

II. Linearity and Range:

When quantitating unknown samples it is necessary to compare the instrument response to an instrument response of a known sample in a known concentration. Typically, a series of standards with known concentrations are collected and this data is used to generate a calibration curve. It is helpful when this curve is linear throughout an appropriate range (the expected concentration range of samples to be analyzed). For this method, 0.3 % amount of Δ^9 -Tetrahydrocannabinol (THC) in the plant material is the legally significant concentration. Therefore, our chosen standard concentrations should encompass a concentration of 150 $\mu\text{g/mL}$ of THC and be linear. This range would allow us to quantitate 100 mg of plant material extracted into 2 mL of methanol (see the extraction portion of this validation study) for samples of approximately 0.3 % THC. We expect marijuana samples to have a much higher concentration of THC. As long as this method can demonstrate that THC levels in marijuana are significantly higher than 0.3 %, then linearity and the necessity to accurately quantitate these higher concentrations of THC becomes less important.

This method uses a five point calibration curve with THC standards in concentrations of 50 $\mu\text{g/mL}$, 100 $\mu\text{g/mL}$, 150 $\mu\text{g/mL}$, 300 $\mu\text{g/mL}$, and 500 $\mu\text{g/mL}$. These standard solutions were prepared from a 1.0 mg/mL standard purchased from Cerilliant. Preparing standards for determining higher concentration levels of THC becomes difficult, because no THC standards are available for purchase at higher concentrations than 1 mg/mL currently.

On 2/8/2019 a series of standards were prepared and run six times on a GC/MS (Gumbo). These standards were used to prepare six calibration curves. These curves were fit to a line using the provided Agilent software using the least squares fit. The r^2 value (a mathematical representation to how well data fits a statistically generated curve) for the six curves ranged from 0.981 to 0.994. These curves appeared to be linear and fit for use in this concentration range.

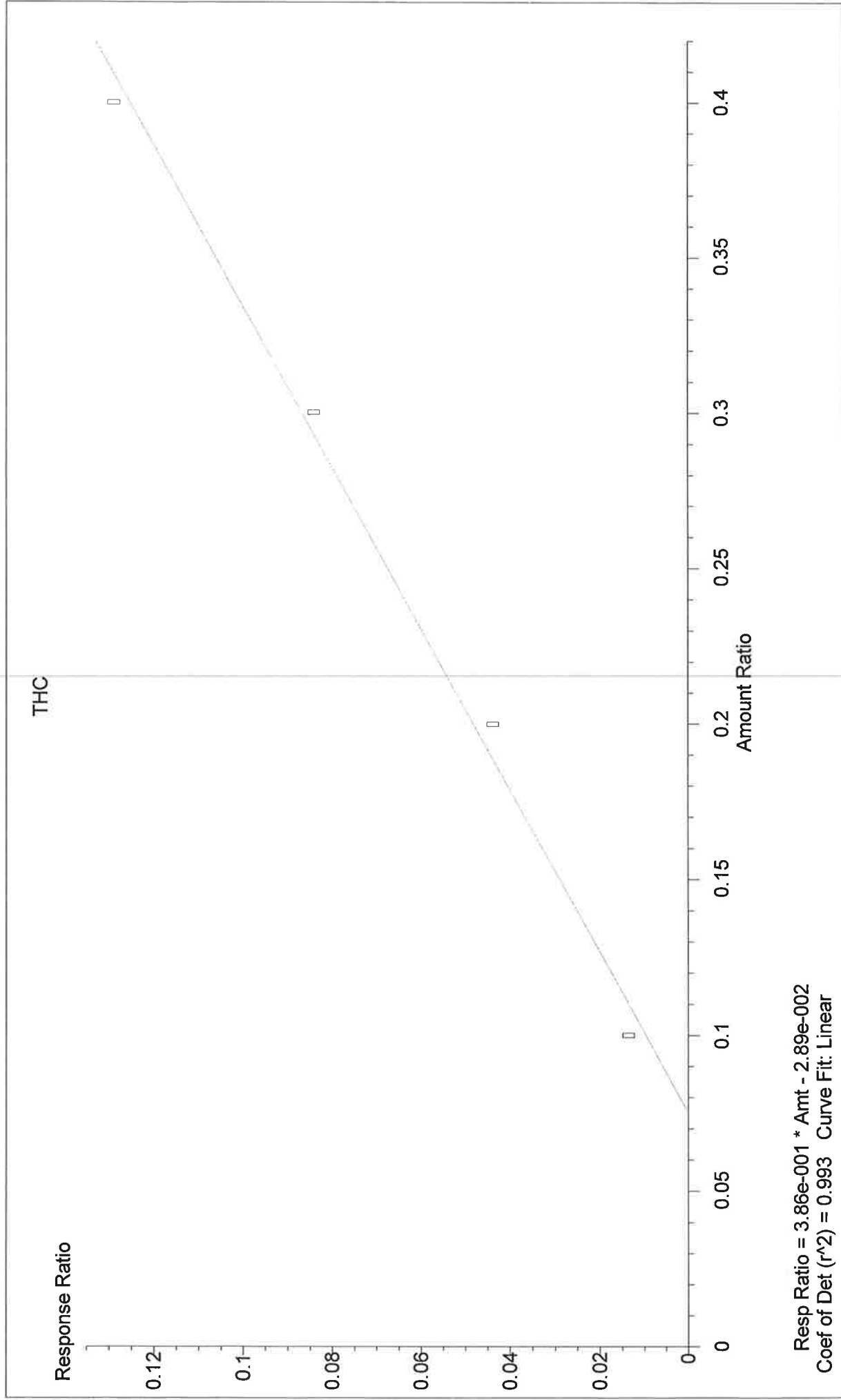
On 2/11/2019 the calibration standards that were prepared on 2/8/2019 were run six times on a different GC/MS instrument (Heisenburg). This data seemed to vary and the r^2 values ranged from 0.976 to 0.997. The syringe was replaced and the standards were rerun generating six more calibration curves on 2/12/2019. These r^2 values ranged from 0.989 to 0.998 and the data seemed more consistent and repeatable with the new syringe.

A study was carried out investigating the lower limits of detection. A series of ten THC standards in methanol were prepared and run ranging from 5 $\mu\text{g/mL}$ to 50 $\mu\text{g/mL}$. The 5 $\mu\text{g/mL}$ sample did not give any instrument response and clearly could not be used for qualitative or quantitative purposes. While the 10 $\mu\text{g/mL}$ through the 35 $\mu\text{g/mL}$ standards gave instrument responses that could be used for qualitative analysis, these results fell outside of the linear range of the calibration curve and could not be quantitated accurately. Therefore, it was determined that this method would be appropriate to quantitate samples with concentrations in the 40 $\mu\text{g/mL}$ to 500 $\mu\text{g/mL}$ range. This range covers the legally significant amount well enough that

marihuana samples with higher THC concentrations could easily be identified as well as low THC concentrations expected in hemp samples. While this calibration curve may not be able to accurately quantitate the high concentration marijuana samples or the low concentration hemp samples, it absolutely allows us to distinguish the two and demonstrate whether or not they are above or below the legally significant value.

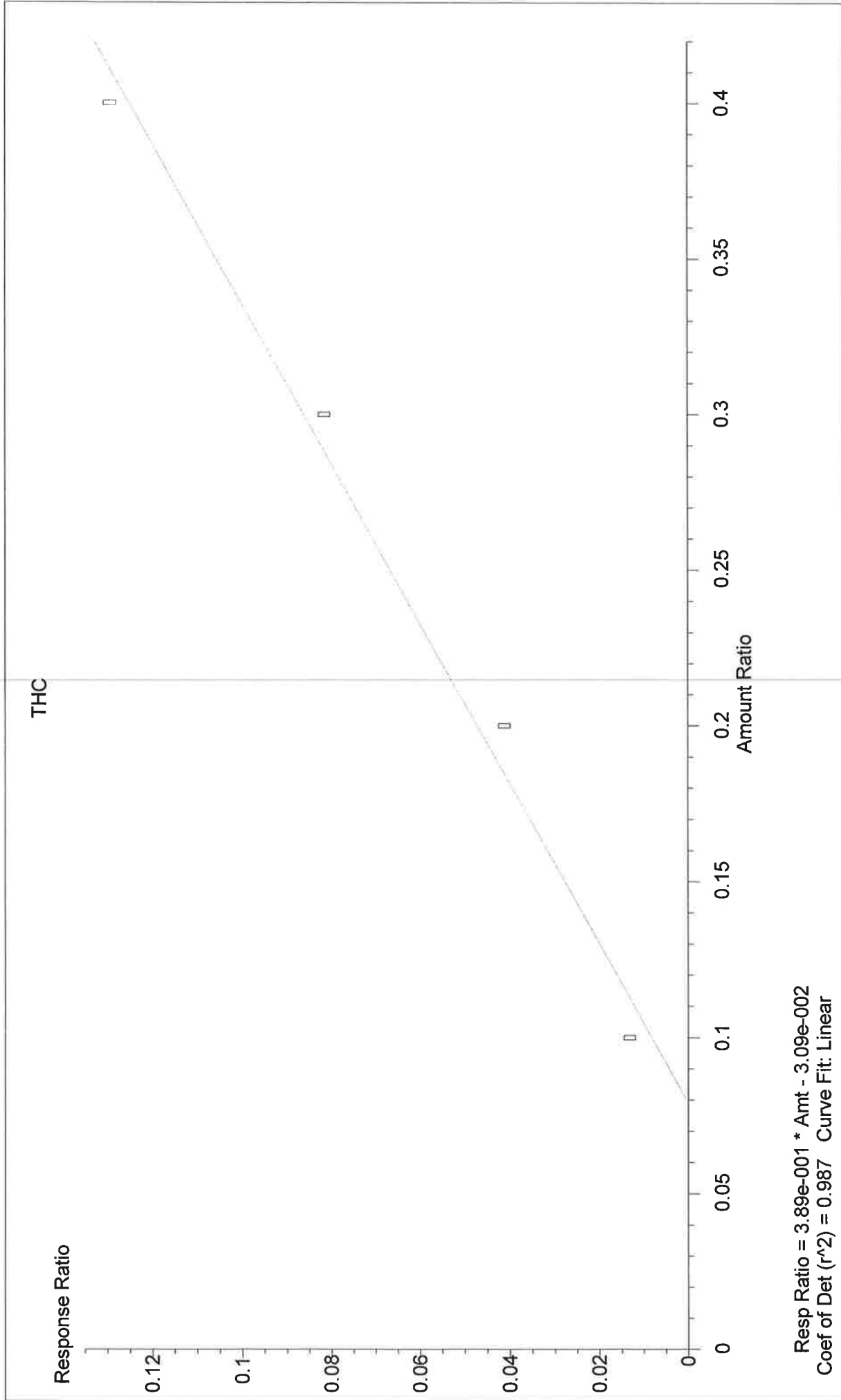
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.013608	39.94	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 1.D
2	0.2000	0.043935	-9.08	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 2.D
3	0.3000	0.084047	-3.31	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 3.D
4	0.4000	0.128900	2.69	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 4.D



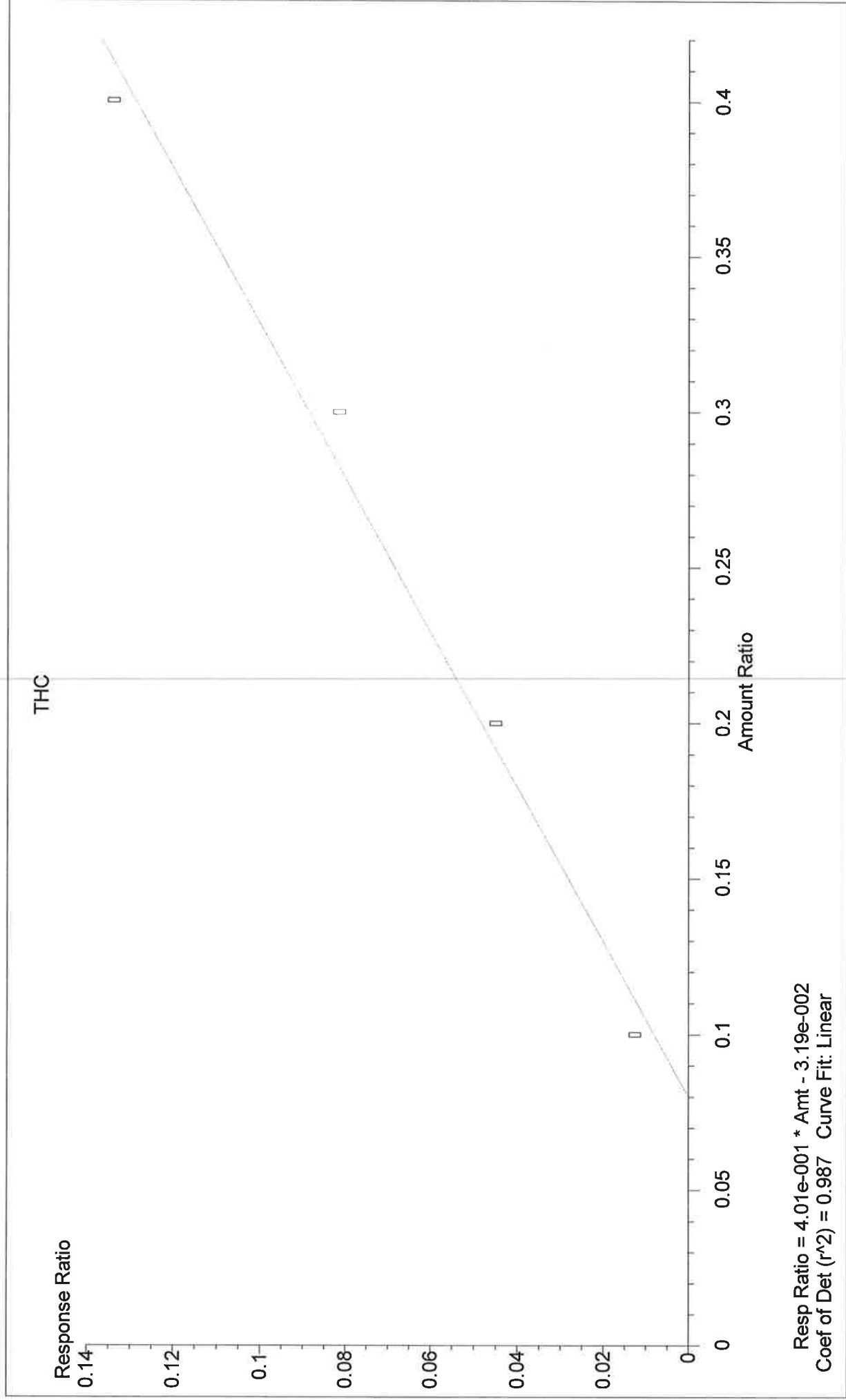
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.013211	65.32	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 1 A.D
2	0.2000	0.041220	-12.14	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 2 A.D
3	0.3000	0.081582	-4.97	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 3 A.D
4	0.4000	0.129512	3.80	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 4 A.D



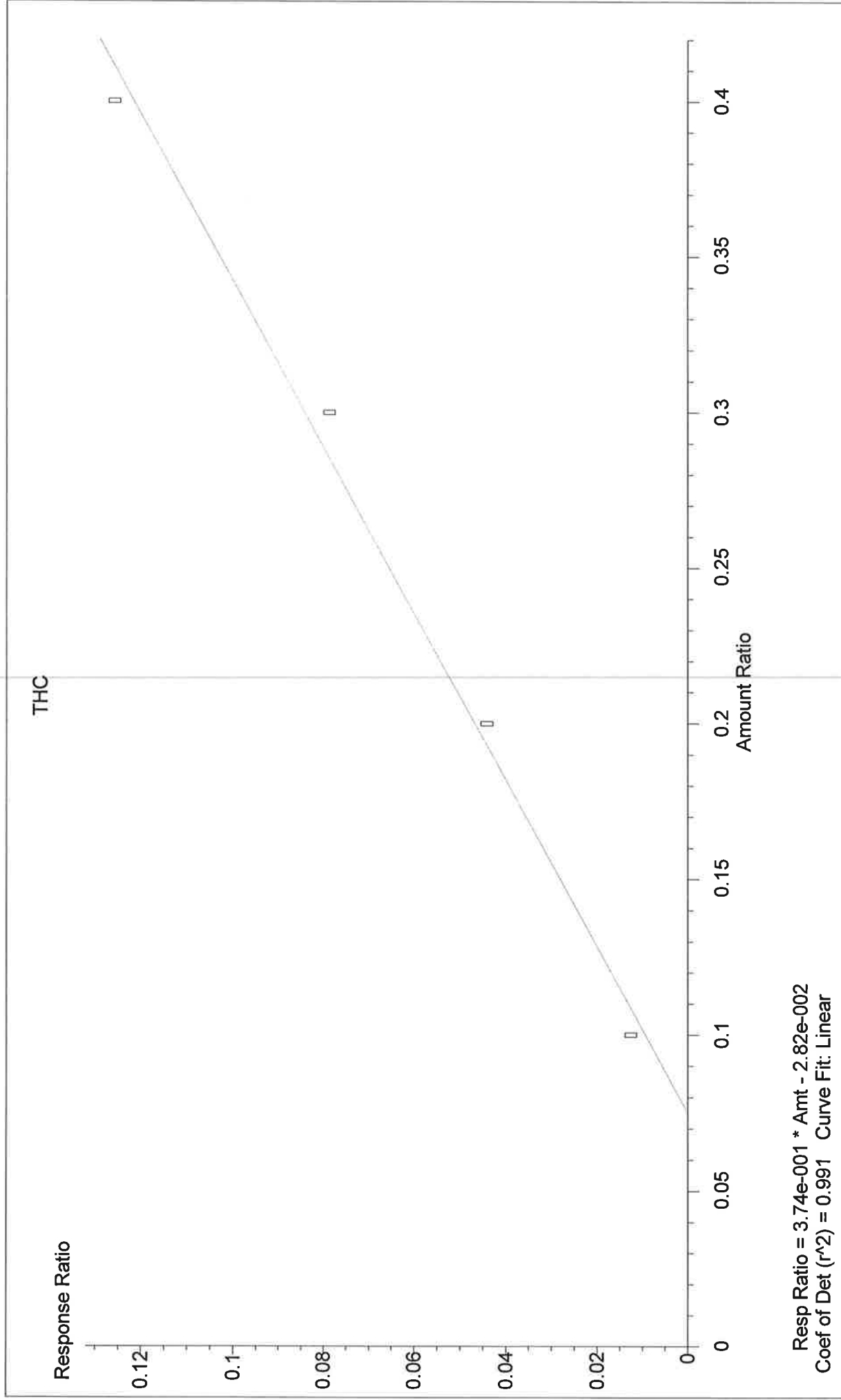
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.012614	53.89	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 1 B.D
2	0.2000	0.045068	-6.69	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 2 B.D
3	0.3000	0.081622	-7.67	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 3 B.D
4	0.4000	0.134112	4.36	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 4 B.D



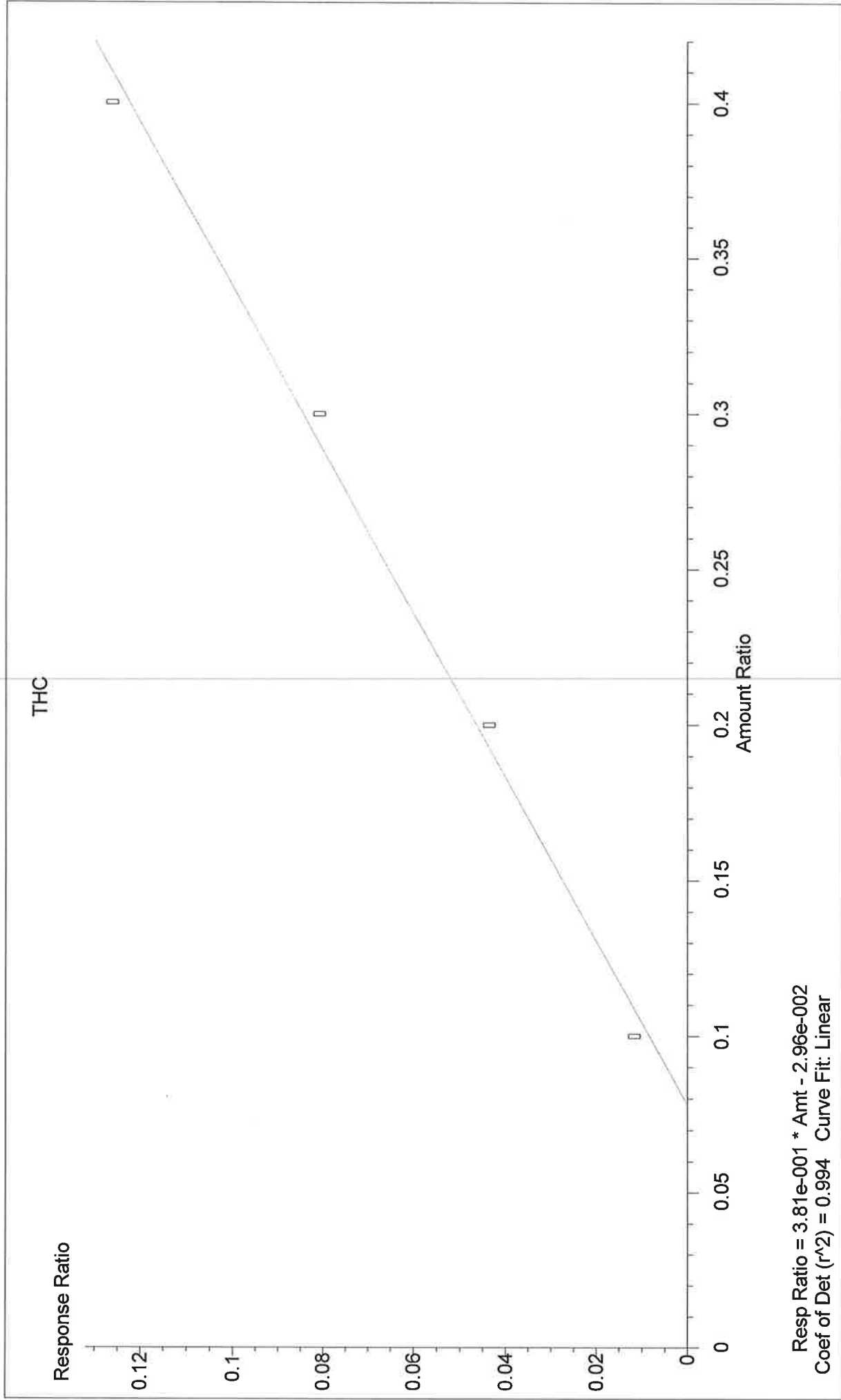
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.012572	37.03	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 1 C.D
2	0.2000	0.044178	-5.18	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 2 C.D
3	0.3000	0.078651	-6.38	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 3 C.D
4	0.4000	0.125811	3.61	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 4 C.D



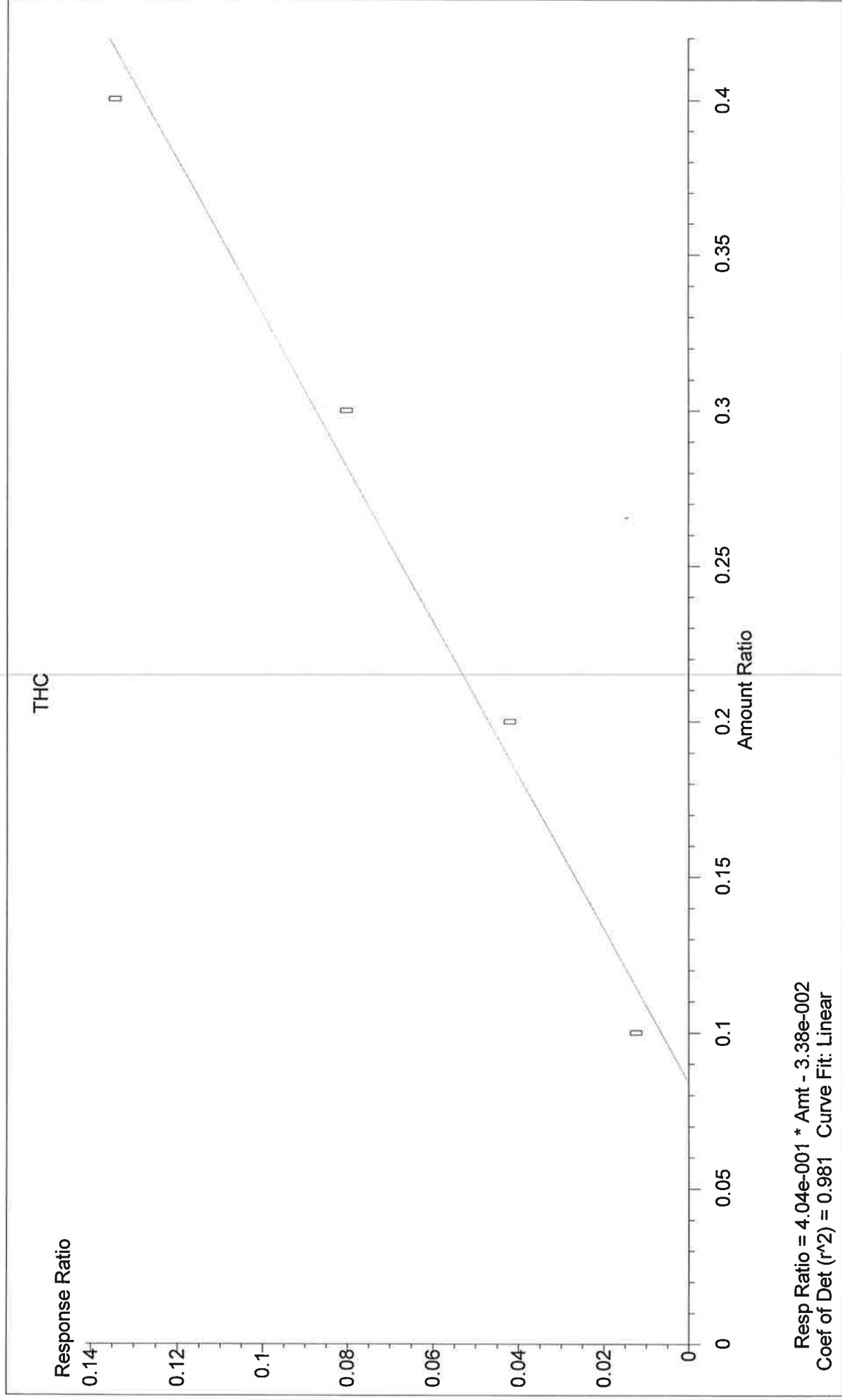
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.011676	38.31	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 1 D.D
2	0.2000	0.043603	-6.28	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 2 D.D
3	0.3000	0.080741	-4.56	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 3 D.D
4	0.4000	0.126231	2.89	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 4 D.D



