«Tit» «Name» «Fam_Nam»
«Organization»
«Address1»
«Address_2»
«PO_Box» «City». «Country»

Sevilla, February, 2015

Proficiency Test 2014-2

Laboratory Code: **«Lab_code»**

Dear participants,

Enclosed you will find the report of the Proficiency Test 2014-2 on Drugs of Abuse in Hair, organized by the Society of Hair Testing.

Each of the participating laboratories received an identifying code. Your particular code is **«Lab_code»**.

Sets of three samples were sent to forty seven participating laboratories. Forty of them sent the report forms back.

Sample contents were as follows:

∗ Sample A contained opiates (6-MAM, morphine and codeine), cocainics (cocaine, BE, cocaethylene and norcocaine), amphetamines (amphetamine, methamphetamine and MDMA) and cannabis (THC, CBD, CBN and THC-COOH). It also contained dihydrocodeine, diazepam, nordiazepam and traces of methadone.

∗ Sample B contained opiates (6-MAM, morphine and codeine), cocainics (cocaine, BE, cocaethylene and norcocaine) and traces of cannabis (THC, CBD, CBN and THC-COOH). It also contained methadone dihydrocodeine, diazepam, nordiazepam, and traces of amphetamine, methamphetamine and MDMA.

∗ Sample C was a drug-free hair sample

Z-score

Z-score has been calculated based on robust estimators (median instead of mean and interquartile instead of standard deviation).

Z-score has been calculated as follows:

$$\text{Z-score} = (x - \chi) / \text{IQR}$$

Where:

x: Concentration reported by the participant

χ: Median concentration obtained from the participating laboratories

IQR: Interquartile range: It is calculated as: Q3-Q1 (the upper quartile minus the lower quartile)

      Q3: Third quartile (percentile 75)

      Q1: First quartile (percentile 25)

<u>Decision criteria</u>

The following criteria have been adopted:

Satisfactory results: Z-score ≤ ± 2

Questionable results: 2 < Z-score ≤ 3

Unsatisfactory results: Z-score ≥ 3

<u>Certificate</u>

A certificate will be mailed to the participants.

Yours faithfully,

Carmen Jurado

QUALITATIVE RESULTS

Laboratory Code: **Lab**

	Sample A		
Substances	**A**	**T**	**F**
MAM		P	
Morphine		P	
Codeine*		P	
Cocaine		P	
BE		P	
Amphetamine		P	
Methamphetamine		P	
MDMA		P	
THC		P	

	Sample B		
Substances	**A**	**T**	**F**
MAM		P	
Morphine		P	
Codeine		P	
Cocaine		P	
BE		P	
THC*		P	

	Sample C		
Substances	**A**	**T**	**F**
Drugs		N	

* The median concentration of codeine in Sample A is 0.10 ng/mg, which is lower than the cut-off proposed by SoHT (0.2 ng/mg) and The median concentration of THC in Sample B is 0.04 ng/mg, which is lower than the cut-off proposed by SoHT (0.05 ng/mg)

A: Your answer   **P:** Positive   **NR:** Not reported   **FN:** False Negative
T: True answer   **N:** Negative   **NA:** Not analyzed   **FP:** False Positive
F: False answer

Comments:
- Sample A contains THC-COOH, norcocaine, cocaethylene, dihydrocodeine, diazepam, nordiazepam, and traces methadone (0.13 ng/mg, median concentration).
- Sample B contains THC-COOH, methadone, norcocaine, cocaethylene, dihydrocodeine, diazepam, nordiazepam, and traces of amphetamine (0.03 ng/mg, median concentration), methamphetamine (0.04 ng/mg, median concentration), MDMA (0.06 ng/mg, median concentration).
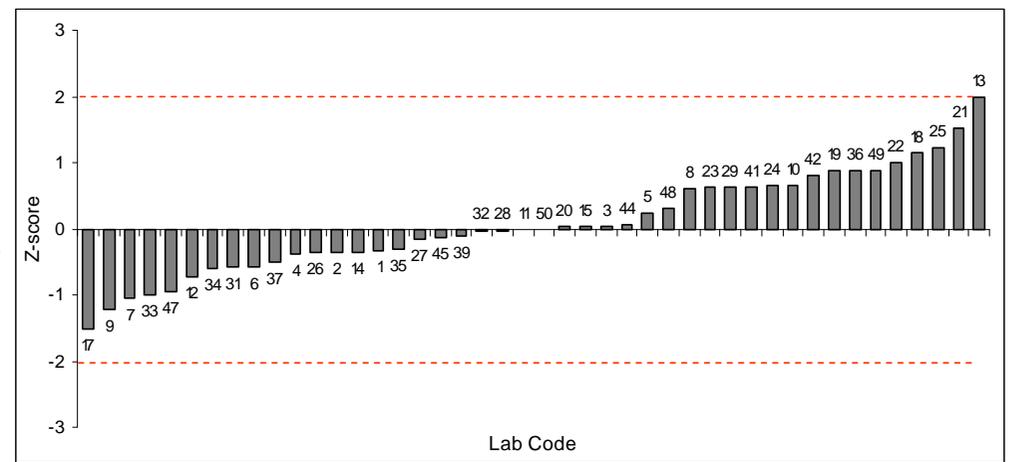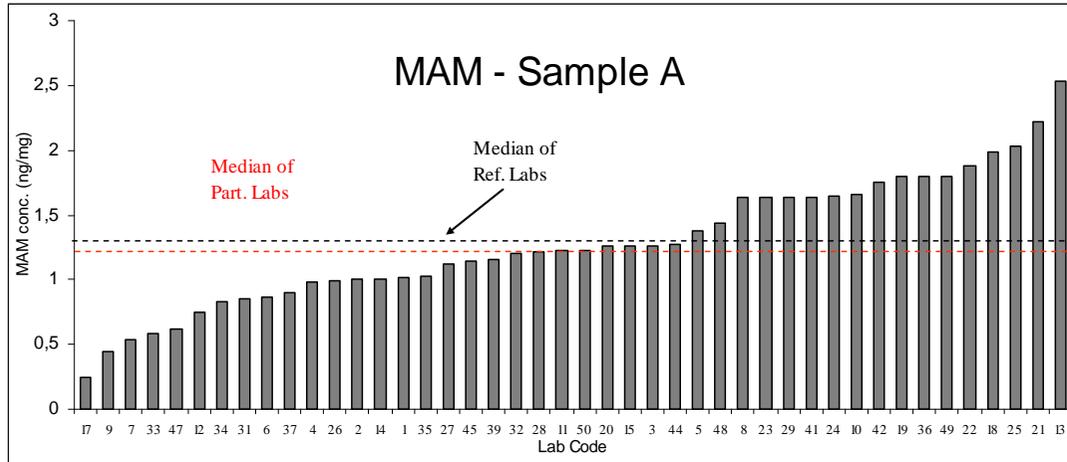
Lab.	MAM (ng/mg)	Z-score	Result
17	0,24	-1,52	Satisfactory
9	0,44	-1,21	Satisfactory
7	0,54	-1,06	Satisfactory
33	0,59	-0,99	Satisfactory
47	0,62	-0,94	Satisfactory
12	0,75	-0,74	Satisfactory
34	0,83	-0,66	Satisfactory
31	0,85	-0,58	Satisfactory
6	0,86	-0,57	Satisfactory
37	0,9	-0,51	Satisfactory
4	0,98	-0,38	Satisfactory
26	0,99	-0,37	Satisfactory
2	1,00	-0,35	Satisfactory
14	1,00	-0,35	Satisfactory
1	1,02	-0,32	Satisfactory
35	1,03	-0,31	Satisfactory
27	1,12	-0,17	Satisfactory
45	1,14	-0,14	Satisfactory
39	1,15	-0,12	Satisfactory
32	1,20	-0,05	Satisfactory
28	1,21	-0,03	Satisfactory
11	1,23	0	Satisfactory
50	1,23	0	Satisfactory
20	1,26	0,04	Satisfactory
15	1,26	0,04	Satisfactory
3	1,261	0,05	Satisfactory

Lab.	MAM (ng/mg)	Z-score	Result
44	1,27	0,06	Satisfactory
5	1,38	0,23	Satisfactory
48	1,43	0,31	Satisfactory
8	1,63	0,61	Satisfactory
23	1,64	0,63	Satisfactory
29	1,64	0,63	Satisfactory
41	1,64	0,63	Satisfactory
24	1,65	0,65	Satisfactory
10	1,66	0,66	Satisfactory
42	1,75	0,80	Satisfactory
19	1,80	0,88	Satisfactory
36	1,80	0,88	Satisfactory
49	1,80	0,88	Satisfactory
22	1,88	1,00	Satisfactory
18	1,98	1,15	Satisfactory
25	2,03	1,23	Satisfactory
21	2,22	1,52	Satisfactory
13	2,53	2,00	Questionable
40	P		
46	P		
51	NA		

