

First Experience with an Automated On-Line Extraction System for MS/MS Newborn Screening

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Comparison

punch/extract

online-extraction

Cons

- 3 mm punches
- danger of DBS flipping
- time consuming punching
- results batchwise

Pros

- higher analyte concentration
- 45 min to reach equilibrium
- punching does not affect surrounding blood areas

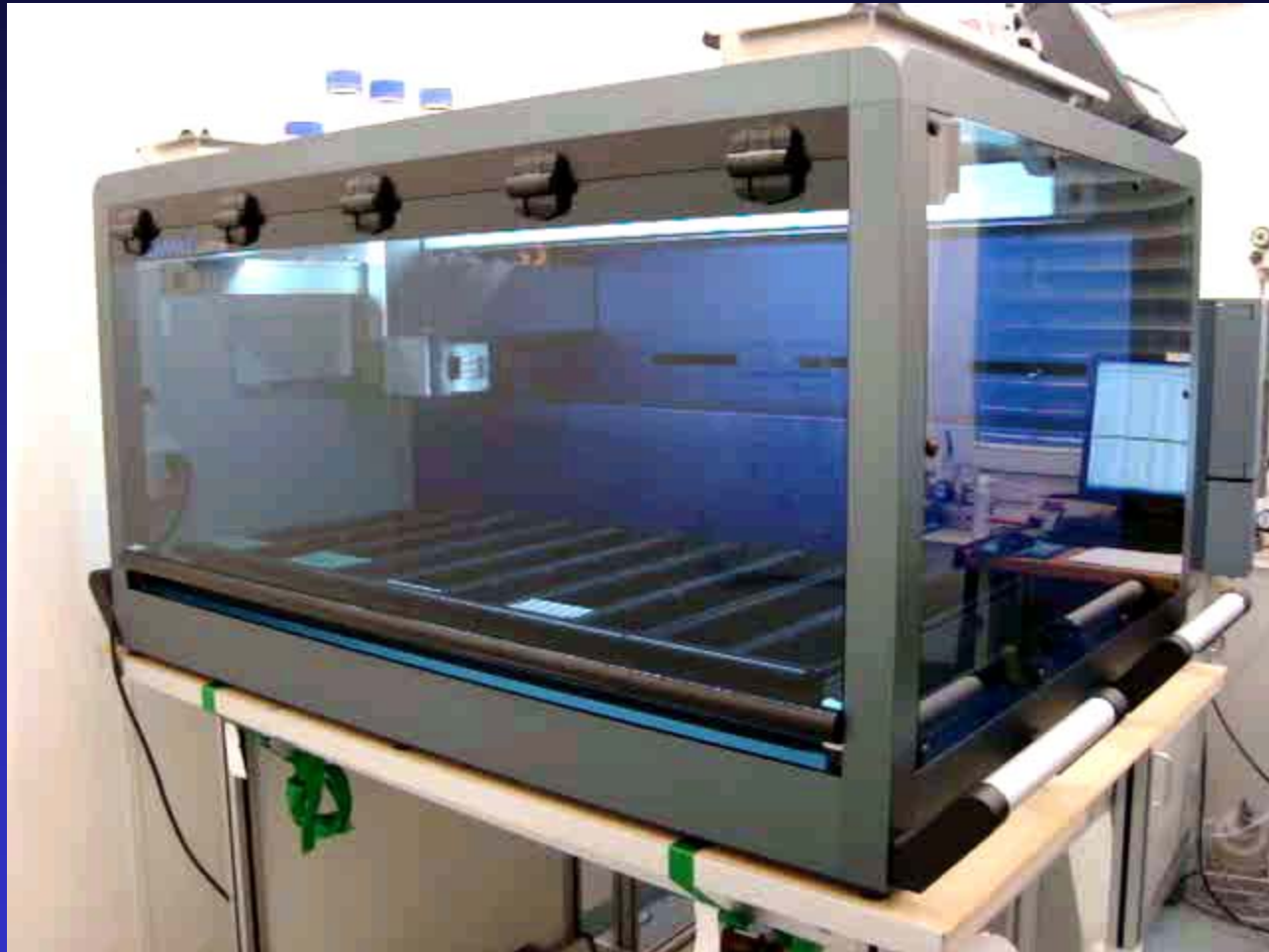
Pros

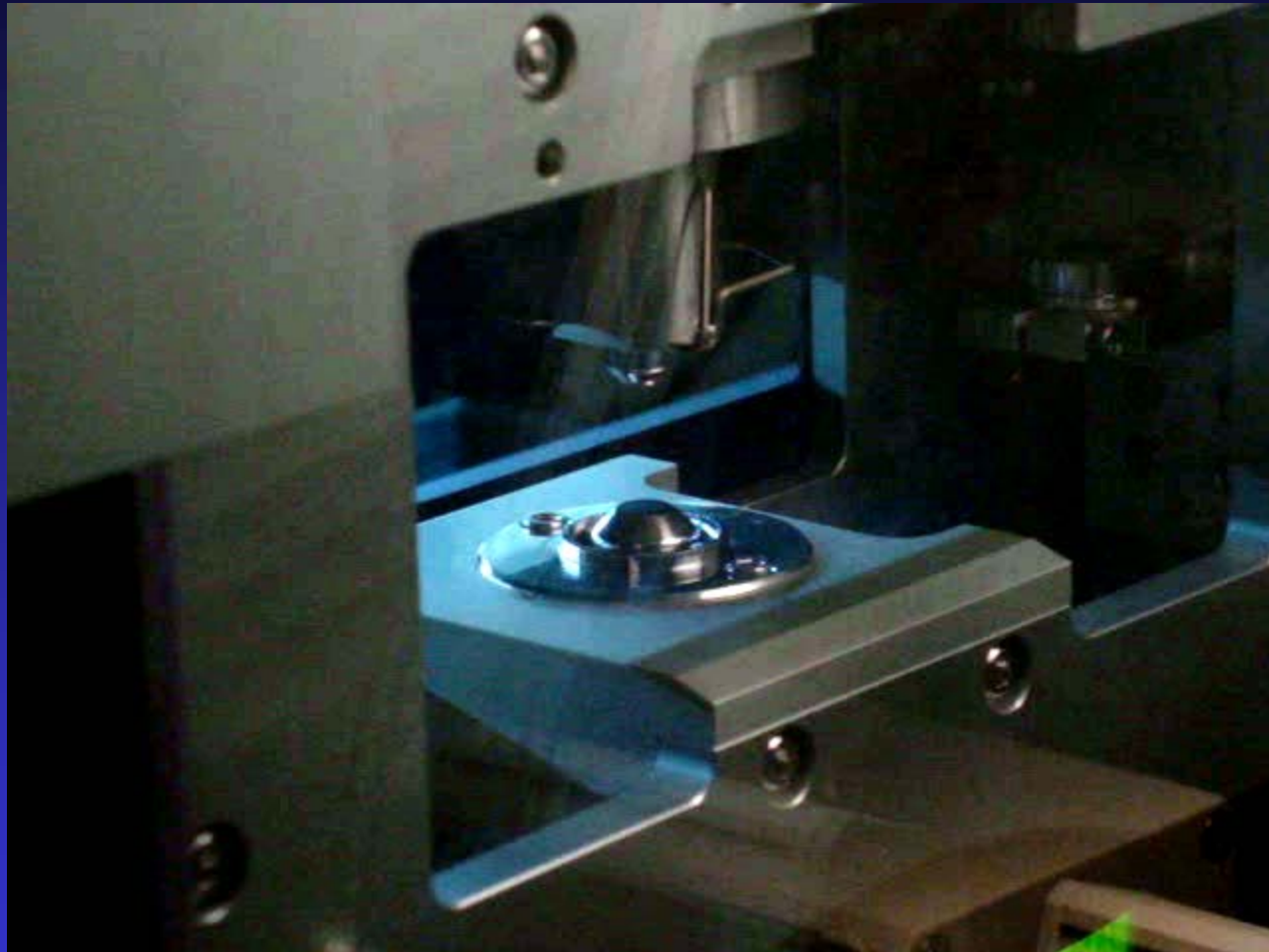
- whole filter card
- safe
- direct start of measurement
- possibility of direct transfer

