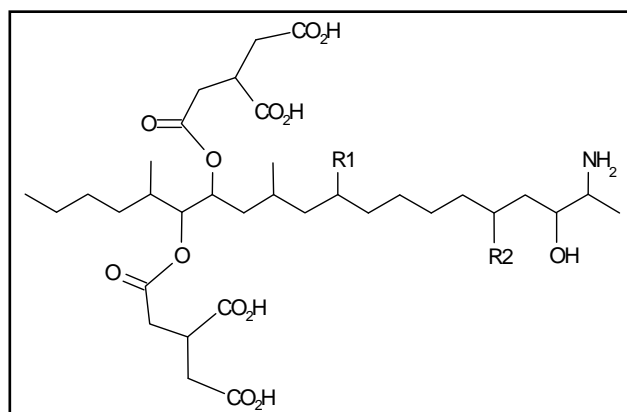


FUMONISINS



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.



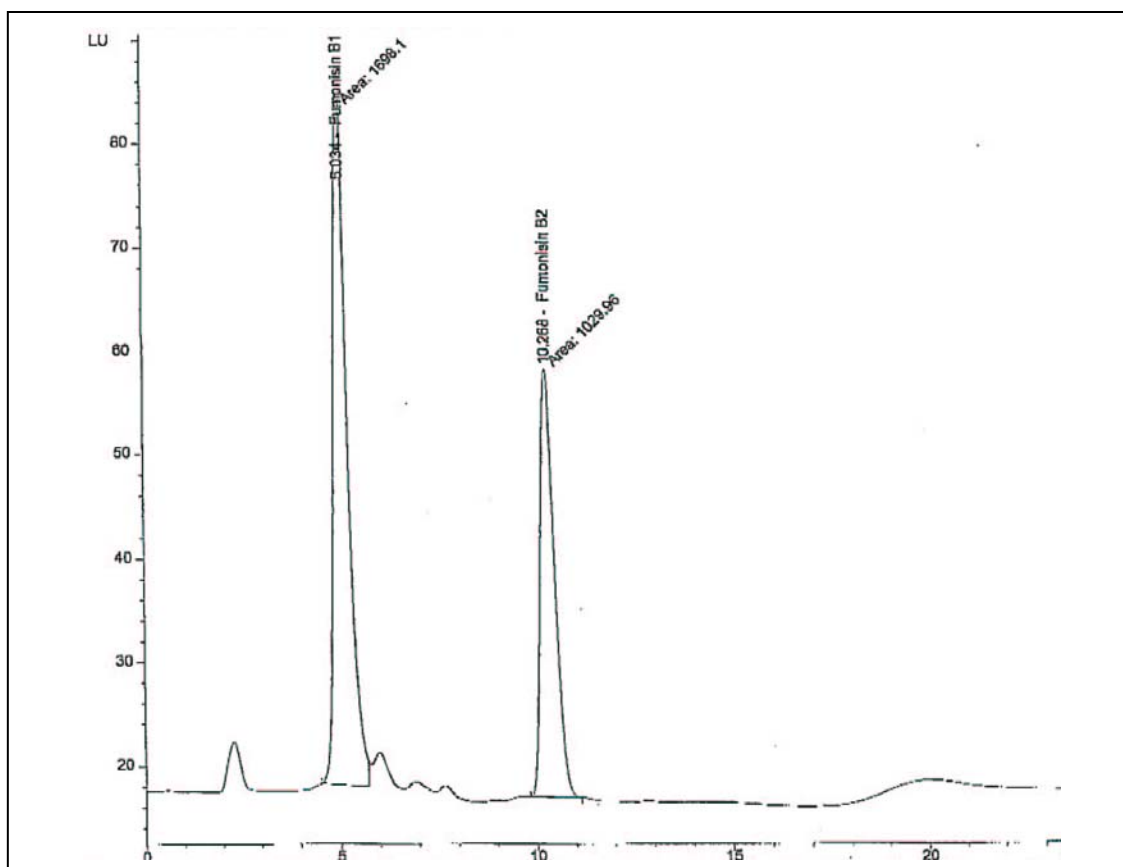
Structures of fumonisin B1 (R1 = R2 = OH), fumonisin B2 (R1 = H, R2 = OH), and fumonisin B3 (R1 = OH, R2 = H).

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 |