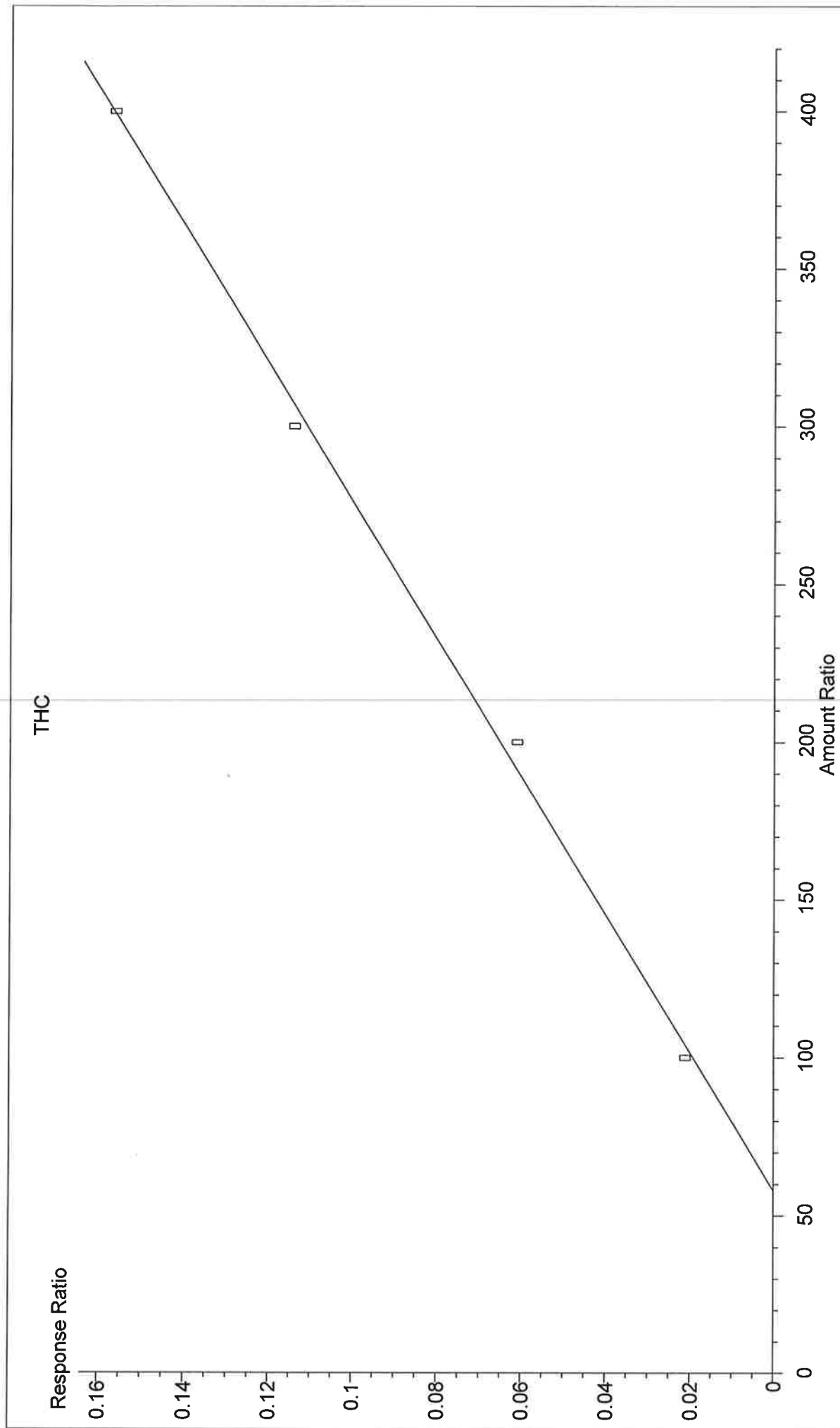
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.012412	87.91	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 1 E.D
2	0.2000	0.041995	-10.75	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 2 E.D
3	0.3000	0.080192	-8.35	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 3 E.D
4	0.4000	0.134502	5.12	C:\msdchem\1\DATA\2019\BTT\2-8-19\THC 4 E.D



Calibration data of TH

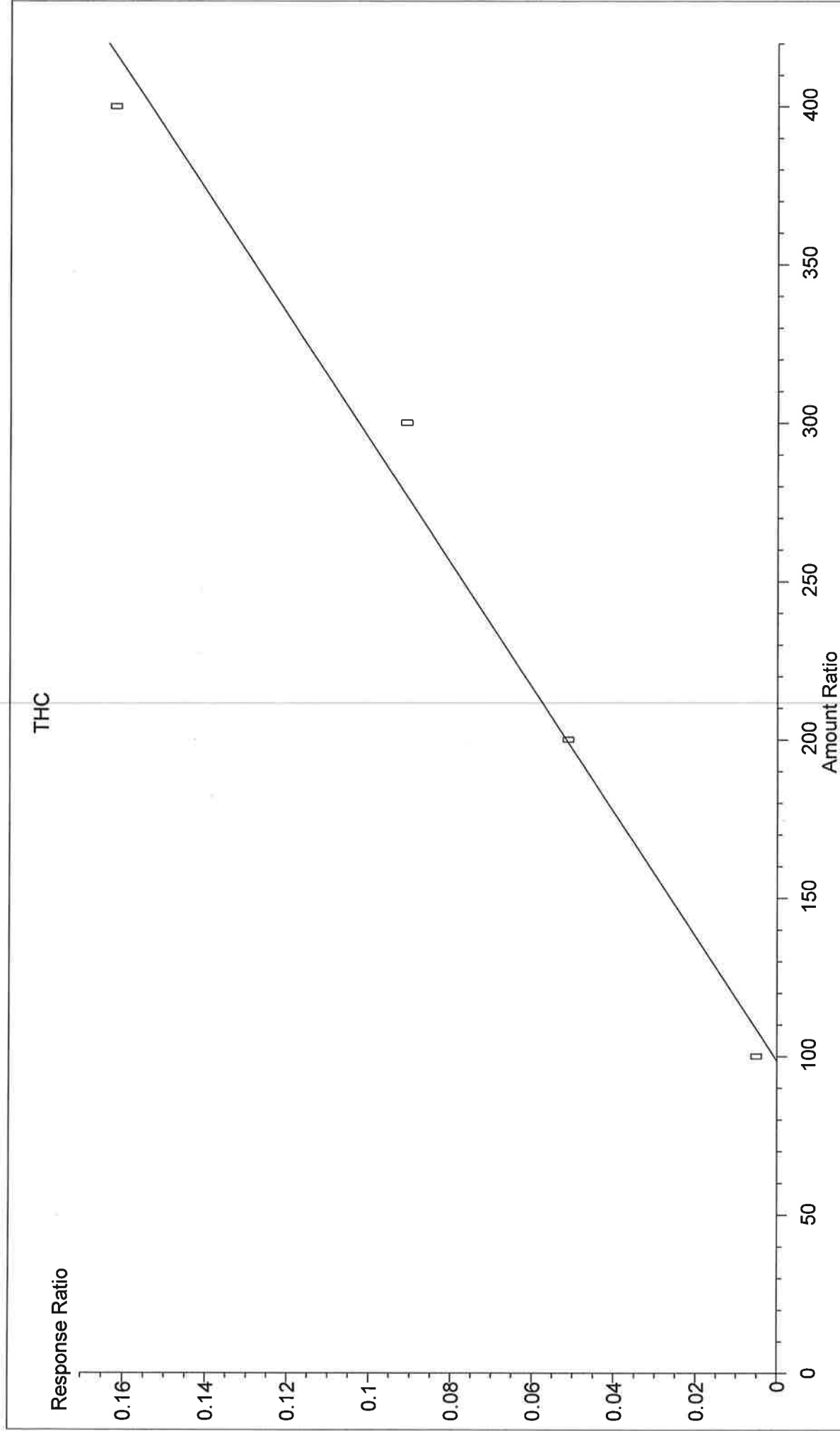
LVLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.021136	9.27	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 1 A.D
2	200.0000	0.061075	-6.39	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 2 A.D
3	300.0000	0.114103	2.66	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 3 A.D
4	400.0000	0.156460	-0.37	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 4 A.D



Resp Ratio = 4.590e-004 * Amt - 2.656e-002
 Coef of Det (r^2) = 0.997189 Curve Fit: Linear

Calibration data of TH

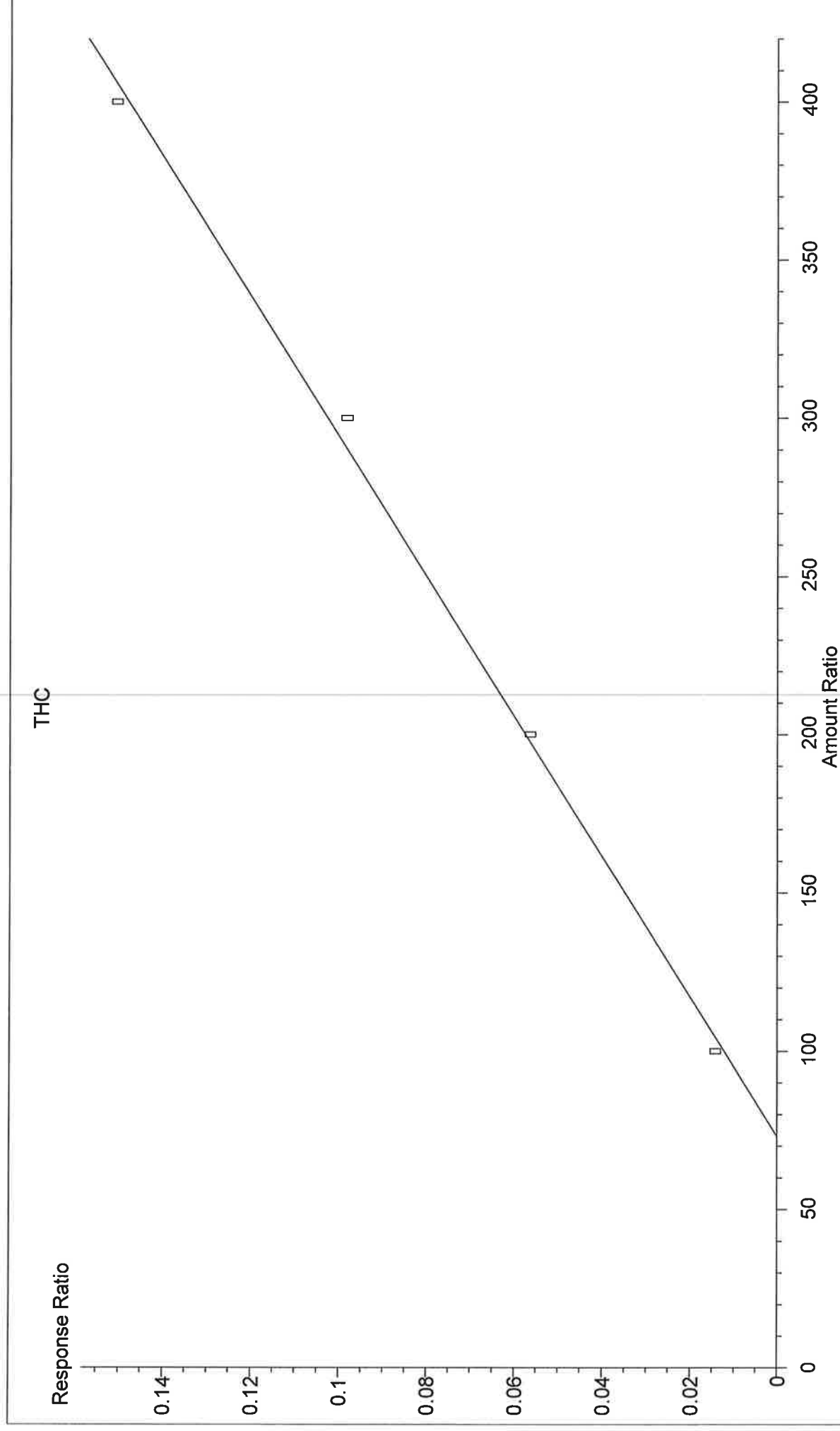
LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.005108	574.72	D:\MassHunter\GCMS\1\data\2019\BITT\2-11-19 II\THC 1 B.D
2	200.0000	0.051284	-1.12	D:\MassHunter\GCMS\1\data\2019\BITT\2-11-19 II\THC 2 B.D
3	300.0000	0.091088	-11.54	D:\MassHunter\GCMS\1\data\2019\BITT\2-11-19 II\THC 3 B.D
4	400.0000	0.162205	5.27	D:\MassHunter\GCMS\1\data\2019\BITT\2-11-19 II\THC 4 B.D



Resp Ratio = $5.111\text{e-}004 \times \text{Amt} - 5.035\text{e-}002$
 Coef of Det (r^2) = 0.982952 Curve Fit: Linear

Calibration data of TH

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.014186	16.51	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 1 C.D
2	200.0000	0.056332	-1.66	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 2 C.D
3	300.0000	0.098267	-4.03	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 3 C.D
4	400.0000	0.150571	2.08	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 4 C.D

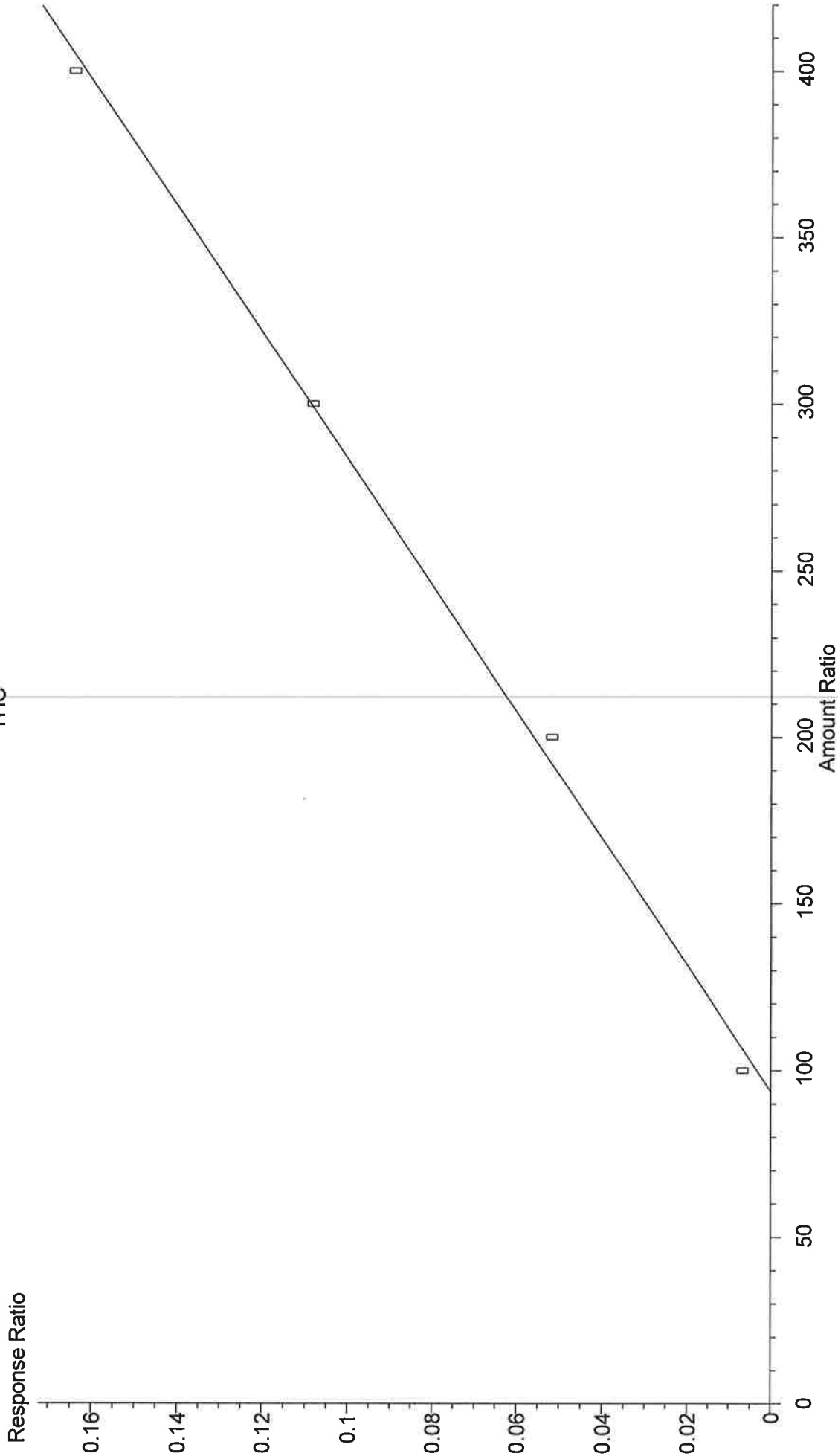


Resp Ratio = $4.511 \times 10^{-4} \times \text{Amt} - 3.293 \times 10^{-2}$
 Coef of Det (r^2) = 0.996924 Curve Fit: Linear

Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.006712	96.93	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 1 D.D
2	200.0000	0.051843	-8.00	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 2 D.D
3	300.0000	0.108410	-0.81	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 3 D.D
4	400.0000	0.164342	1.29	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 4 D.D

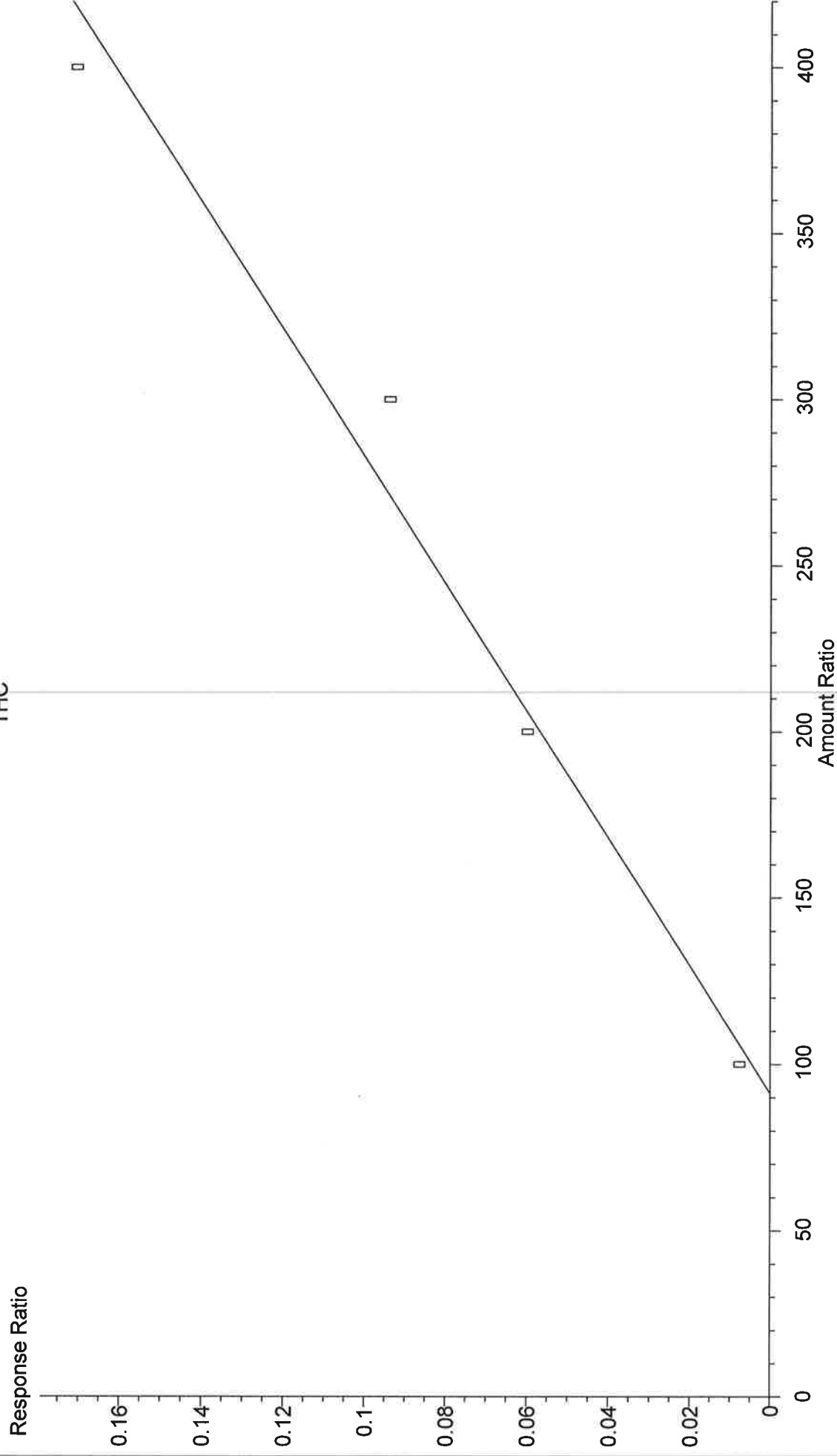
THC



Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.007652	67.81	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 1 E.D
2	200.0000	0.059975	5.31	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 2 E.D
3	300.0000	0.094021	-14.01	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 3 E.D
4	400.0000	0.170941	5.69	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 4 E.D

THC

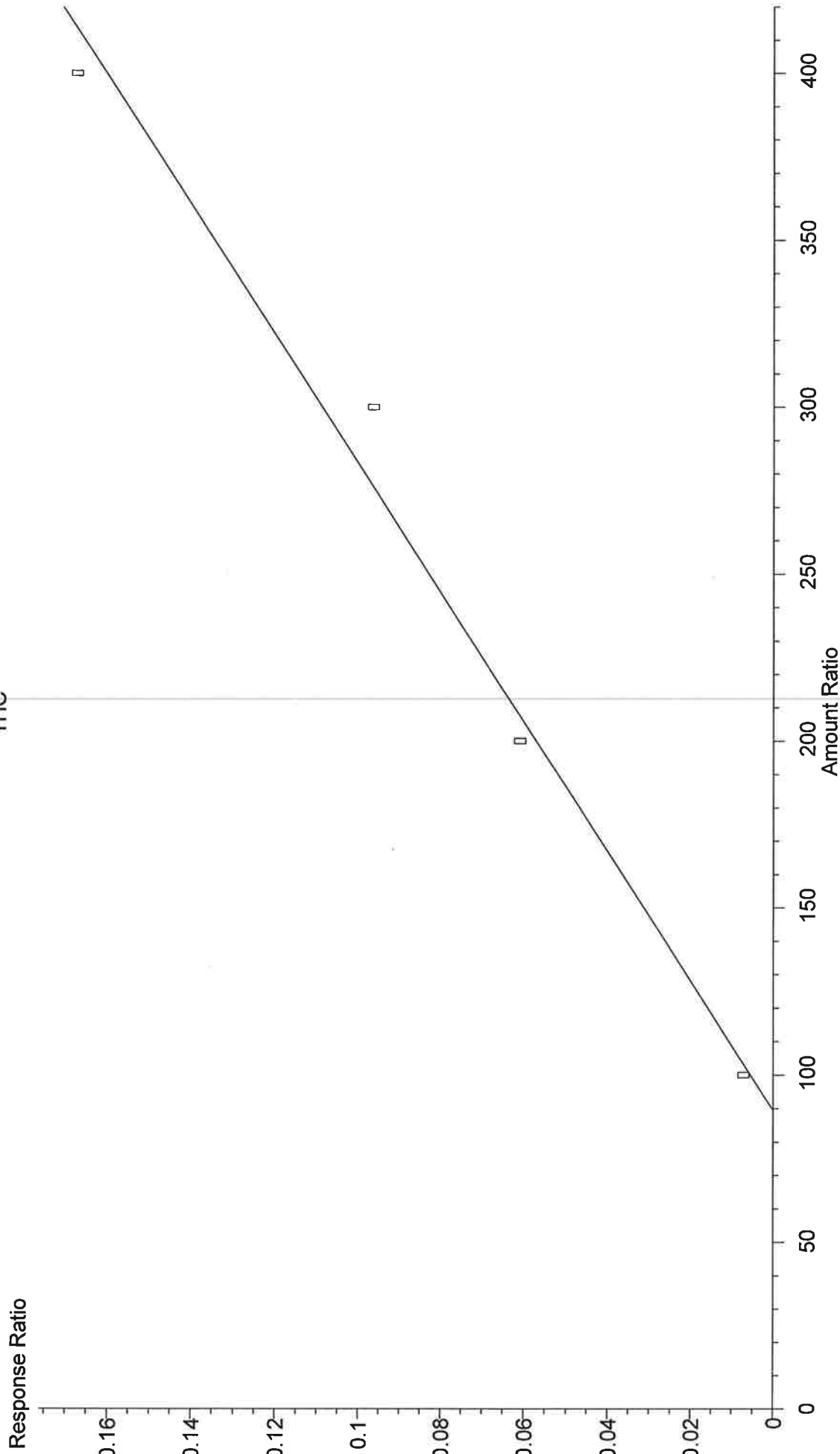


Resp Ratio = 5.239e-004 * Amt - 4.783e-002
 Coef of Det (r^2) = 0.975948 Curve Fit: Linear

