

Date: 06/17/19
 Trainer: Brett Trotter
 Trainee: Rachel Strandquist



Initial Competency Test for THC Quantitation

Standards and Reagents used:

	Manufacturer and Lot Number or ID information
Methanol	VWR BPH Chemicals Lot 0000203525
Internal standard	Tr. benzylamine BCB MS746V
Calibration THC	Cerilliant FE08221804
Control THC	Layman Chemical 0543186

Quantitation Results:

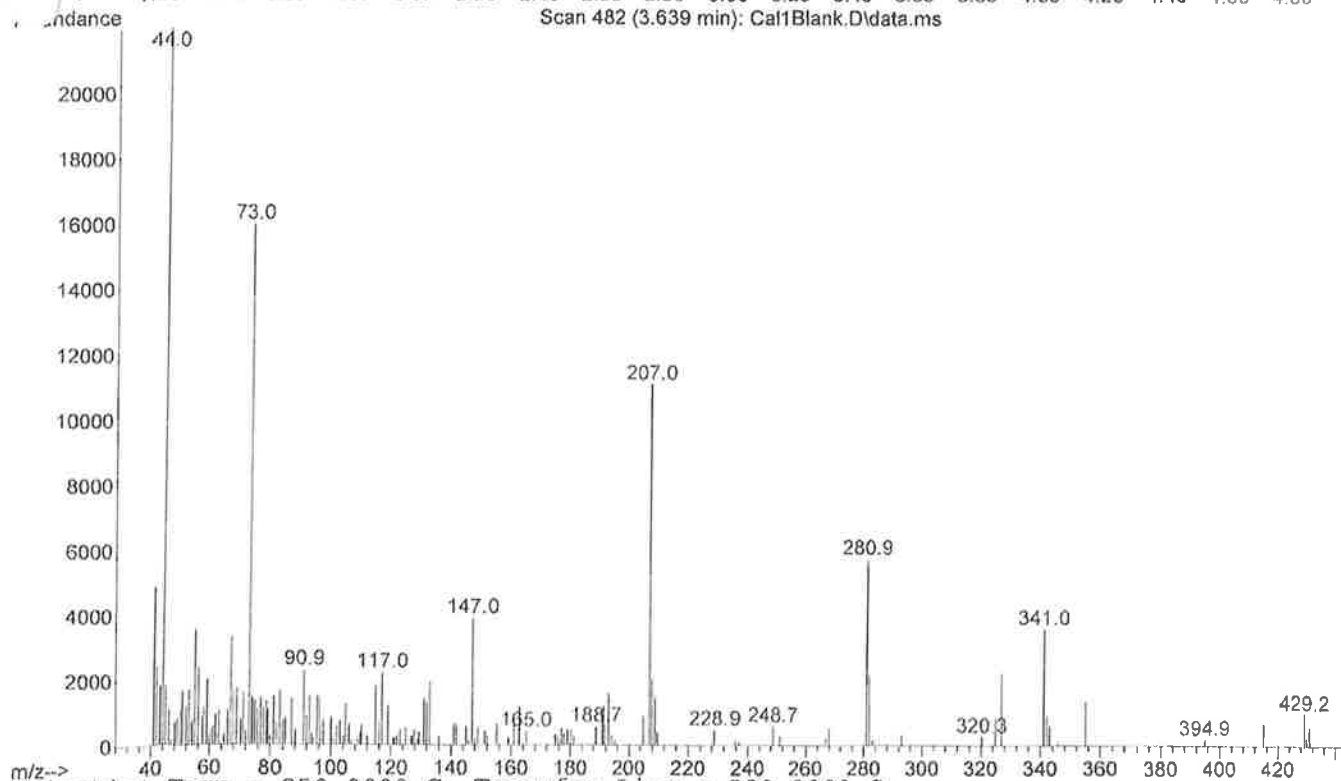
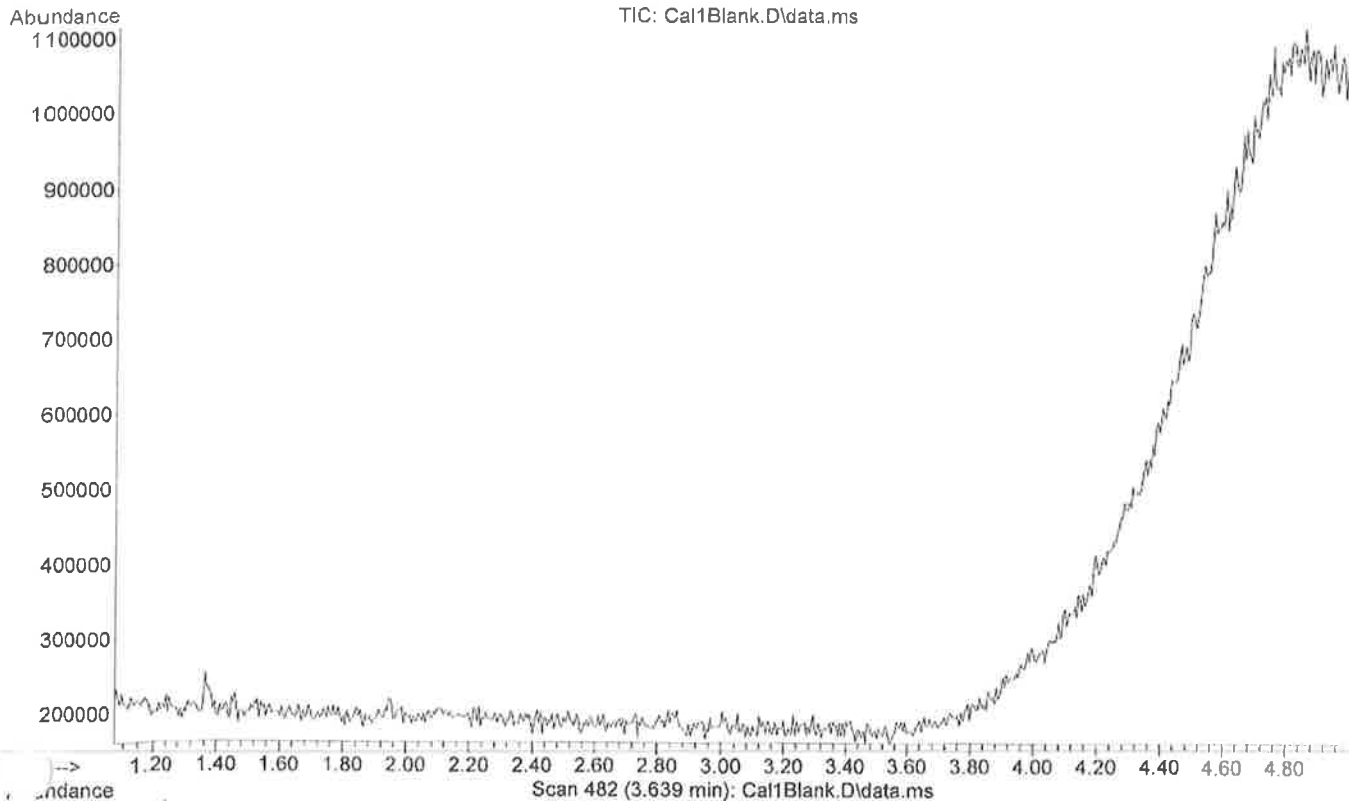
	Sample ID and Concentration	Pass/Fail
Unknown 1	RS 1 < 0.1%	pass ME
Unknown 2	RS 2 0.76%	pass ME
Unknown 3	RS 3 0.32%	pass ME

