Fapas® – Food Chemistry Proficiency Test Report 04557

Mycotoxins in Paprika

June-July 2025

PARTICIPANT LABORATORY NUMBER

Participants can log in to Fapas® SecureWeb at any time to obtain their laboratory number for this proficiency test.

Laboratory numbers are displayed in SecureWeb next to the download link for this report and are therefore fully confidential to each laboratory.

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This report is the output of a Management System that is certified by LRQA to ISO 9001:2015 [5, 6].

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SUMMARY

1. The test materials for Fapas® – Food Chemistry proficiency test 04557 were dispatched in June 2025. Each participant received a paprika test material to be analysed for Aflatoxin B_1, Aflatoxin B_2, Aflatoxin G_1, Aflatoxin G_2, Aflatoxins (total) and Ochratoxin A.
2. An assigned value (x_a) was determined for each analyte and in conjunction with the standard deviation for proficiency (σ_p) was used to calculate a z-score for each result.
3. Results for this proficiency test are summarised as follows:

analyte	assigned value, x_a µg/kg	number of scores, |z| ≤2	total number of scores	% |z|≤2
Aflatoxin B_1	4.24	42	44	95
Aflatoxin B_2	2.64	39	40	98
Aflatoxin G_1	0.974	34	39	87
Aflatoxin G_2	0.916	36	38	95
Aflatoxins (total)	8.73	39	42	93
Ochratoxin A	7.72	32	34	94

CONTENTS

1. INTRODUCTION

1.1. Proficiency Testing

Proficiency testing aims to provide an independent assessment of the competence of participating laboratories. Together with the use of validated methods, proficiency testing is an essential element of laboratory quality assurance.

Further details of the Fapas® – Food Chemistry proficiency testing scheme are available in our protocols [7, 8].

2. TEST MATERIAL

2.1. Preparation

The test materials were prepared from commercially available sweet paprika.

The test material was screened for the presence of any incurred analytes.

Aflatoxin B_1 was found at low levels, the level was then elevated by spiking. Aflatoxin B_2, Aflatoxin G_1 and Aflatoxin G_2 were spiked into the test material. Ochratoxin A was present at natural levels.

Samples were stored frozen until dispatch.

2.2. Homogeneity Testing and Stability

To test for homogeneity, randomly selected test materials were analysed in duplicate. Testing was sub-contracted to a laboratory meeting the quality requirements of the scheme's accreditation [3].

These data showed sufficient homogeneity and were not included in the subsequent calculation of the assigned values.

Fapas® proficiency test materials are prepared such that they are known to be sufficiently stable for the duration of the test, inclusive of transportation [7]. No further specific stability testing was required for this proficiency test.

2.3. Dispatch

The start date was 11 June 2025. Test materials were sent to 46 participants.

3. RESULTS

The instructions for reporting results were as follows:

Determine the level of analyte(s) present in the test material as follows:

analyte	units	comment
Aflatoxin B_1	µg/kg	Determine the level of each analyte present in the test material, as received, corrected for recovery.
Aflatoxin B_2	µg/kg	
Aflatoxin G_1	µg/kg	Please state your % recovery when submitting your results.
Aflatoxin G_2	µg/kg	
Aflatoxins (total)	µg/kg	If a different correction factor to a % recovery is used, please make a note of this in the comments section when submitting your results.
Ochratoxin A	µg/kg	

PLEASE NOTE: It is important that you report the results in this way so that we can include as many results as possible in the statistical analysis.

Results were submitted by 46 participants (100%) before the closing date for this test, 25 July 2025.

Each participant was given a laboratory number, assigned in order of receipt of results. The reported analyte concentrations are given in Table 1 and Table 2.

Participants' comments are given in Table 3.

The analytical methods used by each participant are summarised in APPENDIX I.

4. STATISTICAL EVALUATION OF RESULTS

The results submitted by participants were statistically analysed in order to provide an assigned value for each analyte. The assigned values were then used in combination with the standard deviation for proficiency, σ_p, to calculate a z-score [9] for each result. The procedure is detailed in the relevant protocols [7, 8].

Further background on the procedure followed can be found in the IUPAC International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories [10].

4.1. Calculation of the Assigned Value, x_a

The assigned value, x_a, for each analyte was derived from the consensus of the results submitted by participants.

The procedure used to derive this consensus involved:

i) exclusion, if present, of any non numerical results i.e. qualitative or semi-quantitative results,

ii) exclusion, if present, of any results that were approximately 10, 100 or 1000 × greater or smaller than the majority of submitted results (as these were considered to be reporting errors),

iii) exclusion of results from participants not quoting a percentage recovery, EXCEPT for Aflatoxins (total), where participants submitted results that were the sum of their recovery corrected individual Aflatoxins.

For all analytes, this procedure was straightforward and the robust mean was chosen as the assigned value.

The assigned values for all analytes are shown in Table 4.

4.2. Standard Deviation for Proficiency, σ_p

The standard deviation for proficiency, σ_p, was set at a value that reflects best practice for the analyses in question.

For all analytes, σ_p was derived from the appropriate form of the Horwitz equation [11].

The values for σ_p used to calculate z-scores from the reported results of this test are given in Table 4.

4.3. Individual z-Scores

Participants' z-scores were calculated as:

$$z = \frac{(x - x_a)}{\sigma_p}$$

where x = the participant's reported result,
x_a = the assigned value, see Table 4,
and σ_p = the standard deviation for proficiency, see Table 4.

Participants' z-scores for all analytes are given in Table 1 and Table 2 and shown as histograms in Figures 1–6. It is possible for the z-scores published in this report to differ slightly from the z-score that can be calculated using the formula given above. These differences arise from the necessary rounding of the actual assigned values and standard deviations for proficiency prior to their publication in Table 4.

The number and percentage of z-scores in the range $-2 \leq z \leq 2$ for all analytes are given in Table 5.

5. INTERPRETATION OF SCORES

In normal circumstances, over time, about 95% of z-scores will lie in the range $-2 \leq z \leq 2$. Occasional scores in the range $2 < |z| < 3$ are to be expected, at a rate of 1 in 20. Whether or not such scores are of importance can only be decided by considering them in the context of the other scores obtained by that laboratory.

Scores where $|z| > 3$ are to be expected at a rate of about 1 in 300. Given this rarity, such z-scores very strongly indicate that the result is not fit-for-purpose and almost certainly requires investigation.

The consideration of a set or sequence of z-scores over time provides more useful information than a single z-score. Examples of suitable methods of comparison are provided in the IUPAC International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories [10].

6. REFERENCES

1 Adobe Approved Trust List, https://helpx.adobe.com/acrobat/kb/approved-trust-list2.html#Whatisit accessed 28/01/2025.

2 GlobalSign AATL Document Signing FAQs, https://support.globalsign.com/aatl-document/aatl-document-signing-faqs accessed 28/01/2025.