Calibration data of TH^c

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.007100	29.16	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 1 F.D
2	200.0000	0.061027	6.65	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 2 F.D
3	300.0000	0.096523	-11.40	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 3 F.D
4	400.0000	0.167679	4.36	D:\MassHunter\GCMS\1\data\2019\BTT\2-11-19 II\THC 4 F.D

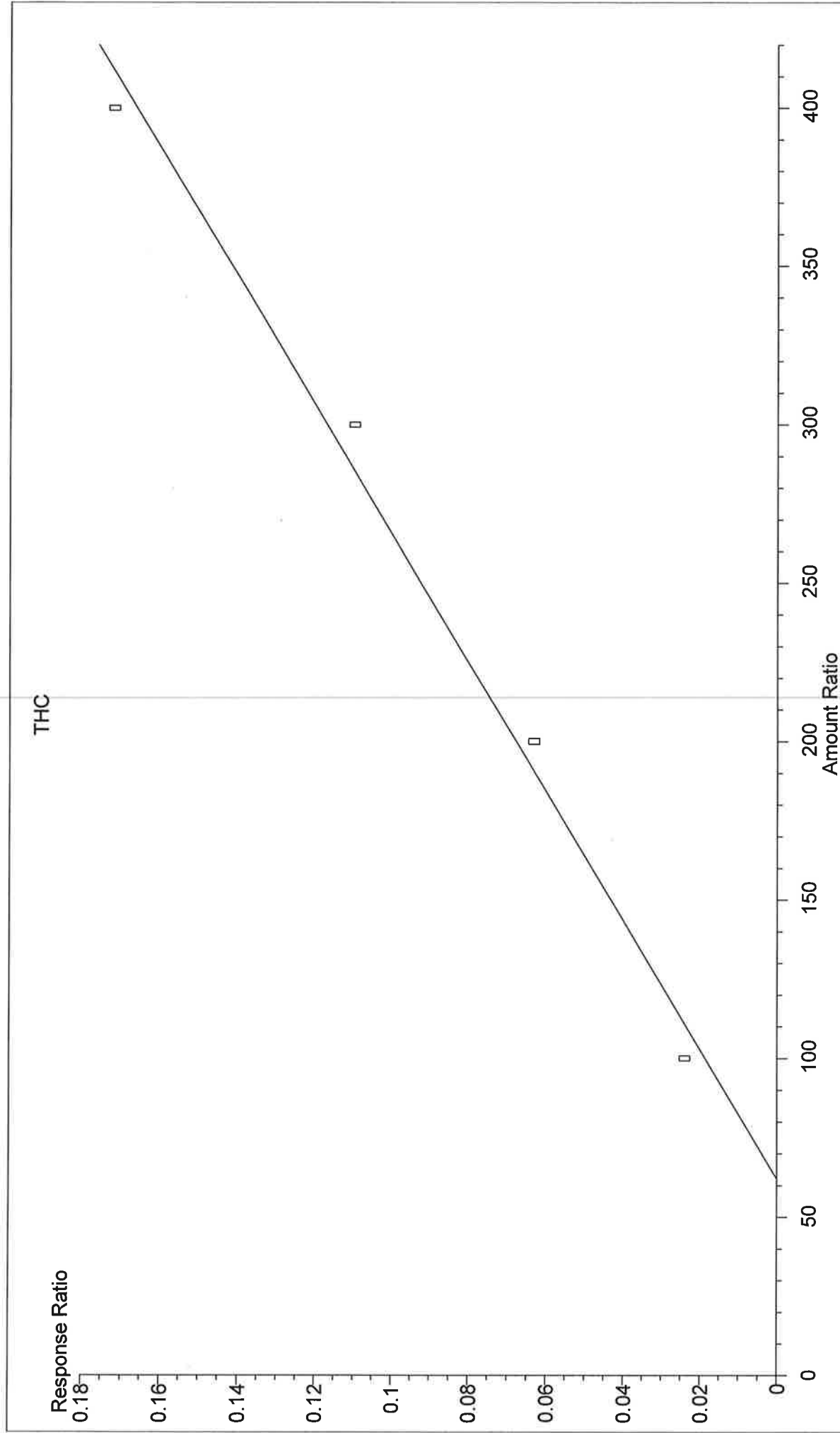
THC



Resp Ratio = 5.172e-004 * Amt - 4.623e-002
Coef of Det (r²) = 0.983784 Curve Fit: Linear

Calibration data of TH

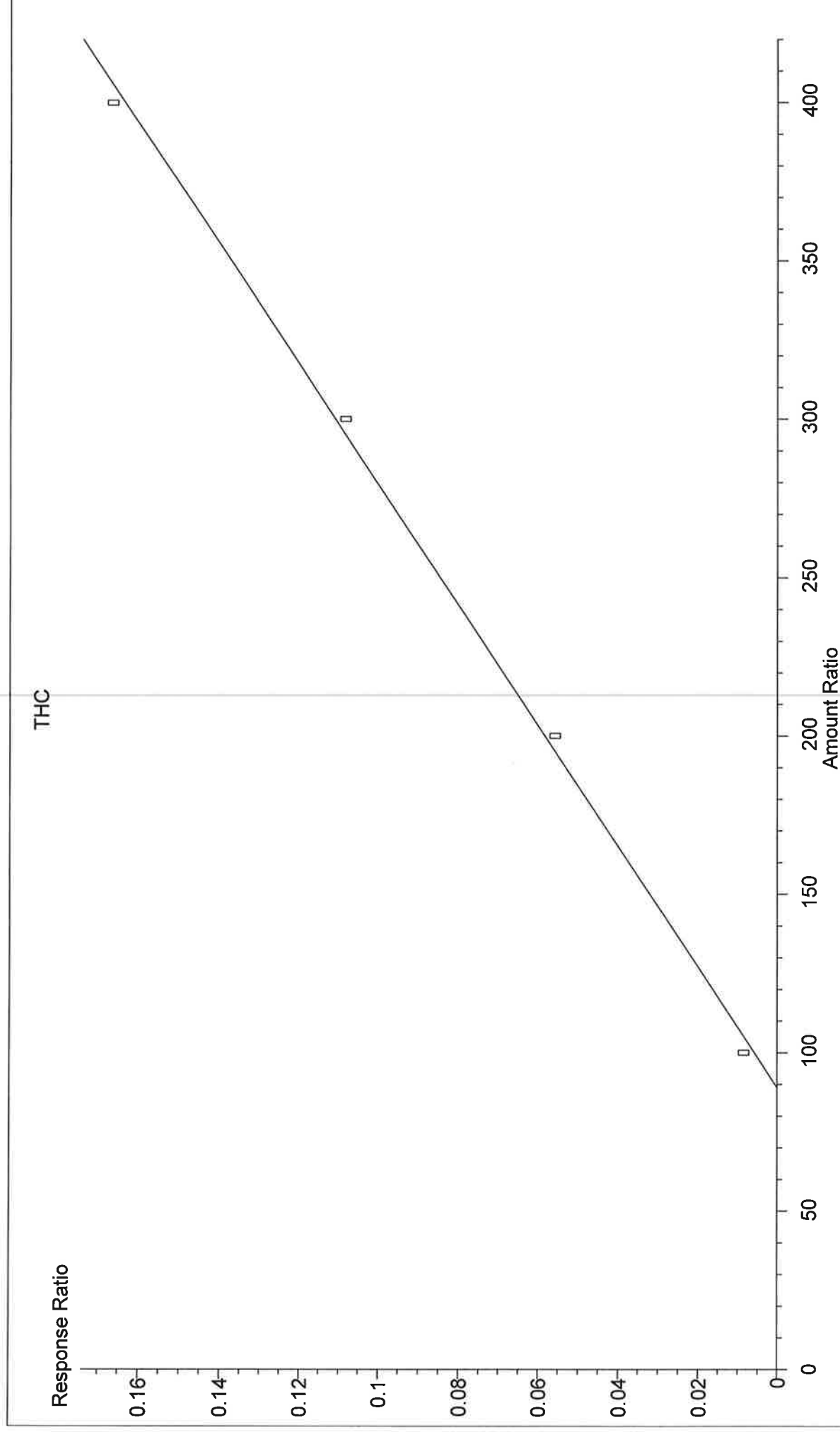
LVLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.023912	28.59	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 1 A.D
2	200.0000	0.063180	-6.64	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 2 A.D
3	300.0000	0.109788	-5.96	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 3 A.D
4	400.0000	0.171968	3.70	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 4 A.D



Resp Ratio = 4.908e-004 * Amt - 3.048e-002
 Coef of Det (r²) = 0.988946 Curve Fit: Linear

Calibration data of TH'

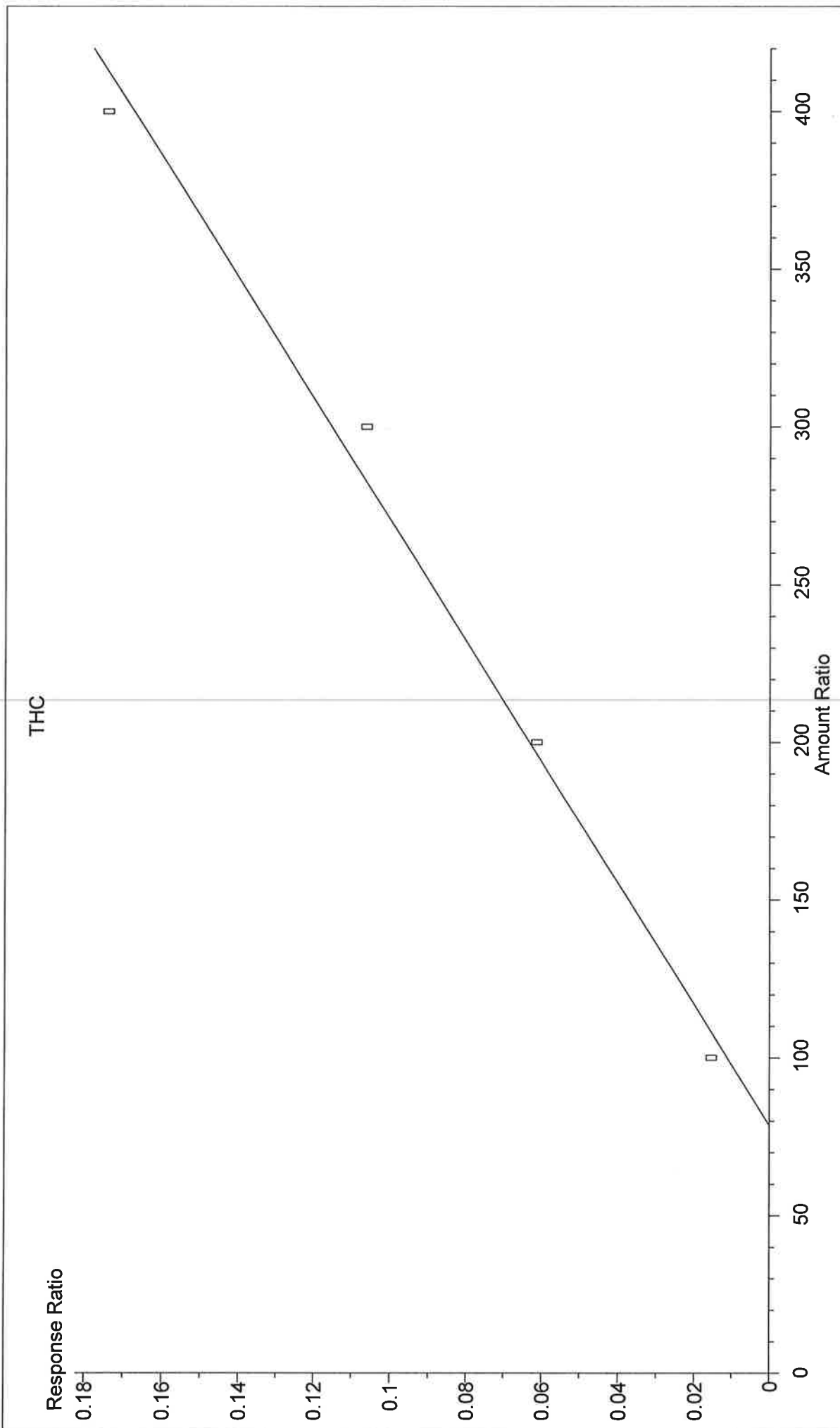
LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.008520	46.59	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 1 B.D
2	200.0000	0.055801	-4.56	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 2 B.D
3	300.0000	0.108320	-2.52	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 3 B.D
4	400.0000	0.166522	1.68	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 4 B.D



Resp Ratio = 5.265e-004 * Amt - 4.684e-002
 Coef of Det (r^2) = 0.997853 Curve Fit: Linear

Calibration data of TH'

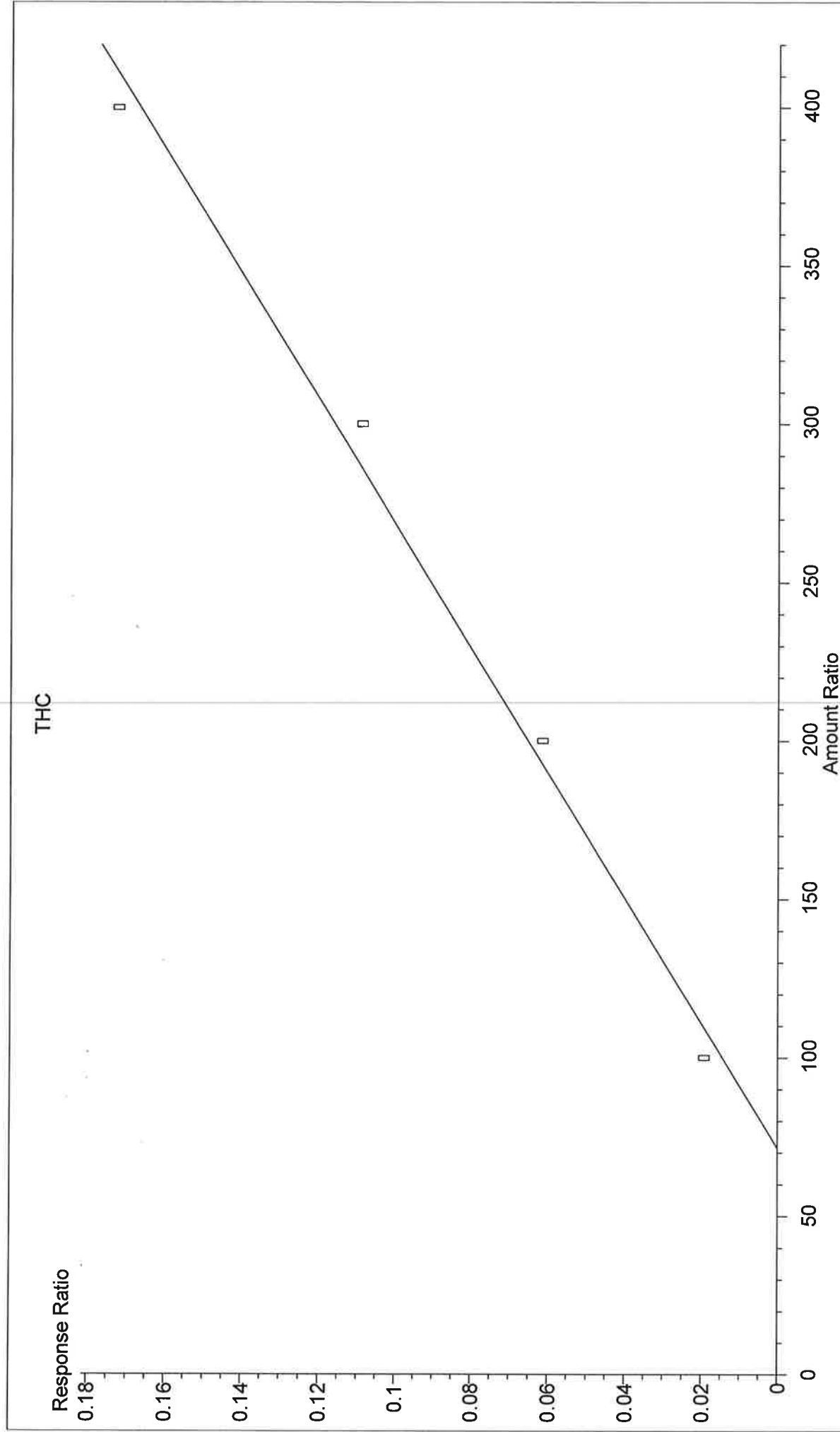
LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.015413	38.43	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 1 C.D
2	200.0000	0.061381	-2.97	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 2 C.D
3	300.0000	0.106297	-7.87	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 3 C.D
4	400.0000	0.174184	3.99	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 4 C.D



Resp Ratio = 5.212e-004 * Amt - 4.099e-002
 Coef of Det (r^2) = 0.989153 Curve Fit: Linear

Calibration data of TH

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.019307	32.97	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 1 D.D
2	200.0000	0.061537	-5.67	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 2 D.D
3	300.0000	0.108986	-6.01	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 3 D.D
4	400.0000	0.172540	3.53	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 4 D.D

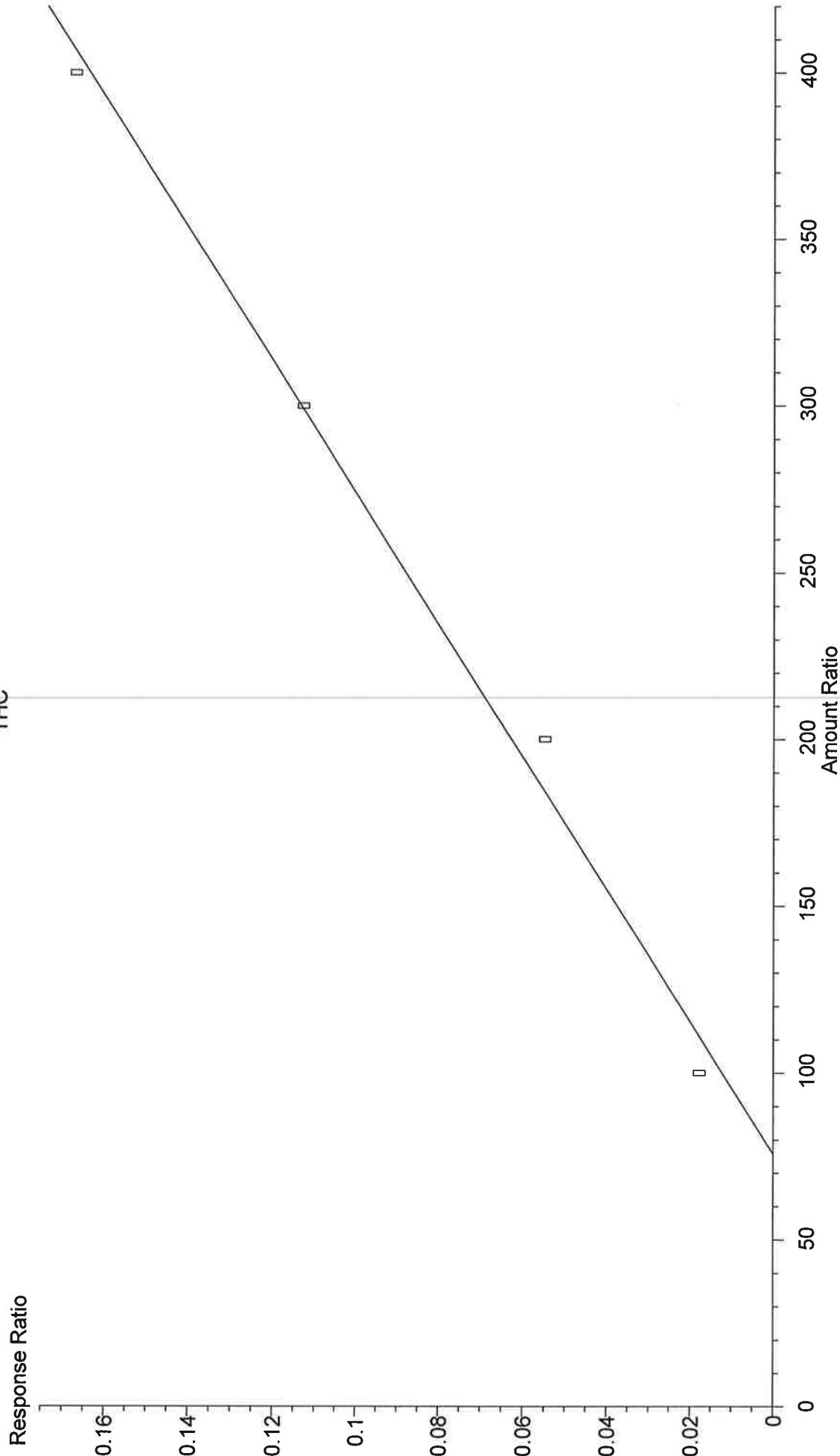


Resp Ratio = 5.072e-004 * Amt - 3.620e-002
 Coef of Det (r²) = 0.990785 Curve Fit: Linear

Calibration data of TH

LVLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.017865	45.50	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 1 E.D
2	200.0000	0.054874	-12.77	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 2 E.D
3	300.0000	0.112850	-0.61	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 3 E.D
4	400.0000	0.167310	1.91	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 4 E.D

THC

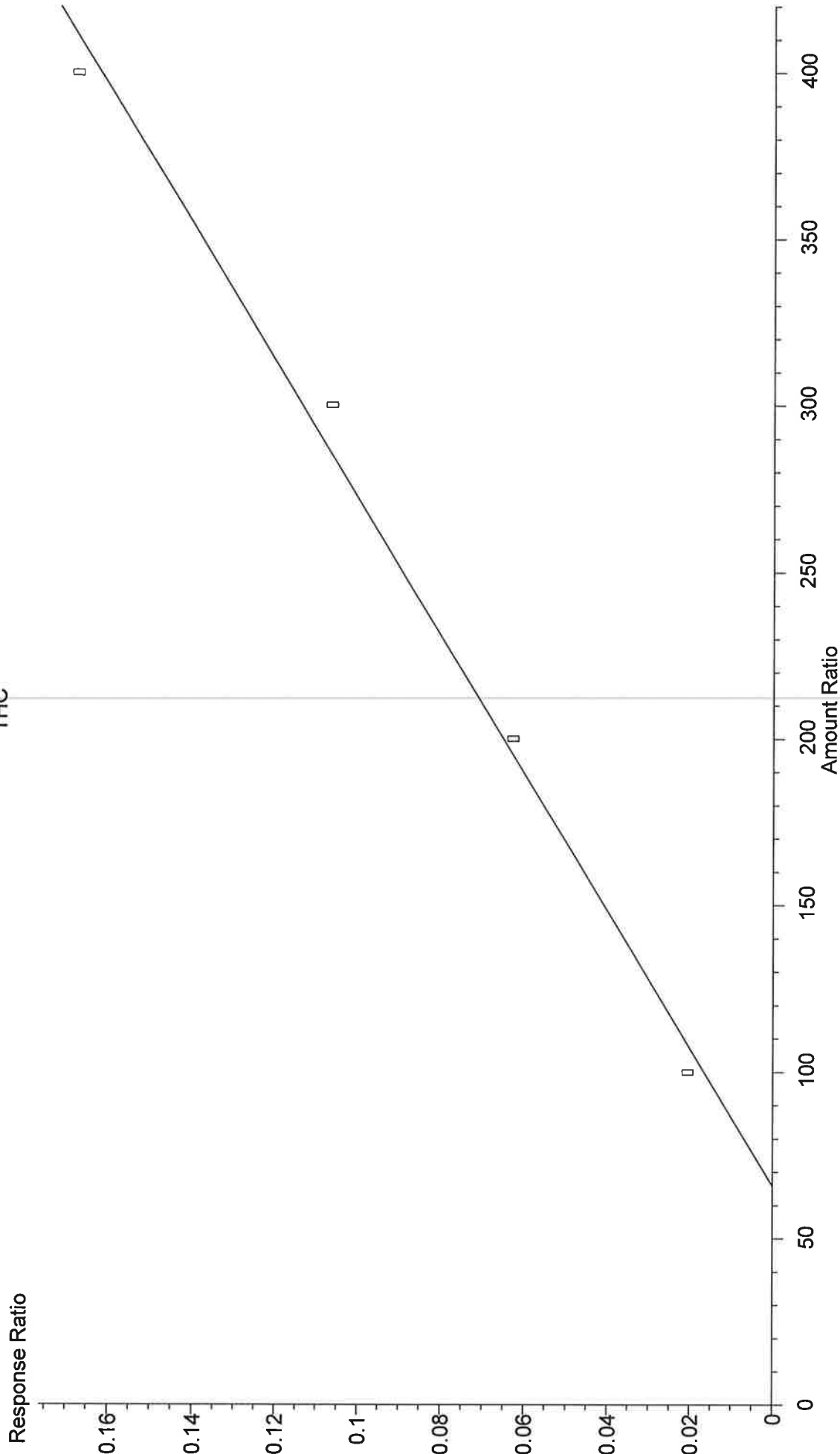


Resp Ratio = 5.063e-004 * Amt - 3.835e-002
 Coef of Det (r^2) = 0.991790 Curve Fit: Linear

