Analysis of 11 Mycotoxins in sunflower seeds using AFFINIMIP® SPE Multimyco LCMSMS

Efficient cleanup for a CHALLENGING matrix with high recovery yields and reproducibility

Multimycotoxins analysis of fatty foods and feeds is very challenging.
This application note describes a cleanup method with **AFFINIMIP® SPE Multimyco LCMSMS** to deal with sunflower seeds with excellent results by LC-MS/MS.

AFFINIMIP® SPE Multimyco LCMSMS is a cost-effective product for the SIMULTANEOUS analysis of 11 regulated mycotoxins in food and feed matrices (Aflatoxins B1/B2/G1/G2, Zearalenone,, Fumonisins B1 & B2, Ochratoxin A, HT-2 & T-2 toxins, Deoxynivalenol *a.k.a* Vomitoxin) . The stability of this product makes possible its storage at room temperature over years.

RESULTS

Compound	C° µg/Kg	Recovery (%)	RSDr (n = 4) (%)
Aflatoxin B1	5	**113**	13
Aflatoxin B2	2,5	**104**	9
Aflatoxin G1	10	**103**	7
Aflatoxin G2	10	**109**	15
Fumonisin B1	75	**116**	13
Fumonisin B2	37,5	**118**	2
Ochratoxin A	5	**91**	9
Zearalenone	25	**88**	3
Deoxynivalenol	100	**83**	6
T2 toxin	5	**102**	4
HT2 toxin	50	**118**	12

Excellent Recovery (> 80%)

CLEANUP PROTOCOL

Sample preparation

To 10 g of crushed sunflower seeds are added 20 mL of 80/20 ACN/Water +0.1% Formic acid. The mixture is sonicated for 30 min, centrifuged (4000 RPM) for 10 min and the supernatant filtered. To 5 mL of solution, add 70mL of water to obtain the loading solution.

Purification with AFFINIMIP® SPE Multimyco LCMSMS

Equilibration

- 3 mL of Acetonitrile
- 3 mL of pure water

Loading

- 12 mL of loading solution

Washing

- 3 mL of $NaHCO_3$ 1%
- 2 mL of Water/Acetonitrile 95/5
- Dry cartridge 30s
- 750 µL MTBE

Elution (E)

- 4 mL of Ethyl Acetate/Methanol/Formic acid 48.5/48.5/3

The elution is then evaporated ~30 min under vacuum at 45°C.
The residue is then dissolved with 150 µL of acetonitrile and 850 µL of aqueous mobil phase. The solution is centrifuged (10 min at 10000 rpm) or filtered with RC filter (0.20µm) prior analysis.

Conditions of analysis:

LC-MS/MS HPLC U3000 - QTRAP 4000.
Column: Hypersil Gold 50x2.1cm 1,9µm and precolumn filter at 30°C.
Injection volume: 20 µL.
Flow rate : 0,2 mL/min
Gradient: A - Water with Ammonium Formiate 5mM +0,5% Acetic acid
B - Methanol with Ammonium Formiate 5mM +0,5% Acetic acid

Time (min)	A	B
0	98	2
1	98	2
6	5	95
12	5	95
13	98	2
18	98	2

Catalog number:
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FS118-03B-200 for 50/pk