*All technical records must be attached to this form

Rachel Strandquist has successfully completed the competency test for THC quantitation.

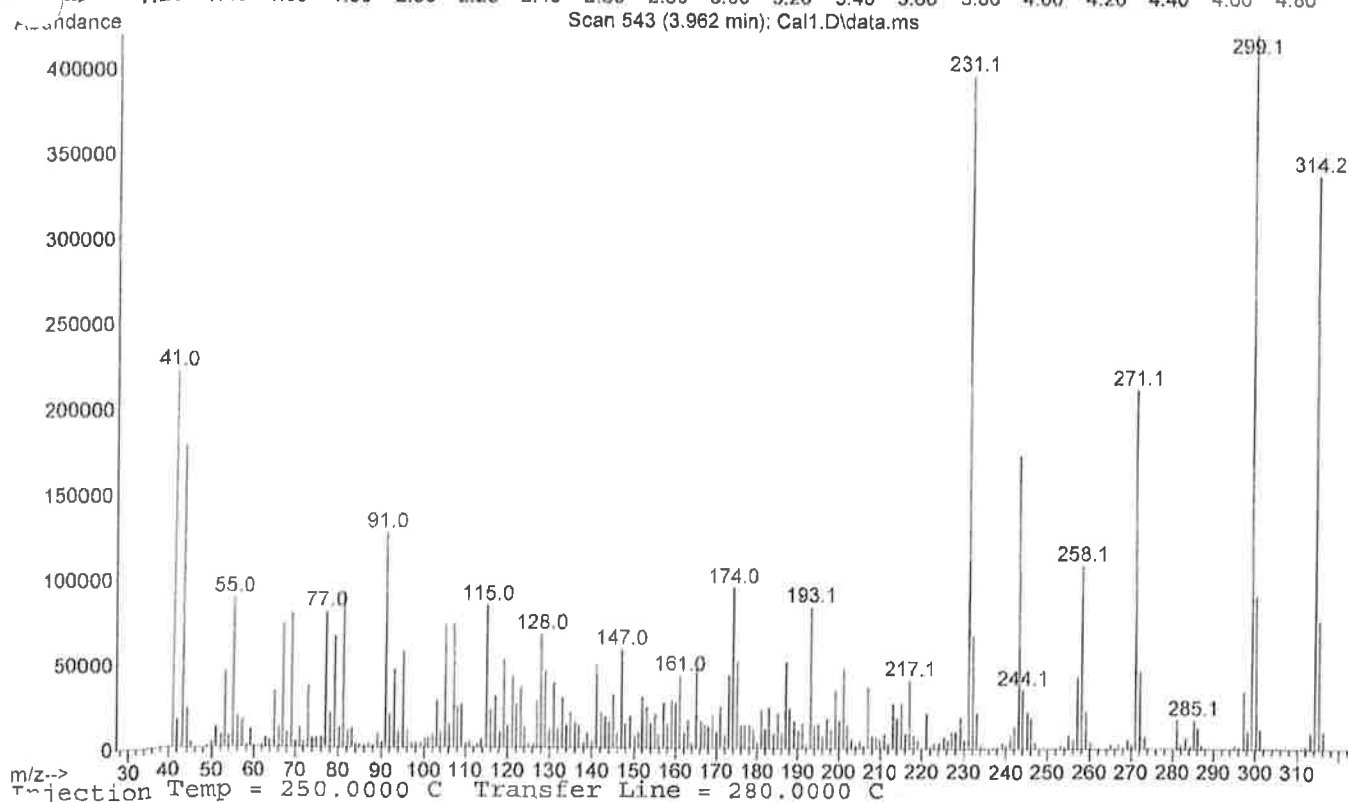
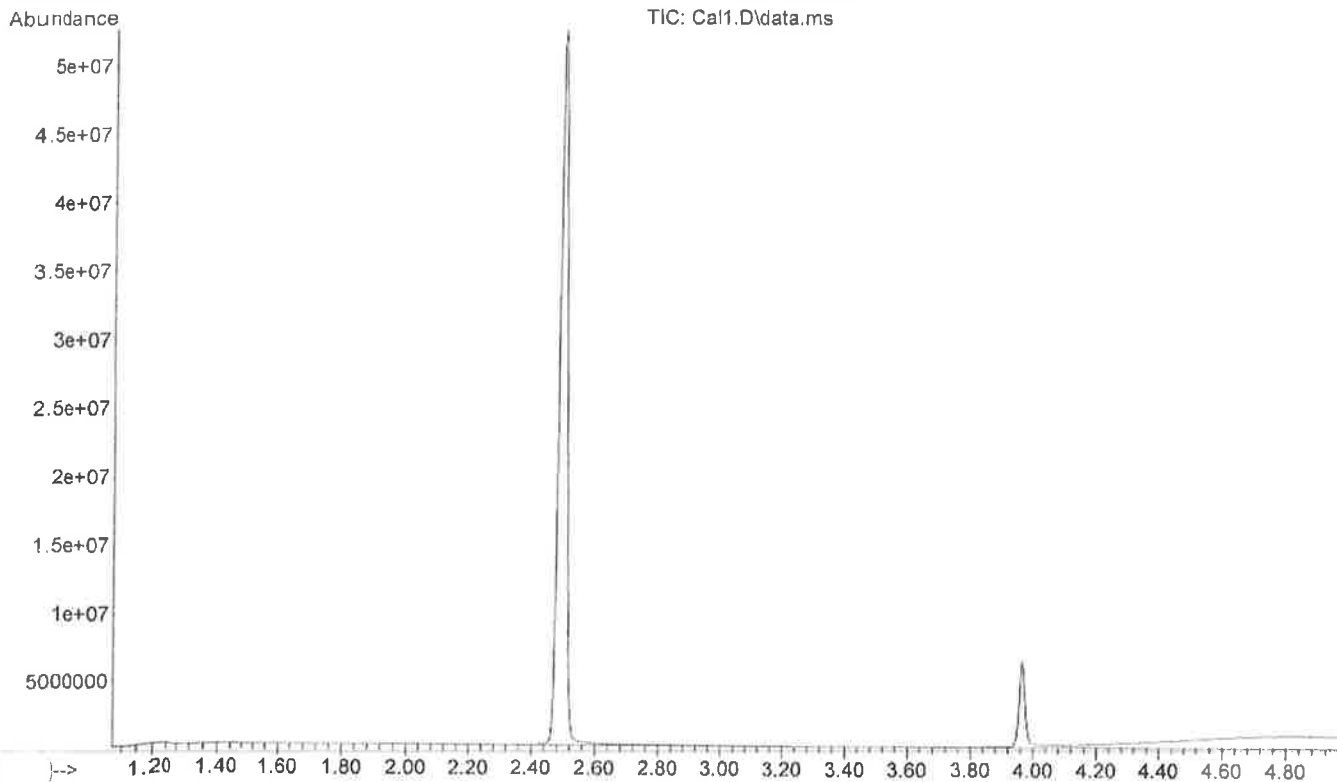
	Signature	Date
Trainee	<u>Rachel Strandquist</u>	<u>09/30/19</u>
Trainer	<u>Brett Trotter</u>	<u>10/1/19</u>
Supervisor	<u>[Signature]</u>	<u>9-30-19</u>
Technical Leader	<u>Alum B. Everett</u>	<u>10-1-19</u>

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal1Blank.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 10:09
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1
Information: Calibrator 1 Blank Misc. Information: Methanol
TIC: Cal1Blank.D\data.ms



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal1.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 10:16
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 2
Information: Calibrator 1 Misc. Information: Methanol



TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : Call.D
Acq On : 30 Sep 2019 10:16
Operator : Rachel R. Strandquist
Sample : Calibrator 1
Misc : Methanol
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 30 11:54:33 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.496	TIC	916535123	149.90	ug/mL	0.00
Target Compounds						
2) THC	3.966	TIC	84268664 *	59.08	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 11:54:33 2019

Tennessee Bureau of Investigation: Memphis Crime Laboratory

Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal2Blank.D

Instrument: GRIZZ (model: 5975 Serial number: US11203704)