3 ISO/IEC 17043:2023, Conformity assessment – General requirements for the competence of proficiency testing providers.

4 The ILAC Mutual Recognition Arrangement, https://ilac.org/ilac-mra-and-signatories/ accessed 28/01/2025.

5 Fera Science Ltd, Standards & Accreditations, https://www.fera.co.uk/about-us/standards-and-accreditation accessed 28/01/2025.

6 Lloyd's Register, Learn about ISO 9001 Quality Management Systems (QMS), https://www.lrqa.com/en-gb/iso-9001/?epslanguage=en-GB#accordion-whatarethebenefitsofiso9001certification accessed 28/01/2025.

7 Fapas®, 2025, Protocol for Proficiency Testing Schemes, Version 10, January 2025, Part 1 – Common Principles.

8 Fapas®, 2023, Protocol for Proficiency Testing Schemes, Version 6, January 2023, Part 2 – Fapas® Food Chemistry scheme (FAPAS).

9 AMC Tech Brief No. 74, z-Scores and other scores in chemical proficiency testing – their meanings, and some common misconceptions, *Anal. Methods*, 2016, **8**, 5553.

10 Thompson, M., Ellison, S.L.R. and Wood, R., 2006, The International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories, *Pure Appl. Chem.*, **78**, No. 1, 145–196.

11 Thompson, M., 2000, Recent trends in inter-laboratory precision at ppb and sub-ppb concentrations in relation to fitness for purpose criteria in proficiency testing, *Analyst*, **125**, 385-386.

Table 1: Results and z-Scores for Aflatoxin B_1, Aflatoxin B_2 and Aflatoxin G_1

laboratory number	analyte								
	Aflatoxin B_1 assigned value: 4.24 µg/kg			Aflatoxin B_2 assigned value: 2.64 µg/kg			Aflatoxin G_1 assigned value: 0.974 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
001	4.67	90-110	0.5	2.53	90-110	-0.2	1.33	90-110	1.7
002	4.7	87.7	0.5	2.9	87.3	0.4	1.0	86.4	0.1
003	3.7	81.35	-0.6	2.5	100.03	-0.2	0.9	80.81	-0.3
004	4		-0.3						
005	4.0	70.0	-0.3	2.5	101.6	-0.2	1.0	71.6	0.1
006	4.6	86	0.4	2.6	86	-0.1	0.8	86	-0.8
007	4.19	86	-0.1	2.76	83	0.2	0.99	80	0.1
008	5.00	104	0.8	3.27	103	1.1	1.19	92	1.0
009	5.17	95	1.0	2.47	94	-0.3	0.99	93	0.1
010	3.81	98	-0.5	3.45	95	1.4	0.99	95	0.1
011	4.58	93	0.4	2.84	90	0.3	1.05	86	0.4
012	5.08	103	0.9	3.04	110	0.7	0.98	110	0.0

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Aflatoxin B_1, Aflatoxin B_2 and Aflatoxin G_1

laboratory number	analyte								
	Aflatoxin B_1 assigned value: 4.24 µg/kg			Aflatoxin B_2 assigned value: 2.64 µg/kg			Aflatoxin G_1 assigned value: 0.974 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
013	3.40	74	-0.9	2.44	80	-0.3	0.74	79	-1.1
014	3.83	92	-0.4	2.26	105	-0.7	0.92	91	-0.2
015									
016	3.80	96	-0.5	2.20	99	-0.8	0.93	85	-0.2
017	4.47	91	0.3	2.99	92	0.6	1.73	90	**3.5**
018	4.36	100	0.1	2.58	102	-0.1	2.84	118	**8.7**
019	3.44	98	-0.9	2.37	98	-0.5	0.85	96	-0.6
020	3.49	83	-0.8	2.62	88	0.0	0.88	79	-0.4
021	3.97	94.67	-0.3	2.47	92.67	-0.3	0.93	94.00	-0.2
022									
023	3.88		-0.4						
024	6.0		1.9	3.4		1.3	0.9		-0.3

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Aflatoxin B_1, Aflatoxin B_2 and Aflatoxin G_1

laboratory number	analyte								
	Aflatoxin B_1 assigned value: 4.24 µg/kg			Aflatoxin B_2 assigned value: 2.64 µg/kg			Aflatoxin G_1 assigned value: 0.974 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
025	3.8		-0.5	2		-1.1	0.74		-1.1
026	4.1	90	-0.1	2.7	92	0.1	0.8	91	-0.8
027	4.2	89.8	0.0	2.5	100	-0.2	0.8	100	-0.8
028	11.7	96	**8.0**	5.83	100	**5.5**	2.31	103	**6.2**
029	4.7	89%	0.5	3.2	83%	1.0	1.2	68%	1.1
030	3.6	75	-0.7	1.8	80	-1.4	1.2	80	1.1
031	5.529		1.4	3.179		0.9	2.611		**7.6**
032	4.69	102.9	0.5	2.89	96.9	0.4	1.05	101.7	0.4
033	1.90	89	**-2.5**	1.61	50	-1.8	0.25	51	**-3.4**
034	4.85	102	0.7	2.95	104	0.5	1.04	104	0.3
035	4.0	104	-0.3	2.9	104	0.4	0.7	93	-1.3
036	4.10		-0.1						

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Aflatoxin B_1, Aflatoxin B_2 and Aflatoxin G_1

laboratory number	analyte								
	Aflatoxin B_1 assigned value: 4.24 µg/kg			Aflatoxin B_2 assigned value: 2.64 µg/kg			Aflatoxin G_1 assigned value: 0.974 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
037	3.90	97.39	-0.4						
038	3.58	65.8	-0.7	1.85	79.9	-1.4	0.75	37.2	-1.0
039	4.5	120	0.3	2.7	105	0.1	1.0	120	0.1
040	3.7	83.9	-0.6	1.9	84	-1.3	0.82	83	-0.7
041	5.19	100	1.0	2.69	100	0.1	<1.00	100	
042	4.58	100	0.4	2.70	100	0.1	0.85	100	-0.6
043	4.84		0.6	2.87		0.4	1.21		1.1
044	4.06		-0.2	2.82		0.3	1.23		1.2
045	3.9	88	-0.4	2.7	86	0.1	1	90	0.1
046	4.31	100	0.1	2.57	100	-0.1	1.03	100	0.3