Calibration data of TP

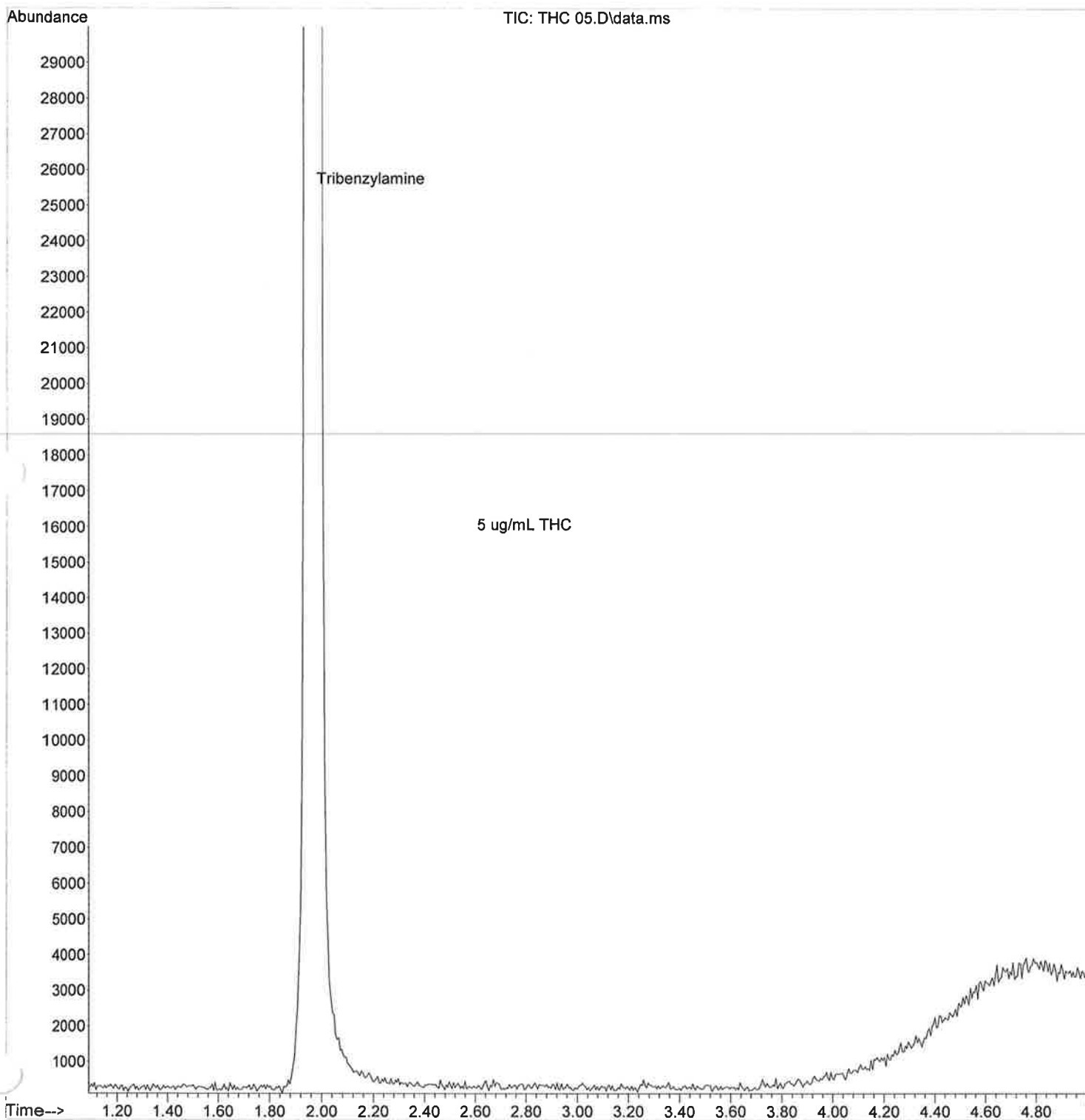
LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	100.0000	0.020554	23.75	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 1 F.D
2	200.0000	0.062814	-3.60	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 2 F.D
3	300.0000	0.106559	-6.28	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 3 F.D
4	400.0000	0.167798	3.42	D:\MassHunter\GCMS\1\data\2019\BTT\2-12-19\THC 4 F.D

THC

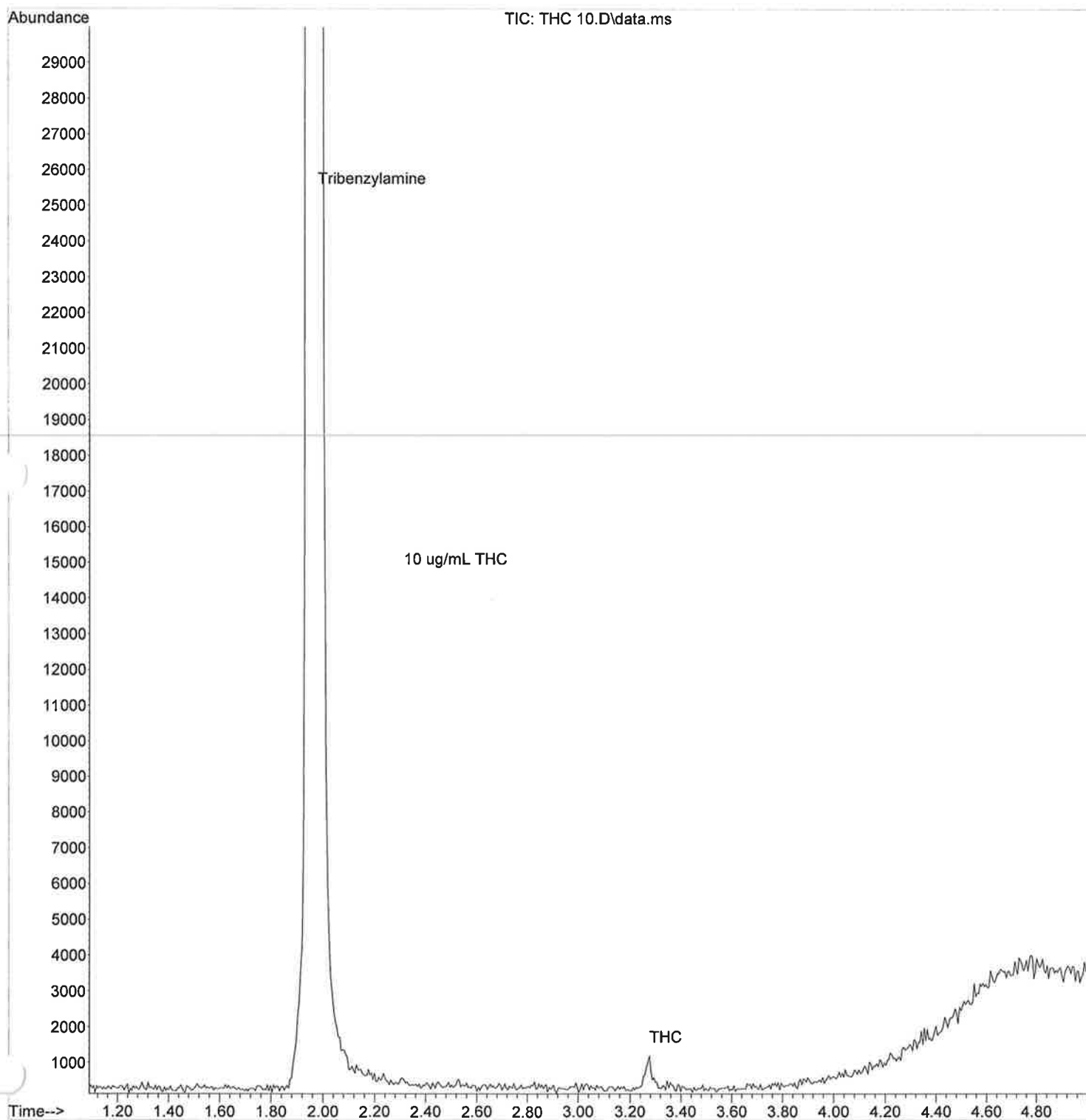


Resp Ratio = 4.855e-004 * Amt - 3.194e-002
 Coef of Det (r^2) = 0.991347 Curve Fit: Linear

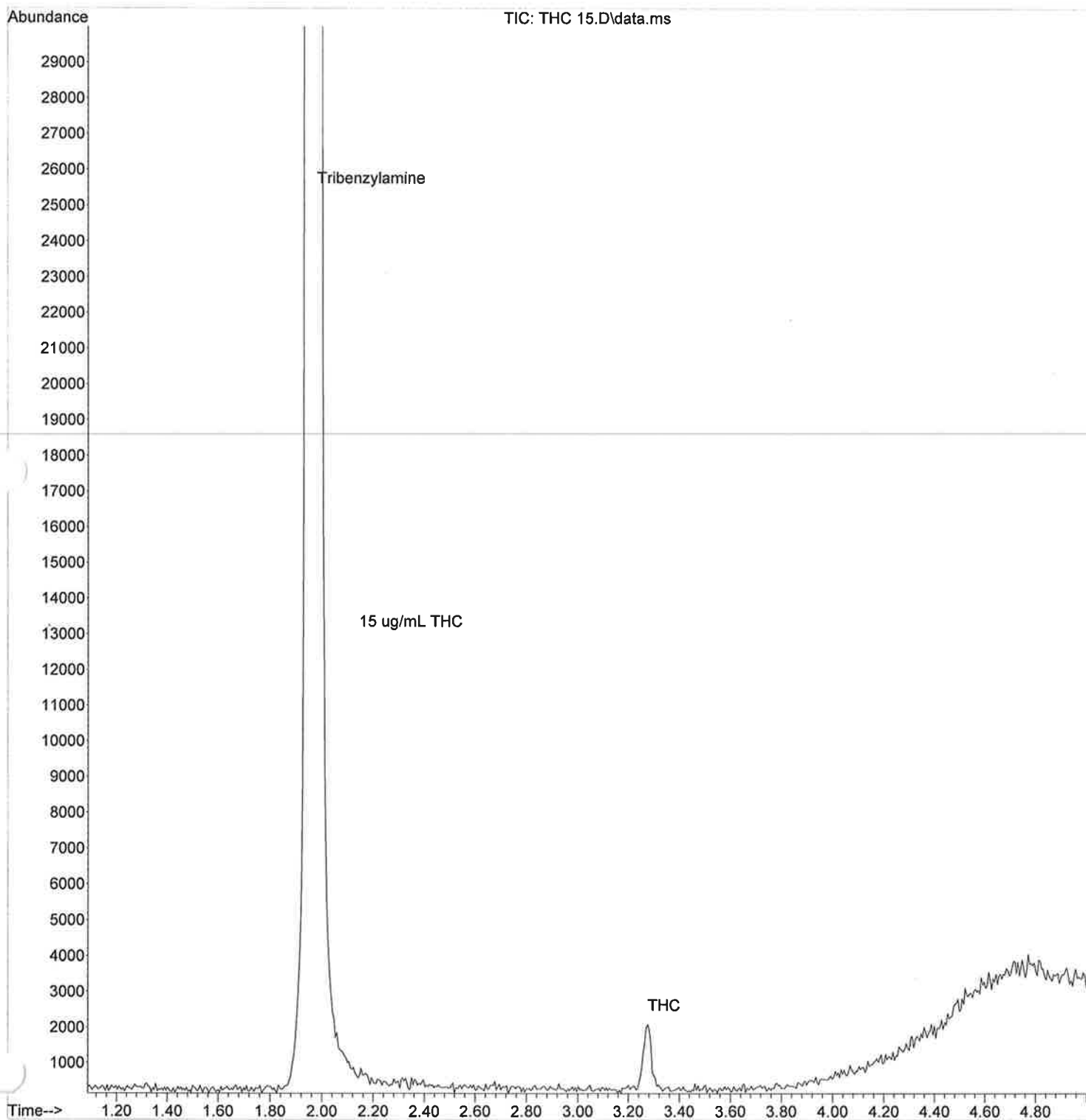
File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 05.D
Operator : BTT
Acquired : 15 Feb 2019 14:00 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 52



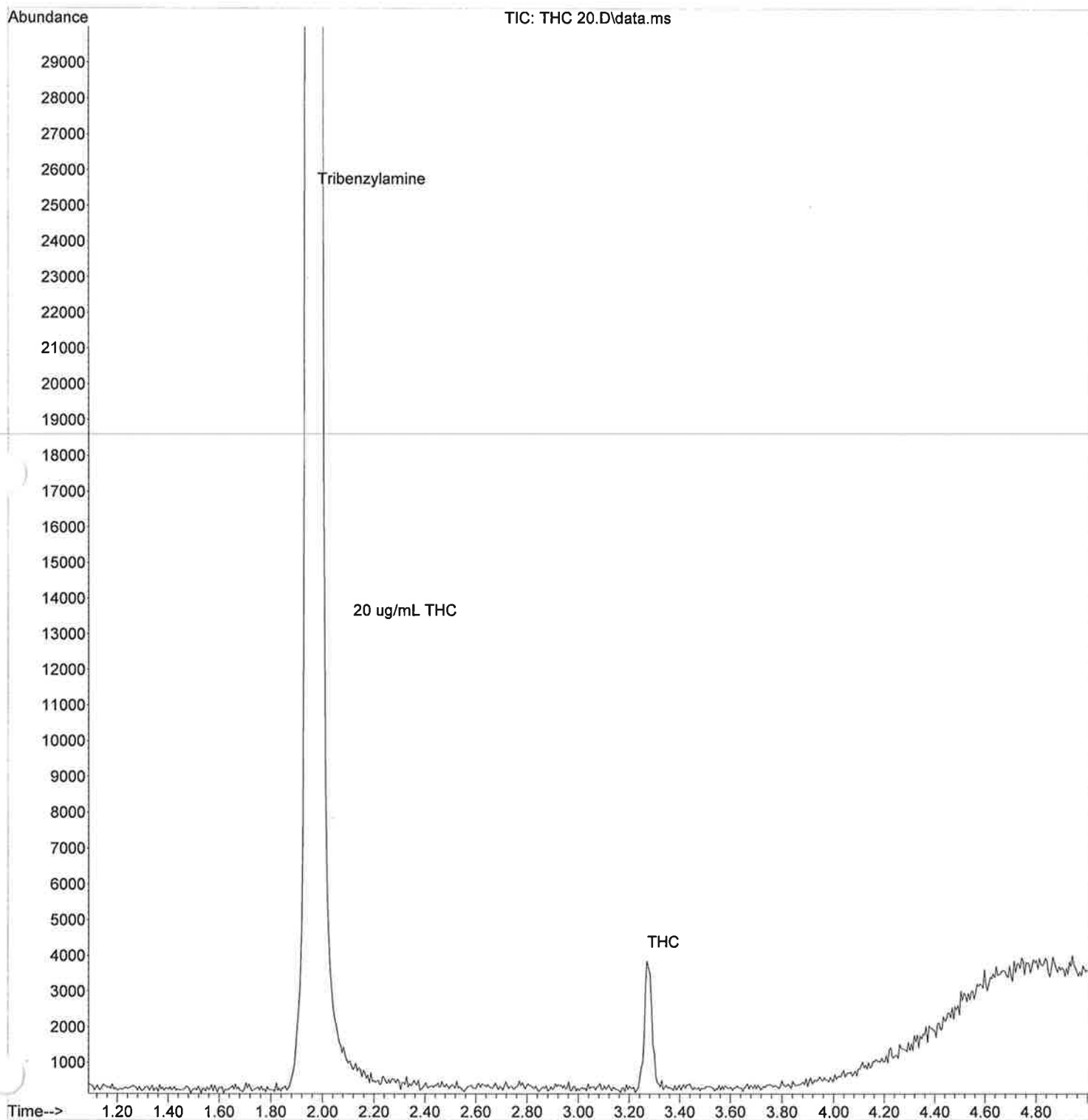
File :C:\msdchem\1\DATA\2019\BTT2-15-19 II\THC 10.D
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Acquired : 15 Feb 2019 14:15 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 54



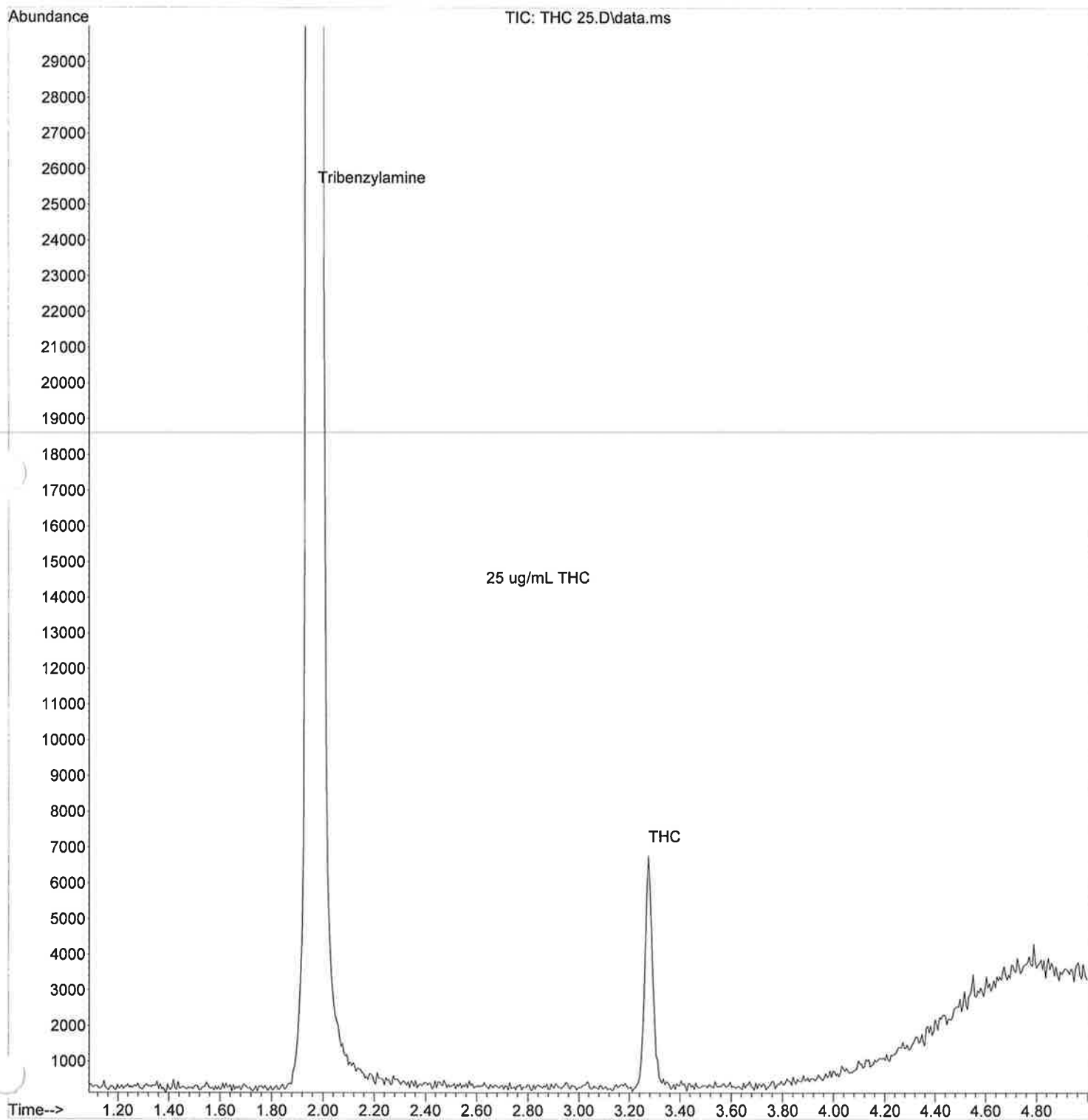
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Acquired : 15 Feb 2019 14:31 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 56



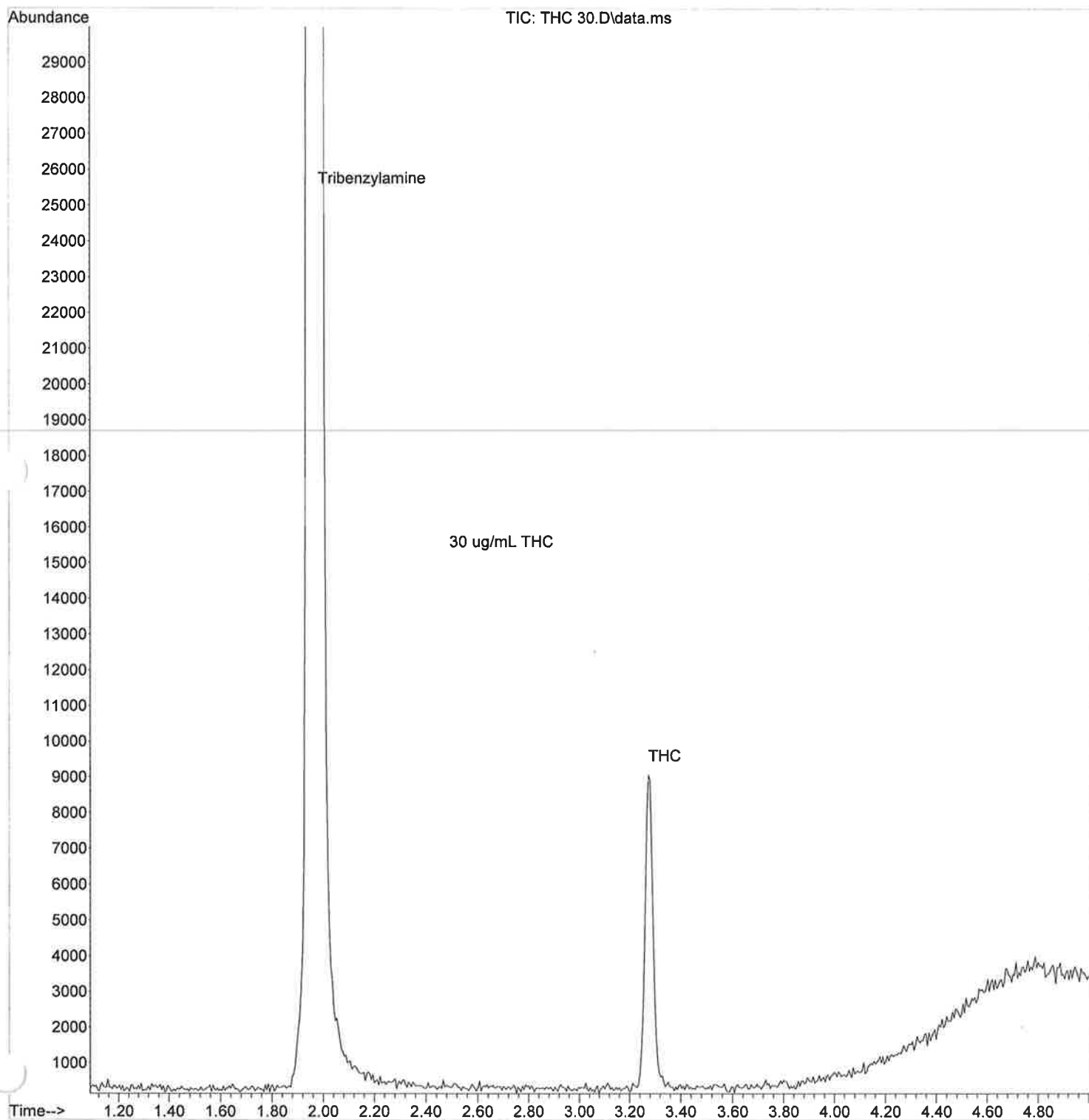
File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 20.D
Operator : BTT
Acquired : 15 Feb 2019 14:46 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 58



