PICKERING LABORATORIES

Analysis of Fumonisins FB1, FB2 and FB3 using HPLC with Post-Column Derivatization

Fumonisins are a group of naturally occurring Mycotoxins produced by *Fusarium moniliforme* fungi species that grow on corn and other commodities. Fumonisins are suspected human carcinogens and are toxic to pigs, poultry and horses. Environmental factors, such as temperature and humidity, affect the occurrence of Mycotoxins and contamination can happen in the field as well as during storage. Many countries set limits on the presence of Fumonisins in foods and feeds and testing of raw crops as well as finished products is done on a regular basis.

A simple and sensitive method to detect Fumonisins involves using an HPLC to separate the toxins and then converting them using post-column derivatization with OPA into highly fluorescent derivatives.

Method

Analytical Conditions

Column: MYCOTOX™ Reversed-phase Column, 4.6 x 250 mm, P/N 1612124

Guard Column: Reversed-phase guard cartridge, P/N 18ECG001

Temperature: 40 °C

Flow Rate: 0.8 mL/min

Mobile Phase: Eluant A: Dilute 1 mL of formic acid to 1 L with D.I. water

Eluant B: MeOH

Injection Volume: 10–50 µL

Post-Column Conditions

Post-Column System: Onyx PCX, Pinnacle PCX or Vector PCX

Reactor Volume: 1.4 mL

Reactor Temperature: 65 °C

Flow Rate: 0.4 mL/min

Reagent: 300 mg *o*-Phthalaldehyde, 2g Thiofluor and 3 mL of 30% Brij 35 solution in 950 mL OD104 Diluent

Detection: FLD detector, λ_{ex} : 335 nm, λ_{ex} : 440 nm

HPLC Gradient		
TIME	**Eluent A %**	**Eluent B %**
0	45	55
2	45	55
9	30	70
14	10	90
16	10	90
16.1	45	55
22	45	55

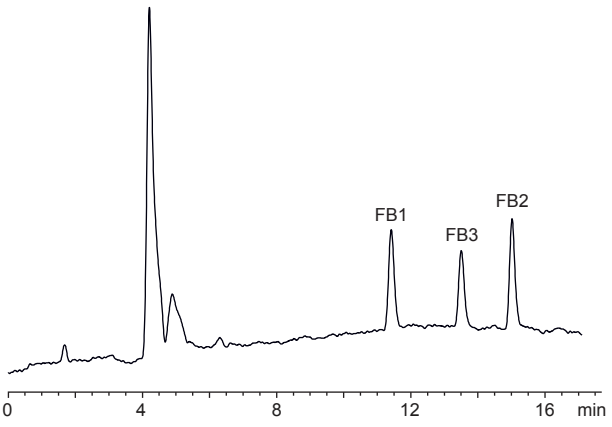

Fig 1. *Chromatogram of Fumonisins standard (25 ppb)*