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2: Results and z-Scores for Aflatoxin G_2, Aflatoxins (total) and Ochratoxin A

laboratory number	analyte								
	Aflatoxin G_2 assigned value: 0.916 µg/kg			Aflatoxins (total) assigned value: 8.73 µg/kg			Ochratoxin A assigned value: 7.72 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
001	1.40	90-110	**2.4**	9.93	90-110	0.6	< 7.50	143	
002	1.0	72.0	0.4	9.6		0.5			
003	<0.2	91.04		7.1	88.31	-0.9	6.7	116.09	-0.6
004							<15		
005	0.934	82.2	0.1	7.47		-0.7	7.5	106.5	-0.1
006	0.8	86	-0.6	8.8	86	0.0	7.0	95	-0.4
007	0.76	95	-0.8	8.78	84	0.0	8.36	118	0.4
008	1.01	97	0.5	10.47		0.9	9.25	110	0.9
009	0.71	84	-1.0	9.34		0.3	9.67	73	1.1
010	1.11	90	1.0	9.36	95	0.3	4.18	100	**-2.1**
011	0.93	85	0.1	9.38	89	0.3	6.41	103	-0.8
012	0.71	110	-1.0	9.81		0.6	7.71	106	0.0

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Aflatoxin G_2, Aflatoxins (total) and Ochratoxin A

laboratory number	analyte								
	Aflatoxin G_2 assigned value: 0.916 µg/kg			Aflatoxins (total) assigned value: 8.73 µg/kg			Ochratoxin A assigned value: 7.72 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
013	0.89	83	-0.1	7.47	79	-0.7	6.78	80	-0.6
014	0.96	100	0.2	7.93	97	-0.4	10.56	84	1.7
015				7.96	82.87	-0.4			
016	0.77	86	-0.7	7.77	91	-0.5			
017	1.01	69	0.5	10.2		0.8	12.59	96	**2.9**
018	1.21	91	1.5	10.99		1.2			
019	0.78	99	-0.7	7.44		-0.7	8.05	100	0.2
020	0.86	92	-0.3	7.85		-0.5	6.25	81	-0.9
021	0.87	95.00	-0.2	8.23		-0.3	8.90	104.67	0.7
022				31.3	97%	**11.7**	7.51	97 %	-0.1
023									
024	1.0		0.4	11.3		1.3	10.0		1.3

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Aflatoxin G_2, Aflatoxins (total) and Ochratoxin A

laboratory number	analyte								
	Aflatoxin G_2 assigned value: 0.916 µg/kg			Aflatoxins (total) assigned value: 8.73 µg/kg			Ochratoxin A assigned value: 7.72 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
025	0.96		0.2	7.5		-0.6	6.5		-0.7
026	0.7	94	-1.1	8.3		-0.2	9	85	0.8
027	1.0	58.6	0.4	8.5		-0.1	8.3	92.5	0.3
028	1.25	97	1.7	21.1		**6.4**	7.26	99	-0.3
029	1.1	77%	0.9	10.2		0.8	8.39	77%	0.4
030	0.82	80	-0.5	7.42	79	-0.7	8.1	95	0.2
031	1.020		0.5	12.34		1.9			
032	1.05	95.3	0.7	9.76	99.2	0.5	5.74	70.3	-1.2
033	0.48	53	**-2.2**	4.24	N/A	**-2.3**	8.58	82	0.5
034	1.20	103	1.4	10.05		0.7			
035	0.8	89	-0.6	8.4	98	-0.2	5.6	98	-1.2
036							8.2		0.3

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Aflatoxin G_2, Aflatoxins (total) and Ochratoxin A

laboratory number	analyte								
	Aflatoxin G_2 assigned value: 0.916 µg/kg			Aflatoxins (total) assigned value: 8.73 µg/kg			Ochratoxin A assigned value: 7.72 µg/kg		
	result	%rec	z-score	result	%rec	z-score	result	%rec	z-score
037				8.29		-0.2			
038	0.53	49.8	-1.9	6.71	65.2	-1.1	6.29	62.2	-0.8
039	0.9	100	-0.1	9.08	120	0.2			
040	0.94	44.9	0.1	5.2	82.4	-1.8	5.2	74.6	-1.5
041	<1.00	100		7.88	100	-0.4	9.45	100	1.0
042	0.83	100	-0.4				8.5	100	0.5
043	0.96		0.2	9.89		0.6	8.7		0.6
044	0.79		-0.6	8.89		0.1	7.86		0.1
045	1	82	0.4	8.6		-0.1	7.7	81	0.0
046	0.95	100	0.2	8.85	100	0.1			

z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3: Participants' Comments

laboratory number	comments
031	Total Aflatoxin result with Vicam fluorometer = 17 ppb, please assigned z-score to this also.
041	Valeur indicative Afla G1=0.92 Valeur indicative Afla G2=0.99
042	internal standard method

comments are as submitted by participants but some may have been edited to maintain participant anonymity

Table 4: Assigned Values and Standard Deviations for Proficiency

analyte	data points, *n*	assigned value, x_a µg/kg	uncertainty, *u*	standard deviation for proficiency, σ_p	
Aflatoxin B_1	36	4.24	0.11	Horwitz [11]	0.932
Aflatoxin B_2	35	2.64	0.06	Horwitz [11]	0.581
Aflatoxin G_1	34	0.974	0.032	Horwitz [11]	0.214
Aflatoxin G_2	33	0.916	0.032	Horwitz [11]	0.202
Aflatoxins (total)	36	8.73	0.24	Horwitz [11]	1.92
Ochratoxin A	29	7.72	0.29	Horwitz [11]	1.70

Table 5: Number and Percentage of z-Scores where $|z| \leq 2$

analyte	number of scores where $\|z\| \leq 2$	total number of scores	% $\|z\| \leq 2$
Aflatoxin B_1	42	44	95
Aflatoxin B_2	39	40	98
Aflatoxin G_1	34	39	87
Aflatoxin G_2	36	38	95
Aflatoxins (total)	39	42	93
Ochratoxin A	32	34	94