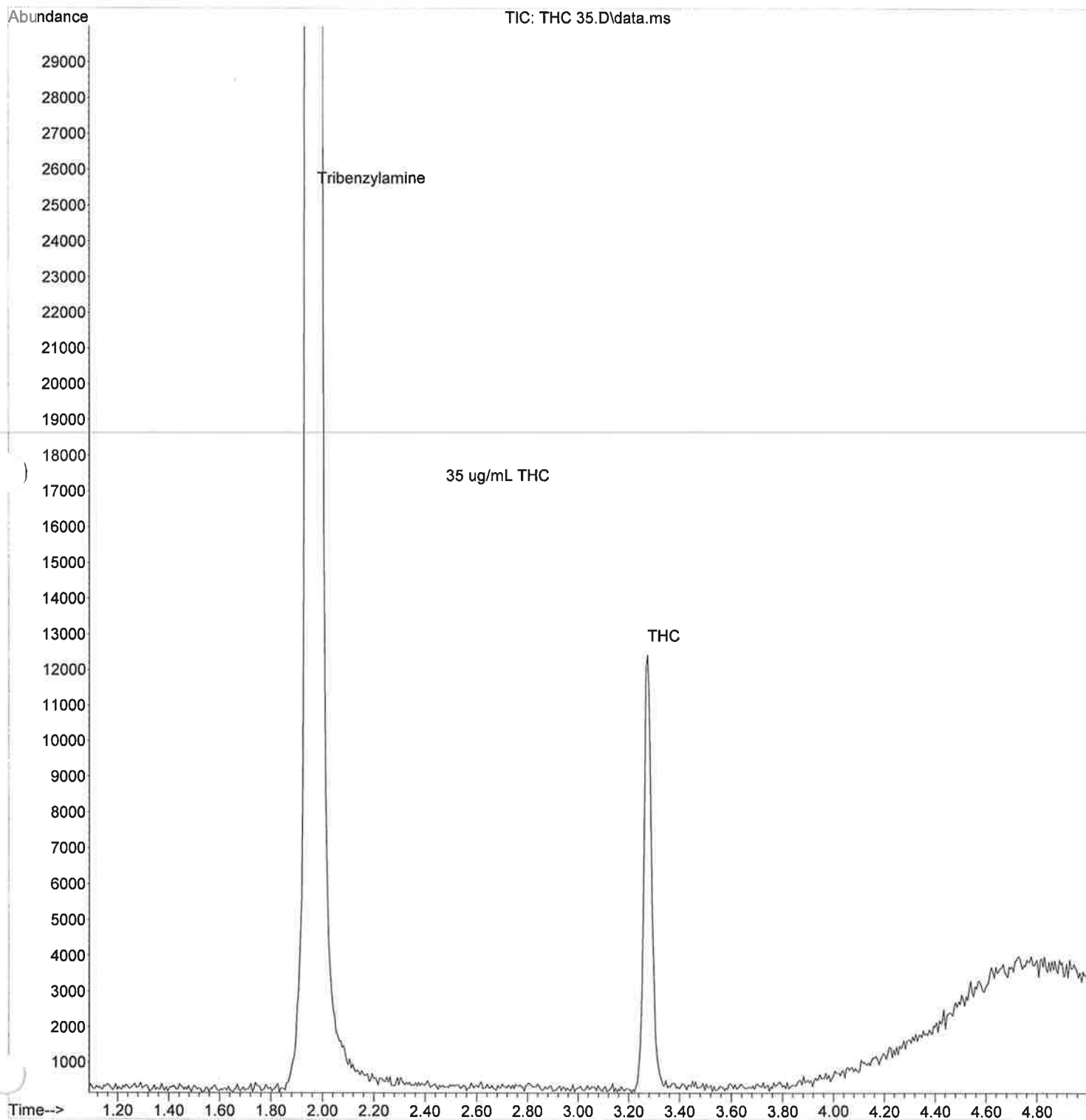
File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 25.D
Operator : BTT
Acquired : 15 Feb 2019 15:02 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 60



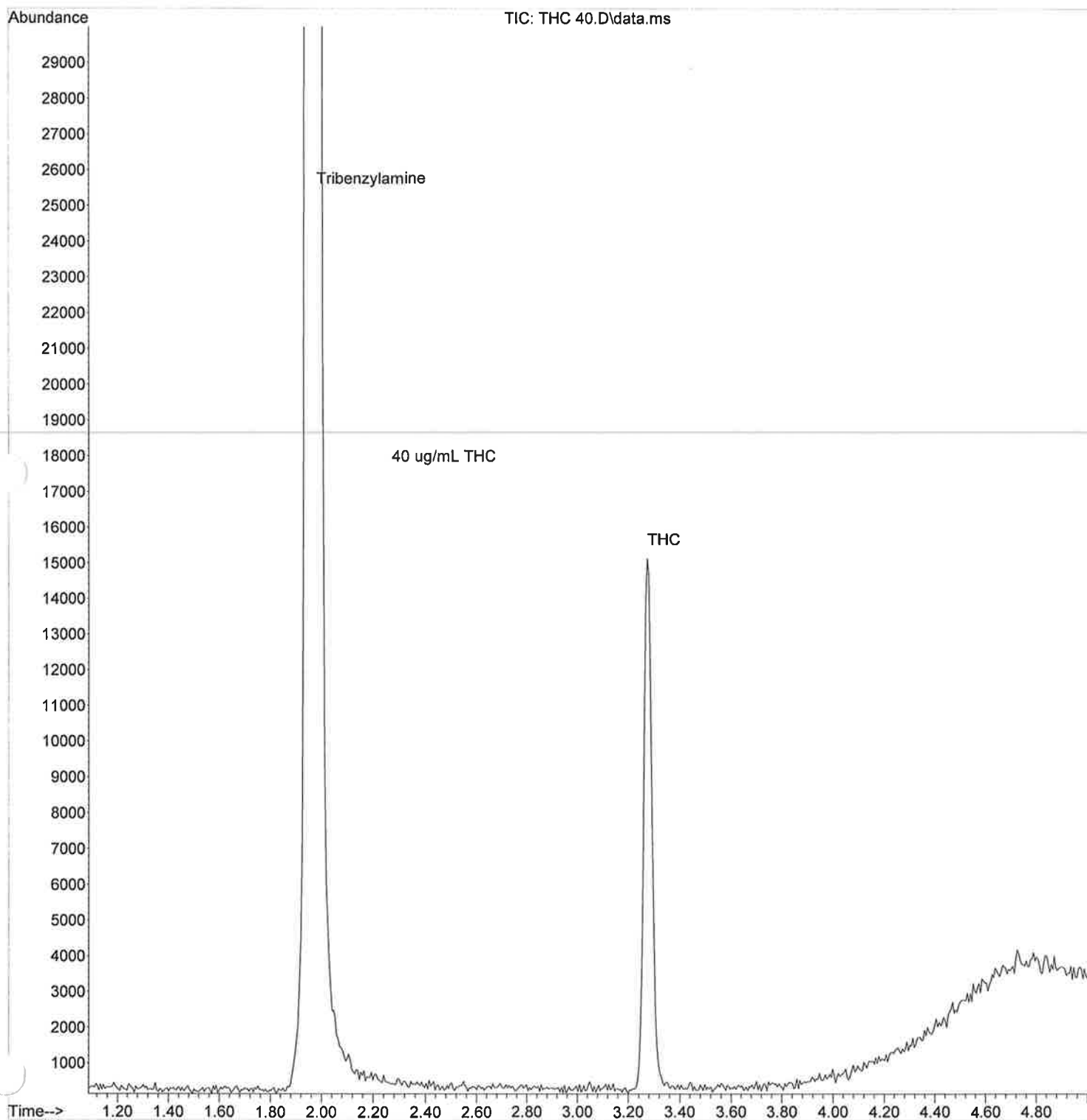
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Operator : BTT
Acquired : 15 Feb 2019 15:18 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 62



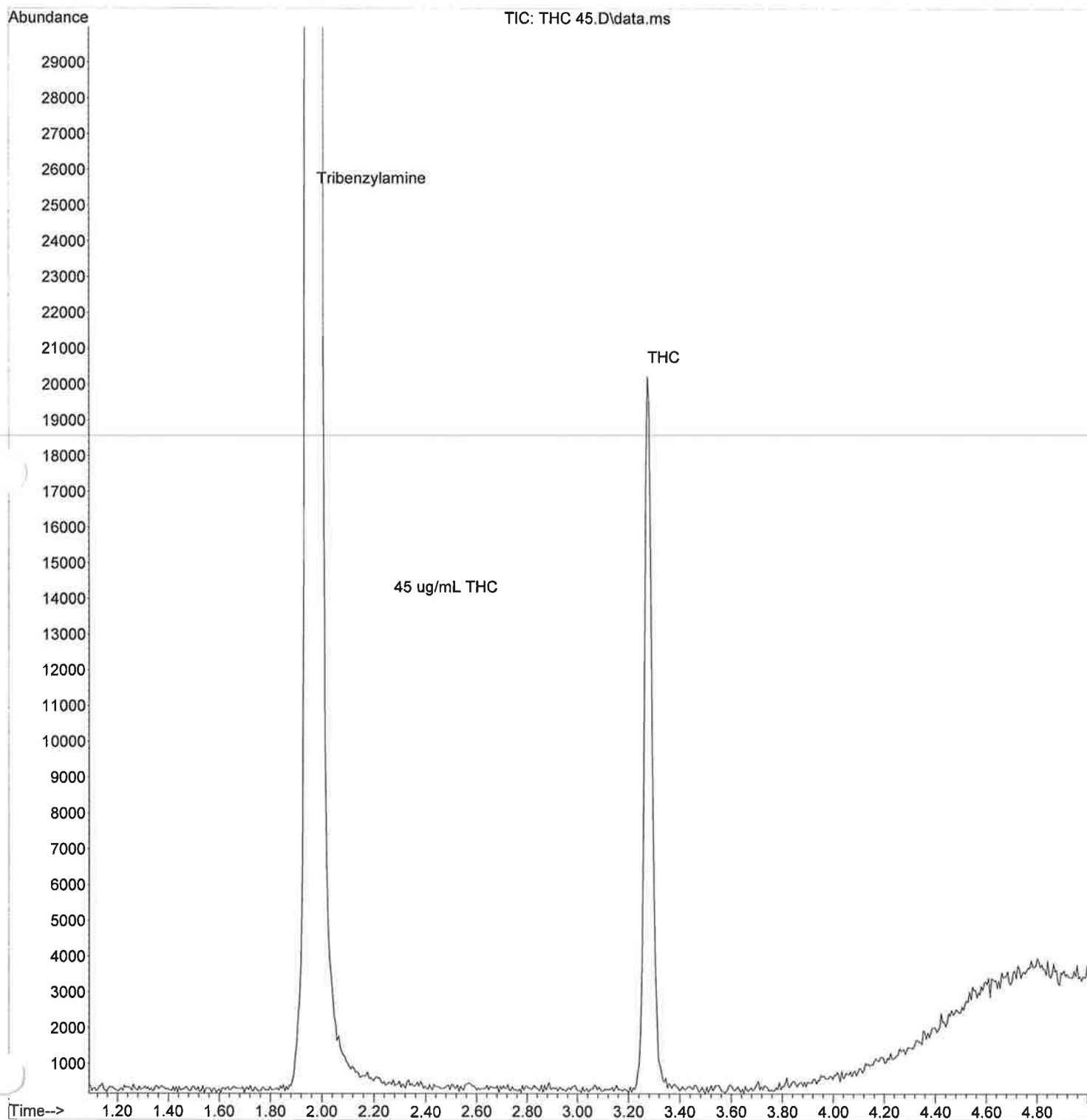
File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 35.D
Operator : BTT
Acquired : 15 Feb 2019 15:33 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 64



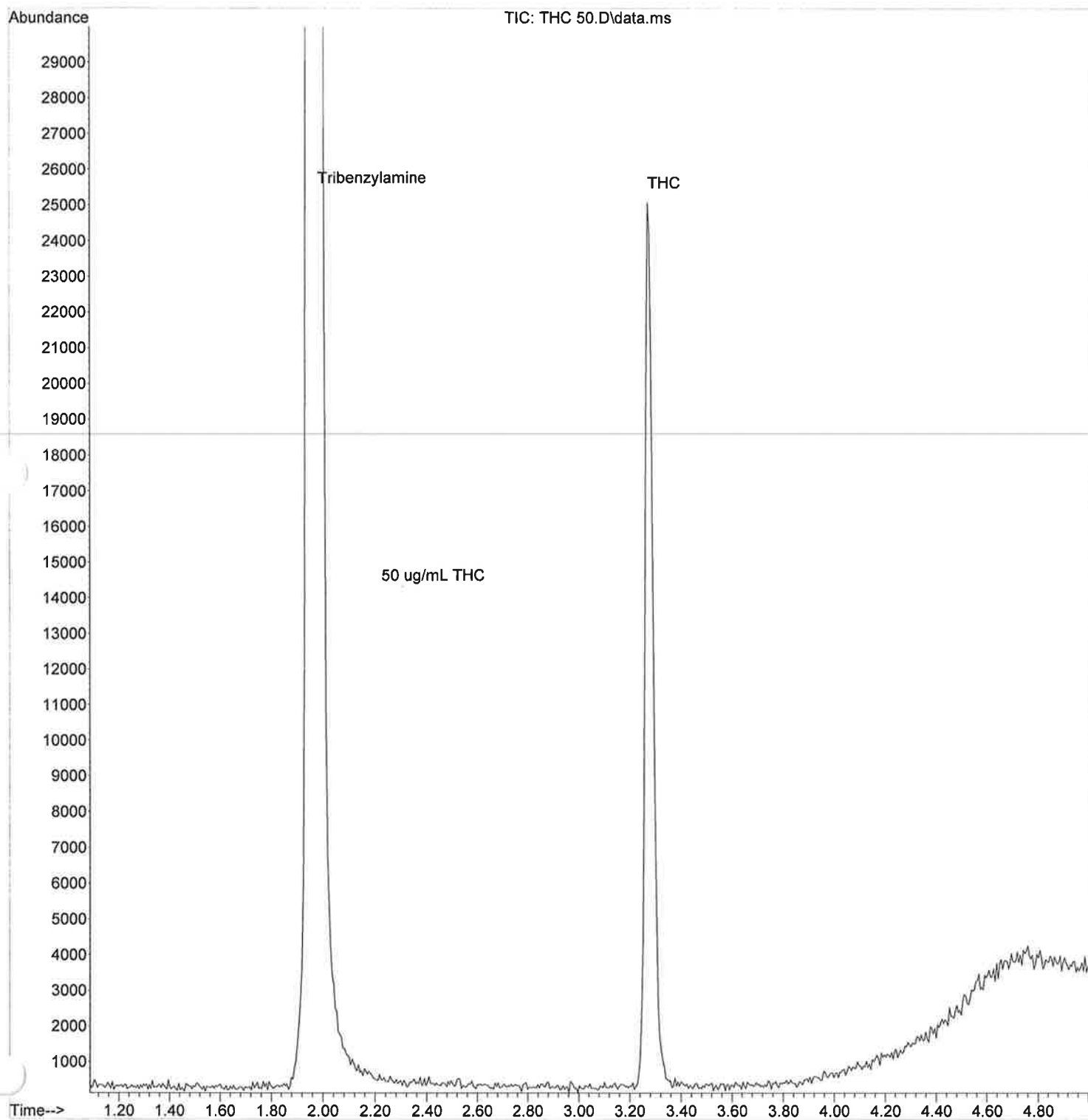
File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 40.D
Operator : BTT
Acquired : 15 Feb 2019 15:49 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 66



File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 45.D
Operator : BTT
Acquired : 15 Feb 2019 16:04 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 68



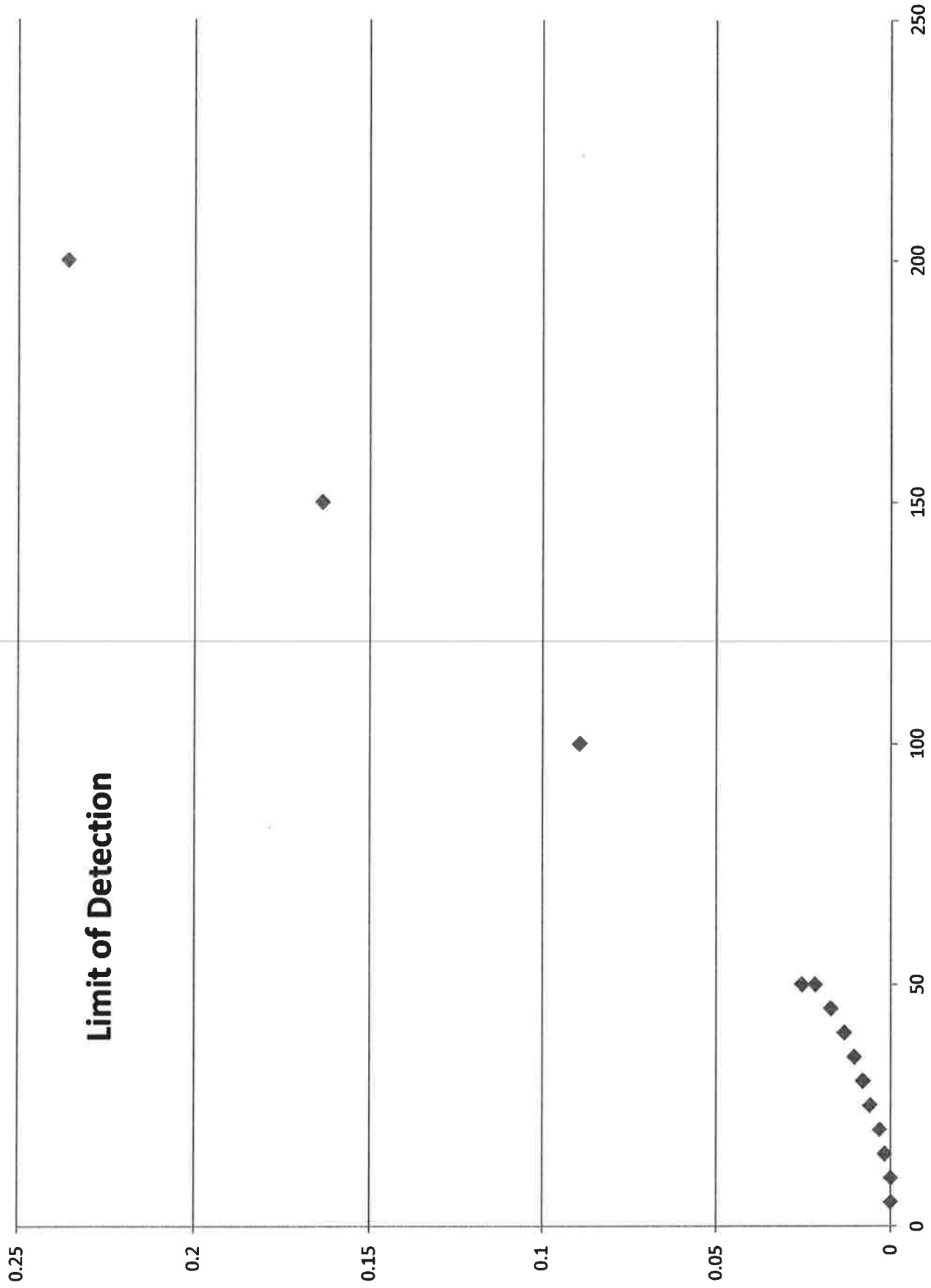
File :C:\msdchem\1\DATA\2019\BTT\2-15-19 II\THC 50.D
Operator : BTT
Acquired : 15 Feb 2019 16:20 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Standard
Misc Info : Methanol
Vial Number: 70



Limit of Detection

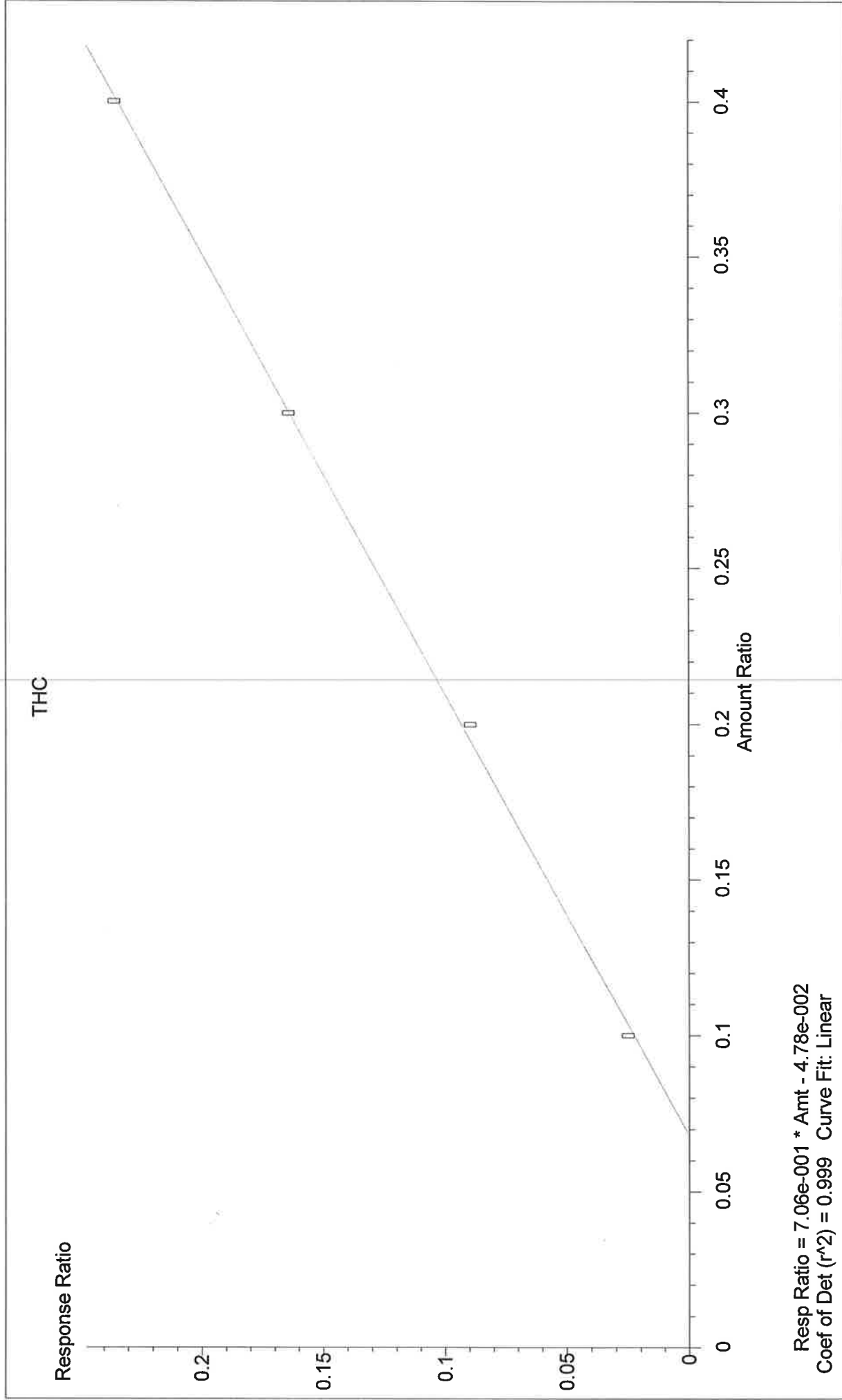
Relative THC Area

THC Concentration



Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1000	0.025169	10.64	C:\msdchem\1\DATA\2019\BTT\2-19-19\THC 100.D
2	0.2000	0.089614	-3.98	C:\msdchem\1\DATA\2019\BTT\2-19-19\THC 200.D
3	0.3000	0.164096	0.11	C:\msdchem\1\DATA\2019\BTT\2-19-19\THC 300 II.D
4	0.4000	0.235623	0.48	C:\msdchem\1\DATA\2019\BTT\2-19-19\THC 400.D



