

Supplementary Materials: Occurrence of Mycotoxins in Swine Feeding from Spain

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Table S1. Monitored ions of multimycotoxins, enniatins and beauvericin, and MS/MS parameters.

Mycotoxin	Retention Time (min)	Precursor Ion (<i>m/z</i>)	Molecular Ion	DP ^a	EP ^a	CEP ^a	Product Ions ^b	CE ^a	CXP ^a
DON	1.70	297.1	[M+H] ⁺	36.0	5.5	16	249.2(Q)	17.0	4.0
							161.0 (I)	29.0	4.0
F-X	2.02	355.1	[M+H] ⁺	26.0	12.0	18	174.7(Q)	23.0	4.0
							137.1 (I)	31.0	4.0
CIT	2.90	251.2	[M+H] ⁺	26.0	11.0	18	233.0 (Q)	23.0	23.0
							204.8 (I)	73.0	10.0
HT-2	3.18	442.0	[M+NH ₄] ⁺	21.0	5.5	21	262.8 (Q)	22.0	8.0
							215.4 (I)	19.0	4.0
FB1	3.24	722.2	[M+H] ⁺	71.0	10.0	30	334.2 (Q)	51.0	6.0
							352.2 (I)	47.0	6.0
T-2	3.44	484.0	[M+NH ₄] ⁺	21.0	10.0	22	215.0 (Q)	22.0	4.0
							185.0 (I)	29.0	4.0
ZEN	3.71	319.0	[M+H] ⁺	26.0	8.0	20	282.9(Q)	15.0	10.0
							301.0 (I)	19.0	4.0
OTA	3.76	404.0	[M+H] ⁺	41.0	7.5	16	238.9 (Q)	31.0	6.0
							102.1 (I)	91.0	6.0
FB2	3.86	706.2	[M+H] ⁺	71.0	10.5	20	336.3 (Q)	43.0	14.0
							318.3 (I)	45.0	12.0
STE	3.88	325.1	[M+H] ⁺	66.0	3.5	26	281.0 (Q)	43.0	23.0
							310.0 (I)	37.0	4.0
ENNB	2.28	640.4	[M+H] ⁺	81.0	8.5	18.0	196.2 (Q)	35.0	4.0
							214.2 (I)	37.0	4.0
ENNB1	2.44	654.4	[M+H] ⁺	81.0	7.5	30.0	196.4 (Q)	39.0	6.0
							210.1 (I)	33.0	6.0
BEA	2.45	784.5	[M+H] ⁺	81.0	9.0	26.0	244.2 (Q)	39.0	4.0
							262.2 (I)	37.0	4.0
ENNA1	2.58	668.4	[M+H] ⁺	81.0	10.5	18.0	210.2 (Q)	35.0	6.0
							228.2 (I)	35.0	4.0
ENNA	2.74	682.4	[M+H] ⁺	76.0	9.0	26.0	210.2 (Q)	35.0	4.0
							228.2 (I)	35.0	4.0

^a Declustering potential (DP), Entrance potential (EP), Collision Cell Entrance Potential (CEP), Collision Cell Exit Potential (CXP) and Collision Energy (CE). All expressed in voltage. ^b Product ions: (Q) transition used for quantification, (I) Transition employed to confirm the identification.

Table S2. Matrix effect (%ME), recovery (%R) and recovery precision (%RSD) for multmycotoxin enniatins and beauvericin determination ($n = 9$).

Mycotoxin	Level 1			Level 2			Level 3		
	%ME	%R	%RSD	%ME	%R	%RSD	%ME	%R	%RSD
DON	-36.7	51.6	2.1	-30.8	59.2	1.4	-43.3	55.2	6.9
F-X	-21.5	86.8	4.2	-28.8	90.8	5.5	-25.6	70.5	5.0
CIT	-66.7	74.4	4.7	-62.8	71.4	6.1	-63.3	73.2	5.9
HT-2	0.52	76.3	7.1	-0.30	79.5	6.0	-0.14	86.5	7.3
FB1	10.8	78.3	4.8	54.1	72.1	1.1	7.51	76.1	5.4
T-2	-27.8	82.9	5.5	-13.9	83.2	6.1	-9.51	77.5	5.9
ZEA	-37.7	84.2	6.1	-35.1	85.2	4.8	-44.4	92.1	5.9
OTA	-57.2	97.2	7.2	-60.8	95.1	6.7	-57.4	68.0	8.7
STE	-80.3	80.4	4.4	-77.1	86.5	7.0	-85.6	79.3	7.1
FB2	-9.3	73.6	4.2	7.84	77.1	3.6	-7.70	73.5	1.5
ENNB	-31.7	93.3	1.4	-70.4	99.7	0.9	-62.9	98.1	0.4
ENNB1	-73.6	93.4	1.1	-76.2	97.6	1.5	-71.5	100.2	1.3
BEA	-93.8	95.6	3.8	-94.6	99.0	1.0	-93.0	100.3	0.3
ENNA1	-82.5	97.5	1.4	-83.5	99.1	1.0	-80.2	99.6	0.2
ENNA	-89.0	98.2	0.3	-88.9	97.3	0.4	-86.6	99.7	2.3