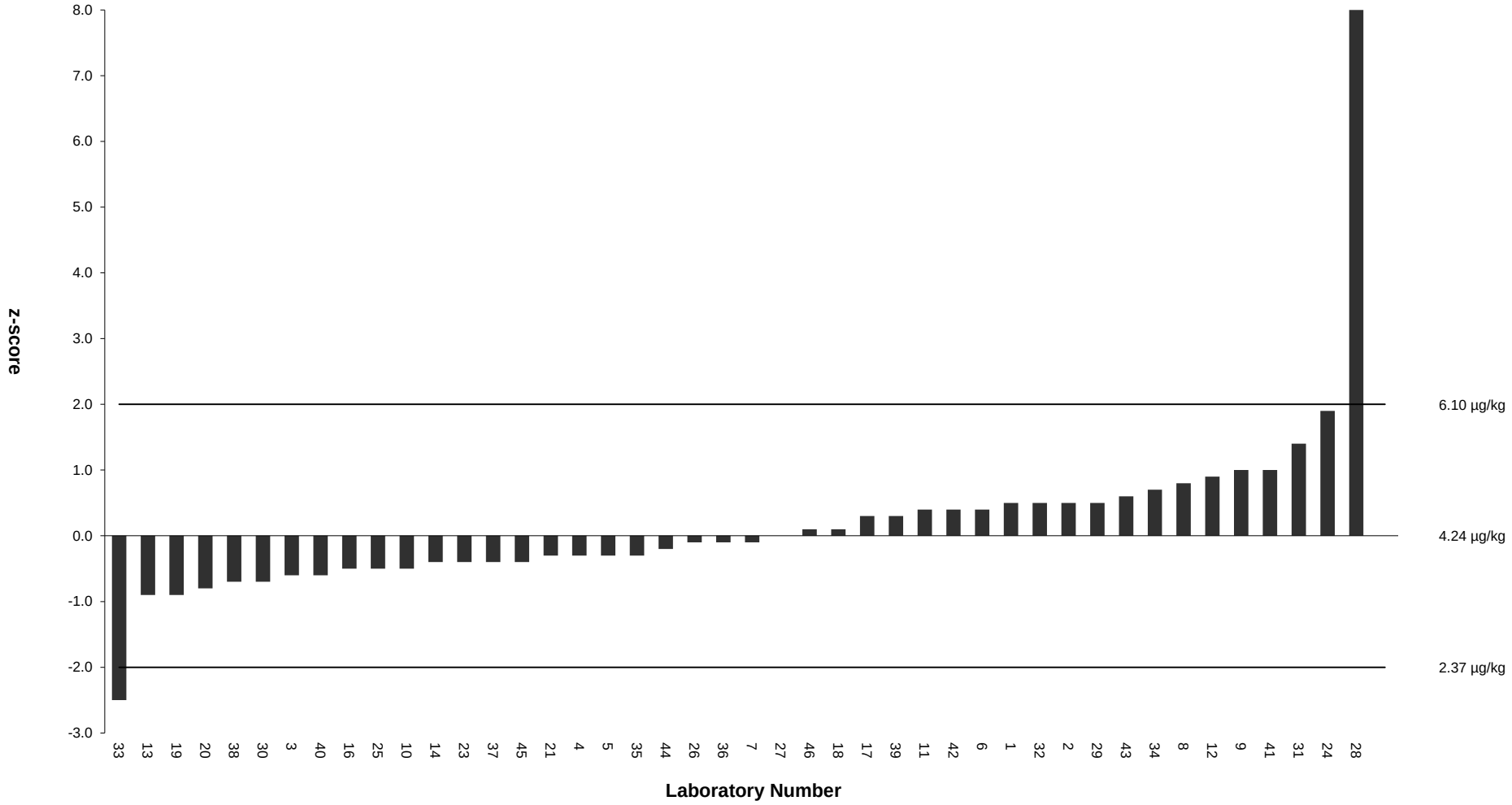

Figure 1: z-Scores for Aflatoxin B_1

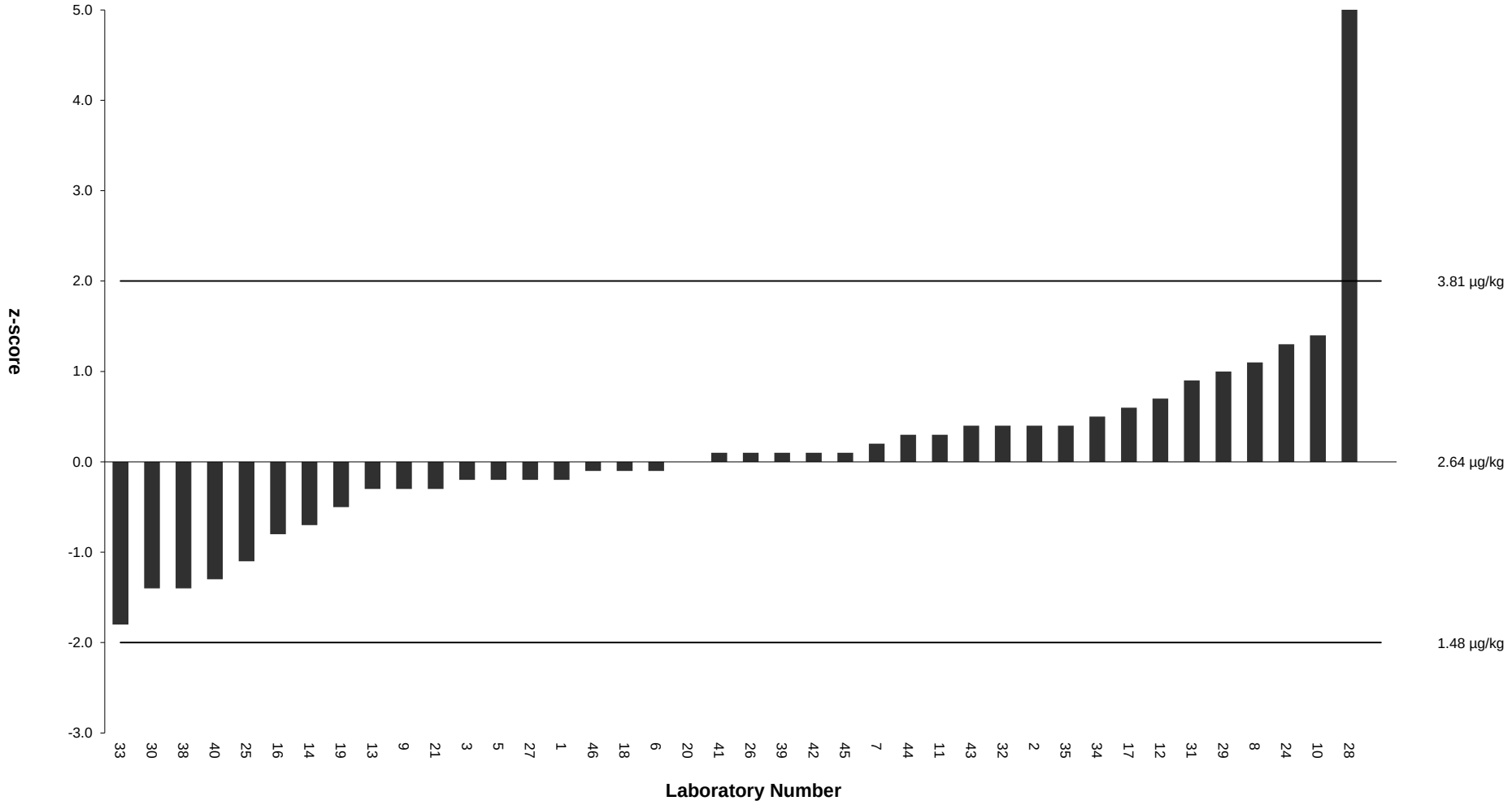

