ Instruments (= up to 4 time basis) at a time each up to 12 signals/ channels

- **Data acquisition**

Any detector with voltage output: up to 10m distance using USB and PCI converters or through Ethernet using the Net – PDA for data acquisition from distant places

- **Digital acquisition**

For selected chromatographs, e.g. Agilent, Knauer, etc.

- **Measuring ranges**

Bipolar: 156, 1250, 10000mV, Integration frequency: up to 400 Hz, 24-bit resolution

- **GLP / 21 CFR Part 11 requirements**

Password protection / expiration, Electronic signature, Audit Trails, User Accounts with access rights, raw data and history of modification stored in chromatogram, Validation

- **Co-operation with autosamplers**

The software cooperates with all autosamplers in active or passive mode by synchronization on TTL signal level. Direct control of selected autosamplers is available (refer to The list of controlled instruments, code D004)

- **Integration**

27-integration parameter, such as Peak Width, Threshold, Tangent Slope Ratio, etc. Integration parameters are programmable in Time, automatic reintegration.

- **Calculation types**

Both without and with calibration (internal and external standard methods), parameters of individual peaks for assessing both the Efficiency of the column and the chromatographic system as a whole, SST module for establishing deviations and reproducibility of selected

- **parameters calibrations**

6 types of calibration curves, up 20 levels, Reference Peaks, Groups, unlimited number of standards (peaks), LOD, LOQ

- **Work with chromatograms**

Overlay of unlimited number of chromatograms, mathematical operations with. Chromatograms, custom labels and setting for chromatograms

- **Automation**

Sequences, Post Run – automatic launching of selected commands and applications immediately after the chromatogram acquisition, Batch processing, command line parameters

- **Presentation of results**

Result and Summary Tables, both integrated and customizable, columns with user-defined calculation, export in text or database format

- **Calculations**

Custom: 12 predefined mathematical operators, 15 basic and summary functions Special: Kovats indexes, noise / drift determination

- **Reports**

Custom protocol Layouts, Print Preview, Print to PDF file, Email report

- **Data export**

ASCII, AIA, dBase, LIMS

- **Data import**

ASCII, AIA, LIMS

- **Multi-user environment**

Selectable system of user accounts with independently customizable behavior and appearance for individual users

- **Network environment**

Easy off – line (At the file level) data sharing among all stations in a local network

- **Control modules**

Refer to datasheet D004 – The list of controlled instruments

- **Extensions**

GPC, PDA, CE, EA, Installation qualification (IQ) Test, Validation Kit, SST module, LIMS Interface

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



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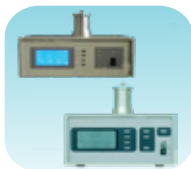
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Spectrophotometer



Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
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Hematology
Analyzer



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Reader/Washer



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Urine Analyzer



Total Organic
Carbon 3800



Fully Automated
CLIA



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system

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2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @



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