Average	1,28
SD	0,49
CV%	38,08
Median	1,23
Minimum	0,24
Quartile 25	0,99
Quartile 75	1,64
Maximum	2,53
Iqr	0,65
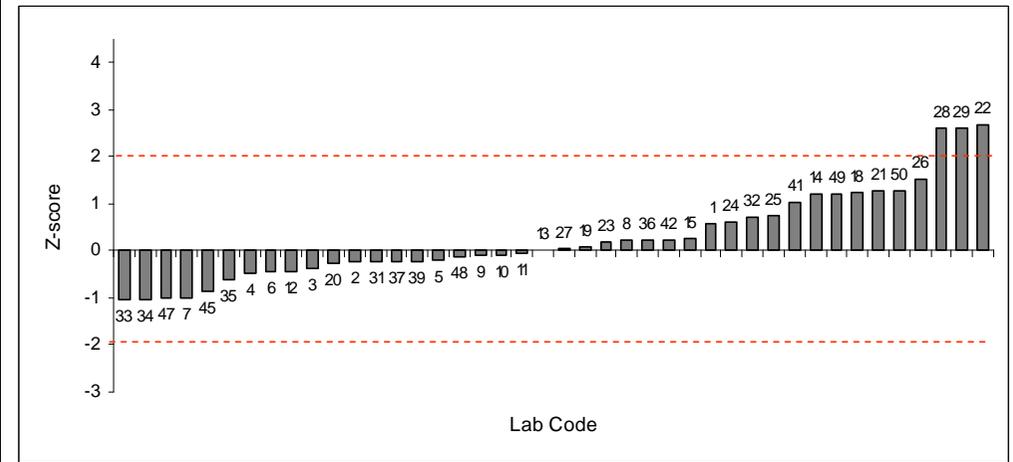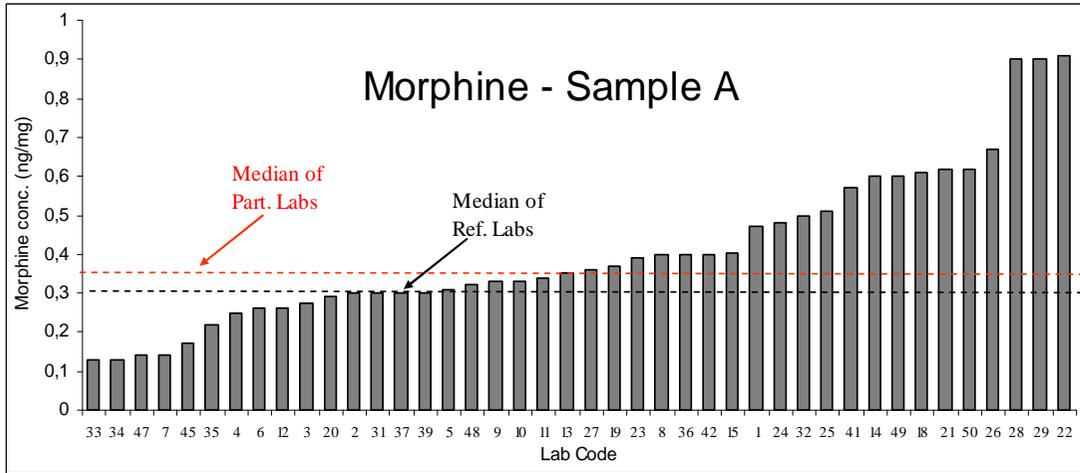
Lab.	Morphine (ng/mg)	Z-score	Result
33	0,13	-1,05	Satisfactory
34	0,13	-1,05	Satisfactory
47	0,14	-1	Satisfactory
7	0,14	-0,99	Satisfactory
45	0,17	-0,86	Satisfactory
35	0,22	-0,62	Satisfactory
4	0,25	-0,48	Satisfactory
6	0,26	-0,43	Satisfactory
12	0,26	-0,43	Satisfactory
3	0,27	-0,36	Satisfactory
20	0,29	-0,27	Satisfactory
2	0,30	-0,24	Satisfactory
31	0,30	-0,24	Satisfactory
37	0,30	-0,24	Satisfactory
39	0,30	-0,24	Satisfactory
5	0,31	-0,19	Satisfactory
48	0,32	-0,14	Satisfactory
9	0,33	-0,09	Satisfactory
10	0,33	-0,09	Satisfactory
11	0,34	-0,05	Satisfactory
13	0,35	0	Satisfactory
27	0,36	0,05	Satisfactory
19	0,37	0,09	Satisfactory
23	0,39	0,19	Satisfactory
8	0,40	0,24	Satisfactory
36	0,40	0,24	Satisfactory

Lab.	Morphine (ng/mg)	Z-score	Result
42	0,4	0,24	Satisfactory
15	0,404	0,26	Satisfactory
1	0,47	0,57	Satisfactory
24	0,48	0,62	Satisfactory
32	0,5	0,71	Satisfactory
25	0,51	0,76	Satisfactory
41	0,57	1,05	Satisfactory
14	0,6	1,19	Satisfactory
49	0,6	1,19	Satisfactory
18	0,61	1,24	Satisfactory
21	0,62	1,29	Satisfactory
50	0,62	1,28	Satisfactory
26	0,67	1,52	Satisfactory
28	0,9	2,62	Questionable
29	0,9	2,62	Questionable
22	0,91	2,67	Questionable
17	NR		
40	P		
44	N		
46	P		
51	N		

Average	0,41
SD	0,198
CV%	48,46
Median	0,35
Minimum	0,13
Quartile 25	0,29
Quartile 75	0,51
Maximum	0,91
Iqr	0,21

Codeine - Sample A
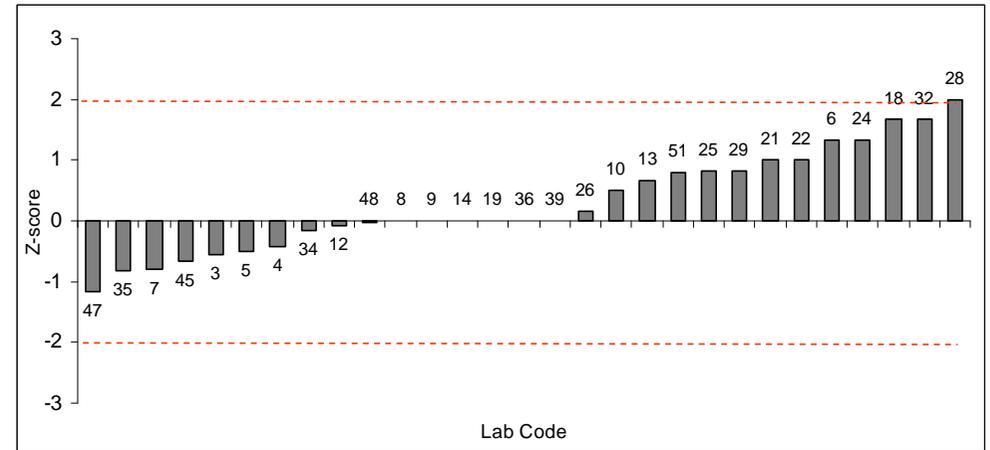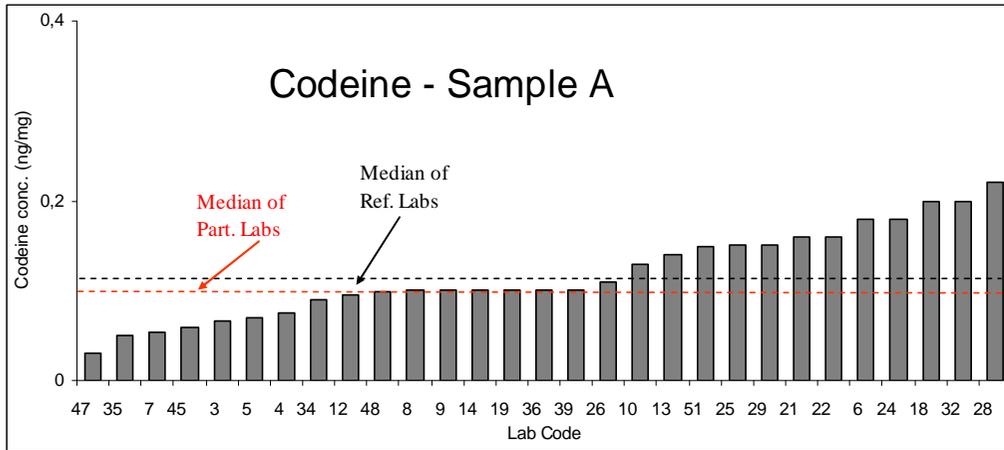
Lab.	Codeine (ng/mg	Z-score	Result
47	0,03	-1,17	Satisfactory
35	0,05	-0,83	Satisfactory
7	0,05	-0,78	Satisfactory
45	0,06	-0,67	Satisfactory
3	0,07	-0,55	Satisfactory
5	0,07	-0,50	Satisfactory
4	0,07	-0,42	Satisfactory
34	0,09	-0,17	Satisfactory
12	0,09	-0,08	Satisfactory
48	0,10	-0,02	Satisfactory
8	0,10	0	Satisfactory
9	0,10	0	Satisfactory
14	0,10	0	Satisfactory
19	0,10	0	Satisfactory
36	0,10	0	Satisfactory
39	0,10	0	Satisfactory
26	0,11	0,17	Satisfactory
10	0,13	0,50	Satisfactory
13	0,14	0,67	Satisfactory
51	0,15	0,80	Satisfactory
25	0,15	0,83	Satisfactory
29	0,15	0,83	Satisfactory
21	0,16	1,00	Satisfactory
22	0,16	1,00	Satisfactory
6	0,18	1,33	Satisfactory
24	0,18	1,33	Satisfactory

Lab.	Codeine (ng/mg)	Z-score	Result
18	0,20	1,67	Satisfactory
32	0,20	1,67	Satisfactory
28	0,22	2,00	Questionable
27	<0,2		
1	N		
2	N		
11	N		
15	N		
17	NR		
20	N		
23	NA		
31	N		
33	N		
37	NR		
40	N		
41	N		
42	N		
44	N		
46	Traces		
49	N		
50	N		

Average	0,12
SD	0,049
CV%	41,41
Median	0,10
Minimum	0,03
Quartile 25	0,09
Quartile 75	0,15
Maximum	0,22
Iqr	0,06

The median Codeine concentration is below the cut-off proposed by SoHT (0.20 ng/mg)