Figure 2: z-Scores for Aflatoxin B_2

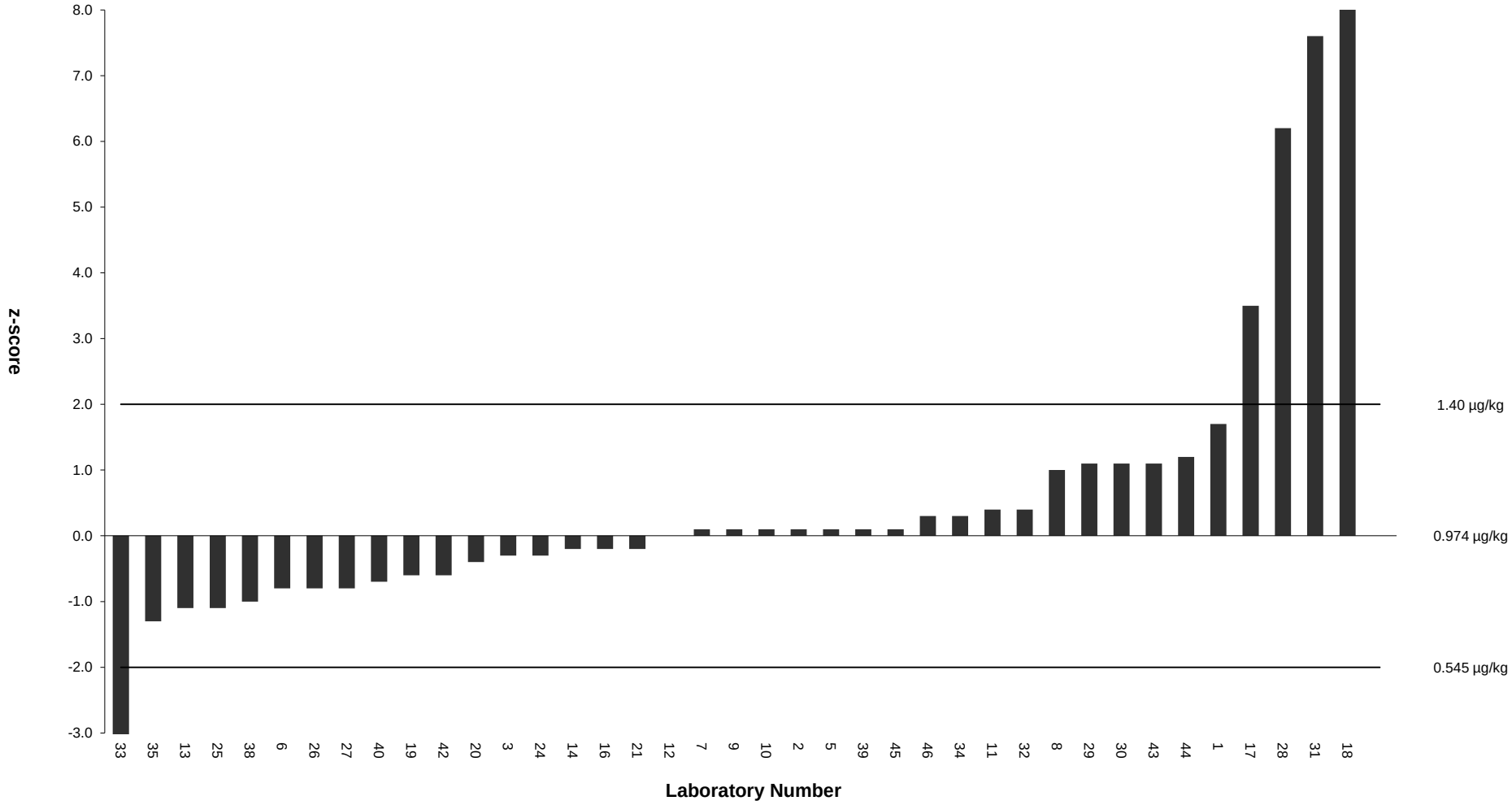

Figure 3: z-Scores for Aflatoxin G_1

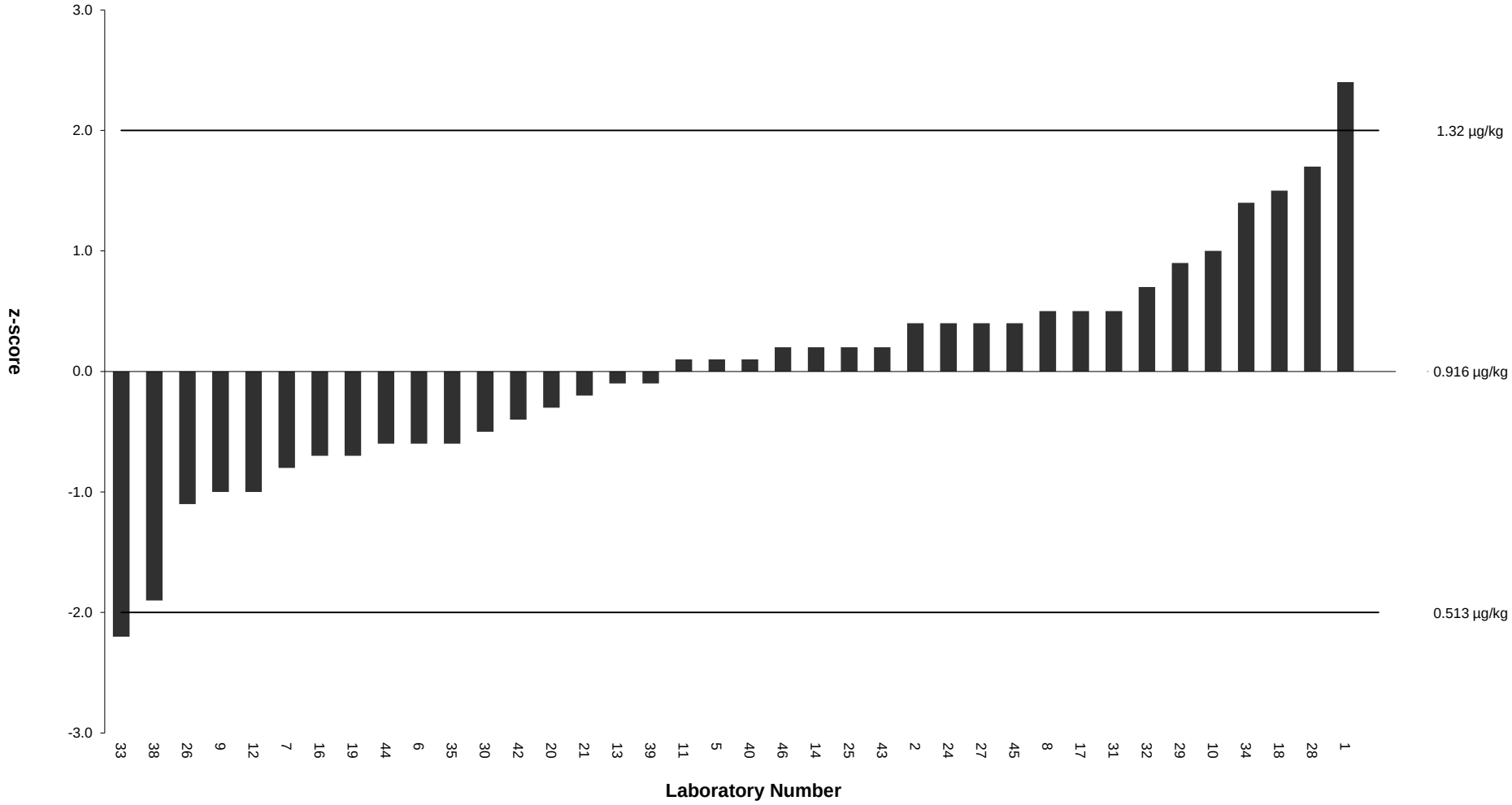