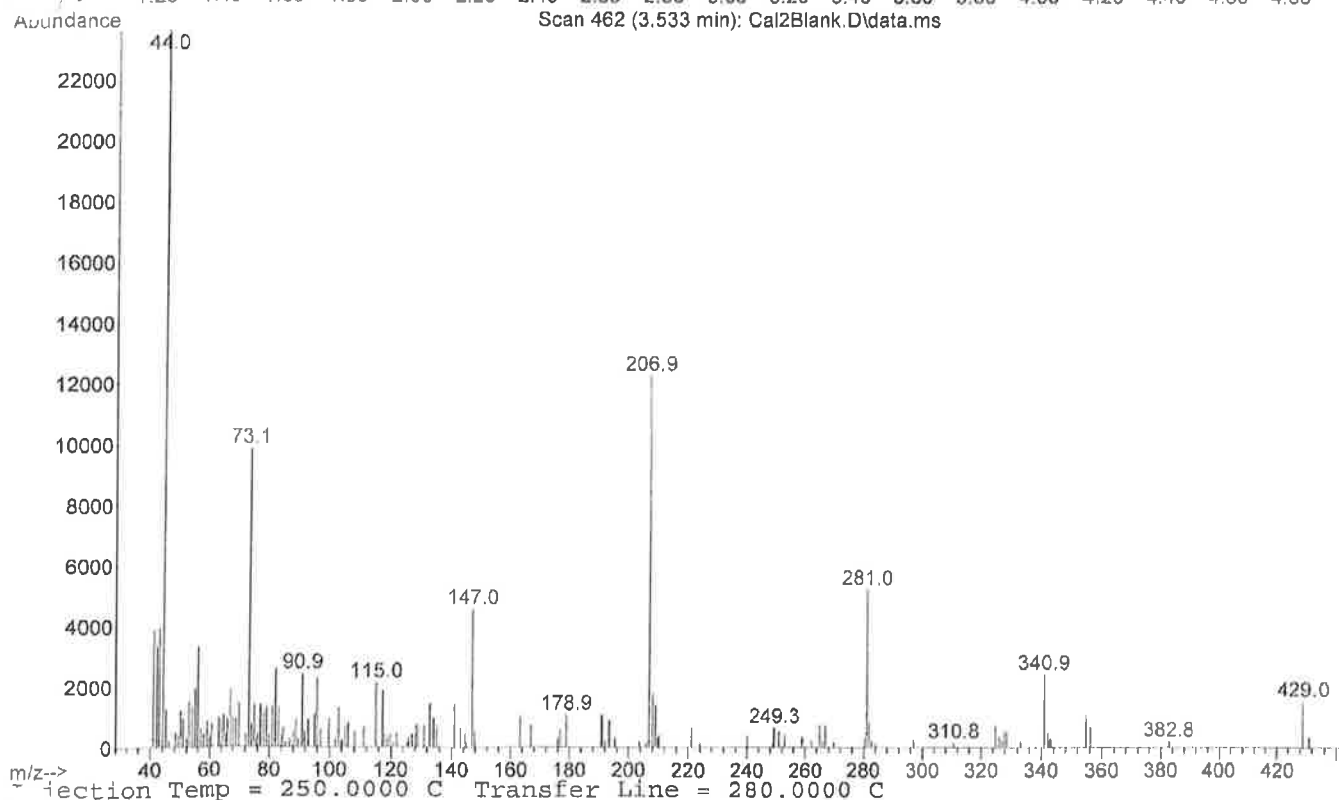
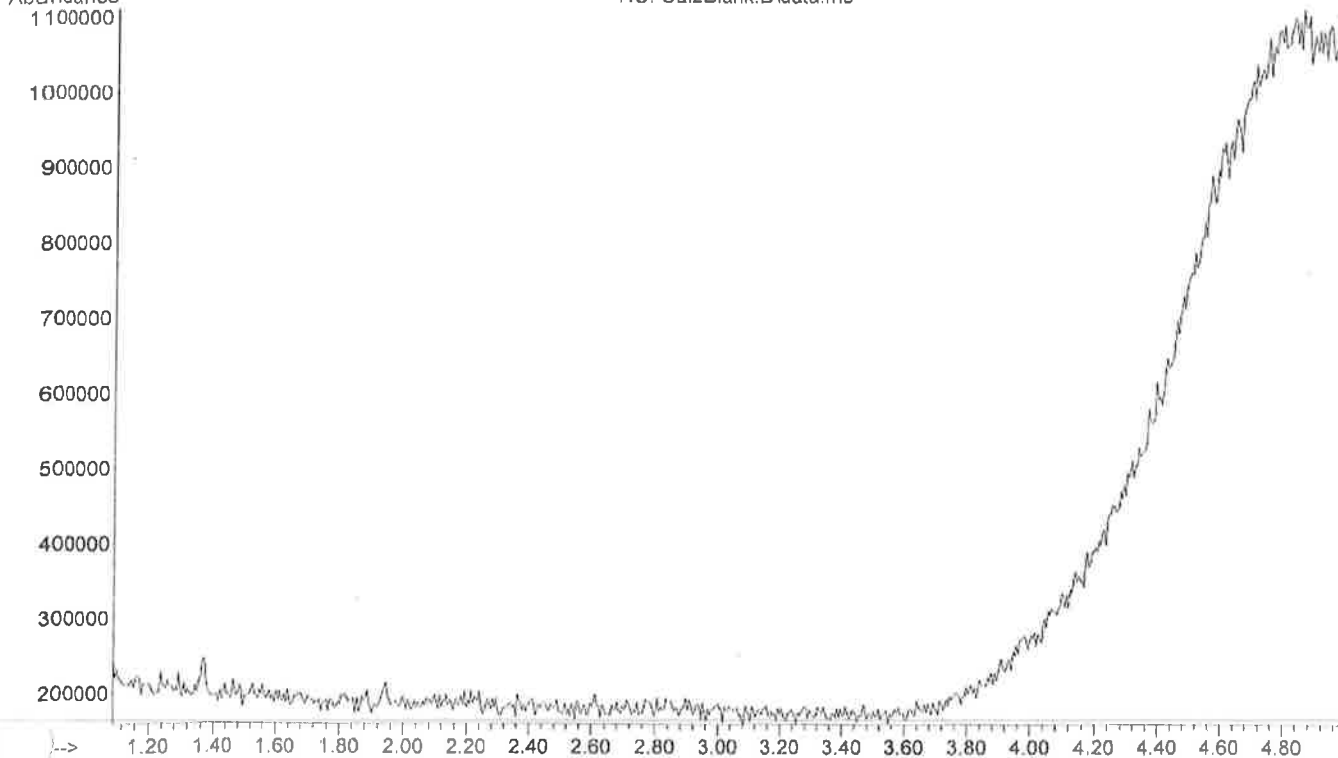
Tuned on 30 Sep 2019 7:29 am