Cocaine - Sample A
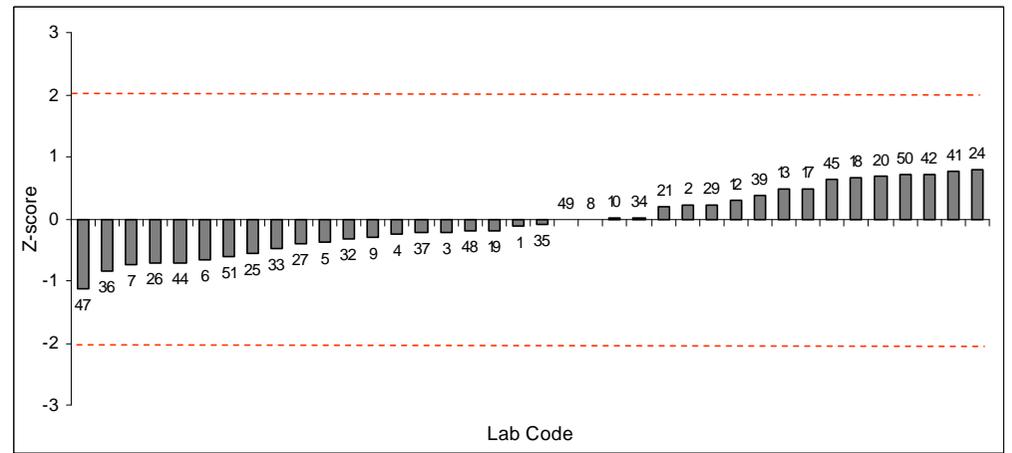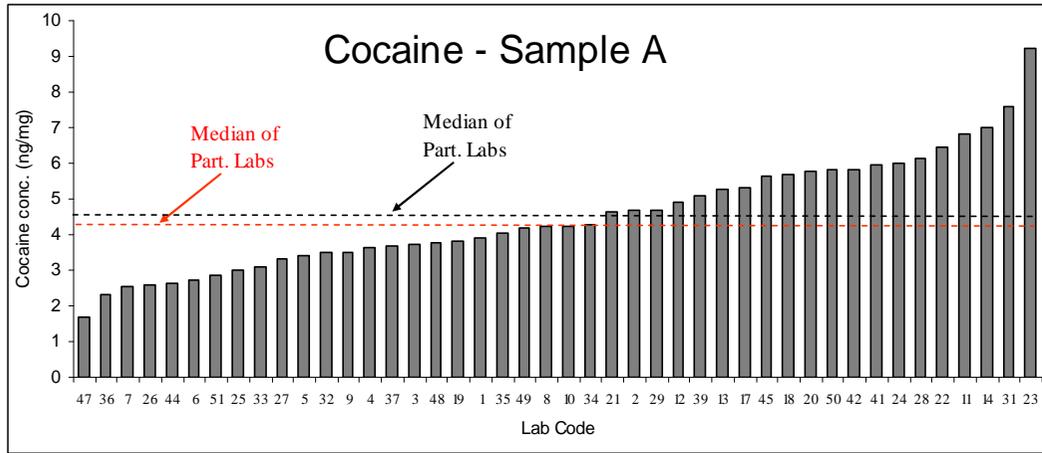
Lab.	Cocaine (ng/mg)	Z-score	Result
47	1,70	-1,12	Satisfactory
36	2,30	-0,85	Satisfactory
7	2,53	-0,75	Satisfactory
26	2,60	-0,72	Satisfactory
44	2,63	-0,71	Satisfactory
6	2,72	-0,67	Satisfactory
51	2,86	-0,60	Satisfactory
25	2,98	-0,55	Satisfactory
33	3,11	-0,49	Satisfactory
27	3,31	-0,40	Satisfactory
5	3,40	-0,36	Satisfactory
32	3,50	-0,32	Satisfactory
9	3,52	-0,31	Satisfactory
4	3,65	-0,25	Satisfactory
37	3,70	-0,23	Satisfactory
3	3,74	-0,21	Satisfactory
48	3,78	-0,19	Satisfactory
19	3,80	-0,19	Satisfactory
1	3,93	-0,13	Satisfactory
35	4,04	-0,08	Satisfactory
49	4,20	-0,01	Satisfactory
8	4,21	-0,004	Satisfactory
10	4,23	0,004	Satisfactory
34	4,26	0,02	Satisfactory
21	4,64	0,19	Satisfactory
2	4,70	0,21	Satisfactory

Lab.	Cocaine (ng/mg)	Z-score	Result
29	4,70	0,21	Satisfactory
12	4,90	0,30	Satisfactory
39	5,09	0,39	Satisfactory
13	5,28	0,47	Satisfactory
17	5,30	0,48	Satisfactory
45	5,64	0,63	Satisfactory
18	5,70	0,66	Satisfactory
20	5,79	0,70	Satisfactory
50	5,80	0,70	Satisfactory
42	5,83	0,71	Satisfactory
41	5,95	0,77	Satisfactory
24	6,02	0,80	Satisfactory
28	6,15	0,86	Satisfactory
22	6,44	0,99	Satisfactory
11	6,82	1,15	Satisfactory
14	7,00	1,23	Satisfactory
31	7,57	1,49	Satisfactory
23	9,25	2,23	Questionable
15	NA		
40	P		
46	P		

Average	4,52
SD	1,55
CV%	34,33
Median	4,22
Minimum	1,70
Quartile 25	3,48
Quartile 75	5,72
Maximum	9,25
Iqr	2,25
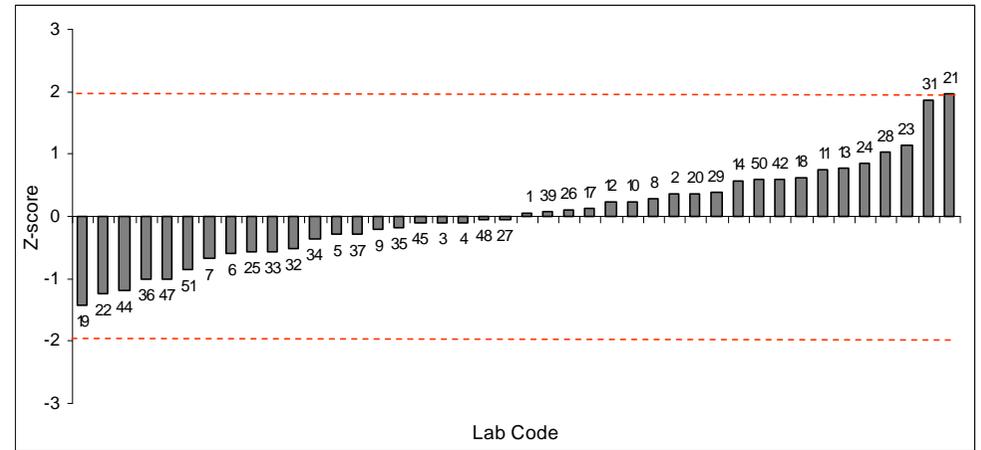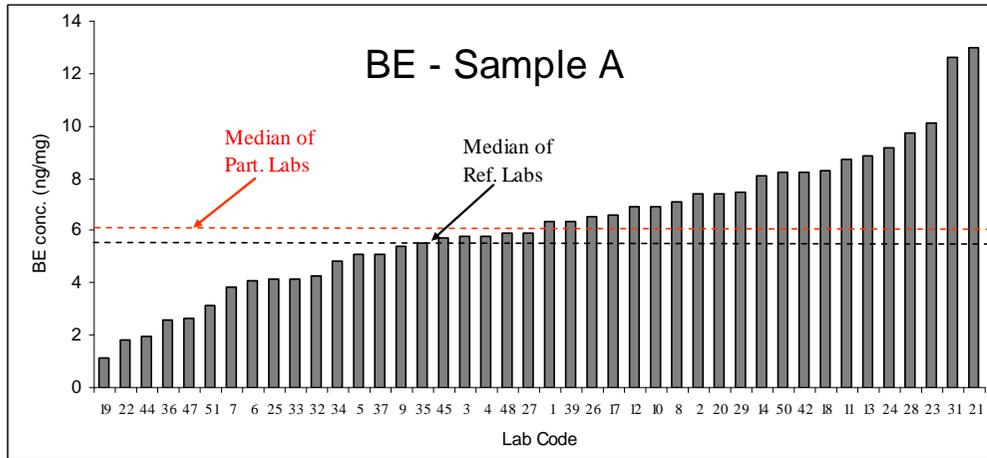
Lab.	BE (ng/mg)	Z-score	Result
19	1,10	-1,43	Satisfactory
22	1,82	-1,23	Satisfactory
44	1,97	-1,18	Satisfactory
36	2,60	-1,00	Satisfactory
47	2,61	-1,00	Satisfactory
51	3,12	-0,86	Satisfactory
7	3,80	-0,66	Satisfactory
6	4,08	-0,58	Satisfactory
25	4,17	-0,56	Satisfactory
33	4,17	-0,56	Satisfactory
32	4,30	-0,52	Satisfactory
34	4,84	-0,36	Satisfactory
5	5,10	-0,29	Satisfactory
37	5,10	-0,29	Satisfactory
9	5,39	-0,21	Satisfactory
35	5,53	-0,17	Satisfactory
45	5,73	-0,11	Satisfactory
3	5,78	-0,10	Satisfactory
4	5,79	-0,09	Satisfactory
48	5,90	-0,06	Satisfactory
27	5,92	-0,06	Satisfactory
1	6,33	0,06	Satisfactory
39	6,37	0,07	Satisfactory
26	6,50	0,11	Satisfactory
17	6,60	0,14	Satisfactory
12	6,90	0,22	Satisfactory

Lab.	BE (ng/mg)	Z-score	Result
10	6,92	0,23	Satisfactory
8	7,10	0,28	Satisfactory
2	7,39	0,36	Satisfactory
20	7,42	0,37	Satisfactory
29	7,45	0,38	Satisfactory
14	8,10	0,56	Satisfactory
50	8,21	0,60	Satisfactory
42	8,22	0,60	Satisfactory
18	8,30	0,62	Satisfactory
11	8,75	0,75	Satisfactory
13	8,87	0,78	Satisfactory
24	9,14	0,86	Satisfactory
28	9,74	1,03	Satisfactory
23	10,10	1,14	Satisfactory
31	12,65	1,86	Satisfactory
21	13,00	1,96	Satisfactory
15	NA		
40	P		
41	NA		
46	P		
49	NA		

