

INFO SHEET

Mycotoxins using a LC-MS/MS

Method description

Extraction

1. Low moisture products, moisture <20%

A grinded sample is extracted using acetonitril/water
The extraction is conform AOAC Inter Vol 81, No 4, 1998 (LC-method).

2. High moisture products, moisture >20%

A grinded sample is extracted using acetonitril

3. Clean-up (only if verification is needed)

The extract, eventually with change of liquid, is cleaned according to the method prescribed by the producer over a immune affinity column

4. Analysis

The obtained extract is analyzed using a liquid-chromatograph with double in-line mass spectrometers.

Quality control of the method.

The extraction is checked by analyzing two analyte-containing control-samples (protein-rich and fat-rich sample).

Round Robin tests : FAPAS & KDLL

Scope of Accreditation

Matrices : Feedstuff.

Analytes:

Aflatoxin B1	Aflatoxin B2	Aflatoxin G1	Aflatoxin G2	Zearalenon
α -Zearalenol	β -Zearalenol	DON	HT-2	T-2
Ochratoxin A	DAS	Sterigmatocystin	3-Ac-DON	Fumonisin B1
Fumonisin B2				

Analytes outside the scope of accreditation:

Aflatoxin M1	NIV	Mycophenolic acid(MPA)	Cyclopiazonic acid(CPA)
Citrinin			

Turn over times:

urgent	next working day
normal	<5 working days (on average <3 working days)

Minimum sample quantity: 250 gr or a minimum of 3000 particles

Performance characteristics

Reporting limits (LOQ) (<<limits of detection)

	Normal	Lower reporting limit*
Aflatoxin B1	< 1 ppb	<0,05 ppb
Aflatoxin B2	< 1 ppb	<0,05 ppb
Aflatoxin G1	< 1 ppb	<0,05 ppb
Aflatoxin G2	< 1 ppb	<0,05 ppb
Ochratoxin A	< 1 ppb	<0,05 ppb
Zearalenon	< 5 ppb	<0,5 ppb
a-Zearalenon	<50 ppb	< 5 ppb
b-Zearalenon	<50 ppb	< 5 ppb
DON	< 100 ppb	< 10 ppb
3-Ac-DON	< 50 ppb	< 5 ppb
HT-2	< 5 ppb	< 0,5 ppb
T-2	< 50 ppb	< 5 ppb
DAS	< 50 ppb	< 5 ppb
Sterigmatocystin	< 1 ppb	<0,5 ppb
Fumonisin B1	< 5 ppb	<0,5 ppb
Fumonisin B2	< 5 ppb	<0,5 ppb
NIV	<250 ppb	<25 ppb
Aflatoxin M1	-	<0,05 ppb
MPA	< 10 ppb	< 1 ppb
CPA	< 10 ppb	< 1 ppb

* Only in grains

Spreading range & measurement insecurity

	Recovery	RSDr-demand [*]		RSDR-demand [*]		Measurement insecurity mg/kg
		$C_{rap}-10*C_{rap}$	$>10 C_{rap}$	$C_{rap}-10*C_{rap}$	$>10 C_{rap}$	
Aflatoxin B1	85-115%	< 13%	< 10%	<20%	< 15%	LOQ+0,5*c
Aflatoxin B2	85-115%	< 16%	< 13%	<20%	<15%	LOQ+0,5*c
Aflatoxin G1	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
Aflatoxin G2	85-115%	< 16%	< 13%	<20%	<15%	LOQ+0,5*c
Ochratoxin A	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
Zearalenon	70-100%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
a-Zearalenon	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
b-Zearalenon	70-100%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
DON	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
3-Ac-DON	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
HT-2	70-100%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
T-2	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
DAS	70-100%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
Sterigmatocystin	70-90%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
Fumonisin B1	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
Fumonisin B2	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
NIV	85-115%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
Aflatoxin M1	50-80%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
MPA	70-110%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c
CPA	70-110%	< 13%	< 10%	<20%	<15%	LOQ+0,5*c

^{*} In case there are enough analyt-containing samples the spreading ranges will be determined on these analyt-containing samples (reintroduction of samples)