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-19-19\

Data File : THC 100.D

Acq On : 19 Feb 2019 8:19

Operator : BTT

Sample : Standard

Misc : Methanol

ALS Vial : 52 Sample Multiplier: 1

Integration Parameters: autoint1.e

Integrator: ChemStation

Method : C:\msdchem\1\METHODS\THC Quant.M

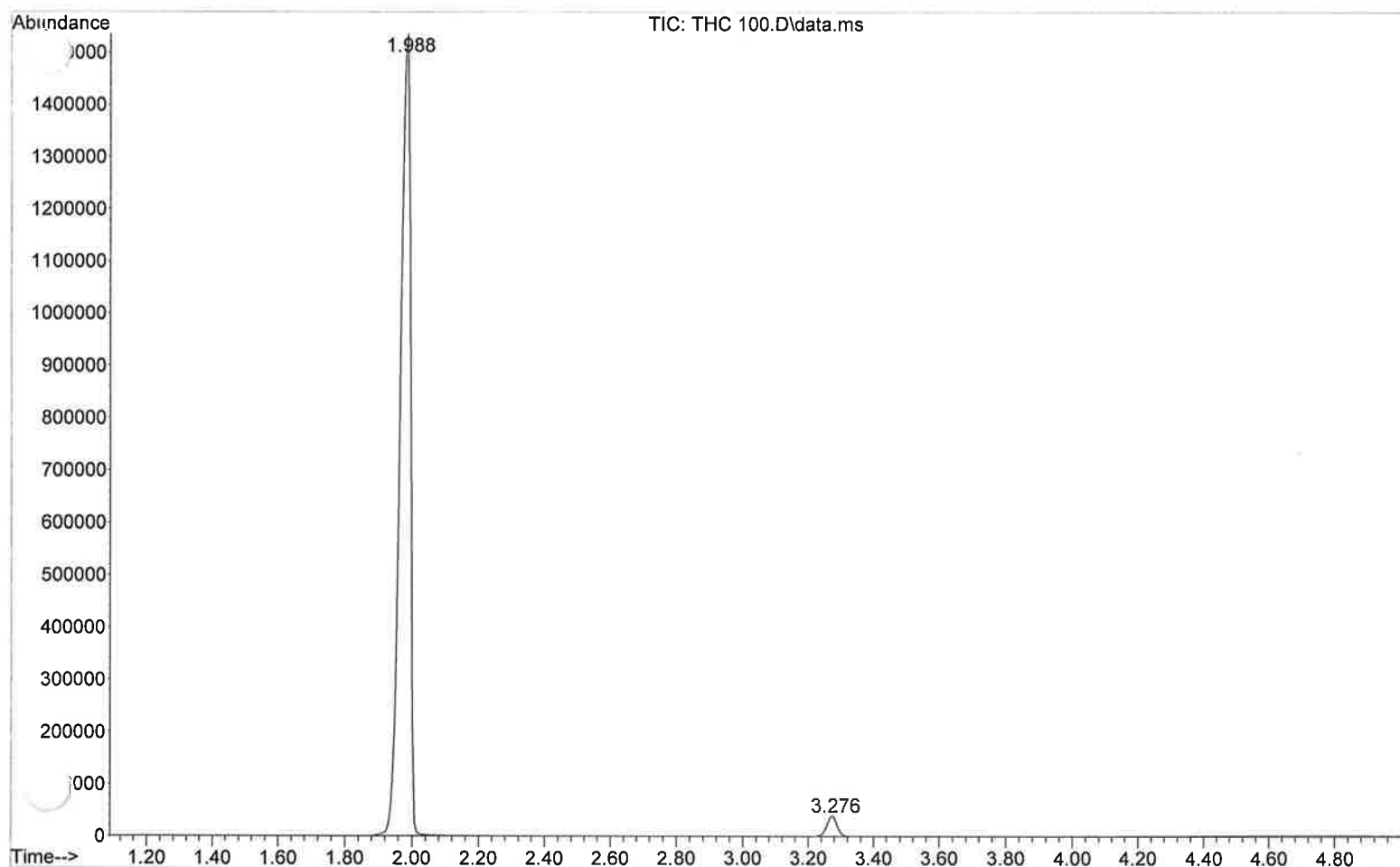
Title : BT THC Quant

Signal : TIC: THC 100.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	1.989	132	156	182	PV	1523600	32830771	100.00%	97.535%	
2	3.276	363	377	396	PV	39032	829846	2.53%	2.465%	

Sum of corrected areas: 33660617

THC Quant.M Tue Feb 19 13:17:06 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-19-19\
 Data File : THC 200.D
 Acq On : 19 Feb 2019 8:35
 Operator : BTT
 Sample : Standard
 Misc : Methanol
 ALS Vial : 54 Sample Multiplier: 1

Integration Parameters: autoint1.e
 Integrator: ChemStation

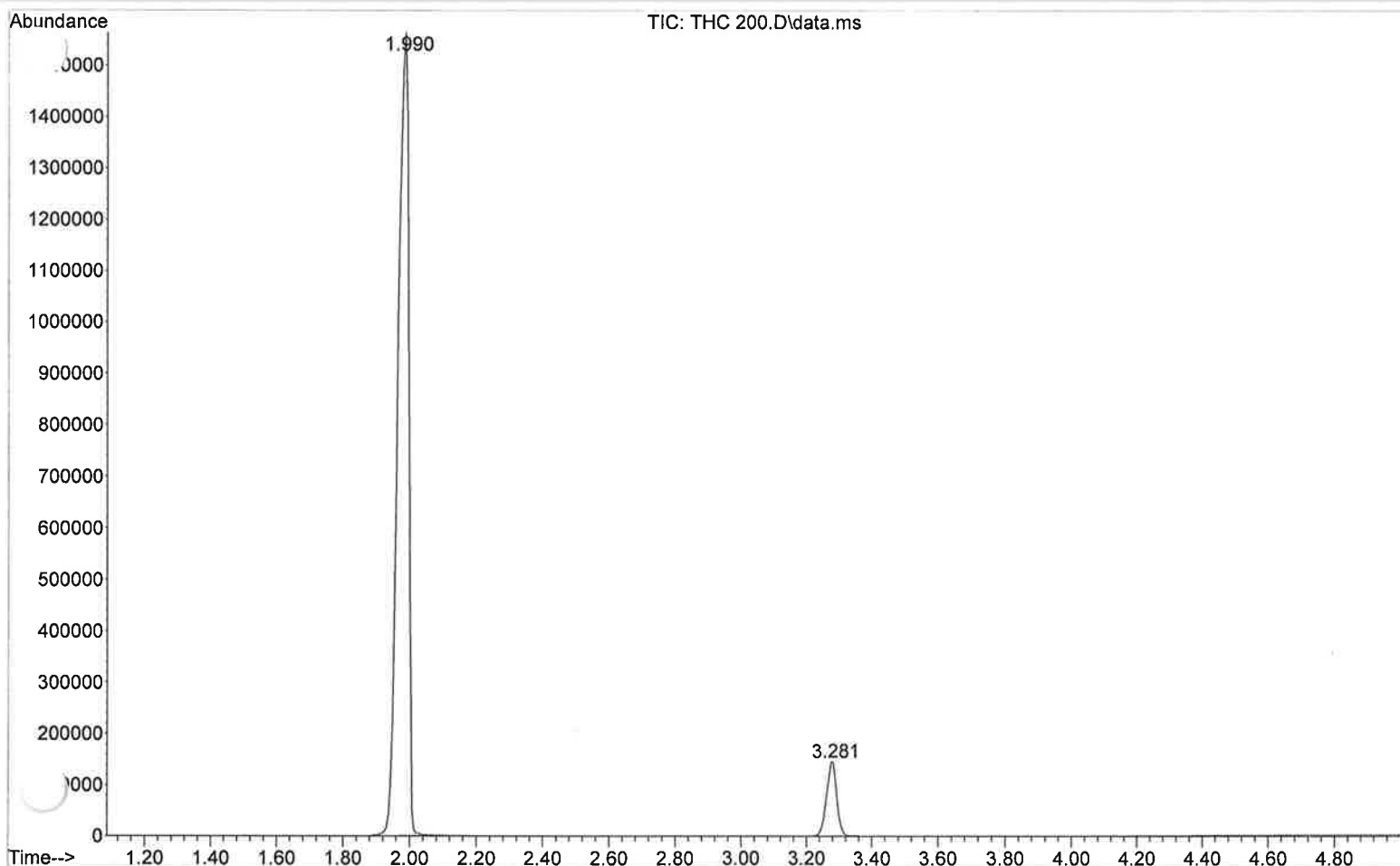
Method : C:\msdchem\1\METHODS\THC Quant.M
 Title : BT THC Quant

Signal : TIC: THC 200.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	1.990	120	156	185	PV	1535983	35234113	100.00%	91.798%
2	3.281	360	378	394	BV	145796	3148058	8.93%	8.202%

Sum of corrected areas: 38382172

THC Quant.M Tue Feb 19 13:17:15 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-19-19\
Data File : THC 300 II.D
Acq On : 19 Feb 2019 12:51
Operator : BTT
Sample : Standard
Misc : Methanol
ALS Vial : 56 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

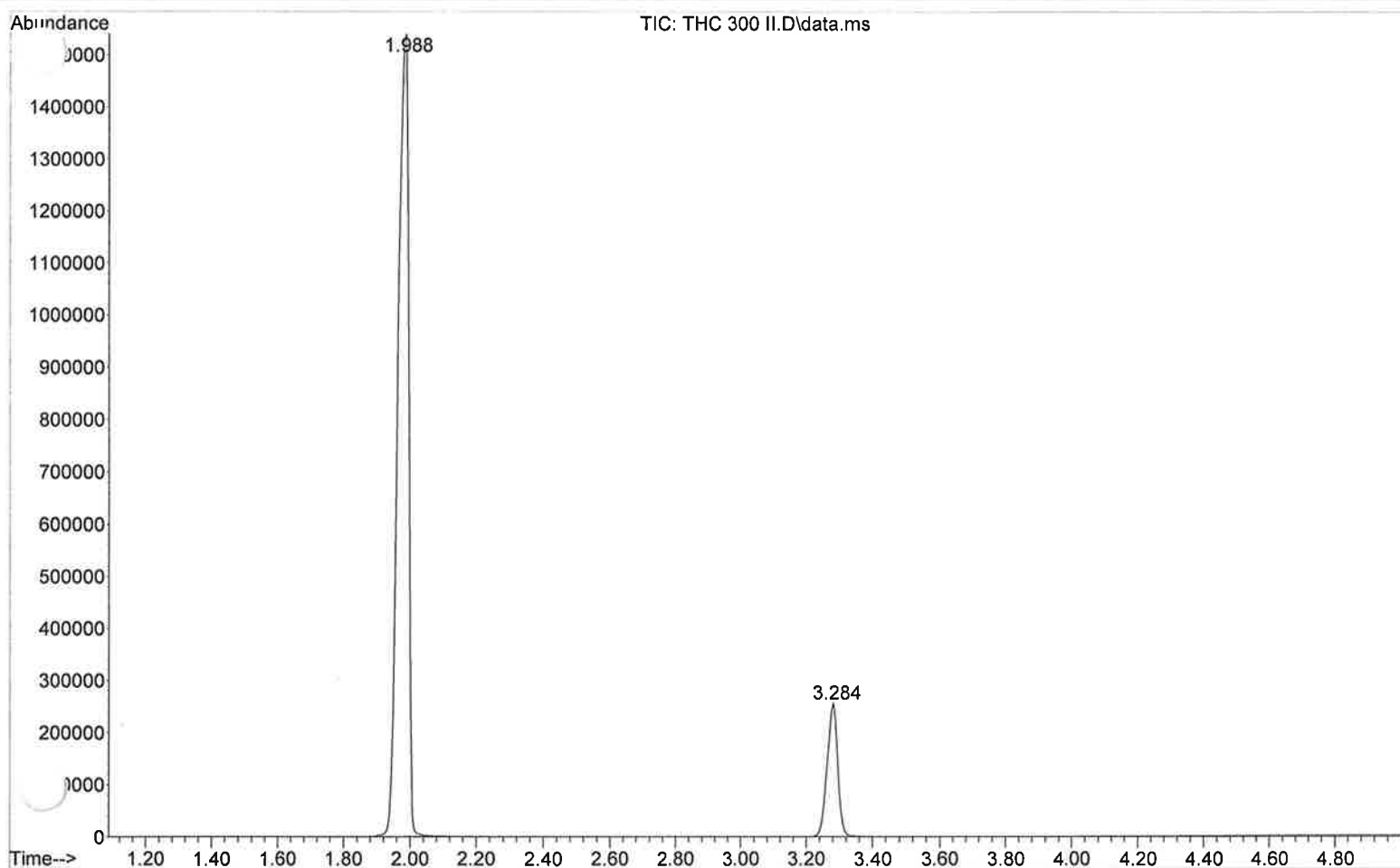
Method : C:\msdchem\1\METHODS\THC Quant.M
Title : BT THC Quant

Signal : TIC: THC 300 II.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	1.988	130	156	180	PV	1546147	34739079	100.00%	85.930%
2	3.284	363	378	396	BV	253384	5687981	16.37%	14.070%

Sum of corrected areas: 40427060

THC Quant.M Tue Feb 19 13:17:23 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-19-19\

Data File : THC 400.D

Acq On : 19 Feb 2019 9:06

Operator : BTT

Sample : Standard

Misc : Methanol

ALS Vial : 58 Sample Multiplier: 1

Integration Parameters: autoint1.e

Integrator: ChemStation

Method : C:\msdchem\1\METHODS\THC Quant.M

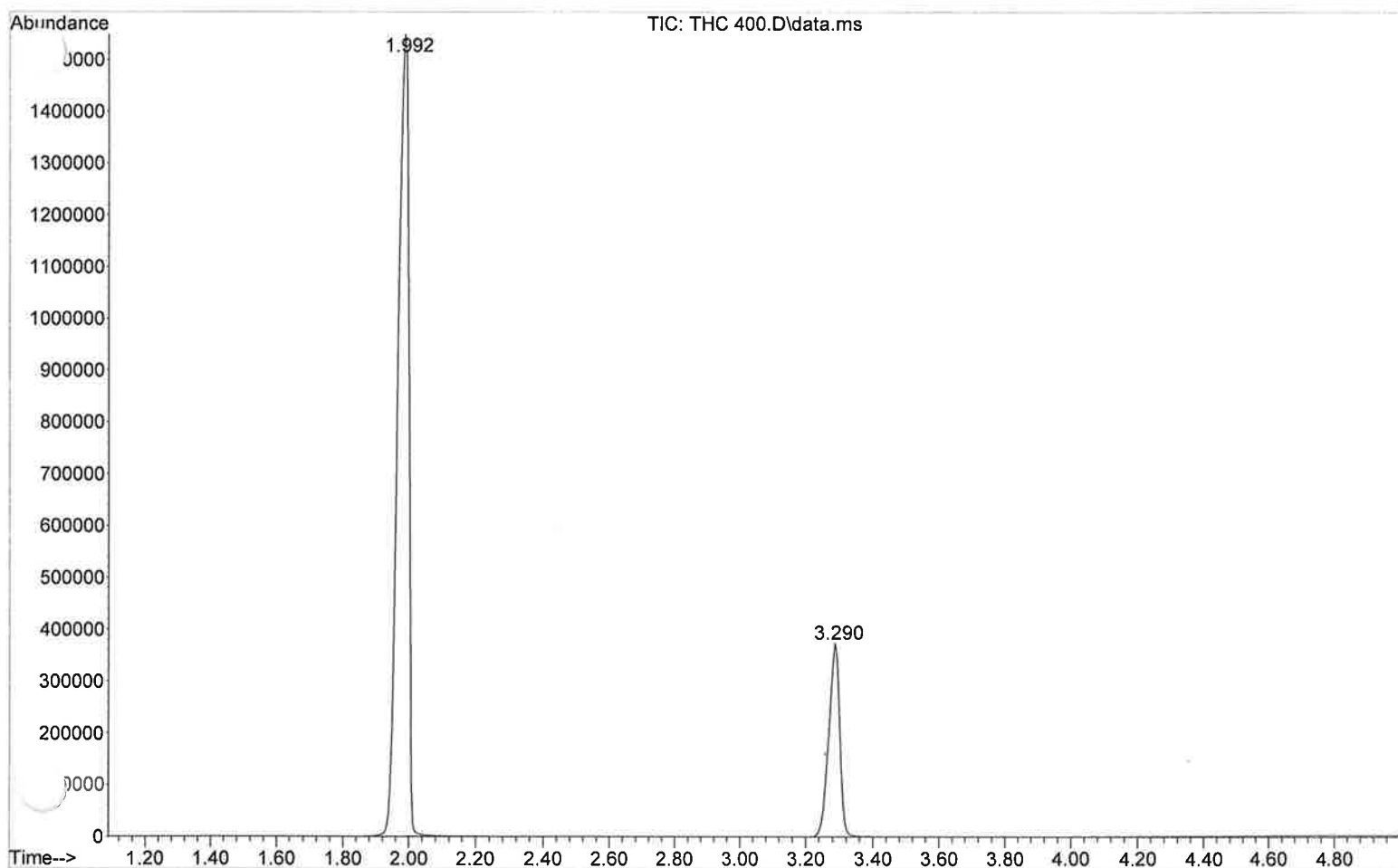
Title : BT THC Quant

Signal : TIC: THC 400.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	1.992	133	156	180	BV	1555324	35839625	100.00%	80.899%
2	3.290	363	379	414	BV	367737	8462052	23.61%	19.101%

Sum of corrected areas: 44301678

THC Quant.M Tue Feb 19 13:17:32 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\
 Data File : THC 05.D
 Acq On : 15 Feb 2019 14:00
 Operator : BTT
 Sample : Standard
 Misc : Methanol
 ALS Vial : 52 Sample Multiplier: 1

Integration Parameters: autoint1.e
 Integrator: ChemStation

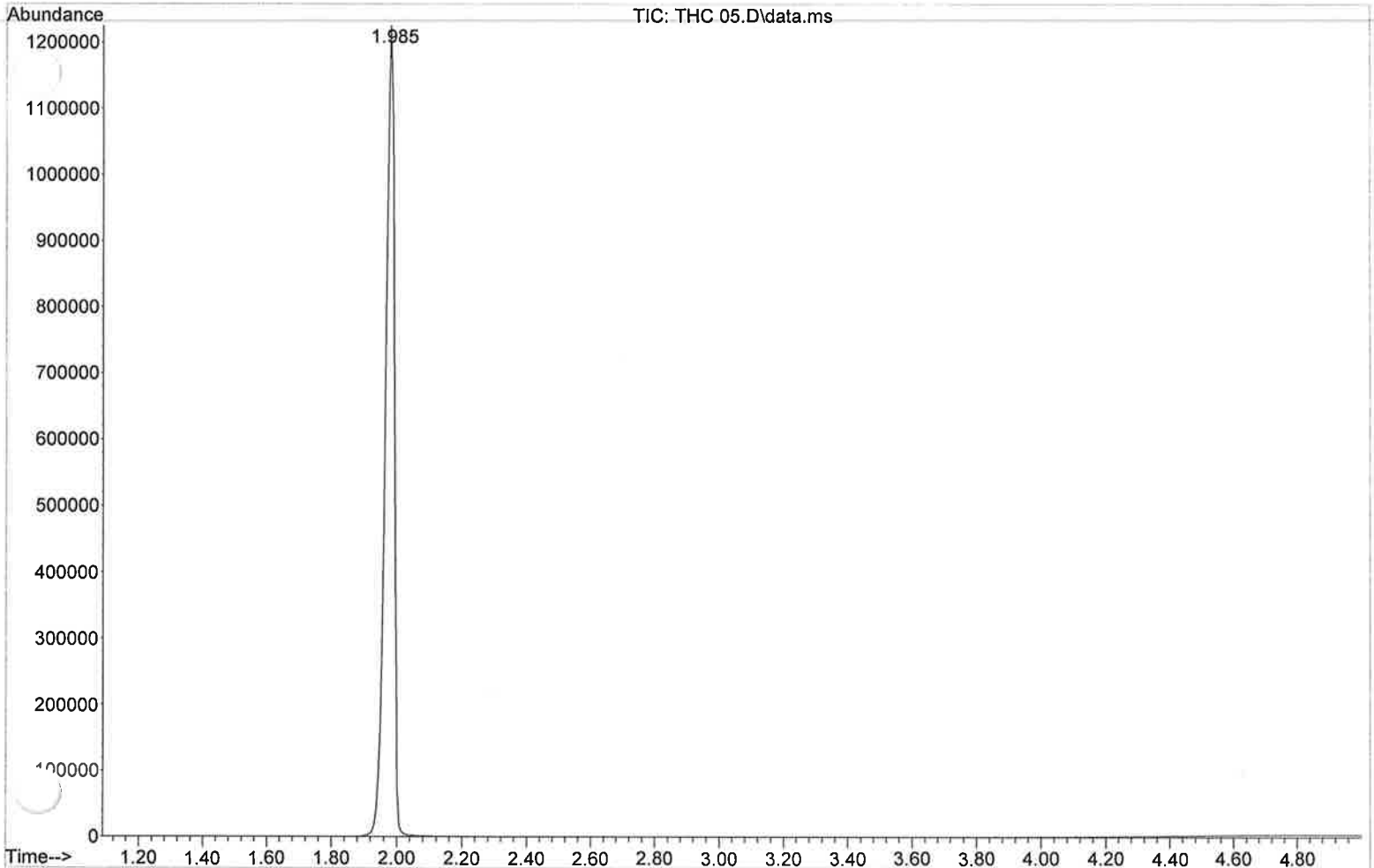
Method : C:\msdchem\1\METHODS\THC Quant.M
 Title : BT THC Quant

Signal : TIC: THC 05.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max	% of total
1	1.985	132	155	188	PV	1199281	23410109	100.00%	100.000%

Sum of corrected areas: 23410109

THC Quant.M Tue Feb 19 13:18:15 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\
 Data File : THC 10.D
 Acq On : 15 Feb 2019 14:15
 Operator : BTT
 Sample : Standard
 Misc : Methanol
 ALS Vial : 54 Sample Multiplier: 1

Integration Parameters: autoint1.e
 Integrator: ChemStation

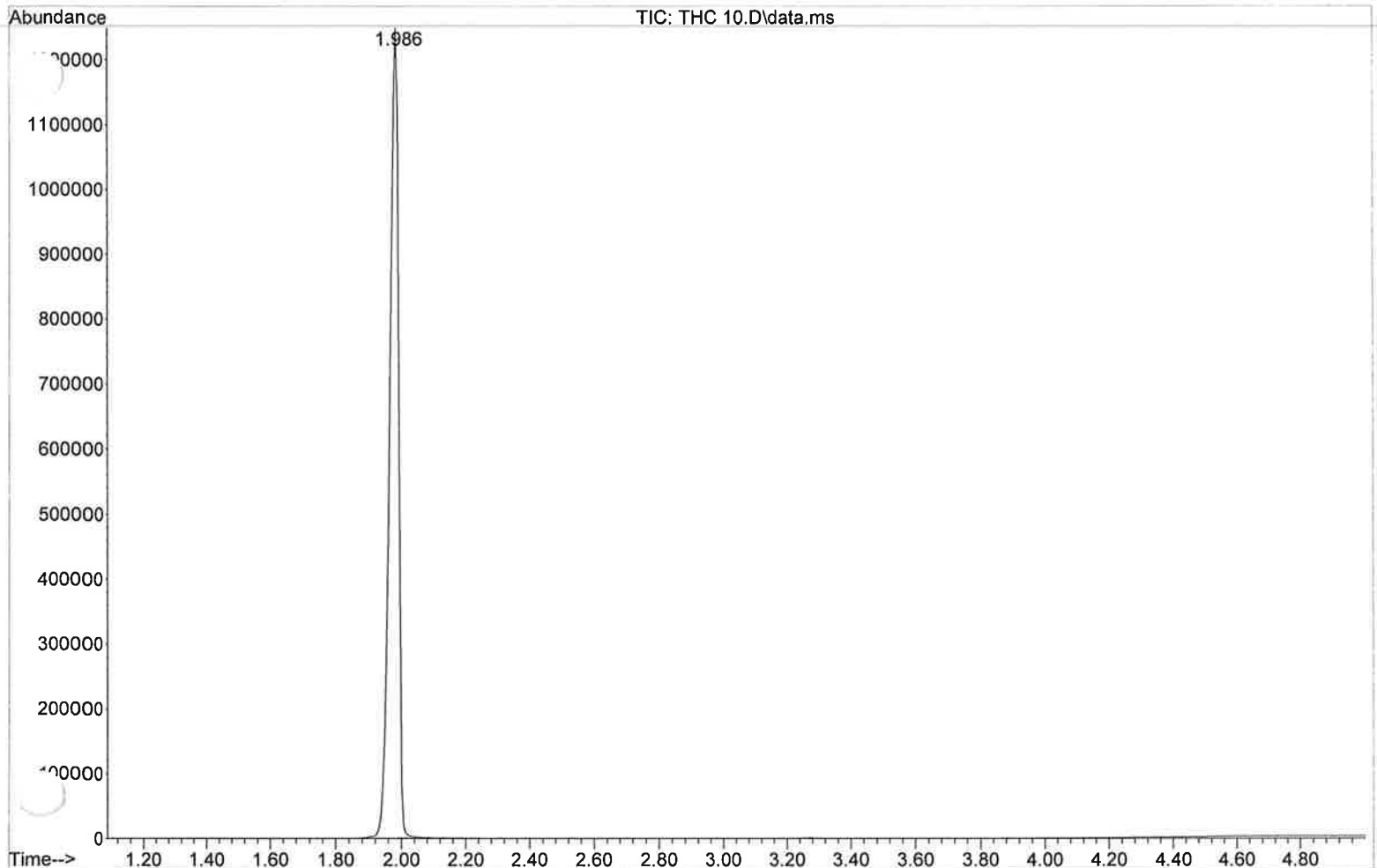
Method : C:\msdchem\1\METHODS\THC Quant.M
 Title : BT THC Quant