Average	6,26
SD	2,61
CV%	41,77
Median	6,12
Minimum	1,1
Quartile 25	4,43
Quartile 75	7,934
Maximum	13
Iqr	3,50
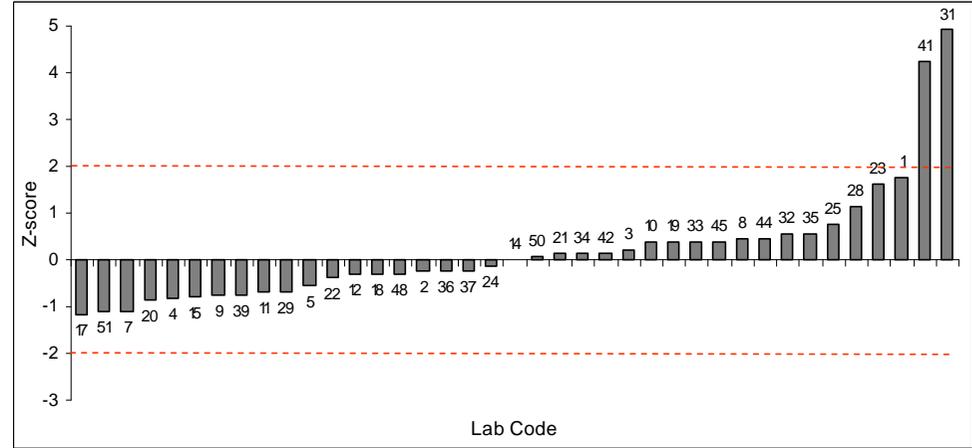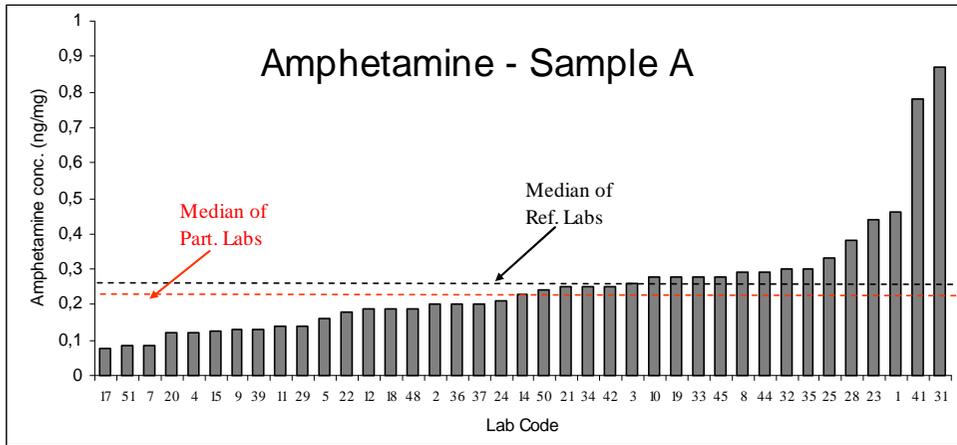
Lab.	Amphetamine (ng/mg)	Z-score	Result
17	0,07	-1,18	Satisfactory
51	0,08	-1,11	Satisfactory
7	0,09	-1,10	Satisfactory
20	0,12	-0,85	Satisfactory
4	0,12	-0,82	Satisfactory
15	0,13	-0,80	Satisfactory
9	0,13	-0,77	Satisfactory
39	0,13	-0,77	Satisfactory
11	0,14	-0,69	Satisfactory
29	0,14	-0,69	Satisfactory
5	0,16	-0,54	Satisfactory
22	0,18	-0,38	Satisfactory
12	0,19	-0,31	Satisfactory
18	0,19	-0,31	Satisfactory
48	0,19	-0,31	Satisfactory
2	0,20	-0,23	Satisfactory
36	0,20	-0,23	Satisfactory
37	0,20	-0,23	Satisfactory
24	0,21	-0,15	Satisfactory
14	0,23	0	Satisfactory
50	0,24	0,08	Satisfactory
21	0,25	0,15	Satisfactory
34	0,25	0,15	Satisfactory
42	0,25	0,15	Satisfactory
3	0,26	0,22	Satisfactory
10	0,28	0,38	Satisfactory

Lab.	Amphetamine (ng/mg)	Z-score	Result
19	0,28	0,38	Satisfactory
33	0,28	0,38	Satisfactory
45	0,28	0,38	Satisfactory
8	0,29	0,46	Satisfactory
44	0,29	0,46	Satisfactory
32	0,30	0,54	Satisfactory
35	0,30	0,54	Satisfactory
25	0,33	0,77	Satisfactory
28	0,38	1,15	Satisfactory
23	0,44	1,61	Satisfactory
1	0,46	1,77	Satisfactory
41	0,78	4,23	Unsatisfactory
31	0,87	4,92	Unsatisfactory
27	<0,2		
6	N		
13	NA		
26	NR		
40	N		
46	Trace		
47	N		
49	NA		

Average	0,25
SD	0,16
CV%	62,92
Median	0,23
Minimum	0,08
Quartile 25	0,15
Quartile 75	0,28
Maximum	0,87
Iqr	0,13

Methamphetamine - Sample A
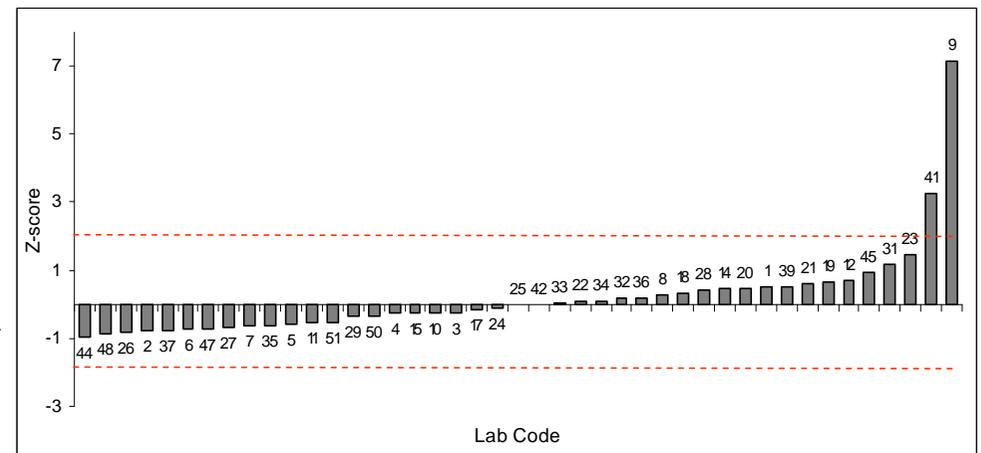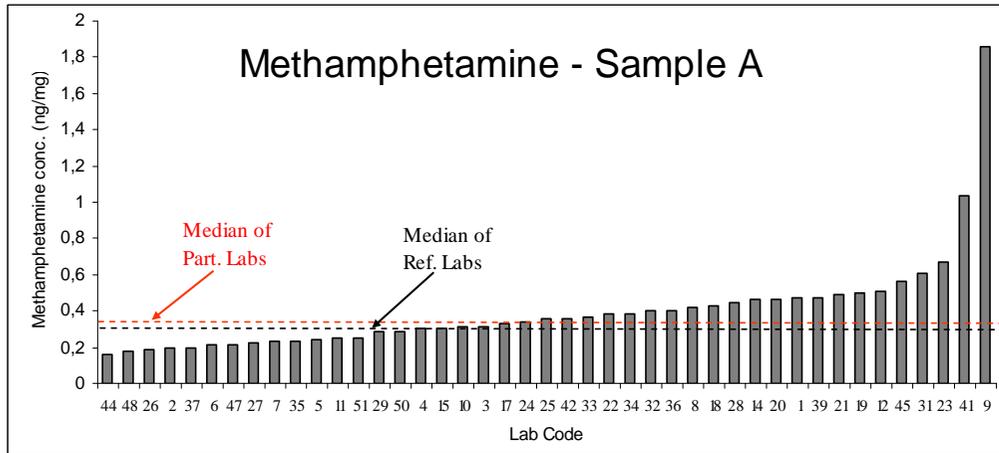
Lab.	Methamphetamine	Z-score	Result
44	0,16	-0,95	Satisfactory
48	0,18	-0,86	Satisfactory
26	0,19	-0,81	Satisfactory
2	0,20	-0,76	Satisfactory
37	0,20	-0,76	Satisfactory
6	0,21	-0,71	Satisfactory
47	0,21	-0,71	Satisfactory
27	0,22	-0,67	Satisfactory
7	0,23	-0,62	Satisfactory
35	0,23	-0,62	Satisfactory
5	0,24	-0,57	Satisfactory
11	0,25	-0,52	Satisfactory
51	0,25	-0,52	Satisfactory
29	0,29	-0,33	Satisfactory
50	0,29	-0,33	Satisfactory
4	0,30	-0,26	Satisfactory
15	0,30	-0,26	Satisfactory
10	0,31	-0,24	Satisfactory
3	0,31	-0,23	Satisfactory
17	0,33	-0,14	Satisfactory
24	0,34	-0,09	Satisfactory
25	0,36	0	Satisfactory
42	0,36	0	Satisfactory
33	0,37	0,04	Satisfactory
22	0,38	0,09	Satisfactory
34	0,38	0,09	Satisfactory

Lab.	Methamphetamine	Z-score	Result
32	0,40	0,19	Satisfactory
36	0,40	0,19	Satisfactory
8	0,42	0,28	Satisfactory
18	0,43	0,33	Satisfactory
28	0,45	0,43	Satisfactory
14	0,46	0,48	Satisfactory
20	0,46	0,48	Satisfactory
1	0,47	0,52	Satisfactory
39	0,47	0,52	Satisfactory
21	0,49	0,62	Satisfactory
19	0,50	0,67	Satisfactory
12	0,51	0,71	Satisfactory
45	0,56	0,95	Satisfactory
31	0,61	1,19	Satisfactory
23	0,67	1,48	Satisfactory
41	1,04	3,24	Unsatisfactory
9	1,86	7,14	Unsatisfactory
13	NA		
40	P		
46	P		
49	NA		

Average	0,40
SD	0,27
CV%	68,53
Median	0,36
Minimum	0,16
Quartile 25	0,24
Quartile 75	0,46
Maximum	1,86
Iqr	0,21