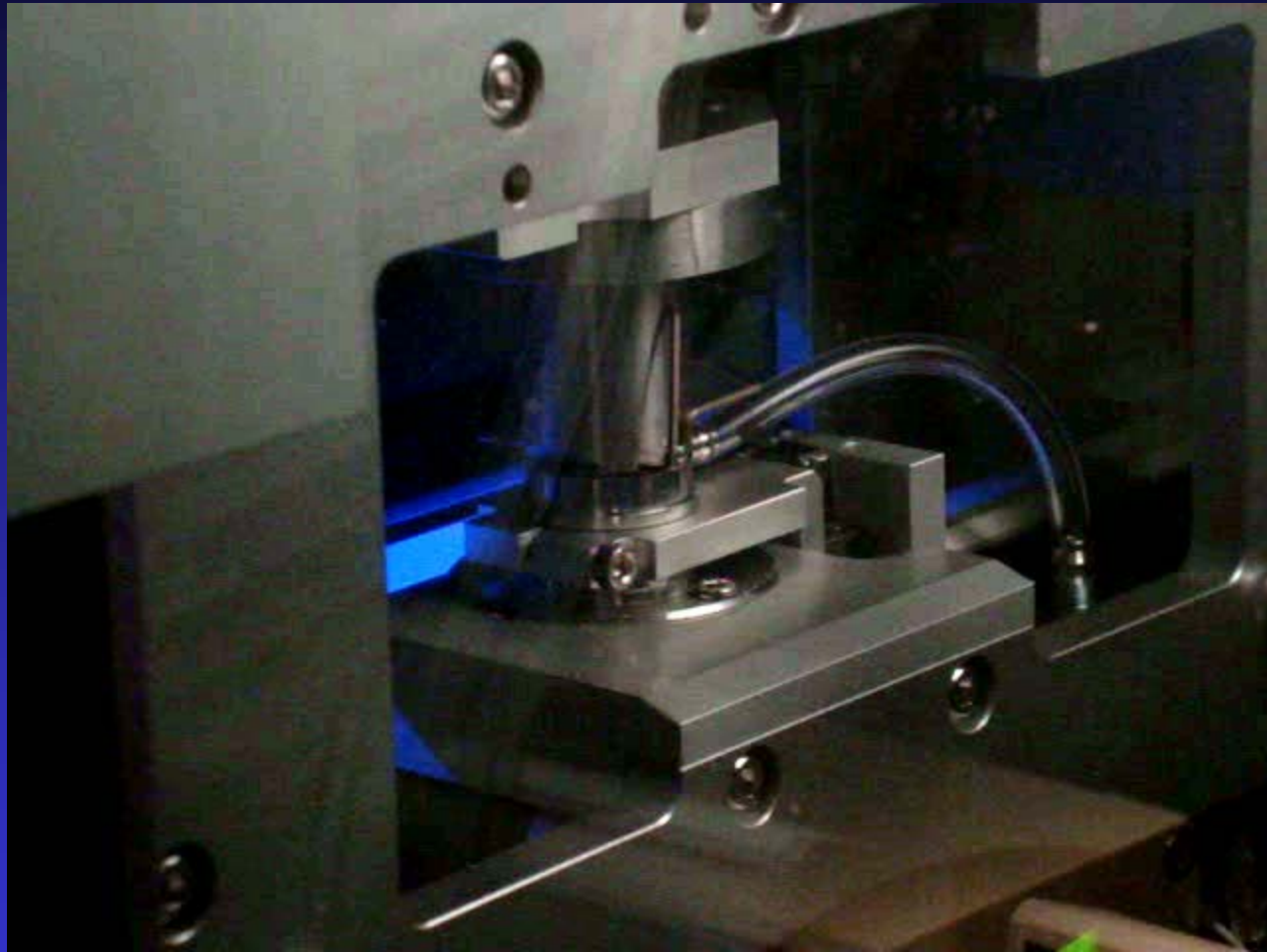
Cons

- lower analyte concentration
- dynamic equilibrium
- possible effect on surrounding blood areas