Figure 4: z-Scores for Aflatoxin G_2

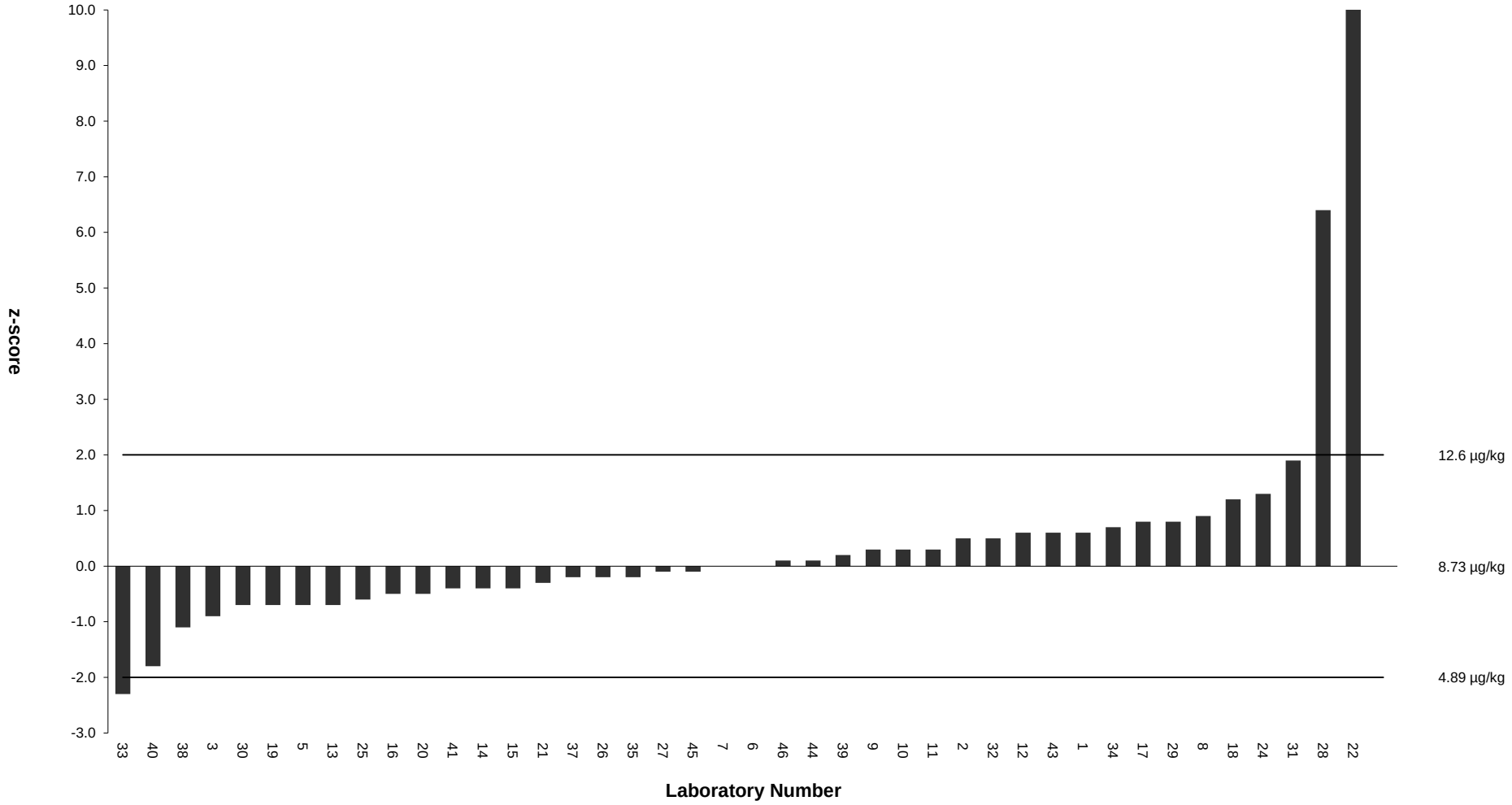

Figure 5: z-Scores for Aflatoxins (total)