MDMA - Sample A
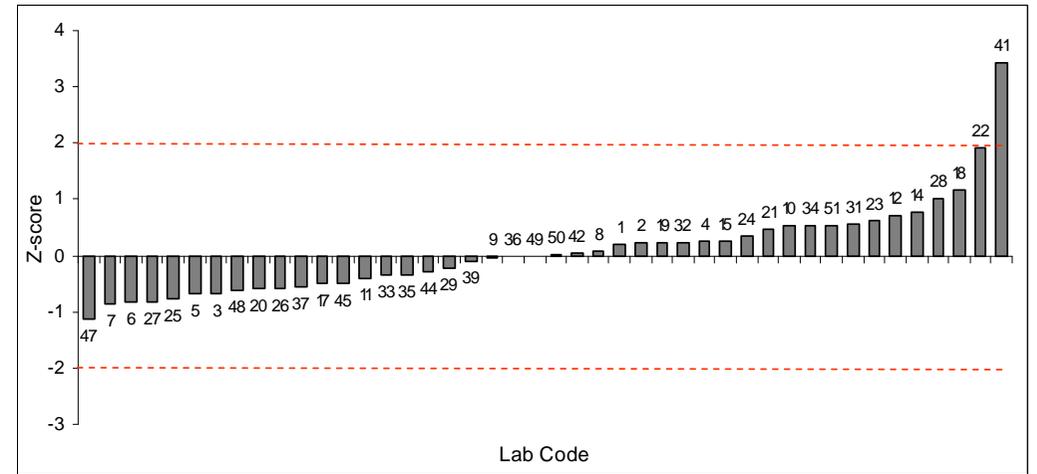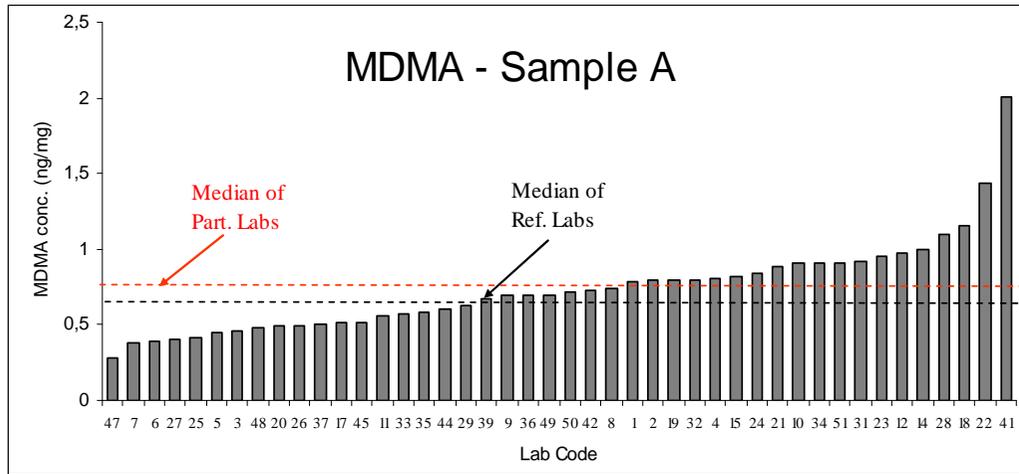
Lab.	MDMA (ng/mg)	Z-score	Result
47	0,28	-1,13	Satisfactory
7	0,38	-0,87	Satisfactory
6	0,39	-0,84	Satisfactory
27	0,40	-0,81	Satisfactory
25	0,42	-0,76	Satisfactory
5	0,45	-0,68	Satisfactory
3	0,46	-0,66	Satisfactory
48	0,48	-0,60	Satisfactory
20	0,49	-0,58	Satisfactory
26	0,49	-0,58	Satisfactory
37	0,50	-0,55	Satisfactory
17	0,52	-0,50	Satisfactory
45	0,52	-0,50	Satisfactory
11	0,56	-0,39	Satisfactory
33	0,57	-0,36	Satisfactory
35	0,58	-0,34	Satisfactory
44	0,60	-0,29	Satisfactory
29	0,63	-0,21	Satisfactory
39	0,67	-0,10	Satisfactory
9	0,69	-0,05	Satisfactory
36	0,70	-0,03	Satisfactory
49	0,70	-0,03	Satisfactory
50	0,72	0,03	Satisfactory
42	0,73	0,05	Satisfactory
8	0,74	0,08	Satisfactory
1	0,78	0,18	Satisfactory

Lab.	MDMA (ng/mg)	Z-score	Result
2	0,80	0,24	Satisfactory
19	0,80	0,24	Satisfactory
32	0,80	0,24	Satisfactory
4	0,81	0,26	Satisfactory
15	0,81	0,27	Satisfactory
24	0,84	0,34	Satisfactory
21	0,89	0,47	Satisfactory
10	0,91	0,53	Satisfactory
34	0,91	0,53	Satisfactory
51	0,91	0,53	Satisfactory
31	0,92	0,55	Satisfactory
23	0,95	0,63	Satisfactory
12	0,98	0,71	Satisfactory
14	1,00	0,76	Satisfactory
28	1,10	1,03	Satisfactory
18	1,15	1,16	Satisfactory
22	1,44	1,92	Satisfactory
41	2,01	3,42	Unsatisfactory
13	NA		
40	NA		
46	P		

Average	0,74
SD	0,30
CV%	41,17
Median	0,71
Minimum	0,28
Quartile 25	0,51
Quartile 75	0,89
Maximum	2,01
Iqr	0,38

THC - Sample A
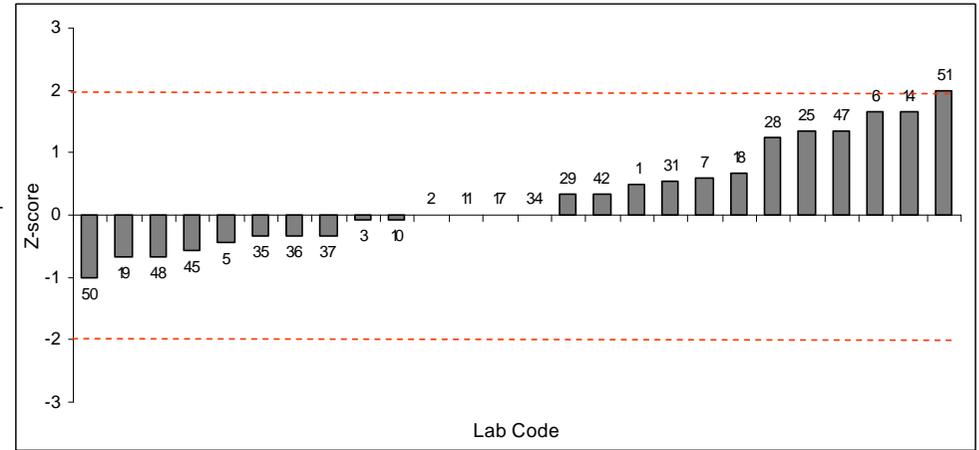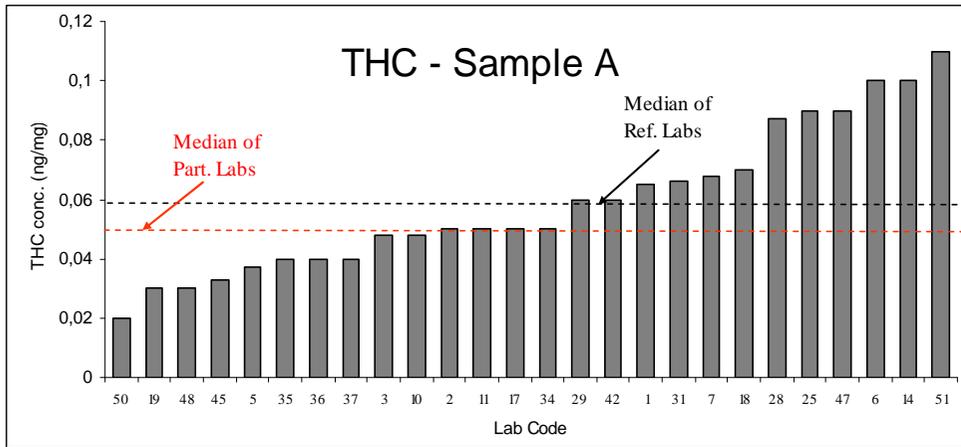
Lab.	THC (ng/mg)	Z-score	Result
50	0,02	-1,00	Satisfactory
19	0,03	-0,67	Satisfactory
48	0,03	-0,67	Satisfactory
45	0,033	-0,58	Satisfactory
5	0,037	-0,43	Satisfactory
35	0,04	-0,33	Satisfactory
36	0,04	-0,33	Satisfactory
37	0,04	-0,33	Satisfactory
3	0,048	-0,07	Satisfactory
10	0,048	-0,07	Satisfactory
2	0,05	0	Satisfactory
11	0,05	0	Satisfactory
17	0,05	0	Satisfactory
34	0,05	0	Satisfactory
29	0,06	0,33	Satisfactory
42	0,06	0,33	Satisfactory
1	0,065	0,50	Satisfactory
31	0,066	0,53	Satisfactory
7	0,068	0,60	Satisfactory
18	0,07	0,67	Satisfactory
28	0,087	1,23	Satisfactory
25	0,09	1,33	Satisfactory
47	0,09	1,33	Satisfactory
6	0,10	1,67	Satisfactory
14	0,10	1,67	Satisfactory
51	0,11	2,00	Questionable

Lab.	THC (ng/mg)	Z-score	Result
27	<0,05		
8	N		
9	P		
12	P		
13	NA		
15	NA		
20	NA		
21	NA		
22	N		
23	NA		
24	NA		
26	NA		
32	NA		
33	P		
39	U		
40	N		
41	NA		
43	P		
44	NA		
46	Trace		
49	N		

Average	0,06
SD	0,02
CV%	40,75
Median	0,05
Minimum	0,02
Quartile 25	0,04
Quartile 75	0,069
Maximum	0,11
Iqr	0,029