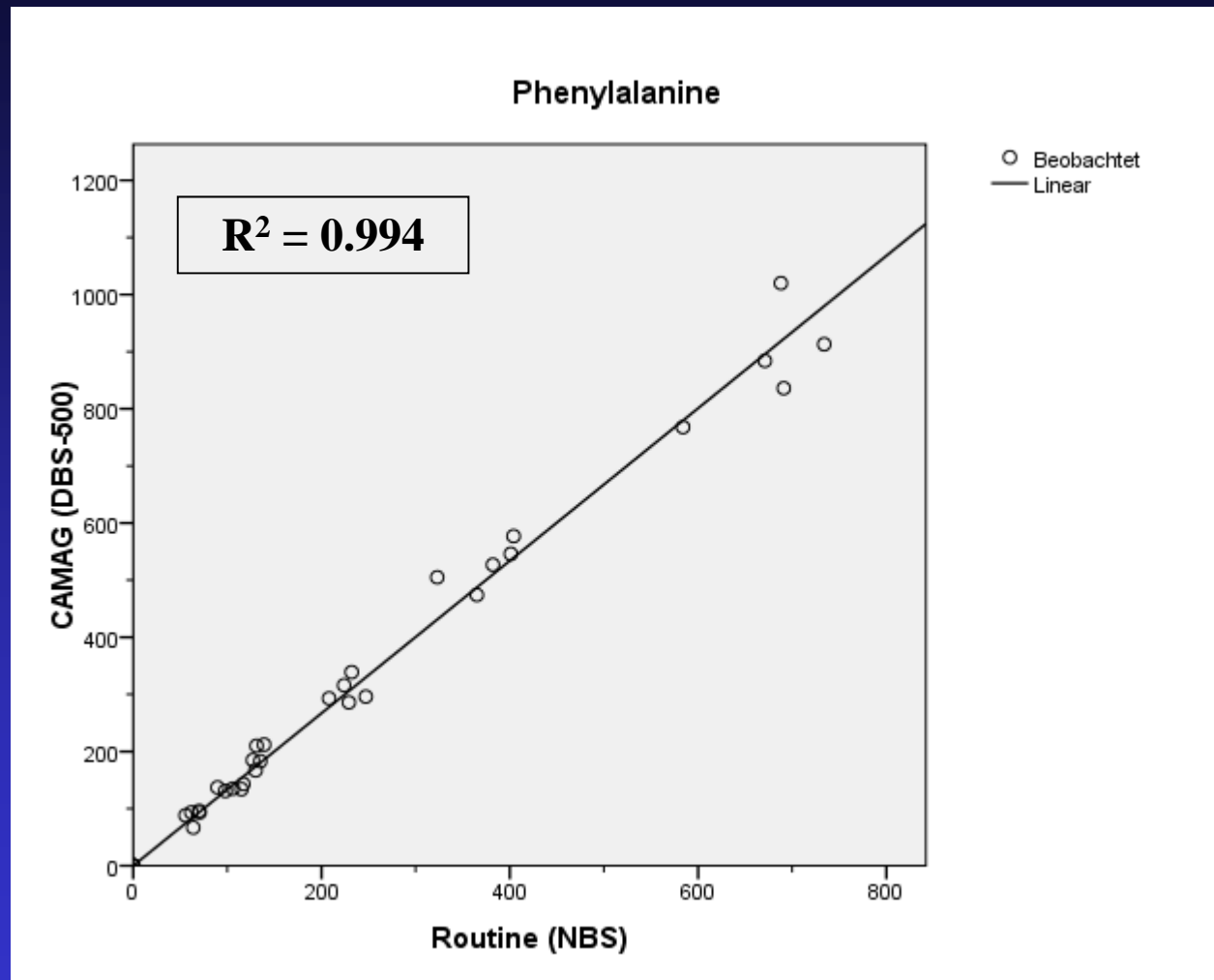


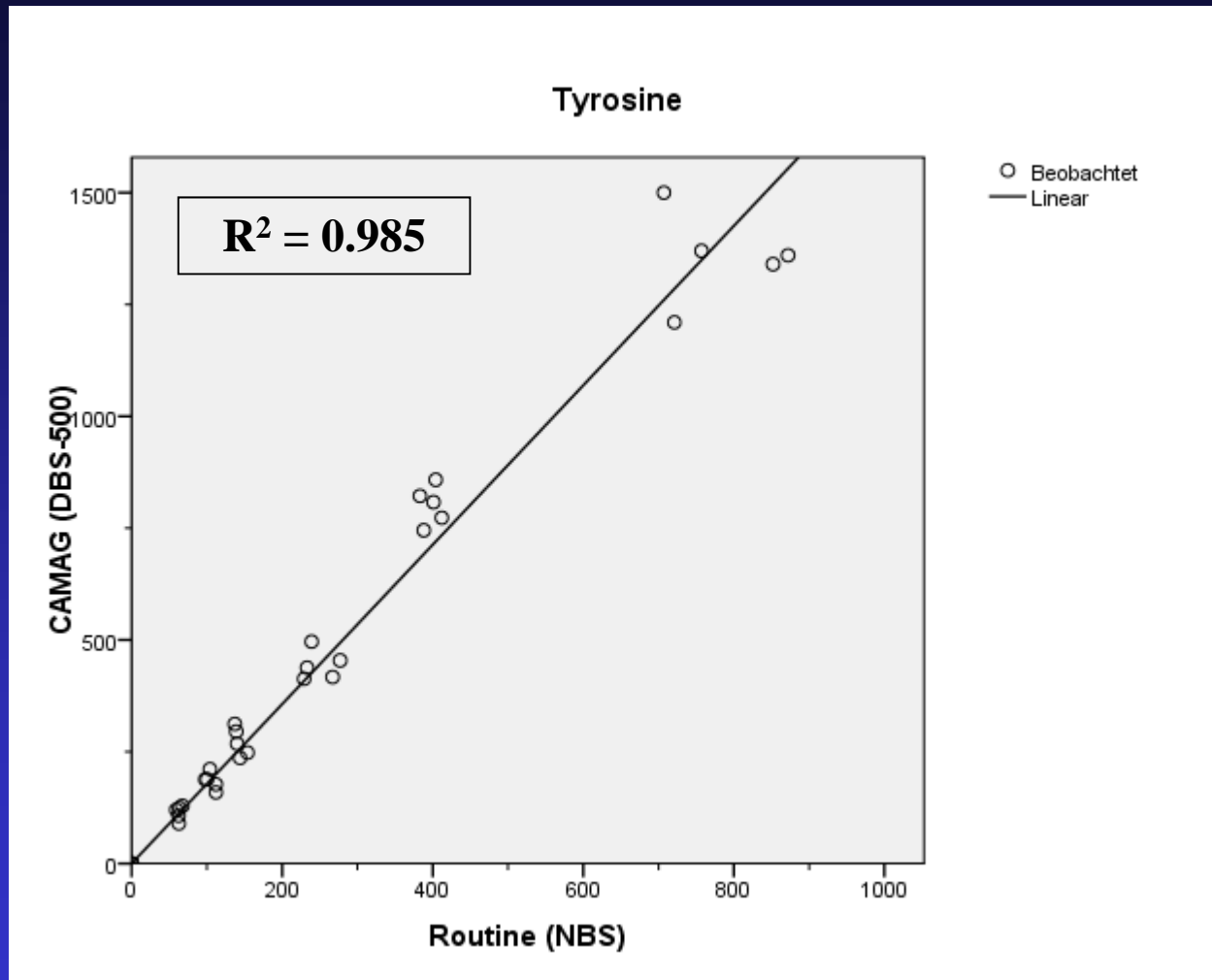




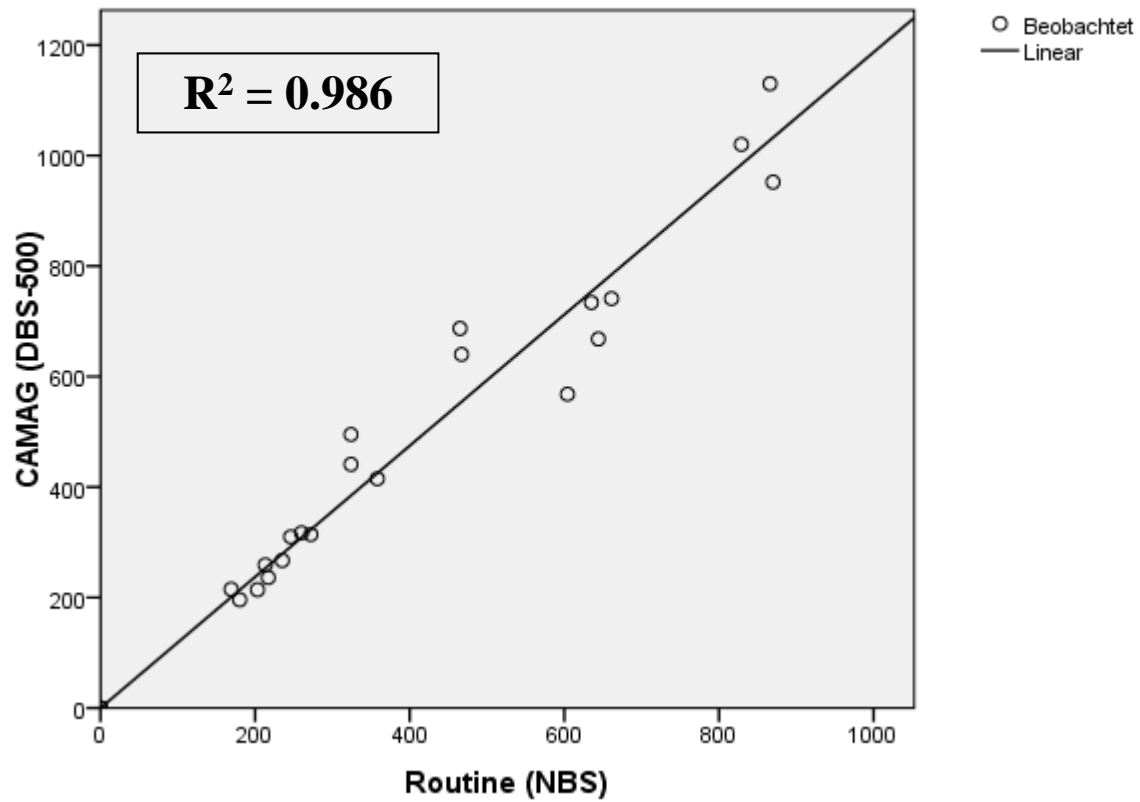


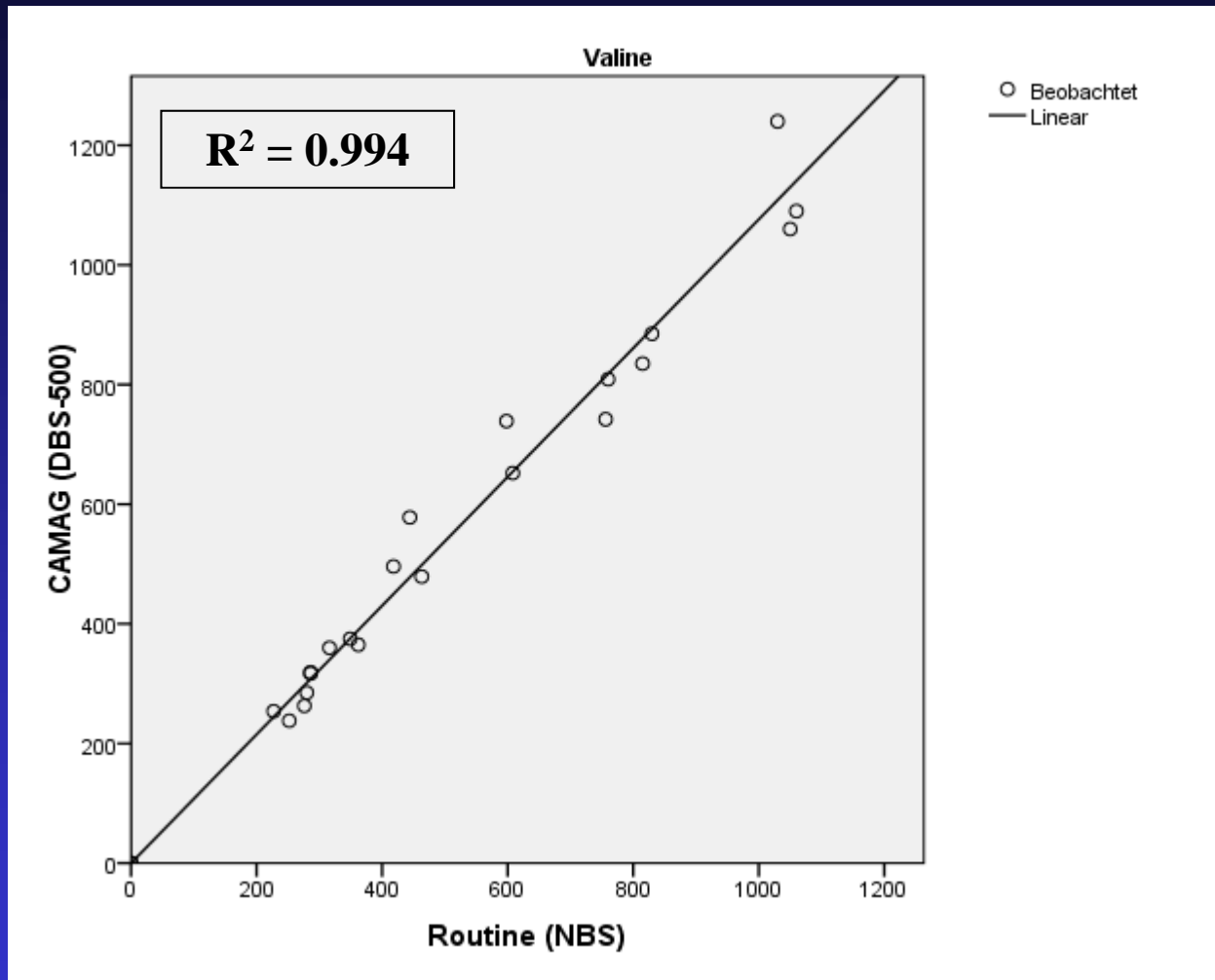




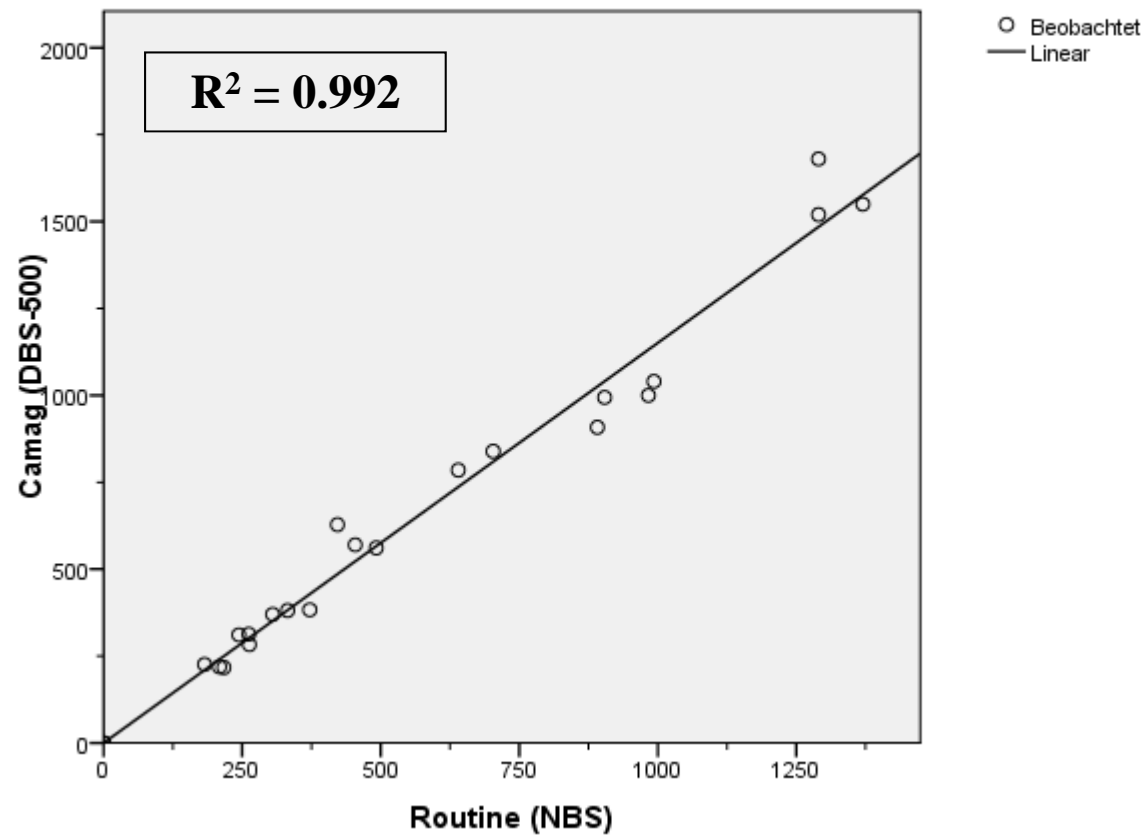


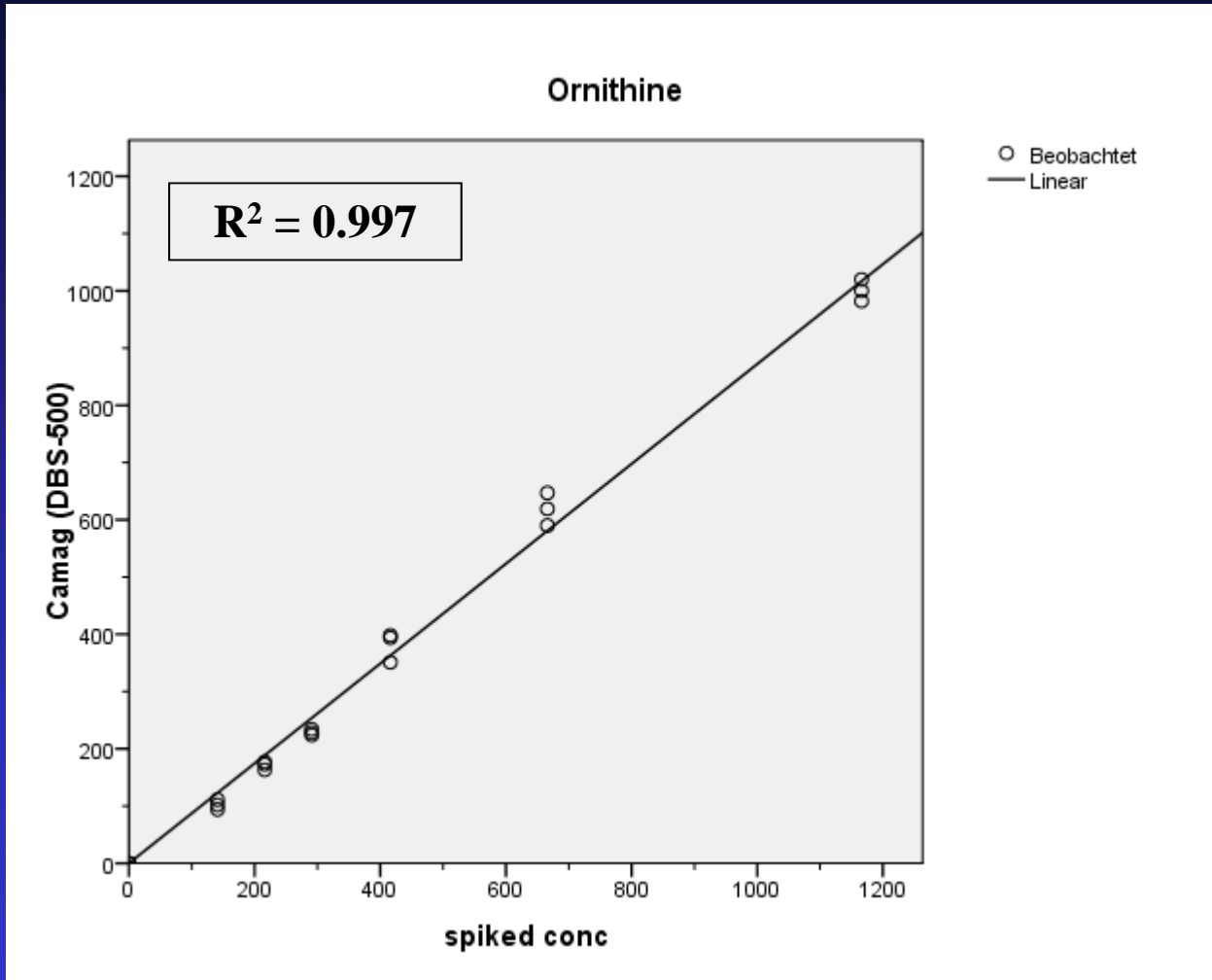
Leucine/Isoleucine