Acquired by Rachel R. Strandquist on 30 Sep 2019 10:31

Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1

Information: Calibrator 2 Blank Misc. Information: Methanol

Abundance TIC: Cal2Blank.D\data.ms



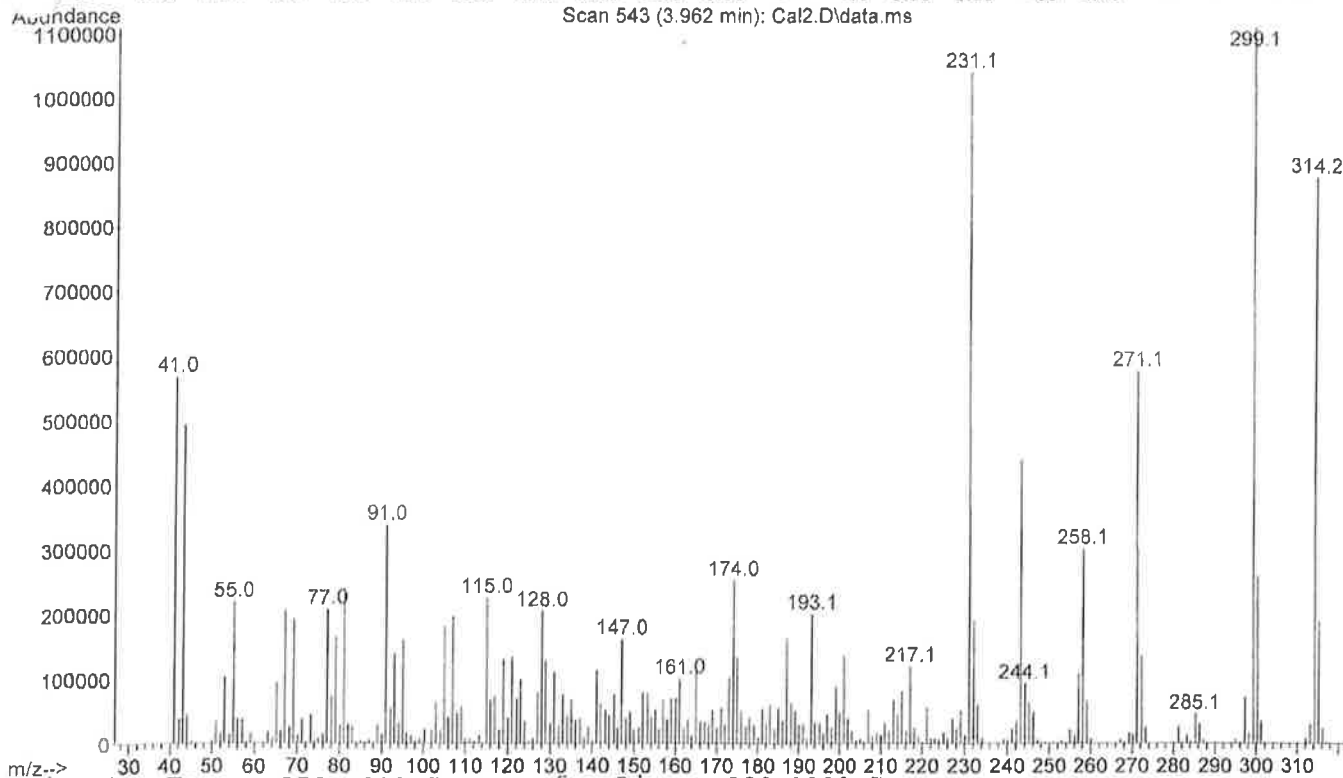
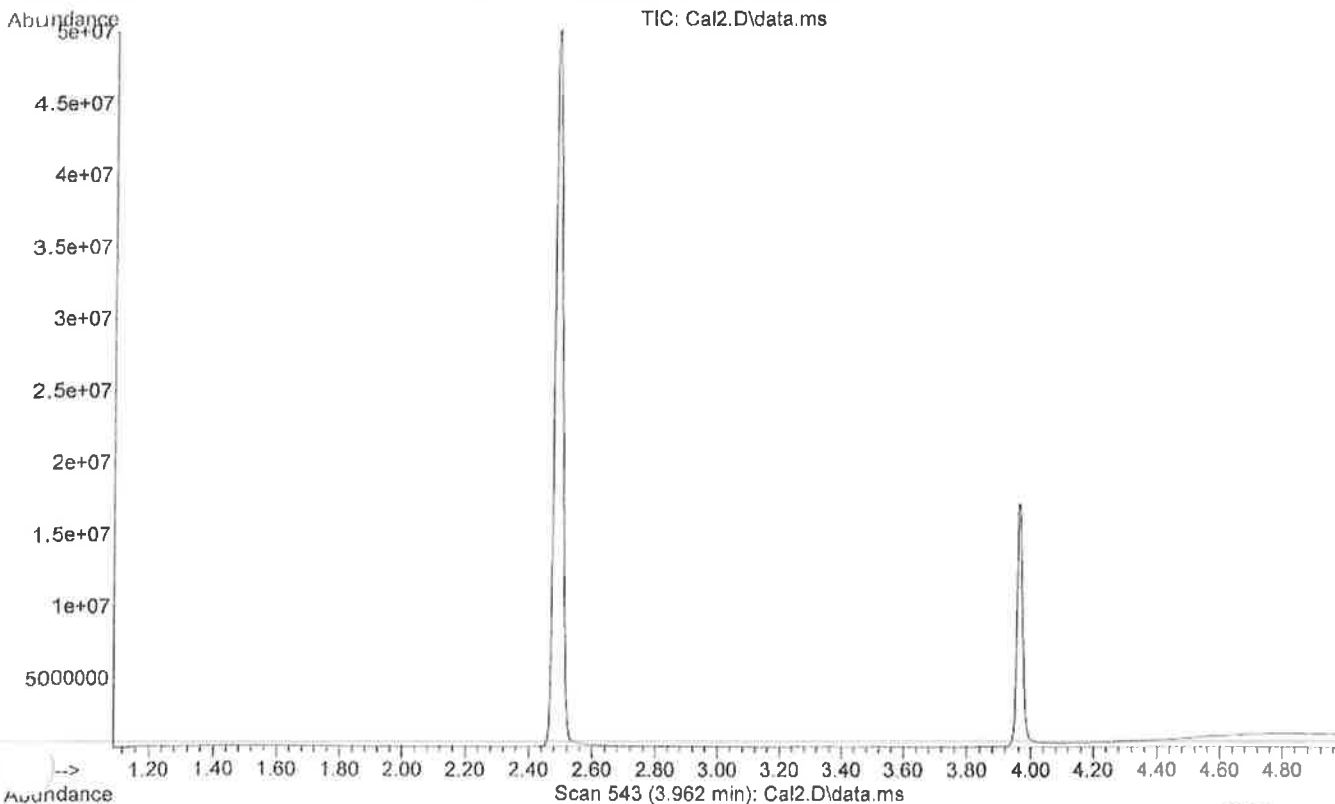
Split Ratio = 100.0000 Column Flow = 0.9379 mL/min