MAM - Sample B
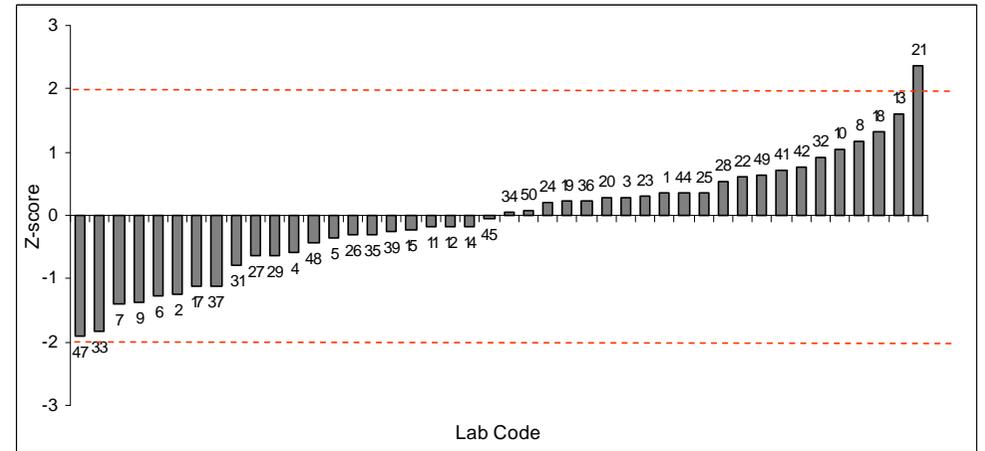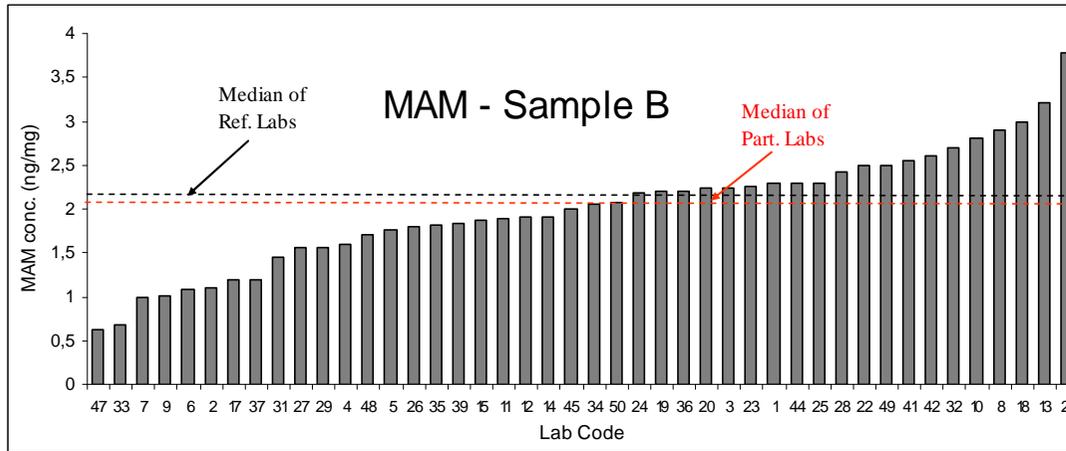
Lab.	MAM (ng/mg)	Z-score	Result
47	0,62	-1,90	Satisfactory
33	0,67	-1,84	Satisfactory
7	1,00	-1,39	Satisfactory
9	1,01	-1,38	Satisfactory
6	1,09	-1,27	Satisfactory
2	1,10	-1,26	Satisfactory
17	1,20	-1,12	Satisfactory
37	1,20	-1,12	Satisfactory
31	1,45	-0,78	Satisfactory
27	1,56	-0,63	Satisfactory
29	1,56	-0,63	Satisfactory
4	1,60	-0,58	Satisfactory
48	1,71	-0,43	Satisfactory
5	1,77	-0,35	Satisfactory
26	1,80	-0,31	Satisfactory
35	1,81	-0,30	Satisfactory
39	1,84	-0,26	Satisfactory
15	1,87	-0,22	Satisfactory
11	1,89	-0,19	Satisfactory
12	1,90	-0,17	Satisfactory
14	1,90	-0,17	Satisfactory
45	2,00	-0,04	Satisfactory
34	2,06	0,04	Satisfactory
50	2,08	0,07	Satisfactory
24	2,18	0,20	Satisfactory
19	2,20	0,23	Satisfactory

Lab.	MAM (ng/mg)	Z-score	Result
36	2,20	0,23	Satisfactory
20	2,23	0,27	Satisfactory
3	2,23	0,27	Satisfactory
23	2,25	0,30	Satisfactory
1	2,29	0,35	Satisfactory
44	2,29	0,35	Satisfactory
25	2,30	0,36	Satisfactory
28	2,43	0,54	Satisfactory
22	2,49	0,62	Satisfactory
49	2,50	0,63	Satisfactory
41	2,55	0,70	Satisfactory
42	2,60	0,77	Satisfactory
32	2,70	0,90	Satisfactory
10	2,81	1,05	Satisfactory
8	2,89	1,16	Satisfactory
18	3,00	1,31	Satisfactory
13	3,21	1,59	Satisfactory
21	3,78	2,36	Questionable
40	P		
46	P		
51	NA		

Average	1,99
SD	0,66
CV%	33,07
Median	2,03
Minimum	0,62
Quartile 25	1,59
Quartile 75	2,33
Maximum	3,78
Iqr	0,74

Morphine - Sample B
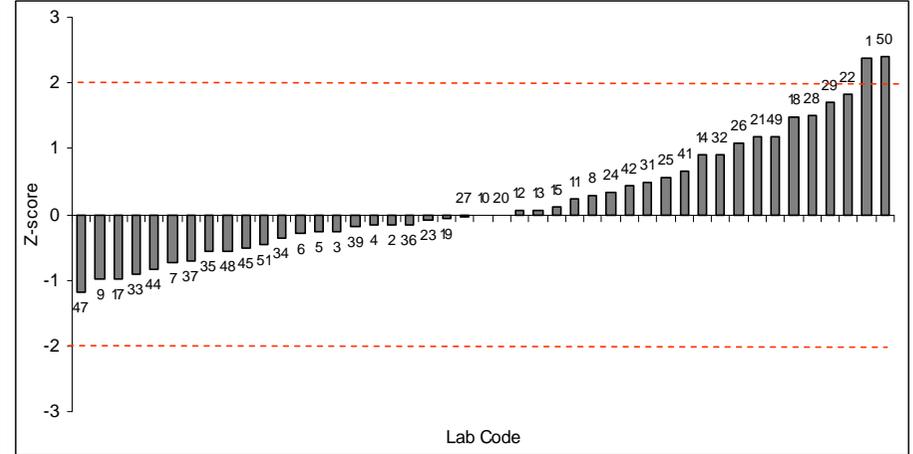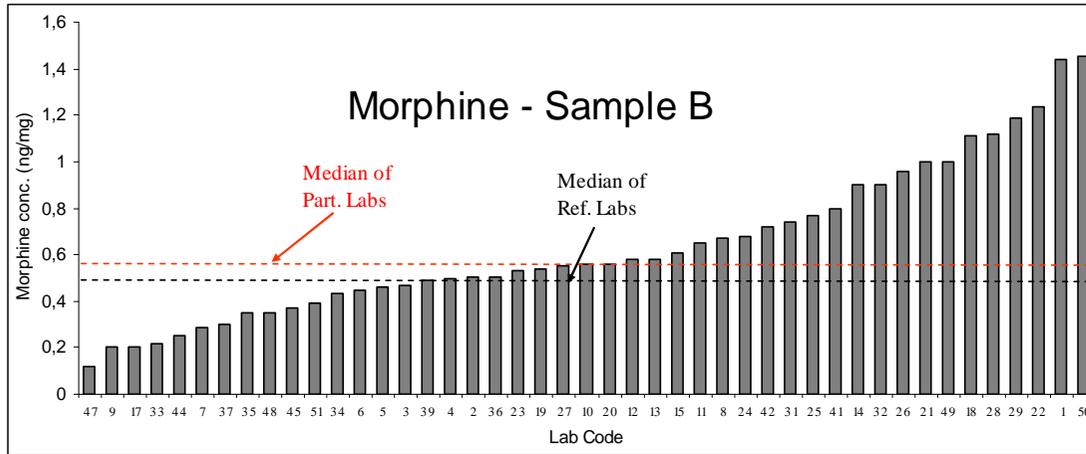
Lab.	Morphine (ng/mg)	Z-score	Result
47	0,12	-1,19	Satisfactory
9	0,20	-0,97	Satisfactory
17	0,20	-0,97	Satisfactory
33	0,22	-0,92	Satisfactory
44	0,25	-0,84	Satisfactory
7	0,29	-0,73	Satisfactory
37	0,30	-0,70	Satisfactory
35	0,35	-0,57	Satisfactory
48	0,35	-0,57	Satisfactory
45	0,37	-0,51	Satisfactory
51	0,39	-0,46	Satisfactory
34	0,43	-0,35	Satisfactory
6	0,45	-0,30	Satisfactory
5	0,46	-0,27	Satisfactory
3	0,47	-0,25	Satisfactory
39	0,49	-0,19	Satisfactory
4	0,50	-0,16	Satisfactory
2	0,50	-0,16	Satisfactory
36	0,50	-0,16	Satisfactory
23	0,53	-0,08	Satisfactory
19	0,54	-0,05	Satisfactory
27	0,55	-0,03	Satisfactory
10	0,56	0	Satisfactory
20	0,56	0	Satisfactory
12	0,58	0,05	Satisfactory
13	0,58	0,05	Satisfactory

Lab.	Morphine (ng/mg)	Z-score	Result
15	0,60	0,12	Satisfactory
11	0,65	0,24	Satisfactory
8	0,67	0,30	Satisfactory
24	0,68	0,32	Satisfactory
42	0,72	0,43	Satisfactory
31	0,74	0,49	Satisfactory
25	0,77	0,57	Satisfactory
41	0,80	0,65	Satisfactory
14	0,90	0,92	Satisfactory
32	0,90	0,92	Satisfactory
26	0,96	1,08	Satisfactory
21	1,00	1,19	Satisfactory
49	1,00	1,19	Satisfactory
18	1,11	1,49	Satisfactory
28	1,12	1,51	Satisfactory
29	1,19	1,70	Satisfactory
22	1,24	1,84	Satisfactory
1	1,44	2,38	Questionable
50	1,45	2,40	Questionable
40	P		
46	Trace		

Average	0,64
SD	0,32
CV%	51,11
Median	0,56
Minimum	0,12
Quartile 25	0,43
Quartile 75	0,80
Maximum	1,45
Iqr	0,37