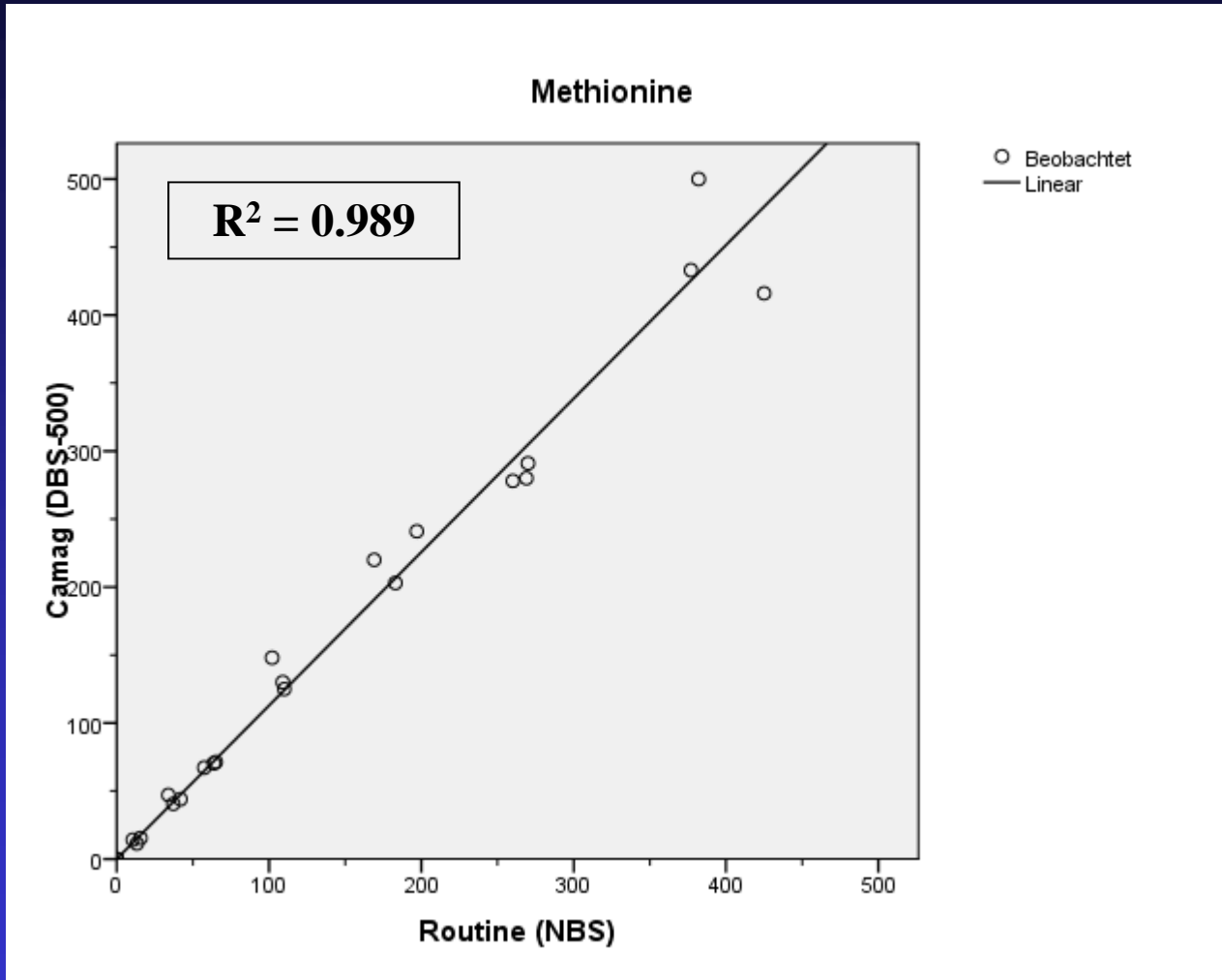




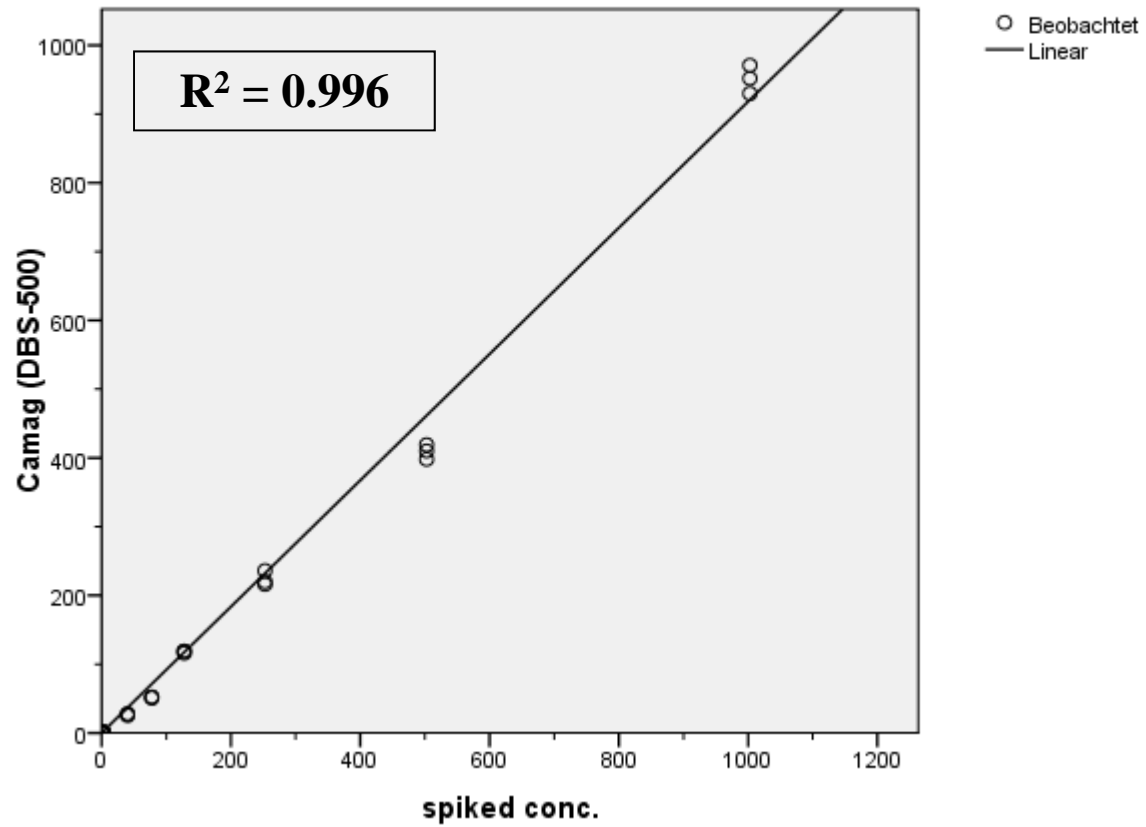
Proline

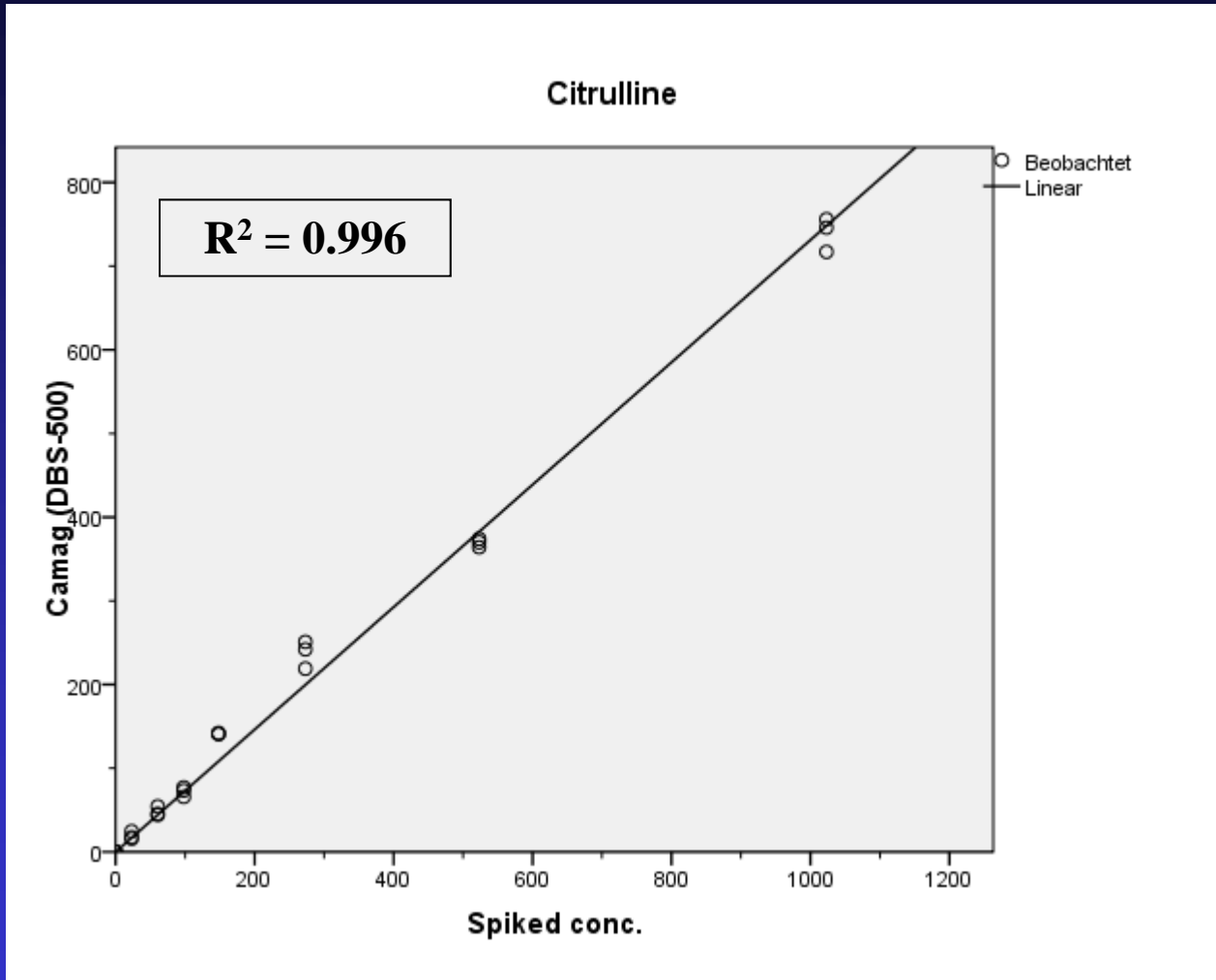


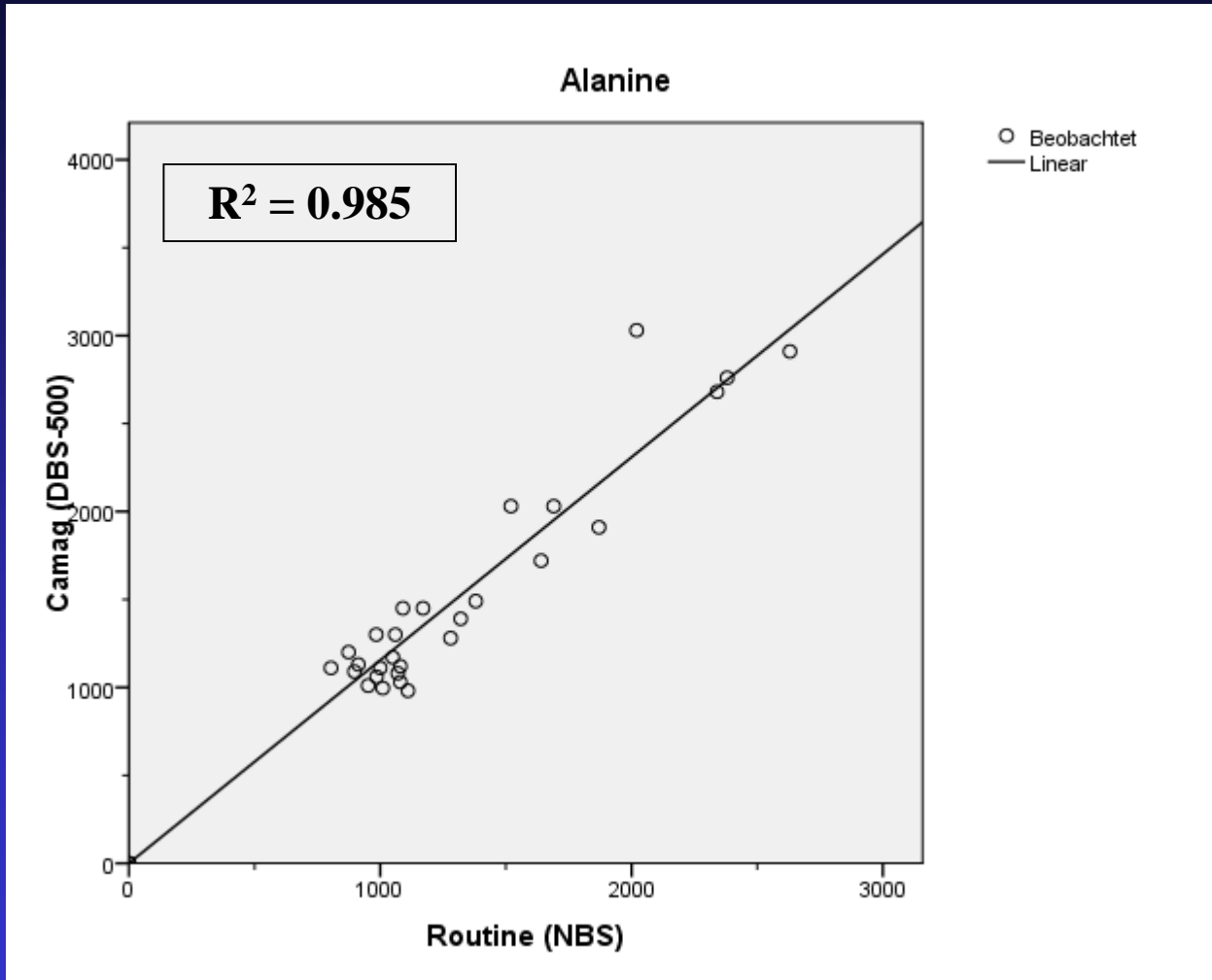


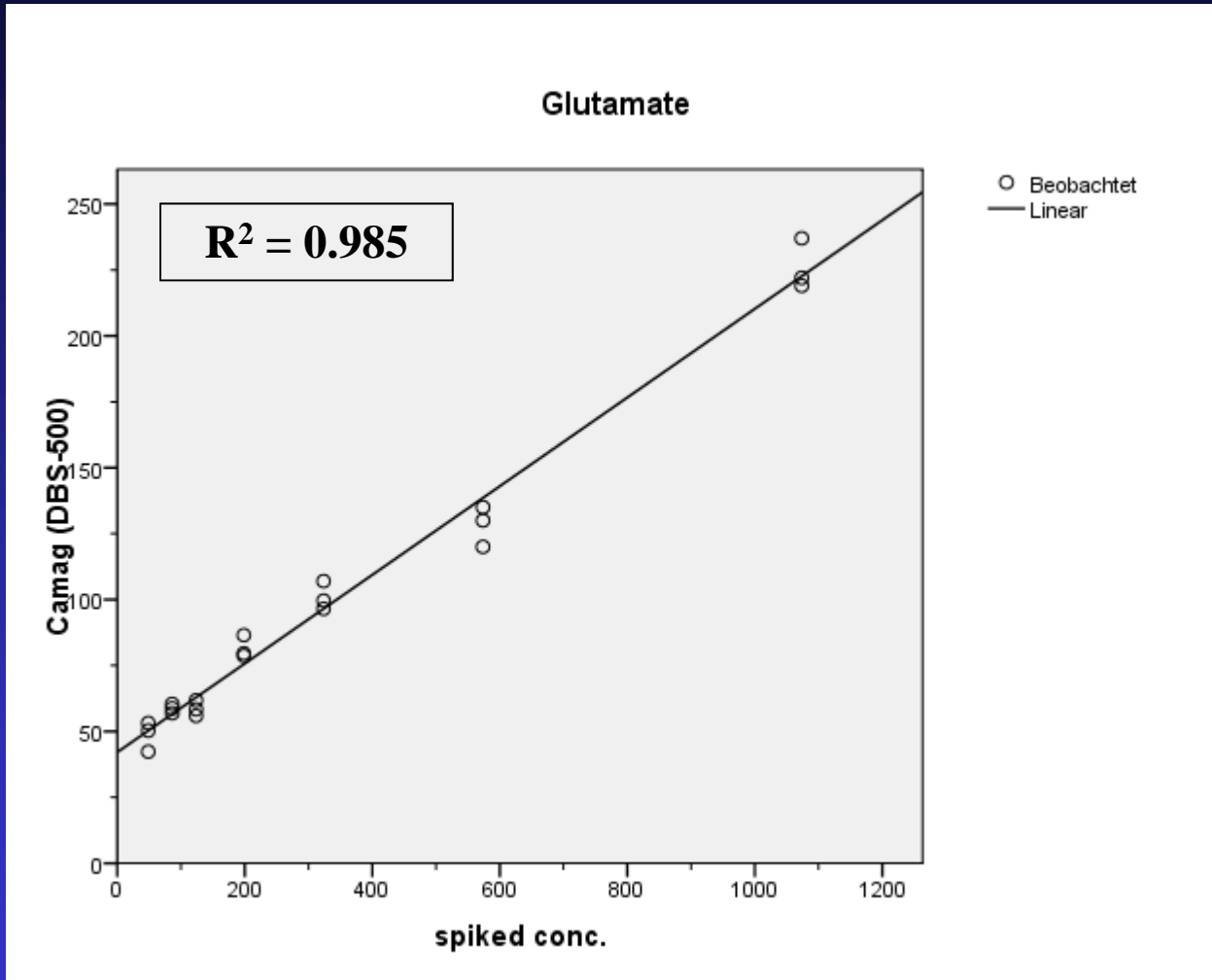


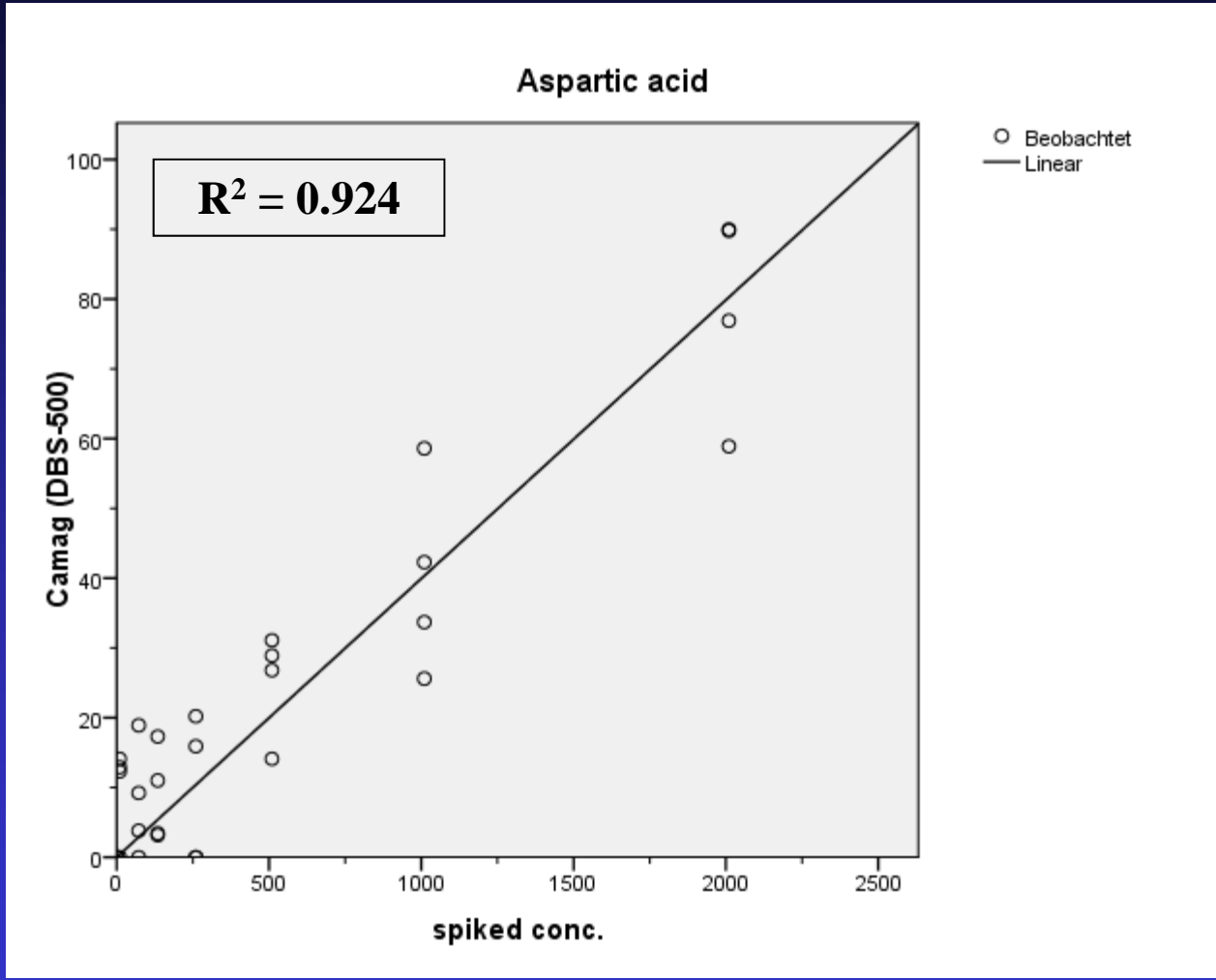
Arginine











