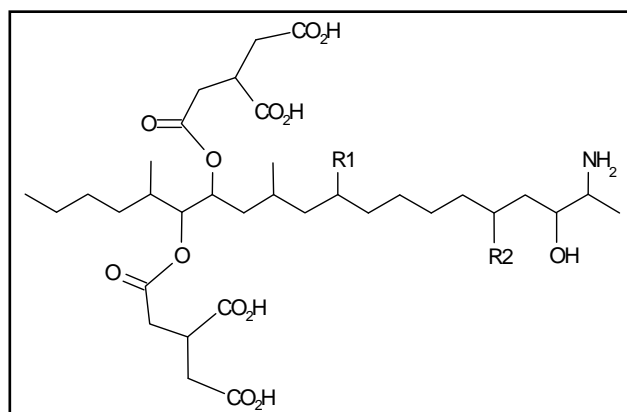


FUMONISINS



Fumonisin is a mycotoxin produced by *Fusarium* species. The toxin-producing fungi are found predominantly in tropical and subtropical areas and there mainly on maize. Three of the hitherto identified fumonisins, fumonisin B1, B2, and B3 are mainly detected in contaminated food and feed. The contamination with fumonisin B1 occurs most frequently and also in the highest concentrations.

Fumonisin is suspected of being highly toxic, and probably has carcinogenic and teratogenic effects on man. Due to this fact, the European Union has legislated maximum permissible limits for the fumonisins B1 and B2 in corn-based products. These limits are set between 200 and 4000 ppb, according to the intended further processing.



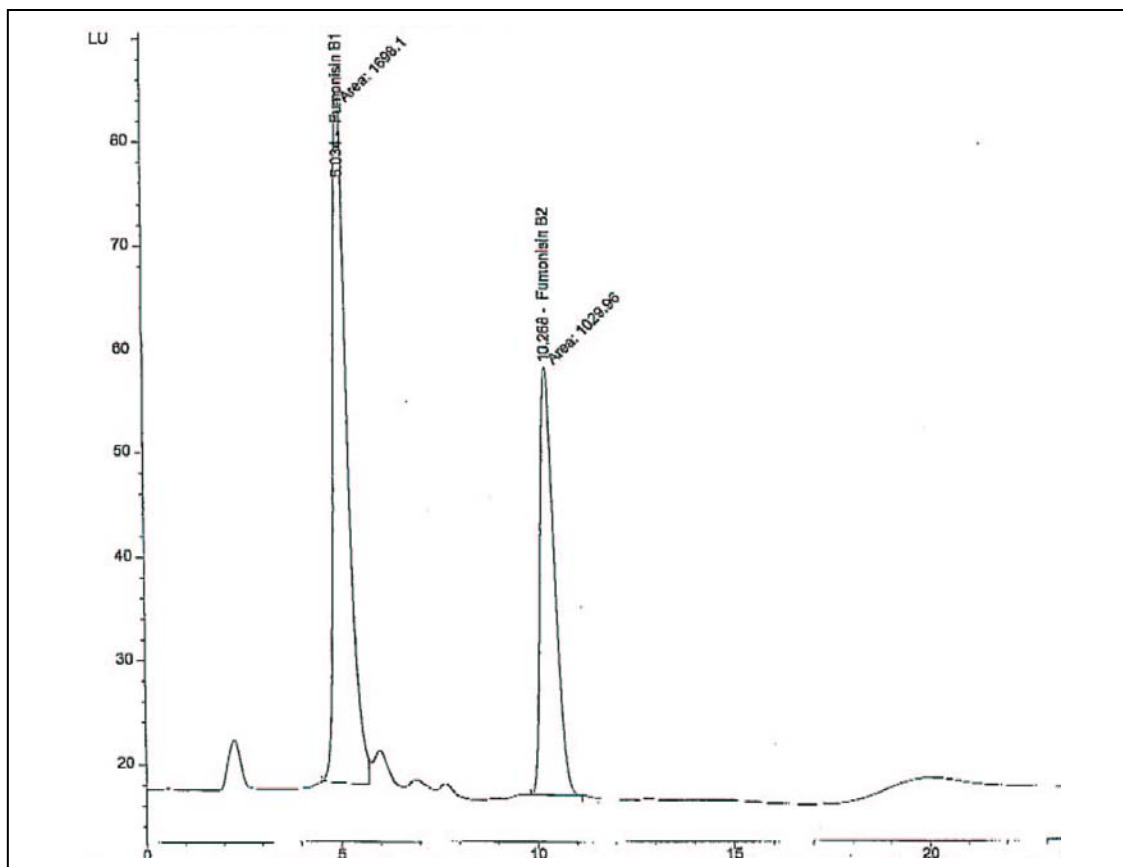
Structures of fumonisin B1 (R1 = R2 = OH), fumonisin B2 (R1 = H, R2 = OH), and fumonisin B3 (R1 = OH, R2 = H).

For this application LCTech provides the post-column derivatization system **PINNACLE PCX** from **PICKERING LABORATORIES**.

Method Description

After homogenization and extraction of the sample, the crude extract is either cleaned up with ion-exchange or immunoaffinity columns. Subsequently the fumonisins are separated on a reversed phase column, derivatized via the PINNACLE PCX systems with *o*-phthalaldehyde/Thiofluor™ and determined with fluorescence detection.

Chromatogram



Chromatogram of a fumonisin B1/B2 standard

HPLC Conditions and Derivatization Parameters

HPLC	
Operation mode	Gradient
Eluent	Methanol/Phosphate buffer
Degassing	Helium- or vacuum-degassed
HPLC column	RP C18; 125 to 150 mm, ID 3 or 4 mm; with guard column
Flow rate	1.0 mL/min
Injection volume	Up to 20 µL
Post-column Derivatization	
Pinnacle PCX	Single reagent
Column oven	35 °C
Reactor volume	150 µL
Reactor temperature	45 °C
Reagent	o-Phthalaldehyde/Thiofluor™ in borate buffer
Reagent flow	0.3 mL/min
Detection	
Measurement	Fluorescence detection
Excitation wavelength	330 nm
Emission wavelength	465 nm
Cell	Analytical; pressure stable up to 7 bar

Literature

- 1) G. Thielert, C. Reusch, *Deutsche Lebensmittel-Rundschau*, **1998**, 94 (5), 153-159.
- 2) COMMISSION REGULATION (EC) No 1126/2007 of 28 September 2007

- 3) Information of the Bavarian State Office for Health and Food Safety available at http://www.lgl.bayern.de/de/left/fachinformationen/lebensmittel/mykotoxine_hoehstmengenregelung.htm

Order Information

Order Number	Description
1153-1012	PINNACLE PCX – Single-pump system, 150 µL reactor
O120	o-Phthalaldehyde (OPA), „ <i>Chromatographic Grade™</i> “, 5 g
3700-2000	Thiofluor™, „ <i>Chromatographic Grade™</i> “, 10 g