Codeine - Sample B
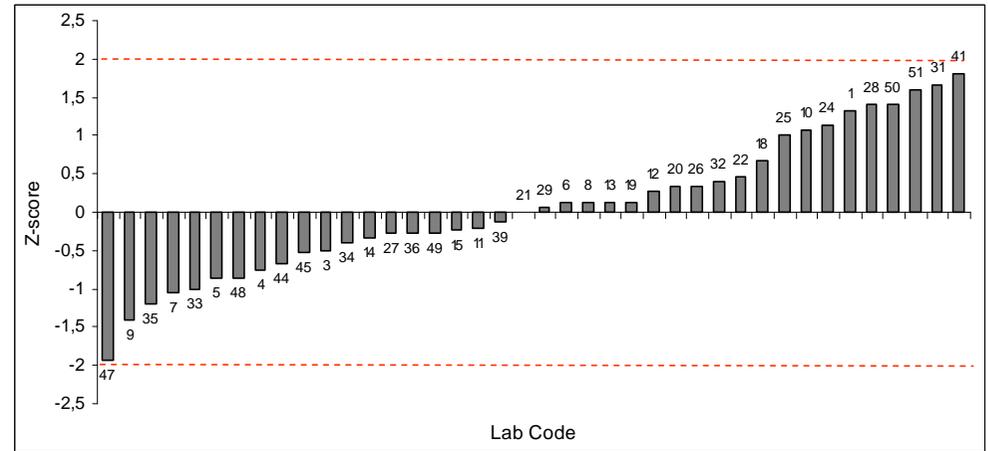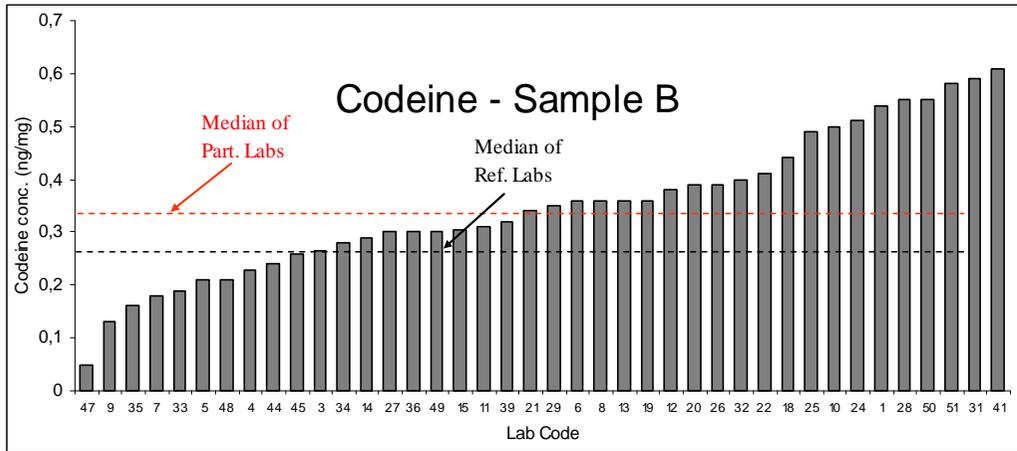
Lab.	Codeine (ng/mg)	Z-score	Result
47	0,05	-1,93	Satisfactory
9	0,13	-1,40	Satisfactory
35	0,16	-1,20	Satisfactory
7	0,18	-1,06	Satisfactory
33	0,19	-1,00	Satisfactory
5	0,21	-0,87	Satisfactory
48	0,21	-0,87	Satisfactory
4	0,23	-0,75	Satisfactory
44	0,24	-0,67	Satisfactory
45	0,26	-0,53	Satisfactory
3	0,27	-0,50	Satisfactory
34	0,28	-0,40	Satisfactory
14	0,29	-0,33	Satisfactory
27	0,30	-0,27	Satisfactory
36	0,30	-0,27	Satisfactory
49	0,30	-0,27	Satisfactory
15	0,30	-0,27	Satisfactory
11	0,31	-0,20	Satisfactory
39	0,32	-0,13	Satisfactory
21	0,34	0	Satisfactory
29	0,35	0,07	Satisfactory
6	0,36	0,13	Satisfactory
8	0,36	0,13	Satisfactory
13	0,36	0,13	Satisfactory
19	0,36	0,13	Satisfactory
12	0,38	0,27	Satisfactory

Lab.	Codeine (ng/mg)	Z-score	Result
20	0,39	0,33	Satisfactory
26	0,39	0,33	Satisfactory
32	0,40	0,40	Satisfactory
22	0,41	0,47	Satisfactory
18	0,44	0,67	Satisfactory
25	0,49	1,00	Satisfactory
10	0,50	1,07	Satisfactory
24	0,51	1,13	Satisfactory
1	0,54	1,33	Satisfactory
28	0,55	1,40	Satisfactory
50	0,55	1,40	Satisfactory
51	0,58	1,60	Satisfactory
31	0,59	1,67	Satisfactory
41	0,61	1,80	Satisfactory
2	N		
17	NR		
23	NA		
37	NR		
40	N		
42	N		
46	Trace		

Average	0,35
SD	0,13
CV%	38,15
Median	0,34
Minimum	0,05
Quartile 25	0,26
Quartile 75	0,42
Maximum	0,61
Iqr	0,15

Cocaine - Sample B
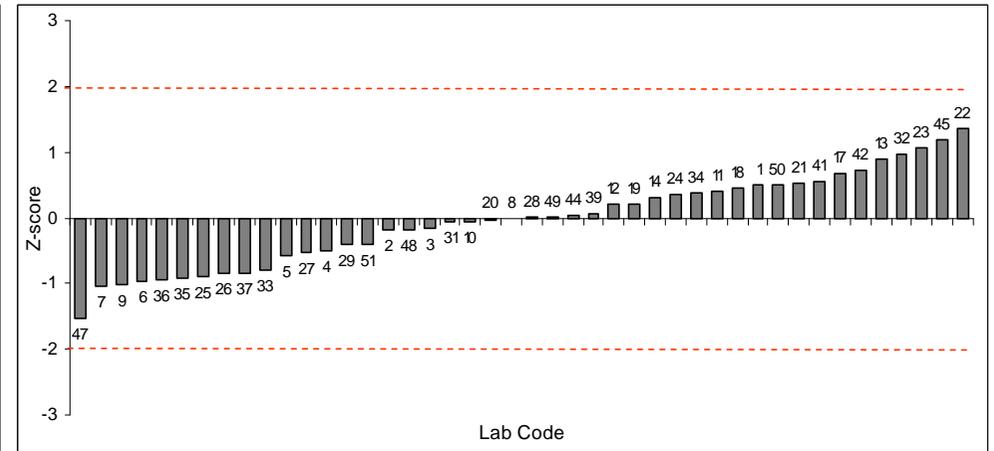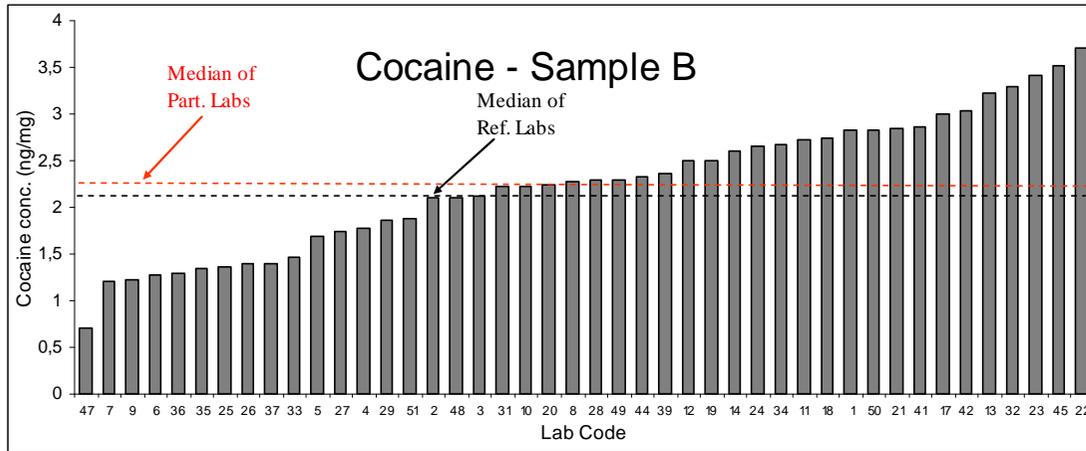
Lab.	Cocaine (ng/mg)	Z-score	Result
47	0,71	-1,52	Satisfactory
7	1,21	-1,04	Satisfactory
9	1,23	-1,02	Satisfactory
6	1,28	-0,97	Satisfactory
36	1,30	-0,95	Satisfactory
35	1,34	-0,91	Satisfactory
25	1,36	-0,89	Satisfactory
26	1,40	-0,85	Satisfactory
37	1,40	-0,85	Satisfactory
33	1,47	-0,79	Satisfactory
5	1,69	-0,58	Satisfactory
27	1,74	-0,53	Satisfactory
4	1,78	-0,49	Satisfactory
29	1,86	-0,41	Satisfactory
51	1,88	-0,39	Satisfactory
2	2,10	-0,18	Satisfactory
48	2,11	-0,17	Satisfactory
3	2,12	-0,16	Satisfactory
31	2,22	-0,07	Satisfactory
10	2,23	-0,06	Satisfactory
20	2,25	-0,04	Satisfactory
8	2,28	-0,01	Satisfactory
28	2,30	0,01	Satisfactory
49	2,30	0,01	Satisfactory
44	2,32	0,03	Satisfactory
39	2,36	0,07	Satisfactory

Lab.	Cocaine (ng/mg)	Z-score	Result
12	2,50	0,20	Satisfactory
19	2,50	0,20	Satisfactory
14	2,60	0,30	Satisfactory
24	2,65	0,35	Satisfactory
34	2,68	0,37	Satisfactory
11	2,72	0,41	Satisfactory
18	2,75	0,44	Satisfactory
1	2,82	0,51	Satisfactory
50	2,82	0,51	Satisfactory
21	2,84	0,53	Satisfactory
41	2,87	0,56	Satisfactory
17	3,00	0,68	Satisfactory
42	3,04	0,72	Satisfactory
13	3,22	0,89	Satisfactory
32	3,30	0,97	Satisfactory
23	3,41	1,08	Satisfactory
45	3,52	1,18	Satisfactory
22	3,71	1,36	Satisfactory
15	NA		
40	P		
46	P		