Level 1 = OTA, STE: 10 $\mu\text{g kg}^{-1}$; HT-2, T-2, FB1, FB2, CIT: 50 $\mu\text{g kg}^{-1}$; ZEA: 100 $\mu\text{g kg}^{-1}$; F-X: 200 DON: 250 $\mu\text{g kg}^{-1}$; ENNA, ENNA1, ENNB, ENNB1, BEA: 20 $\mu\text{g kg}^{-1}$. Level 2 = OTA, STE: 50 $\mu\text{g kg}^{-1}$; HT-2, T-2, FB1, FB2, ZEA, CIT: 250 $\mu\text{g kg}^{-1}$; F-X, DON: 500 $\mu\text{g kg}^{-1}$; ENNA, ENNA1, ENNB, ENNB1, BEA: 100 $\mu\text{g kg}^{-1}$. Level 3 = OTA, STE: 100 $\mu\text{g kg}^{-1}$; HT-2, T-2, FB1, FB2, ZEA, CIT: 500 $\mu\text{g kg}^{-1}$; F-X: 1000 DON: 750 $\mu\text{g kg}^{-1}$; ENNA, ENNA1, ENNB, ENNB1, BEA: 200 $\mu\text{g kg}^{-1}$.

Table S3. Precision study for multimycotoxin, enniatins and beauvericin determination at different concentration levels ($n = 9$).

Mycotoxin	Intraday Precision, RSD%			Interday Precision, RSD%		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
DON	2.1	1.4	6.9	8.2	7.6	8.9
F-X	4.2	5.5	5.0	10	10	4.6
CIT	4.7	6.0	5.9	6.8	7.4	8.0
HT-2	7.1	6.0	7.3	4.2	9.8	8.5
FB1	4.8	1.1	5.4	4.3	3.5	7.8
T-2	5.5	6.1	5.9	2.1	2.2	3.1
ZEA	6.1	4.8	5.9	9.8	7.1	8.3
OTA	7.2	6.7	8.7	6.4	1.2	3.3
STE	4.4	7.0	7.1	3.4	7.5	6.3
FB2	4.2	3.6	1.5	5.4	5.9	7.3
ENNB	1.4	0.92	0.45	4.0	3.5	4.0
ENNB1	1.1	1.5	1.3	4.6	4.8	5.0
BEA	3.8	1.0	0.34	5.8	4.3	3.8
ENNA1	1.4	1.1	2.3	5.8	4.3	4.9
ENNA	0.29	0.38	0.18	4.8	3.3	4.9

Level 1 = OTA, STE: 10 $\mu\text{g kg}^{-1}$; HT-2, T-2, FB1, FB2, CIT: 50 $\mu\text{g kg}^{-1}$; ZEA: 100 $\mu\text{g kg}^{-1}$; F-X: 200 DON: 250 $\mu\text{g kg}^{-1}$; ENNA, ENNA1, ENNB, ENNB1, BEA: 20 $\mu\text{g kg}^{-1}$. Level 2 = OTA, STE: 50 $\mu\text{g kg}^{-1}$; HT-2, T-2, FB1, FB2, ZEA, CIT: 250 $\mu\text{g kg}^{-1}$; F-X, DON: 500 $\mu\text{g kg}^{-1}$; ENNA, ENNA1, ENNB, ENNB1, BEA: 100 $\mu\text{g kg}^{-1}$. Level 3 = OTA, STE: 100 $\mu\text{g kg}^{-1}$; HT-2, T-2, FB1, FB2, ZEA, CIT: 500 $\mu\text{g kg}^{-1}$; F-X: 1000 DON: 750 $\mu\text{g kg}^{-1}$; ENNA, ENNA1, ENNB, ENNB1, BEA: 200 $\mu\text{g kg}^{-1}$.