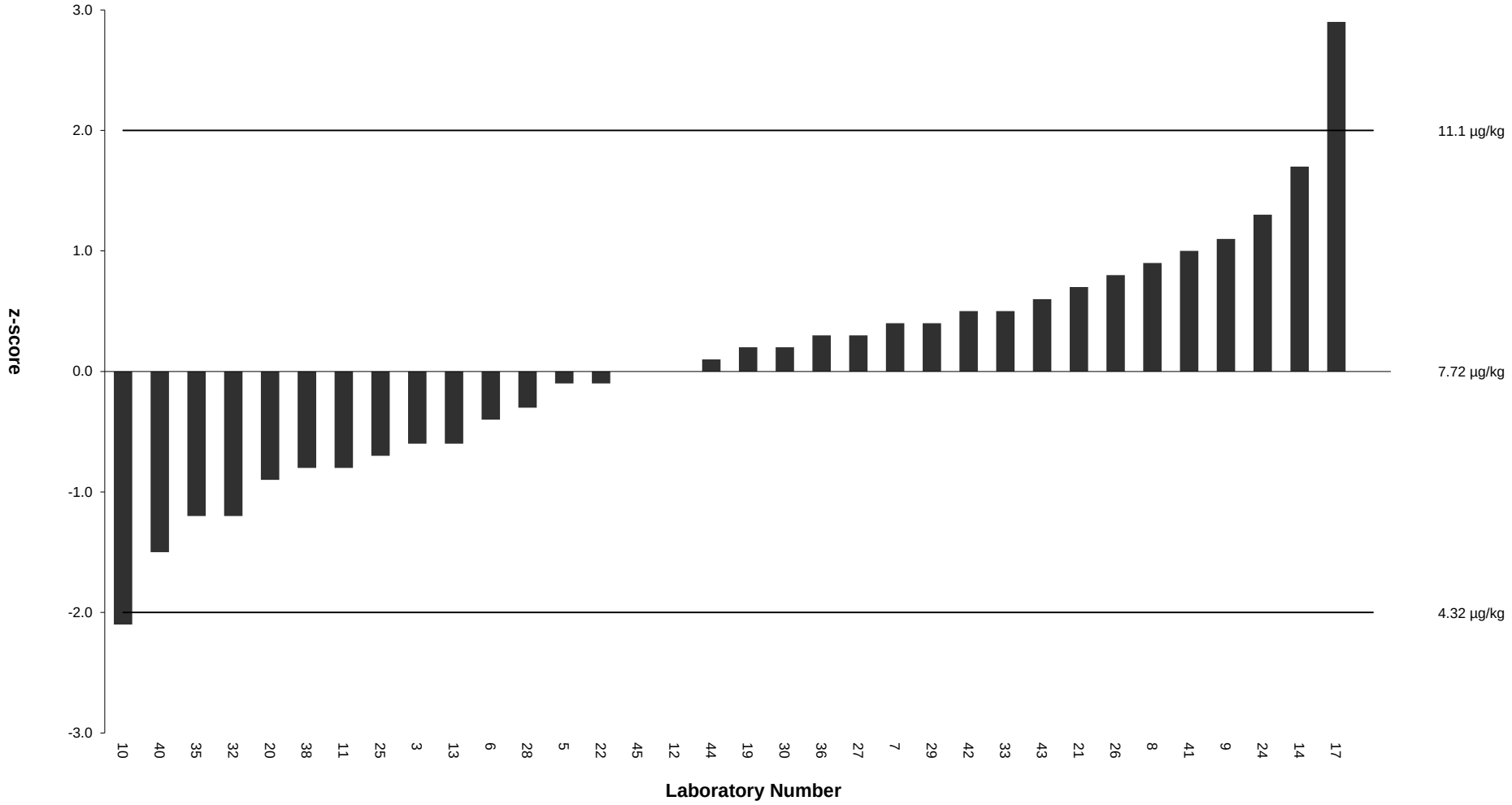

Figure 6: z-Scores for Ochratoxin A

APPENDIX I: Analytical Methods Used by Participants

Methods are tabulated according to the information supplied by participants, but some responses may have been combined or edited for clarity. Text that appears as unreadable symbols are derived from entries made using non-Western characters.

Is the Method Used Accredited?	laboratory number
no	006 009 010 013 021 022 025 028 030 031 044
yes	001 003 007 011 012 015 017 018 020 023 032 034 037 038 039 040 042

What is Your Method Based On?	laboratory number
International Standard	006 007 009 013 018 020 022 039 040 044
National Standard	023 042
Paper Published In An International Journal	010 025 028
Manufacturer/Kit Instructions/Technical Note	011 015 037
In house method	001 003 012 017 021 030 031 032 034 038

Sample Weight (g)	laboratory number
≥2 - <5	001 012 023 025 028 038 042
≥5 - <10	017 021
≥10 - <25	003 006 009 011 013 015 022 030 031 034 044
≥25 - <50	007 010 018 020 032 037
≥50	039 040

Extraction Solvent Components	laboratory number
acetonitrile	001 003 012 021 023 030 034 037 042
ethanoic acid (acetic acid)	010
formic acid (methanoic acid)	001 012
methanol	006 007 009 010 011 015 017 018 020 022 025 028 031 032 037 038 039 040
water	001 003 006 007 009 010 011 012 013 015 017 018 020 021 028 030 034 037 039 006
Acetic Acid	003
sodium hidrogenum carbonate	009
water	001 003 006 007 009 010 011 012 013 015 017 018 020 021 028 030 034 037 039 006

Extraction Procedure	laboratory number
add filter aid	007 015 028
add NaCl	009 013 015 017 020 039
blend / homogenise with solvent	007 011 015 020 028 044
heat	031
shake with solvent	003 006 018 021 022 025 028 030 034 037 039
shaking	001 006 009 012 017 023 028 042
Ultra Turrax	010 020 032 040
vortex mix	007 015 028
wash with solvent	015
add NaCl and water, then methanol extraction	038
QuEChERS	001

Extraction Type	laboratory number
multiple	003 010 028 030 038
single	001 006 009 011 012 013 015 017 018 020 021 022 023 025 031 032 034 037 039 040 042 044

Sample Work Up	laboratory number
centrifuge	001 009 012 018 020 021 025 040 042
dilute	003 010 013 020 031 038 039
filter	006 009 010 011 015 017 022 023 025 034 037 044
none	028
pH adjustment	025
Ultra Turrax	032
QUECHERS	030

Sample Clean-up by Immunoaffinity Column (Brand)	laboratory number
R-Biopharm Rhone	009 010 011 020 025 037 038 040
VICAM	015 017 032 034 044
Micotox	013
Columnas AFLA LC-Tech and Columnas OTA GENERON	006
eurofin & vicam columns both	031
LC-TECH	010
N.A	022
ORSELL	039
romer	023
Romer Labs	018

Sample Clean-up by SPE	laboratory number
fluorescence	015
single-level	022
AFRAKING	021
none	006 040

Mycotoxin Determination	laboratory number
ELISA	022
fluorometric	009 015 020
HPLC	001 006 007 009 010 011 012 013 017 018 020 025 031 032 034 037 038 039 040 044
MS-MS	001 003 012 021 023 028 030 034 042

HPLC Injection Volume (µl)	laboratory number
<5	001 012 021 023 042
≥5 - <10	028 030
≥10 - <25	003 006 010 017 025 034 044
≥25 - <50	031 038
≥50 - <100	009 020 032 040
≥100 - <150	007 011 013 018 037 039

HPLC Column Packing	laboratory number
C18	001 003 006 007 009 010 011 012 013 017 018 020 021 023 025 028 030 031 032 037 038 039 042 044
HSS T3	034

HPLC Column Temperature (°C)	laboratory number
ambient	007 025
>ambient - <50	001 003 006 009 010 012 013 017 018 020 021 023 028 030 031 032 034 037 038 039 040 042 044
≥50	011