The column is a 12.5 meter Agilent 19091A-102

Scanned from 40.00 amu to 500.00 amu

Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal2.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 10:39
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 3
Information: Calibrator 2 Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : Cal2.D
Acq On : 30 Sep 2019 10:39
Operator : Rachel R. Strandquist
Sample : Calibrator 2
Misc : Methanol
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 30 11:54:48 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
Internal Standards						
1) Tribenzylamine	2.495	TIC	873485559	149.90	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.967	TIC	205400271 *	90.45	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 11:54:48 2019

Tennessee Bureau of Investigation: Memphis Crime Laboratory

Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal3Blank.D

Instrument: GRIZZ (model: 5975 Serial number: US11203704)

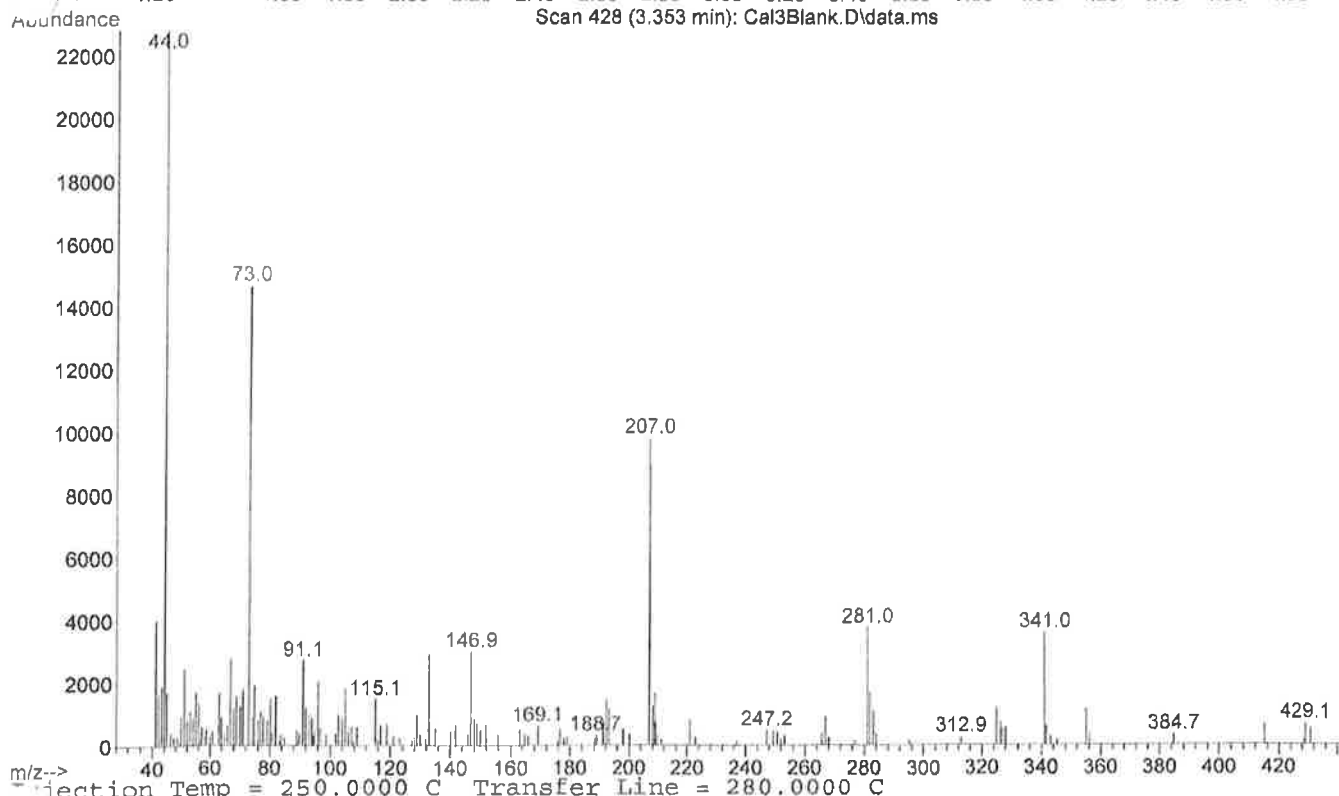
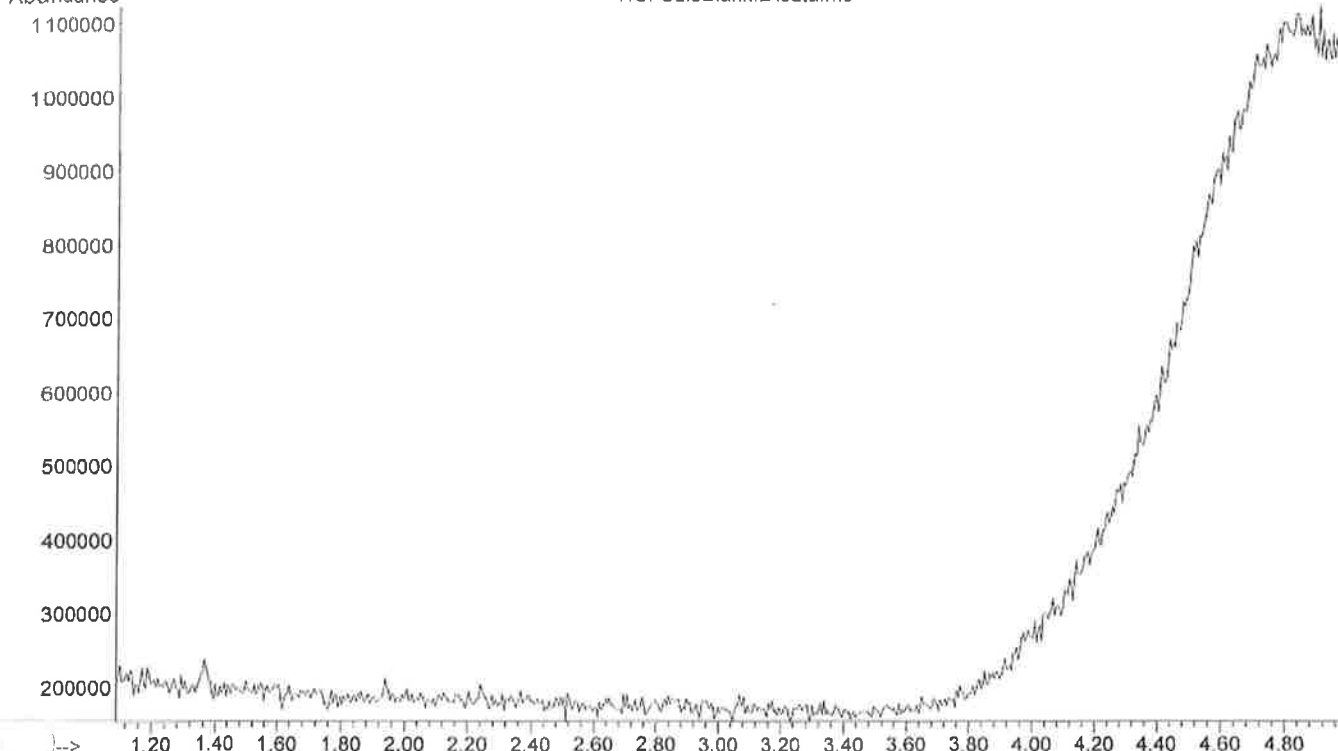
Tuned on 30 Sep 2019 7:29 am