Accuracy & Recovery

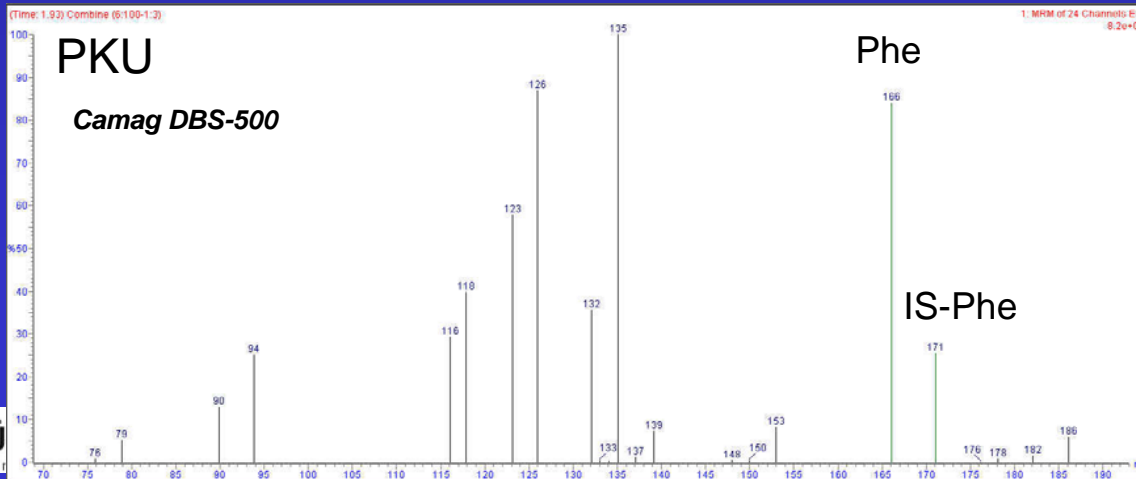
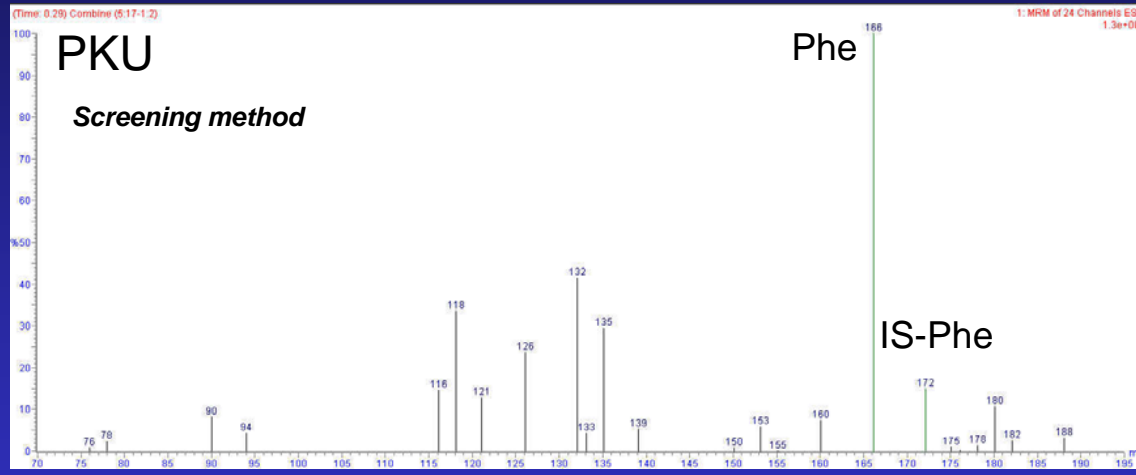
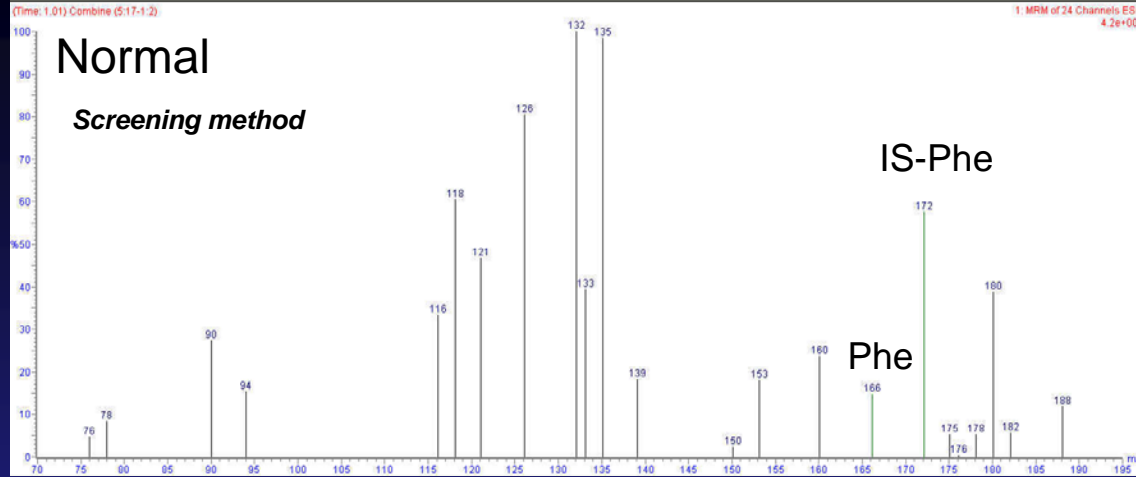
		target-value	recovery	intra assay cv	inter assay cv
uncharged unpolar	Ala	763	96-107	4.0	8.4
	Ala	1812	105-112	3.4	7.1
	Leu	382	101-111	4.1	7.0
	Leu	833	107-113	3.3	5.5
	Phe	203	104-114	4.9	8.3
	Phe	583	111-118	3.3	7.0
	Pro	545	96-107	4.5	8.1
	Pro	1623	101-109	3.9	6.2
	Val	454	102-111	5.0	6.3
	Val	1062	109-115	3.3	6.2
uncharged polar	Gly	1147	86-102	5.6	13.0
	Gly	2932	103-109	4.7	10.0
	Tyr	391	95-106	4.7	10.1
	Tyr	1227	103-111	4.1	8.7
basic	Arg	8.2	69-124	12.6	56.1
	Arg	8.2	80-126	10.9	37.3
	Cit	101	79-101	7.5	27.1
	Cit	299	97-112	6.4	13.8
	Orn	55.2	32-74	17.5	96.3
	Orn	55.2	36-82	18.1	79.0
acidic	Asp	35.9	60-124	13.3	59.5
	Asp	35.9	60-126	13.7	59.8
	Glu	30.8	84-117	7.0	28.5
	Glu	30.8	74-116	9.1	27.2