Mobile Phase Components	laboratory number
acetate	009
ethanoic acid (acetic acid)	010 025 040 044
acetonitrile	006 007 009 010 013 017 018 020 025 030 031 037 039 040 042
formic acid (methanoic acid)	012 034
HNO3 & KBr (for Kobra Cell)	007 009 011 018 038 040
methanol	001 003 006 007 009 011 012 017 018 020 021 023 028 030 034 037 038 039 040
water	001 003 006 007 009 010 011 012 017 018 020 021 025 028 030 034 037 038 039 040
Acetic Acid, Ammonium Acetate	003
Aqueous combined with Methanol and acetonitrile	032

Mobile Phase Flow Rate (ml/min)	laboratory number
≥0.25 - <0.75	001 012 021 023 028 030 034 038 042
≥0.75 - <1.25	003 006 007 009 010 013 017 018 025 031 032 037 039 040
≥1.25 - <1.75	011 020 044

Post Column Mobile Phase Flow Rate (ml/min)	laboratory number
<0.25	023
≥0.25 - <0.75	021 030 040
≥0.75	003 006 010 013 020 025 044

HPLC Pre Column Derivatisation	laboratory number
fluorescamine	007
TFA	032
none	006 010 021 023 030 031 040 044

HPLC Post Column Derivatisation	laboratory number
Kobra cell	007 009 011 018 025 031 037 038 040 044
none	006 021 023 030 042
Only for AFLAS - UV LAMP	010
Photochemical UVE	039
UVE	013 017

Source of Standards	laboratory number
Dr Ehrenstorfer	028 032 038 042
Merck	001
R-Biopharm Rhone	007 009 011 025 037
Romer Labs	003 006 010 012 013 018 023
Sigma/Aldrich	030 034
Supelco	021 031
LabStandard	020
LGC	001
neogen	022
n'TOX	039
TRILOGY	017

HPLC Detector Type	laboratory number
fluorescence	006 007 009 010 011 013 017 018 020 025 031 032 037 038 039 040 044
MS-MS	001 003 012 021 023 028 030 034 042

Ochratoxin A

Is the Method Used Accredited?	laboratory number
no	010 013 021 025 030 032 036 044
yes	001 003 007 009 012 017 020 027 040 042

What is Your Method Based On?	laboratory number
International Standard	007 013 020 027 040 044
National Standard	042
Paper Published In An International Journal	010 025
Manufacturer/Kit Instructions/Technical Note	009 036
In house method	001 003 012 017 021 030 032

Sample Weight (g)	laboratory number
≥1 - <2	036
≥2 - <5	001 012 021 025 042
≥5 - <10	009 017
≥10 - <25	003 013 030 040 044
≥25 - <50	007 010 020 032

Extraction Solvent Components	laboratory number
acetonitrile	001 003 012 021 030 040 042
formic acid (methanoic acid)	001 012
methanol	007 010 017 020 032 044
sodium chloride solution	009
water	001 003 007 010 012 013 020 021 025 030
Acetic Acid	003
ECO ekstraktor	036
NaHCO3	017

Extraction Procedure	laboratory number
add Na2CO3	025 044
add NaCl	007 009 020
blend / homogenise with solvent	020 025
shake with solvent	003 013 021 030 036
shaking	001 009 012 017
Ultra Turrax	010 020 032 040
vortex mix	007

Extraction Type	laboratory number
multiple	003
single	001 009 010 012 013 017 020 021 025 030 032 036 040 042 044

Sample Work Up	laboratory number
centrifuge	001 009 017 020 021 025 030 036 040
dilute	003 010 013 020 042
filter	009 010 017 030 044
pH adjustment	032

Sample Clean-up by Immunoaffinity Column (Brand)	laboratory number
R-Biopharm Rhone	009 010 020 025 036 040
VICAM	032 044
Micotox	013
LC-TECH	010
PerkinElmer	017

Sample Clean-up by SPE	laboratory number
fluorescence	044
OCHRAKING	021

Mycotoxin Determination	laboratory number
ELISA	036
fluorometric	020 040
HPLC	001 007 009 010 012 013 017 020 025 032 044
MS-MS	001 003 012 021 030 042

HPLC Injection Volume (µl)	laboratory number
<5	001 012 021
≥10 - <25	003 010 017 025 044
≥50 - <100	009 020 032 040
≥100 - <150	007 013

HPLC Column Packing	laboratory number
C18	001 003 007 009 010 012 013 017 020 021 030 032 044

HPLC Column Temperature (°C)	laboratory number
ambient	007 025
>ambient - <50	001 003 009 010 012 013 017 020 021 030 032 040 044

Isocratic Mobile Phase?	laboratory number
no (gradient)	001 003 012 013 021
yes	009 010 017 020 025 030 032 040 044

Mobile Phase Components	laboratory number
ethanoic acid (acetic acid)	007 009 010 020 025 032 040
acetonitrile	007 009 010 013 017 020 021 030 040 044
formic acid (methanoic acid)	001
methanol	001 003 012 025 040
water	001 003 007 009 010 012 020 021 025 030
Acetic Acid, Ammonium Acetate	003

Mobile Phase Flow Rate (ml/min)	laboratory number
≥0.25 - <0.75	001 012 020 021 030 042
≥0.75 - <1.25	003 007 009 010 013 017 025 032 040 044

Post Column Mobile Phase Flow Rate (ml/min)	laboratory number
≥0.25 - <0.75	021 042
≥0.75	003 010 013 040 044

HPLC Post Column Derivatisation	laboratory number
Kobra cell	044
none	010 013 021 040

HPLC Detector Type	laboratory number
fluorescence	007 009 010 013 017 020 025 032 040 044
MS-MS	001 003 012 021 030

Source of Standards	laboratory number
Dr Ehrenstorfer	032 044
R-Biopharm Rhone	007 009
Romer Labs	003 010 012 013
Wako	021
LGC	001
LGC DREHRENSTORFER	017
TRILOGY ALALYTICAL LABORATORY	025

APPENDIX II: Fapas® SecureWeb, Protocol and Contact Details

1. Fapas® SECUREWEB

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- View the results they submitted in past and current proficiency tests.
- Submit their results and methods for current tests.
- Review future tests they have ordered.
- Order proficiency tests, reference materials and quality control materials.
- Freely download copies of reports (PDF file), of proficiency tests in which they have participated.
- Use the Enhanced Reporting facility to interactively scrutinise essential elements of this report, including viewing charts of their z-scores obtained in previous Fapas® – Food Chemistry proficiency tests.

2. PROTOCOL

The Protocols [7, 8] set out how Fapas® – Food Chemistry is organised. Copies can be downloaded from our website.

3. CONTACT DETAILS

This report was prepared and authorised on behalf of Fapas® by Erin Turner (Round Coordinator). Participants with any comments or concerns about this proficiency test should contact:

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