

DETERMINATION OF FUMONISINS B1 / B2 AND ZEARALENONE IN MAIZE FLOUR

Regulations for cereal flour:

Zearalenone

Europe (EC 1126/2007) : 75µg/Kg

Fumonisin

Europe (EC 1126/2007) : 1000µg/Kg for maize flour

USA: FDA advisory 2000µg/Kg

PROTOCOL OF PURIFICATION

Sample preparation

Purification with a 3mL/100mg AFFINIMIP® SPE FumoZON cartridge

25g of ground samples were extracted with 100 mL of Acetonitrile/Methanol/deionized Water (25/25/50, v/v/v) for 3 min using a blender. The extract was filtered through a folded filter paper and 10 mL of the filtrate were diluted with 10 mL of deionized water. Then, this solution was filtered through a filter paper.

This solution was used as the loading solution.

Equilibration

- 2mL Acetonitrile
- 2mL Water

Loading

- 8mL of loading solution

Washing of interferents

- 8mL 60/40 Water/ACN

Elution (E)

- 2mL Methanol – 2% Acetic Acid

The elution fraction was then evaporated and dissolved in water before HPLC analysis.

HPLC Method with MS detection

Column: Hypersil Gold C18 column 50mm x 2.1mm
Mobile phase ZON AND FB1: Water-Formic Acid 0.1%/ACN (73/27)

Mobile phase FB2: Water-Formic Acid 0.1%/ACN (65/35)

Flow rate: 0.2mL/min

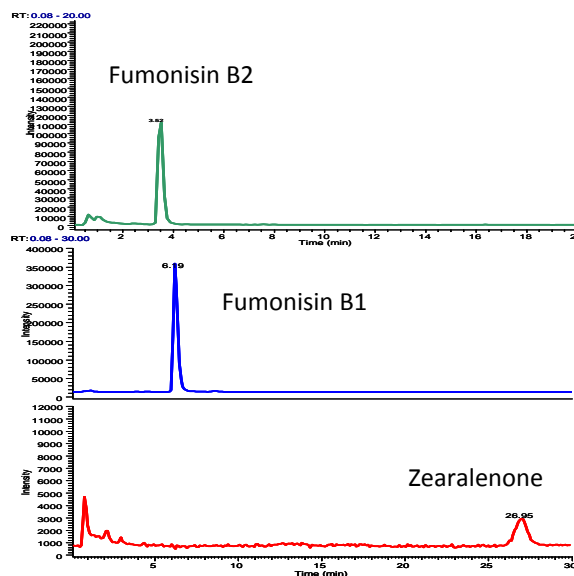
MS detection: m/z 722 for Fumonisin B1 (ESI⁺)

m/z 705 for Fumonisin B2 (ESI⁺)

m/z 317 for Zearalenone (ESI⁻)

Injection volume: 20µL.

RESULTS



Chromatograms obtained after AFFINIMIP® SPE FumoZON Clean-up of a maize flour spiked at 38µg/kg with Zearalenone, 2408µg/kg with Fumonisin B1 and 630µg/kg with Fumonisin B2.

Recovery of Zearalenone, Fumonisin B1 and B2 in maize flour after AFFINIMIP® SPE FumoZON clean-up and relative standard deviation calculated from results generated under reproducibility conditions

Sample	C° µg/kg	Mean µg/kg	Recoveries %	% RSD _R
Zearalenone	38	39.2	103.2	8.5 (n=8)
Fumonisin B1	2408	2002.2	83.1	10.3 (n=8)
Fumonisin B1	400	401.0	100.2	- (n=2)
Fumonisin B2	630	684.6	108.7	11.5 (n=3)

Catalog number:

3mL-100mg sorbent

FS109-02 for 25 cartridges

FS109-03 for 50 cartridges