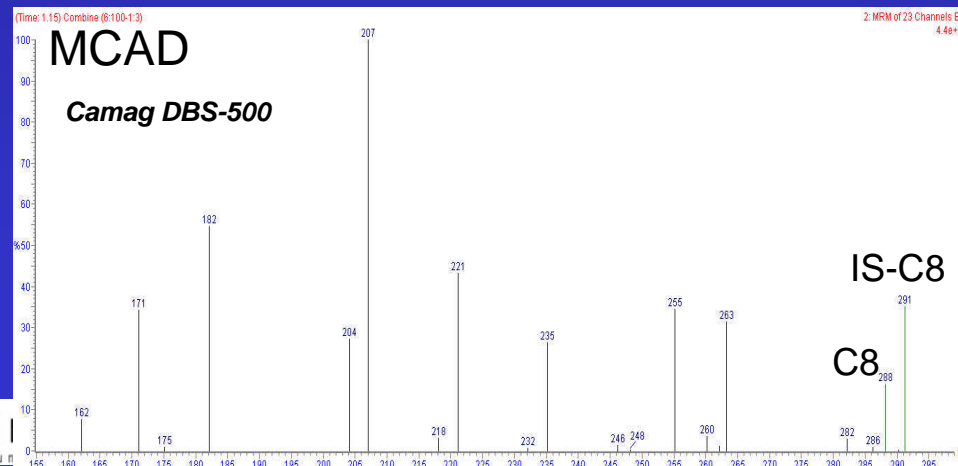
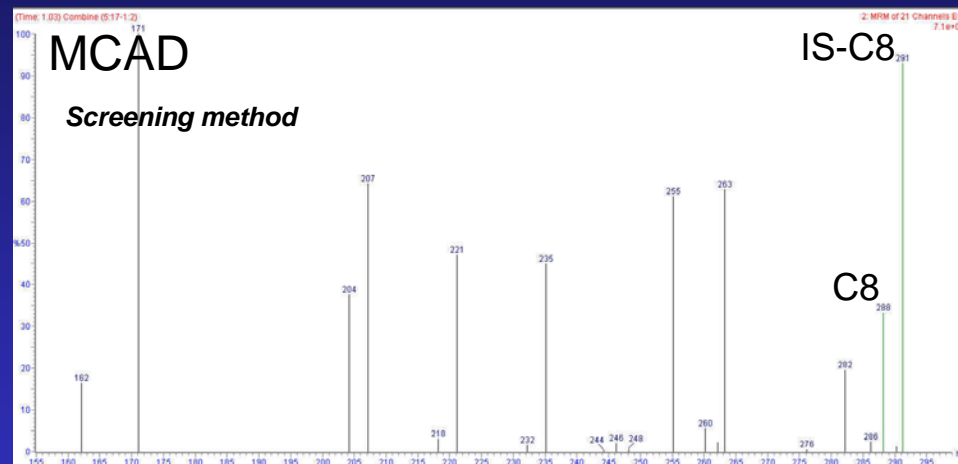
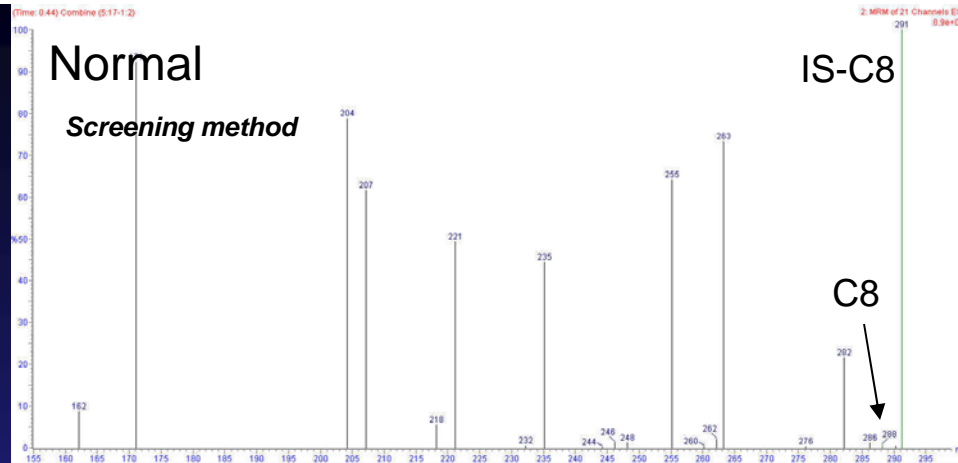


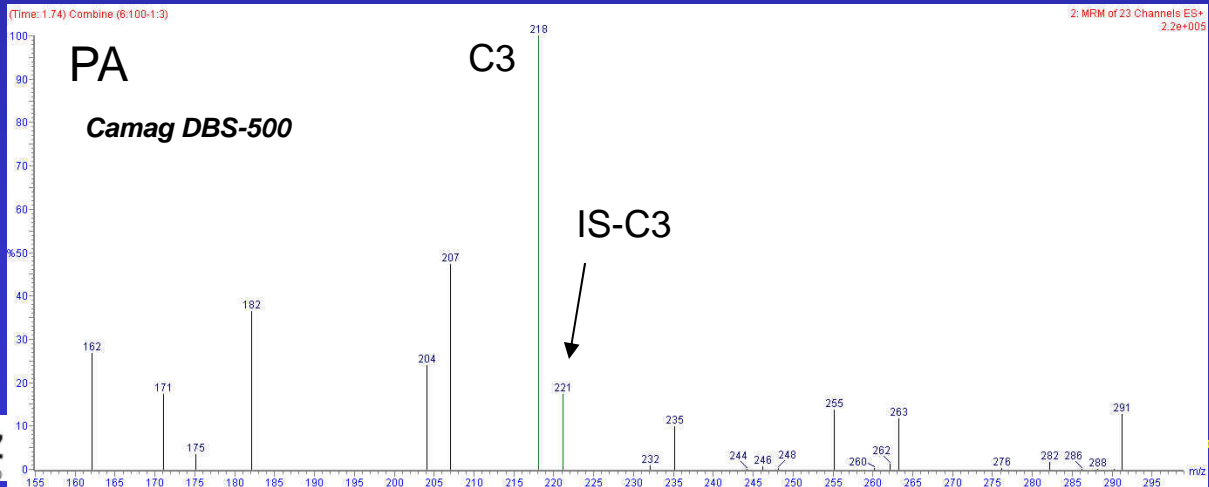
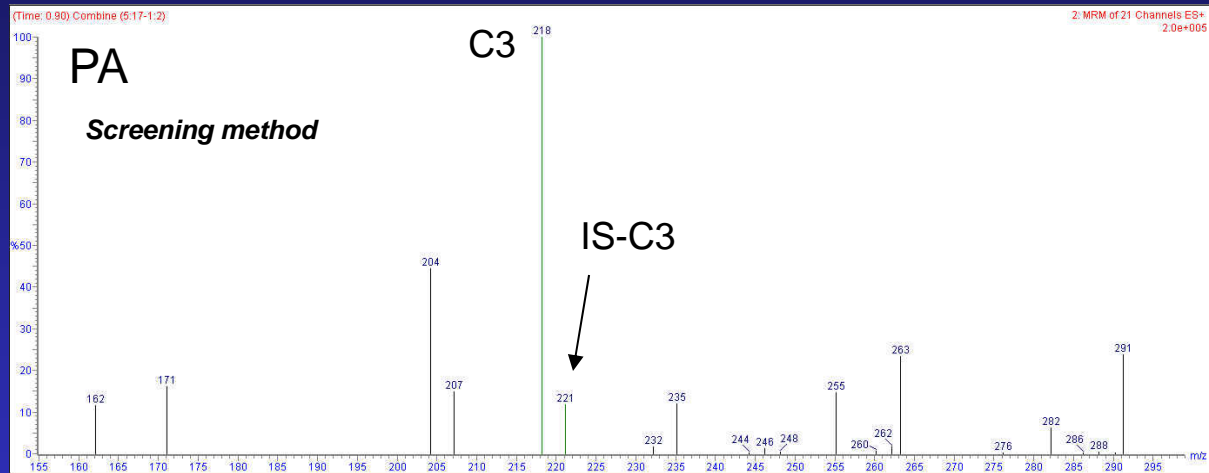
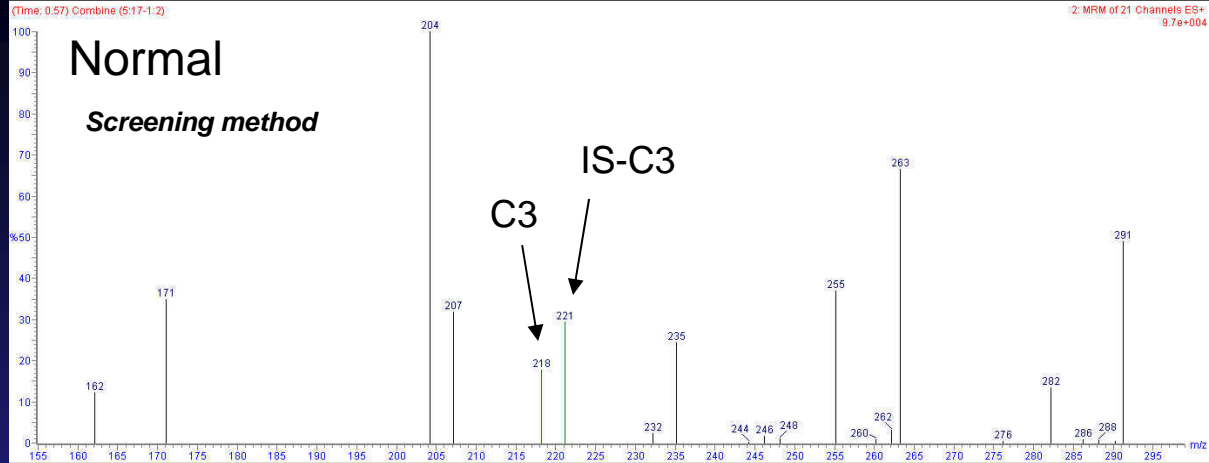
Accuracy & Recovery

	target-value	recovery	intra assay cv	inter assay cv
C0	100	94-103	4.3	7.9
C0	231	98-104	4.3	8.3
C2	58.9	101-107	4.5	10.6
C2	142.4	107-110	2.5	9.1
C3	10.8	100-103	5.6	9.4
C3	27.7	104-108	3.6	7.8
C4	2.81	100-105	5.2	9.3
C4	7.3	105-108	3.8	8.4
C5	1.22	99-104	5.3	9.1
C5	3.14	104-107	1.5	8.3
C5DC	0.62	85-100	7.0	28.3
C5DC	1.54	93-107	7.1	26.5
C6	0.57	103-106	5.0	11.3
C6	1.47	110-110	3.4	8.5
C8	0.68	104-105	6.4	10.9
C8	1.74	108-112	2.9	12.4
C10	0.99	104-113	6.5	15.0
C10	2.62	108-120	3.8	11.2
C12	1.69	106-106	7.1	15.0
C12	4.66	107-110	4.1	11.2
C14	1.83	107-110	6.9	17.2
C14	4.89	110-120	4.9	22.0
C16	11.6	101-111	8.0	30.4
C16	30.3	103-118	5.5	24.4
C18	2.3	103-115	8.9	30.4
C18	4.95	106-126	5.7	30.7









Conclusion