Signal : TIC: THC 10.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	1.986	135	155	176	BV	1223610	23826893	100.00%	100.000%

Sum of corrected areas: 23826893

THC Quant.M Tue Feb 19 13:18:58 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\

Data File : THC 15.D

Acq On : 15 Feb 2019 14:31

Operator : BTT

Sample : Standard

Misc : Methanol

ALS Vial : 56 Sample Multiplier: 1

Integration Parameters: autoint1.e

Integrator: ChemStation

Method : C:\msdchem\1\METHODS\THC Quant.M

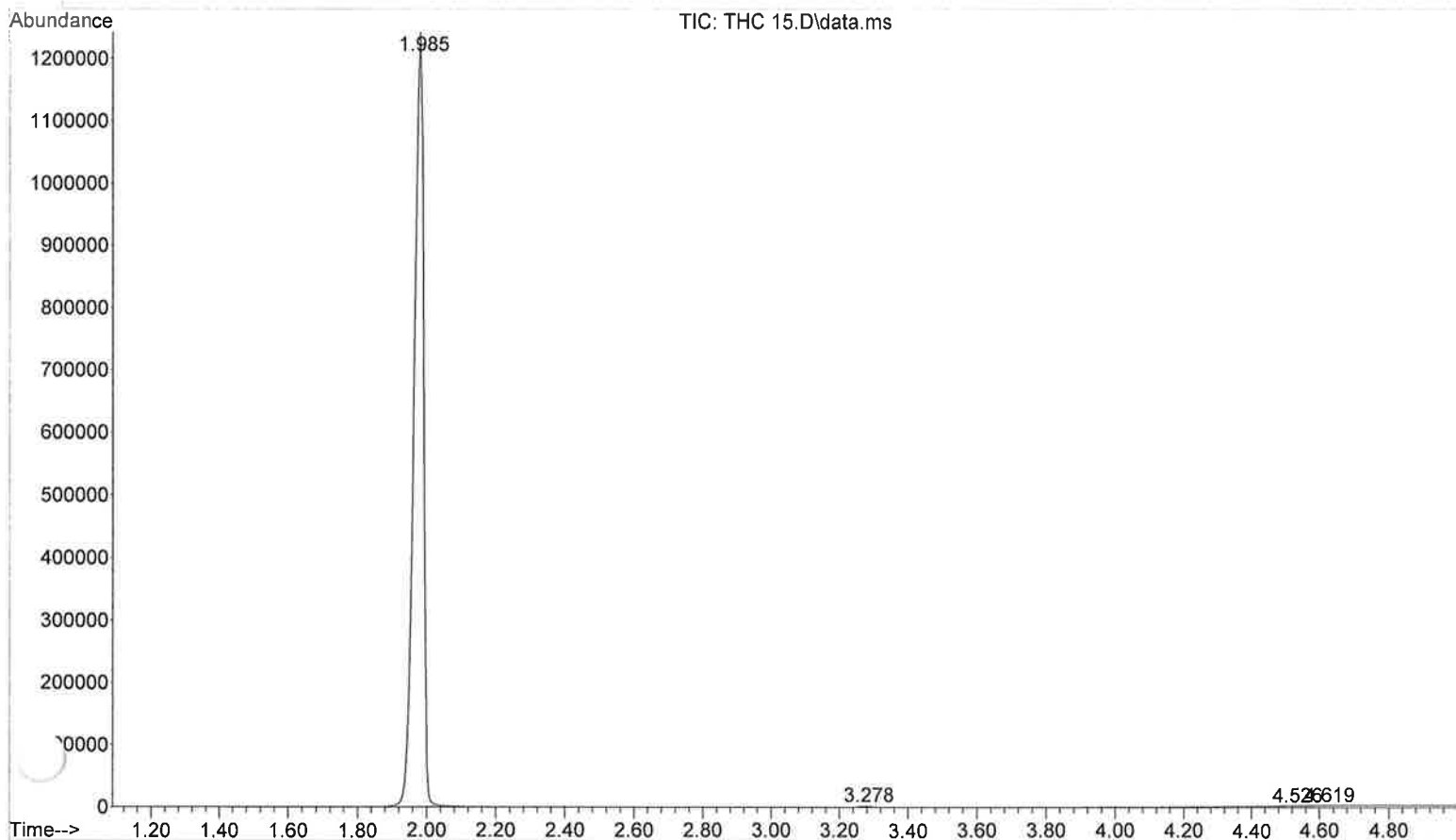
Title : BT THC Quant

Signal : TIC: THC 15.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	1.985	132	155	182	PV	1217146	23709868	100.00%	99.728%	
2	3.278	370	377	388	VV 5	1835	41849	0.18%	0.176%	
3	4.526	566	592	593	PV 5	482	10263	0.04%	0.043%	
4	4.619	593	608	609	VV 5	428	12655	0.05%	0.053%	

Sum of corrected areas: 23774636

THC Quant.M Tue Feb 19 13:21:24 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\

Data File : THC 20.D

Acq On : 15 Feb 2019 14:46

Operator : BTT

Sample : Standard

Misc : Methanol

ALS Vial : 58 Sample Multiplier: 1

Integration Parameters: autoint1.e

Integrator: ChemStation

Method : C:\msdchem\1\METHODS\THC Quant.M

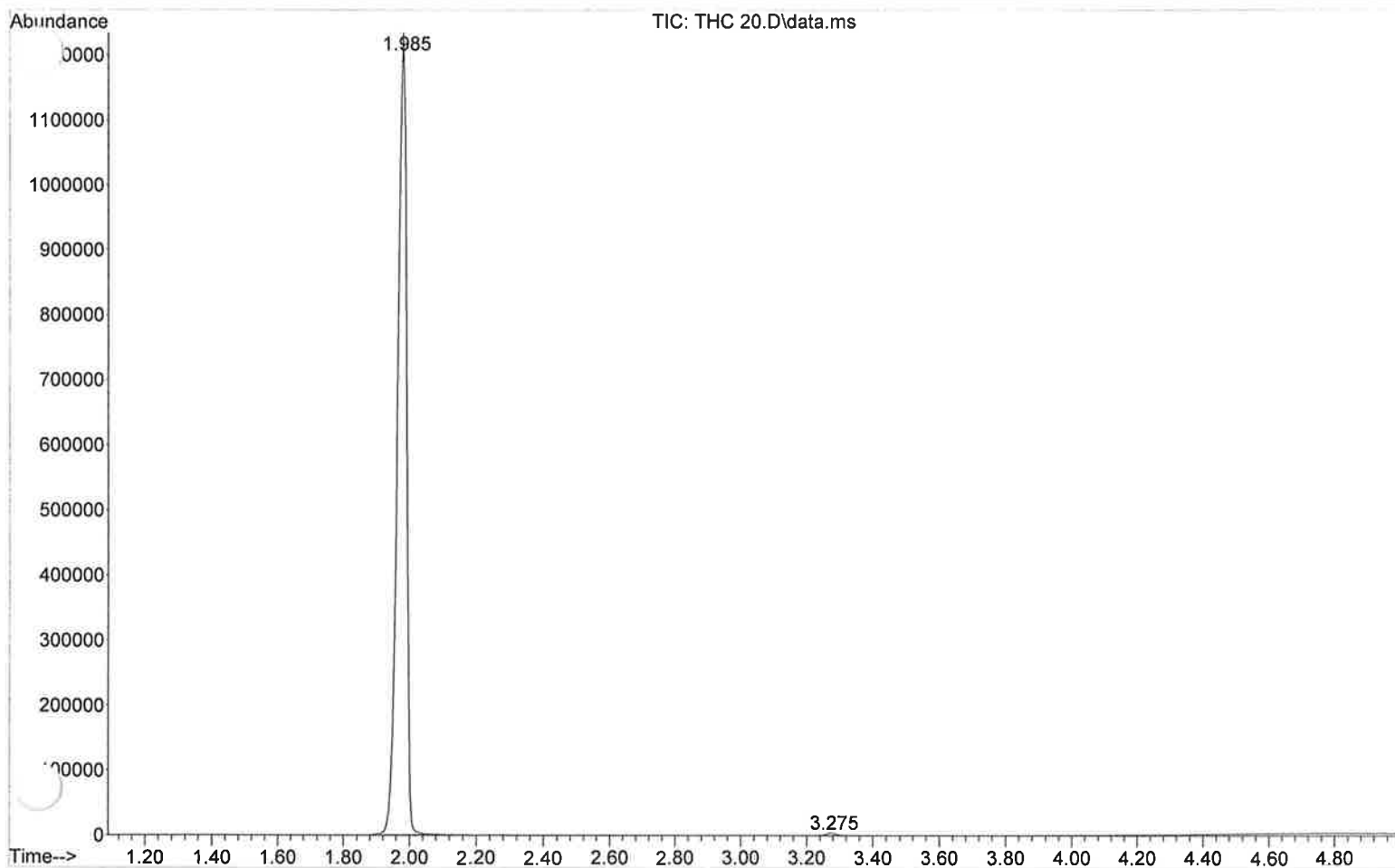
Title : BT THC Quant

Signal : TIC: THC 20.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	1.985	112	155	179	PV	1208019	23478859	100.00%	99.688%	
2	3.275	368	377	385	BV 3	3533	73473	0.31%	0.312%	

Sum of corrected areas: 23552332

THC Quant.M Tue Feb 19 13:22:00 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\

Data File : THC 25.D

Acq On : 15 Feb 2019 15:02

Operator : BTT

Sample : Standard

Misc : Methanol

ALS Vial : 60 Sample Multiplier: 1

Integration Parameters: autoint1.e

Integrator: ChemStation

Method : C:\msdchem\1\METHODS\THC Quant.M

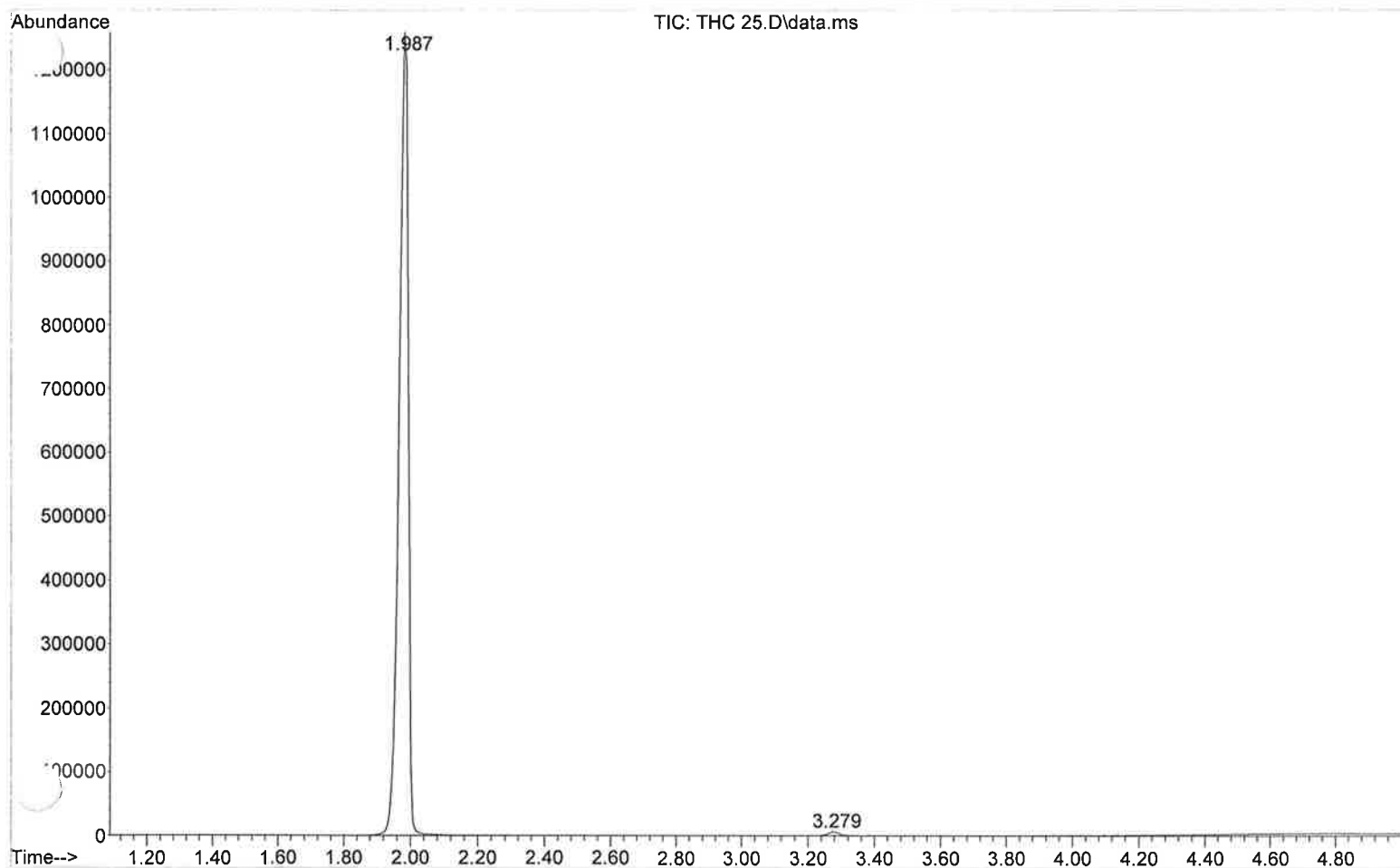
Title : BT THC Quant

Signal : TIC: THC 25.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	1.987	133	156	188	PV	1262693	24216694	100.00%	99.417%	
2	3.279	367	377	393	PV 3	6401	142120	0.59%	0.583%	

Sum of corrected areas: 24358814

THC Quant.M Tue Feb 19 13:22:09 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\
Data File : THC 30.D
Acq On : 15 Feb 2019 15:18
Operator : BTT
Sample : Standard
Misc : Methanol
ALS Vial : 62 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

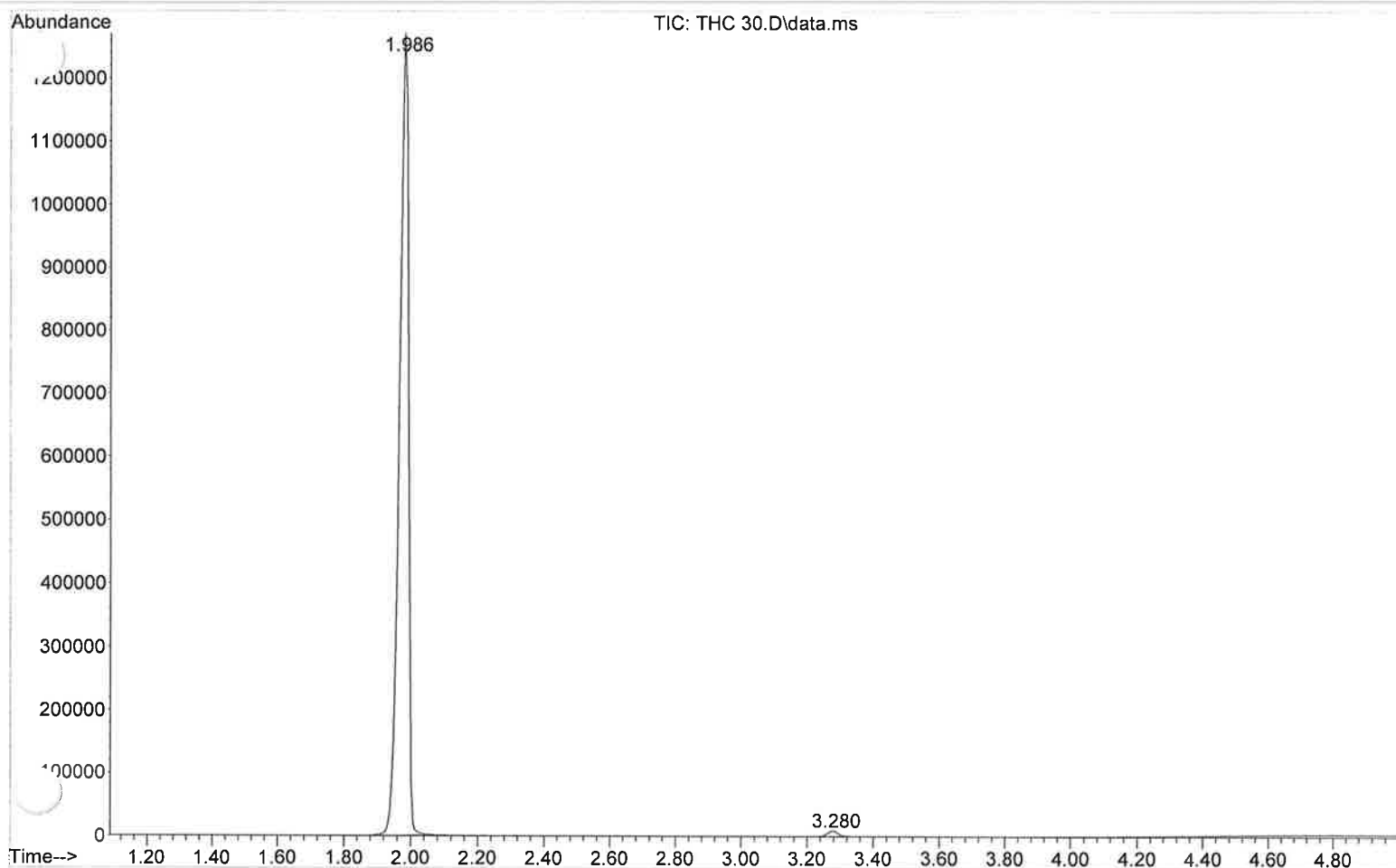
Method : C:\msdchem\1\METHODS\THC Quant.M
Title : BT THC Quant

Signal : TIC: THC 30.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	1.986	134	155	178	PV	1246716	24212185	100.00%	99.213%
2	3.280	369	378	389	VV 3	8717	192012	0.79%	0.787%

Sum of corrected areas: 24404197

THC Quant.M Tue Feb 19 13:22:18 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\
Data File : THC 35.D
Acq On : 15 Feb 2019 15:33
Operator : BTT
Sample : Standard
Misc : Methanol
ALS Vial : 64 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

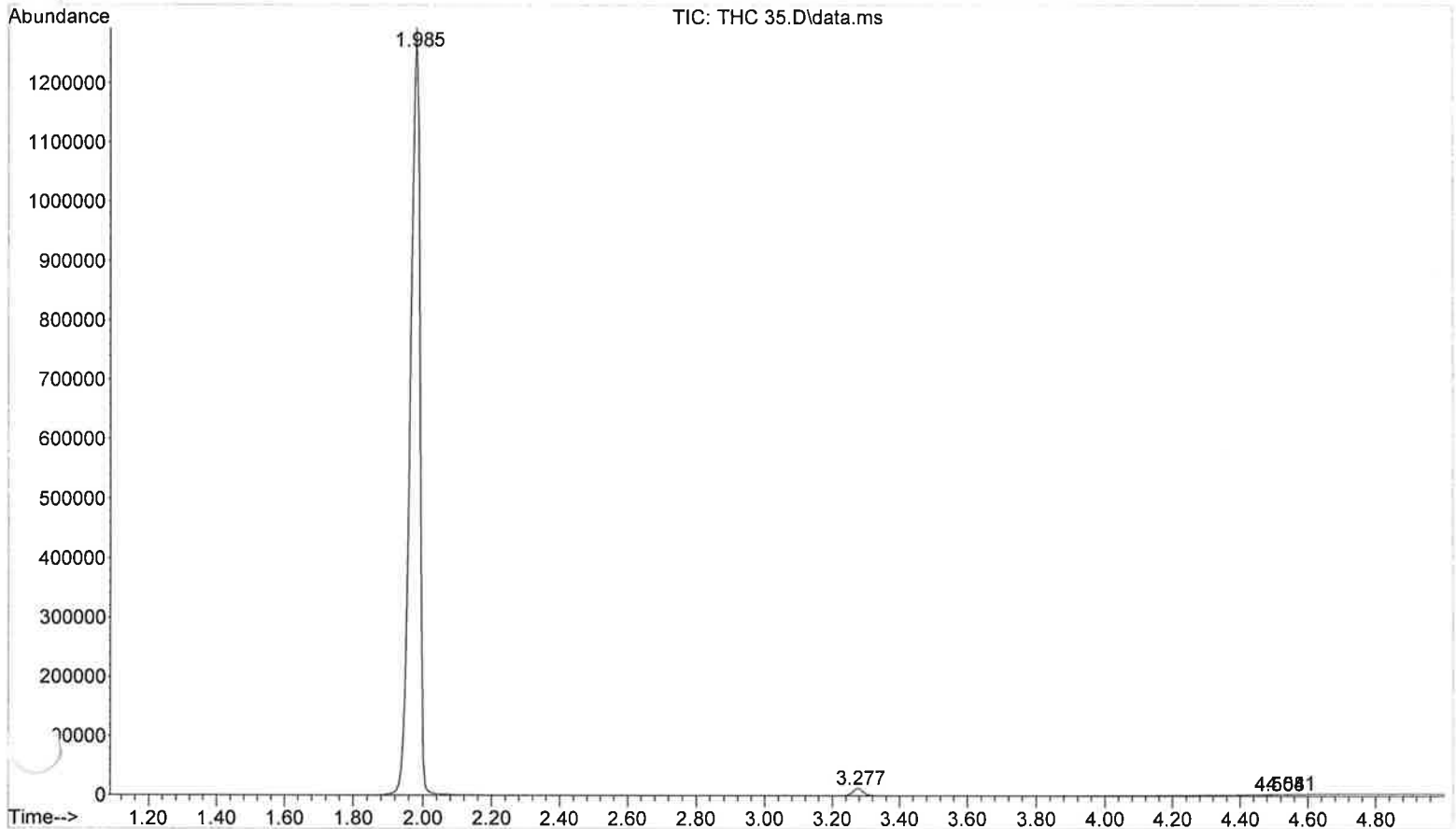
Method : C:\msdchem\1\METHODS\THC Quant.M
Title : BT THC Quant

Signal : TIC: THC 35.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	1.985	118	155	190	PV	1265067	24707352	100.00%	98.930%	
2	3.277	368	377	392	BV 3	12055	255079	1.03%	1.021%	
3	4.508	568	589	592	PV 3	278	9144	0.04%	0.037%	
4	4.541	592	594	596	VB 2	414	2885	0.01%	0.012%	

Sum of corrected areas: 24974460

THC Quant.M Tue Feb 19 13:23:08 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\
 Data File : THC 40.D
 Acq On : 15 Feb 2019 15:49
 Operator : BTT
 Sample : Standard
 Misc : Methanol
 ALS Vial : 66 Sample Multiplier: 1

Integration Parameters: autoint1.e
 Integrator: ChemStation

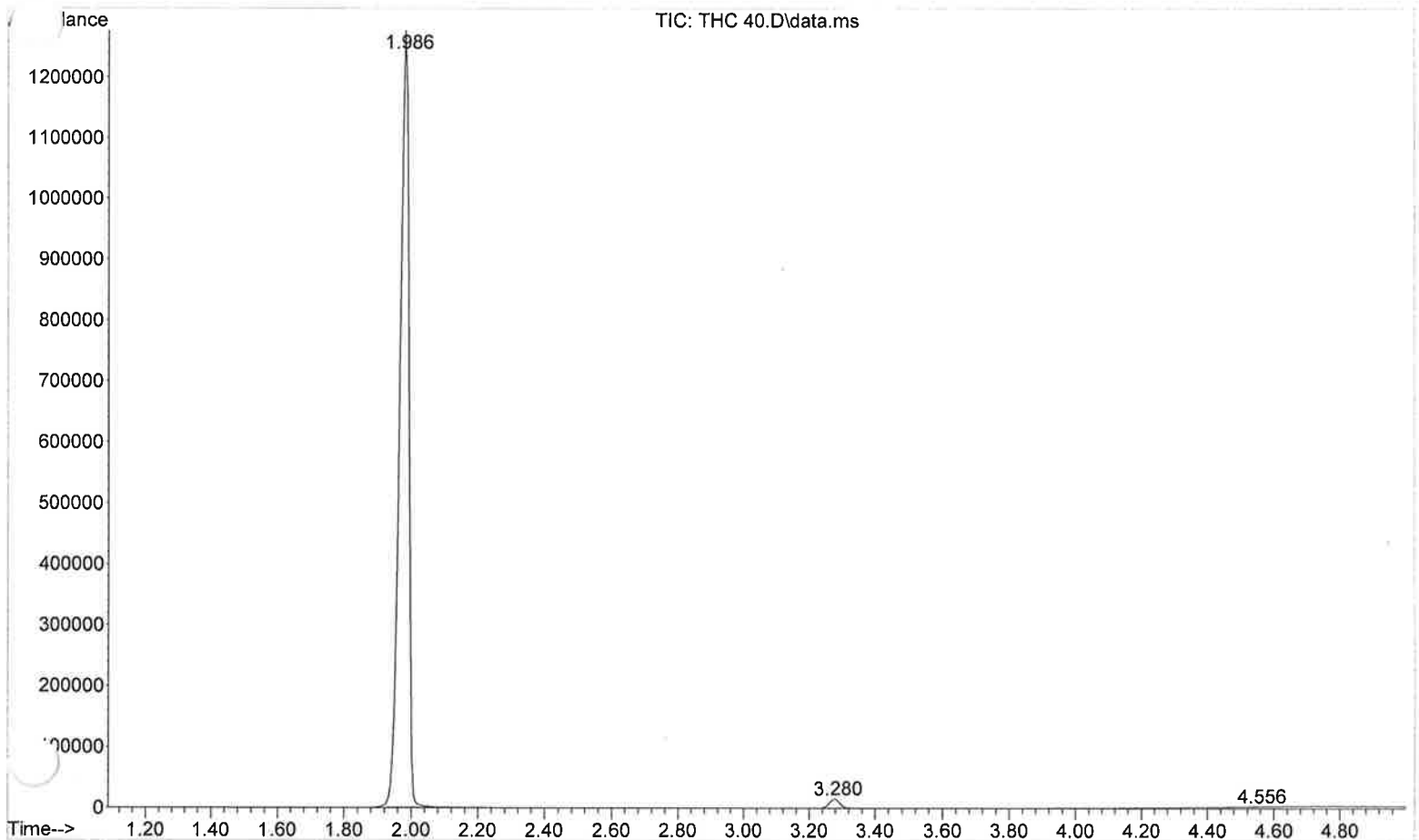
Method : C:\msdchem\1\METHODS\THC Quant.M
 Title : BT THC Quant