Average	2,25
SD	0,71
CV%	31,32
Median	2,29
Minimum	0,71
Quartile 25	1,73
Quartile 75	2,79
Maximum	3,71
Iqr	1,04

BE - Sample B
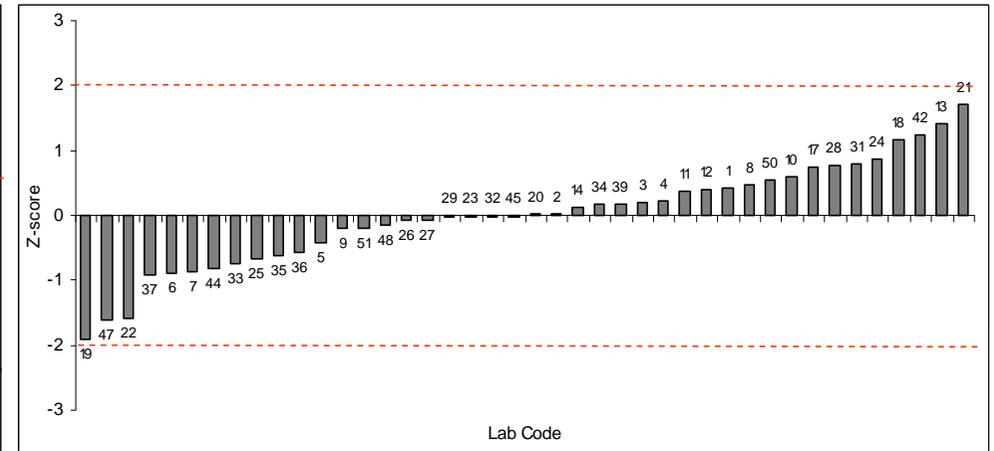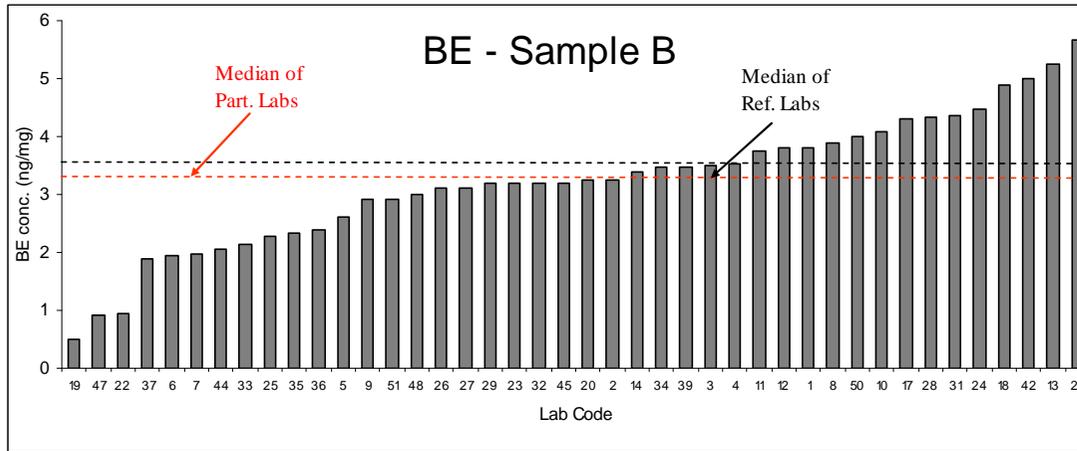
Lab.	BE (ng/mg)	Z-score	Result
19	0,50	-1,90	Satisfactory
47	0,91	-1,61	Satisfactory
22	0,95	-1,59	Satisfactory
37	1,90	-0,92	Satisfactory
6	1,94	-0,89	Satisfactory
7	1,98	-0,87	Satisfactory
44	2,06	-0,81	Satisfactory
33	2,15	-0,75	Satisfactory
25	2,28	-0,66	Satisfactory
35	2,33	-0,62	Satisfactory
36	2,40	-0,57	Satisfactory
5	2,6	-0,43	Satisfactory
9	2,92	-0,21	Satisfactory
51	2,92	-0,21	Satisfactory
48	2,99	-0,16	Satisfactory
26	3,10	-0,08	Satisfactory
27	3,12	-0,07	Satisfactory
29	3,19	-0,02	Satisfactory
23	3,20	-0,01	Satisfactory
32	3,20	-0,01	Satisfactory
45	3,20	-0,014	Satisfactory
20	3,25	0,02	Satisfactory
2	3,26	0,03	Satisfactory
14	3,40	0,12	Satisfactory
34	3,47	0,17	Satisfactory
39	3,48	0,18	Satisfactory

Lab.	BE (ng/mg)	Z-score	Result
3	3,50	0,20	Satisfactory
4	3,54	0,22	Satisfactory
11	3,74	0,36	Satisfactory
12	3,80	0,40	Satisfactory
1	3,81	0,41	Satisfactory
8	3,90	0,47	Satisfactory
50	4,01	0,55	Satisfactory
10	4,08	0,60	Satisfactory
17	4,30	0,75	Satisfactory
28	4,33	0,78	Satisfactory
31	4,37	0,80	Satisfactory
24	4,46	0,87	Satisfactory
18	4,88	1,16	Satisfactory
42	4,99	1,24	Satisfactory
13	5,24	1,41	Satisfactory
21	5,67	1,71	Satisfactory
15	NA		
40	P		
41	NA		
46	P		
49	NA		

Average	3,22
SD	1,12
CV%	34,75
Median	3,22
Minimum	0,50
Quartile 25	2,45
Quartile 75	3,88
Maximum	5,67
Iqr	1,43

THC - Sample B
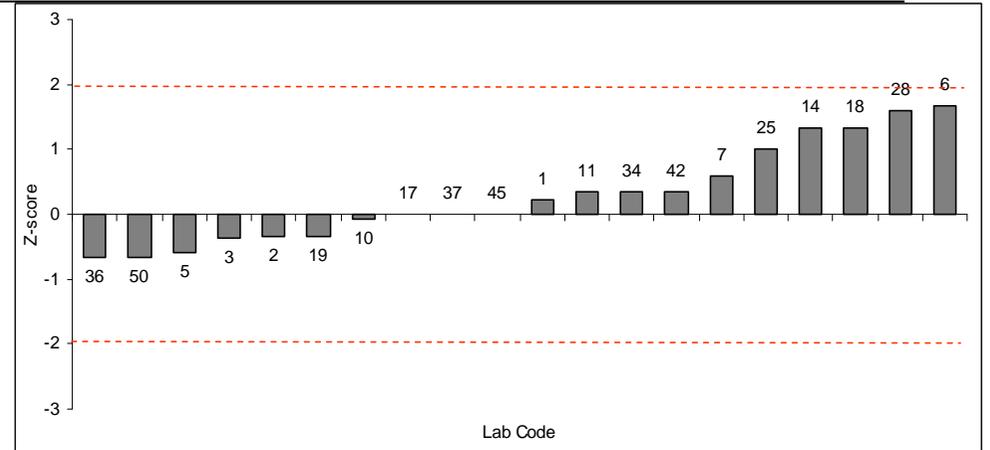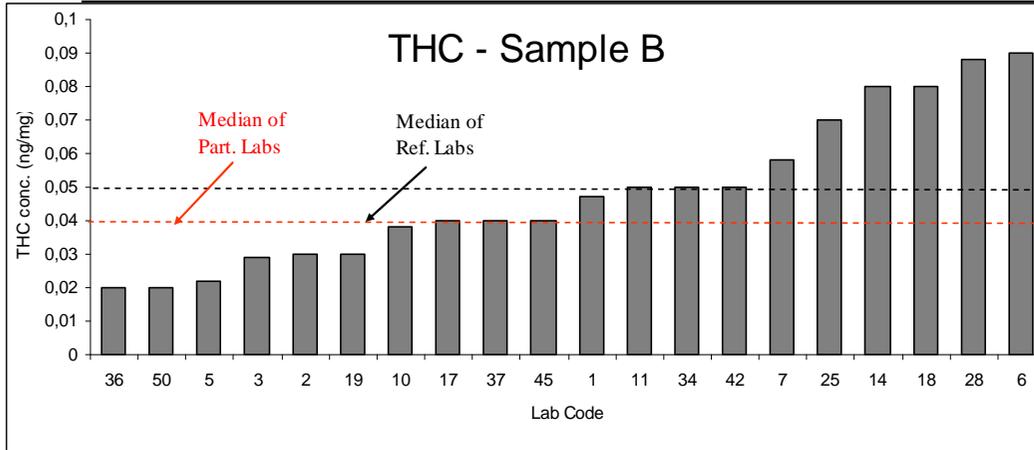
Lab.	THC (ng/mg)	Z-score	Result
36	0,02	-0,67	Satisfactory
50	0,02	-0,67	Satisfactory
5	0,022	-0,6	Satisfactory
3	0,029	-0,37	Satisfactory
2	0,03	-0,33	Satisfactory
19	0,03	-0,33	Satisfactory
10	0,038	-0,07	Satisfactory
17	0,04	0	Satisfactory
37	0,04	0	Satisfactory
45	0,04	0	Satisfactory
1	0,047	0,23	Satisfactory
11	0,05	0,33	Satisfactory
34	0,05	0,33	Satisfactory
42	0,05	0,33	Satisfactory
7	0,058	0,60	Satisfactory
25	0,07	1	Satisfactory
14	0,08	1,33	Satisfactory
18	0,08	1,33	Satisfactory
28	0,088	1,60	Satisfactory
6	0,09	1,67	Satisfactory
27	<0,05		
8	N		
4	NA		
12	P		
13	NA		
15	NA		

Lab.	THC (ng/mg)	Z-score	Result
20	NA		
21	NA		
22	N		
23	NA		
24	NA		
26	NA		
29	N		
31	N		
32	NA		
33	P		
35	N		
40	N		
41	NA		
44	NA		
46	Traces		
47	N		
48	N		
49	N		
51	N		

Average	0,049
SD	0,02
CV%	44,95
Median	0,043
Minimum	0,02
Quartile 25	0,03
Quartile 75	0,061
Maximum	0,09
Iqr	0,031

The median THC concentration is below the cut-off proposed by SoHT (0.05 ng/mg)