Signal : TIC: THC 40.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	1.986	136	155	175	BV	1248117	24404525	100.00%	98.646%
2	3.280	368	378	388	BV 3	14695	322683	1.32%	1.304%
3	4.556	578	597	598	PV 3	287	12357	0.05%	0.050%

Sum of corrected areas: 24739566

THC Quant.M Tue Feb 19 13:23:19 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\
Data File : THC 45.D
Acq On : 15 Feb 2019 16:04
Operator : BTT
Sample : Standard
Misc : Methanol
ALS Vial : 68 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

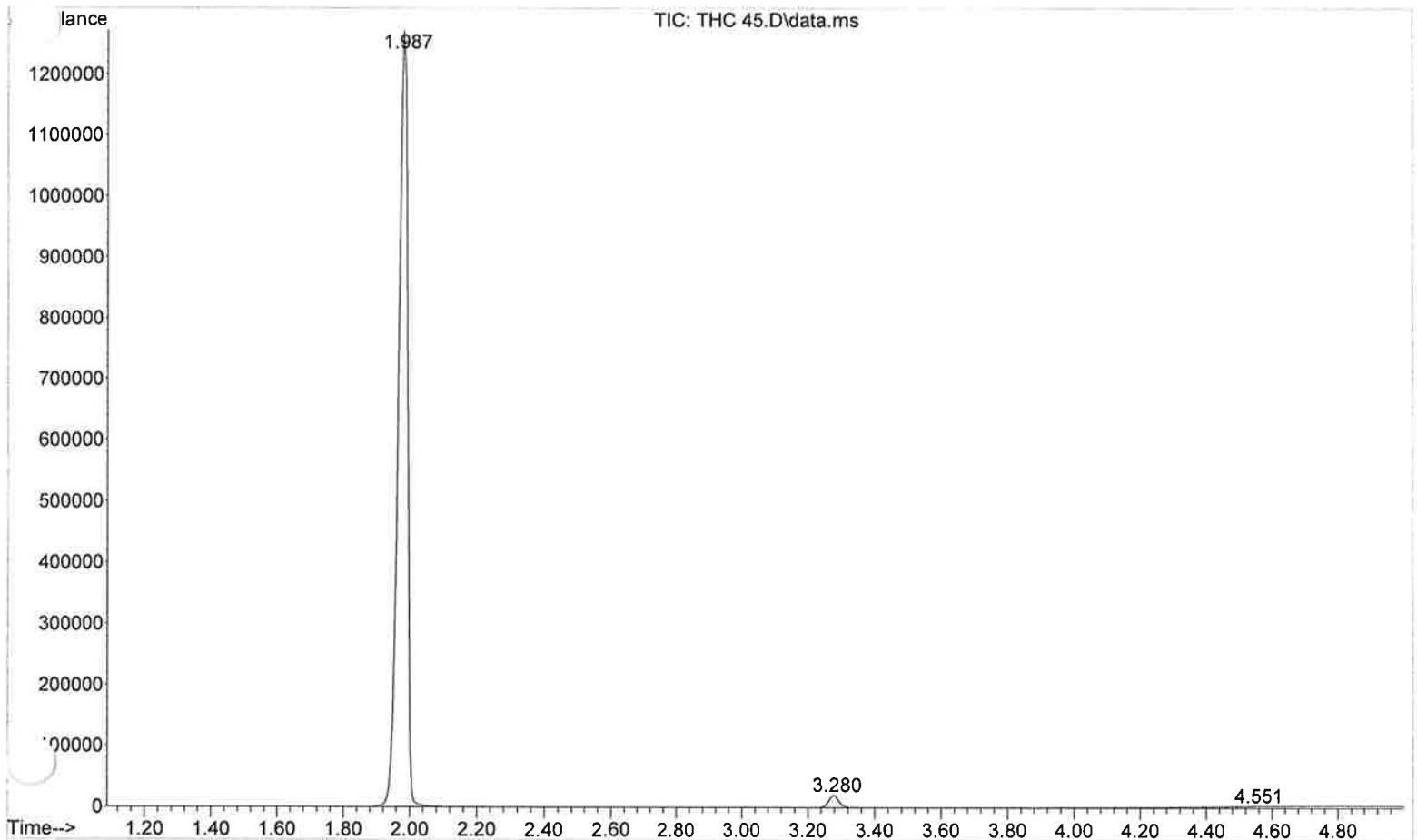
Method : C:\msdchem\1\METHODS\THC Quant.M
Title : BT THC Quant

Signal : TIC: THC 45.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	1.987	117	155	184	PV	1252494	24499444	100.00%	98.283%	
2	3.280	368	378	393	BV 3	19739	417684	1.70%	1.676%	
3	4.551	577	596	598	PV 3	344	10416	0.04%	0.042%	

Sum of corrected areas: 24927543

THC Quant.M Tue Feb 19 13:23:30 2019



TBI Area Percent Report

Data Path : C:\msdchem\1\DATA\2019\BTT\2-15-19 II\

Data File : THC 50.D

Acq On : 15 Feb 2019 16:20

Operator : BTT

Sample : Standard

Misc : Methanol

ALS Vial : 70 Sample Multiplier: 1

Integration Parameters: autoint1.e

Integrator: ChemStation

Method : C:\msdchem\1\METHODS\THC Quant.M

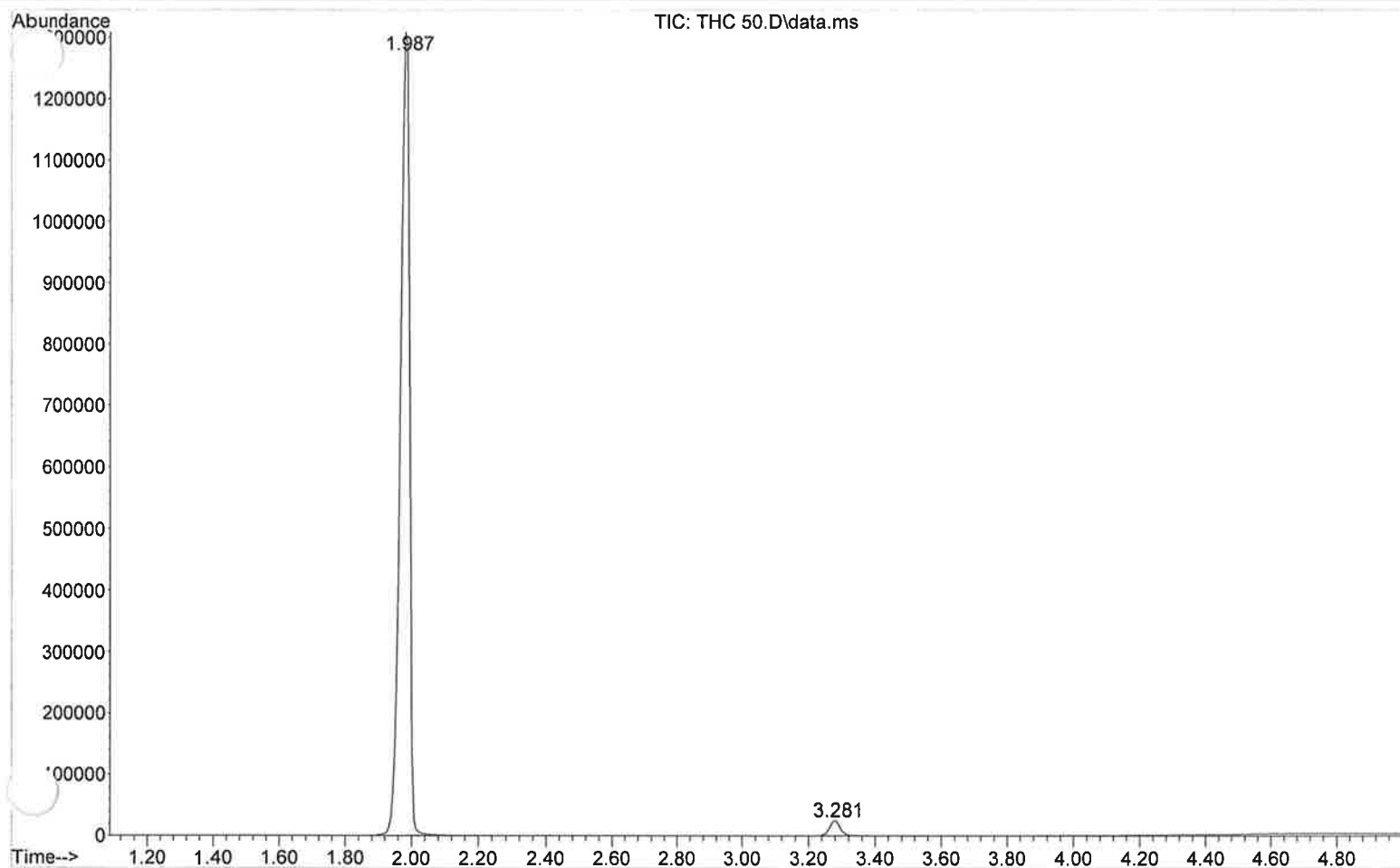
Title : BT THC Quant

Signal : TIC: THC 50.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	1.987	125	156	184	PV	1321089	25420128	100.00%	97.897%
2	3.281	350	378	393	VV 4	24724	546094	2.15%	2.103%

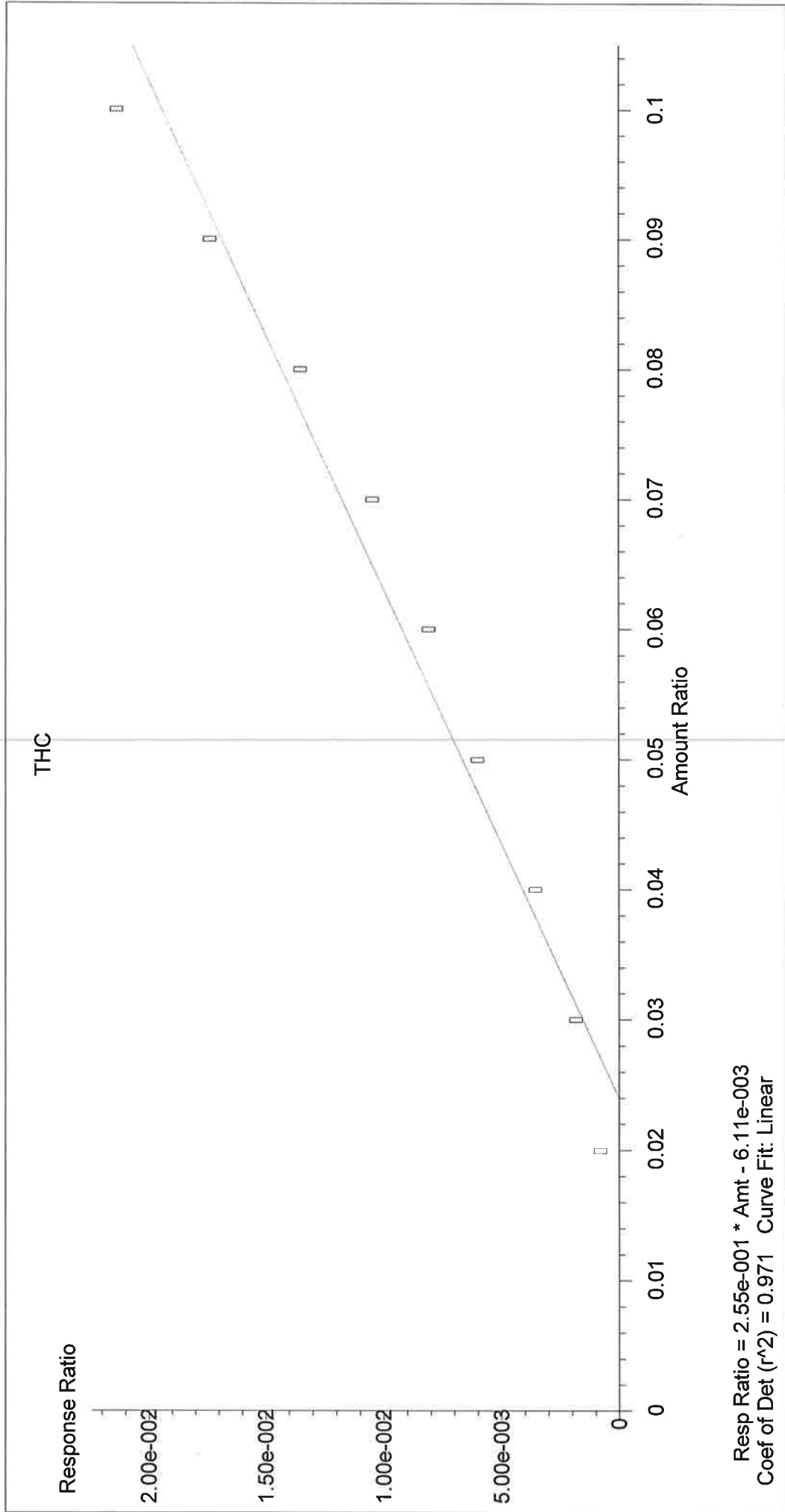
Sum of corrected areas: 25966222

THC Quant.M Tue Feb 19 13:23:39 2019



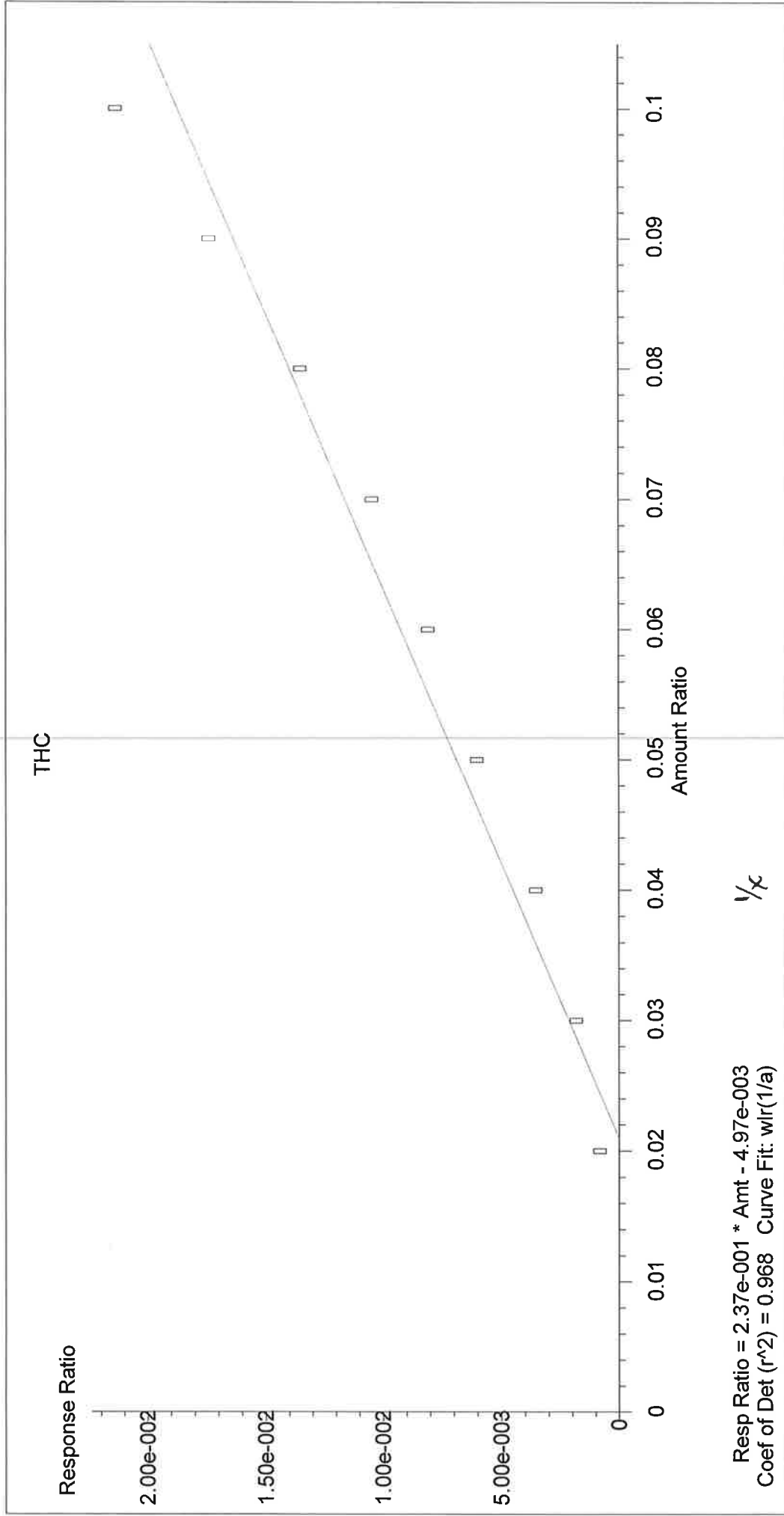
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.0200	0.000815	-181.69	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 10.D
2	0.0300	0.001827	17.28	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 15.D
3	0.0400	0.003532	-14.13	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 20.D
4	0.0500	0.006015	-9.79	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 25.D
5	0.0600	0.008084	-12.35	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 30.D
6	0.0700	0.010469	-11.11	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 35.D
7	0.0800	0.013515	-5.70	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 40.D
8	0.0900	0.017378	2.90	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 45.D
9	0.1000	0.021371	9.92	C:\msdchem\1\DATA\2019\BTT\2-15-19 INTHC 50.D



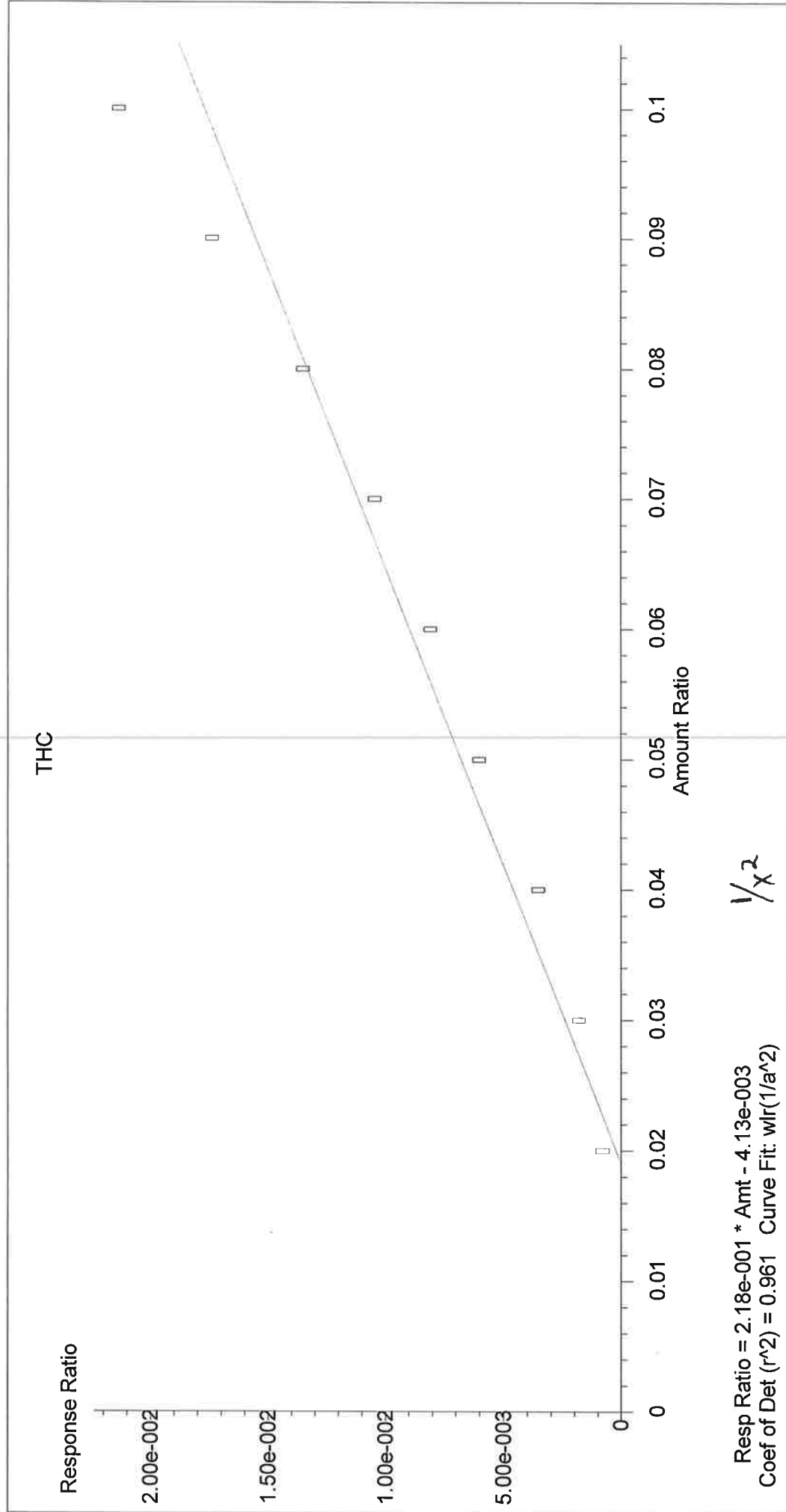
Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.0200	0.000815	-441.34	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 10.D
2	0.0300	0.001827	-14.09	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 15.D
3	0.0400	0.003532	-21.38	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 20.D
4	0.0500	0.006015	-12.29	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 25.D
5	0.0600	0.008084	-12.35	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 30.D
6	0.0700	0.010469	-9.66	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 35.D
7	0.0800	0.013515	-3.14	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 40.D
8	0.0900	0.017378	6.49	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 45.D
9	0.1000	0.021371	14.38	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 50.D



Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.0200	0.000815	235.32	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 10.D
2	0.0300	0.001827	-24.74	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 15.D
3	0.0400	0.003532	-23.43	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 20.D
4	0.0500	0.006015	-11.51	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 25.D
5	0.0600	0.008084	-10.00	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 30.D
6	0.0700	0.010469	-6.25	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 35.D
7	0.0800	0.013515	1.23	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 40.D
8	0.0900	0.017378	11.86	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 45.D
9	0.1000	0.021371	20.60	C:\msdchem\1\DATA\2019\BTT\2-15-19 I\THC 50.D



LvLID	Amount (ratio)	Response (ratio)	Data File
1	500.0000	23726411.640000	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 10.D
2	500.0000	23620608.480000	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 15.D
3	500.0000	23440943.395522	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 20.D
4	500.0000	24108351.851613	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 25.D
5	500.0000	24157044.780000	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 30.D
6	500.0000	24589306.080000	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 35.D
7	500.0000	24368777.301818	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 40.D
8	500.0000	24429391.434217	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 45.D
9	500.0000	25312654.560000	C:\msdchem\1\DATA\2019\BTT\2-15-19 IINTHC 50.D

Internal Standard

Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.0200	0.000815	2.55	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 10.D
2	0.0300	0.001827	-8.90	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 15.D
3	0.0400	0.003532	-1.92	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 20.D
4	0.0500	0.006015	7.79	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 25.D
5	0.0600	0.008084	1.77	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 30.D
6	0.0700	0.010469	-2.07	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 35.D
7	0.0800	0.013515	-2.21	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 40.D
8	0.0900	0.017378	0.24	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 45.D
9	0.1000	0.021371	0.64	C:\msdchem\1\DATA\2019\BTT\2-15-19\INTHC 50.D