Acquired by Rachel R. Strandquist on 30 Sep 2019 10:54

Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1

Information: Calibrator 3 Blank Misc. Information: Methanol

Abundance TIC: Cal3Blank.D\data.ms



Injection Temp = 250.0000 C Transfer Line = 280.0000 C

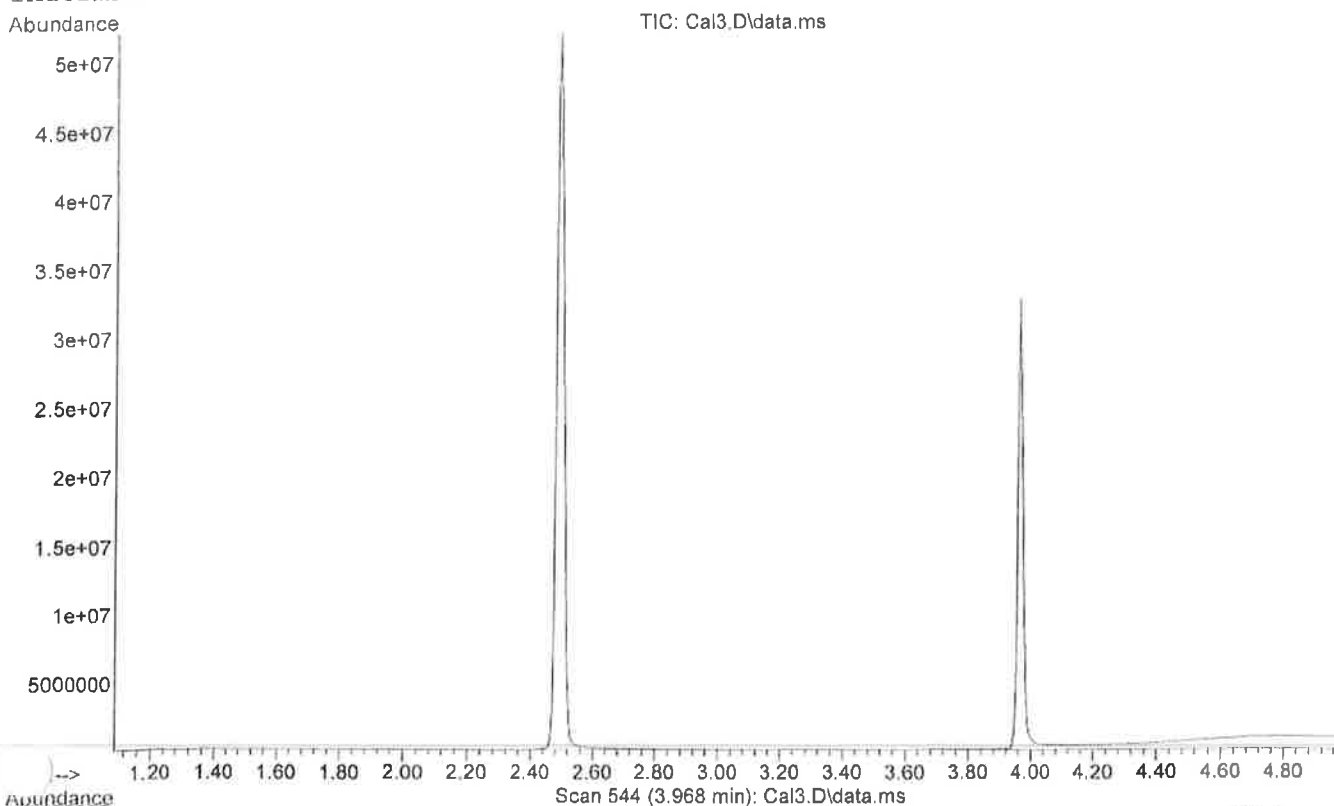
Split Ratio = 100.0000 Column Flow = 0.9380 mL/min

The column is a 12.5 meter Agilent 19091A-102

Scanned from 40.00 amu to 500.00 amu

Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal3.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 11:01
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 4
Information: Calibrator 3 Misc. Information: Methanol



TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : Cal3.D
Acq On : 30 Sep 2019 11:01
Operator : Rachel R. Strandquist
Sample : Calibrator 3
Misc : Methanol
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 30 11:55:04 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.498	TIC	888367198	149.90	ug/mL	0.00
Target Compounds						
2) THC	3.969	TIC	386125609	134.14	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 11:55:04 2019

Tennessee Bureau of Investigation: Memphis Crime Laboratory

Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal4Blank.D

Instrument: GRIZZ (model: 5975 Serial number: US11203704)

Tuned on 30 Sep 2019 7:29 am

Acquired by Rachel R. Strandquist on 30 Sep 2019 11:16

Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1

Information: Calibrator 4 Blank Misc. Information: Methanol

Abundance

TIC: Cal4Blank.D\data.ms

1100000

1000000

900000

800000

700000

600000

500000

400000

300000

200000

120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480

Scan 444 (3.438 min): Cal4Blank.D\data.ms

Abundance

44.0

24000

22000

20000

18000

16000

14000

12000

10000

8000

6000

4000

2000

0

73.0

207.0

147.1

281.0

340.9

91.0 115.0

178.8

248.9

312.1

403.0

428.8

m/z-->

Injection Temp = 250.0000 C Transfer Line = 280.0000 C

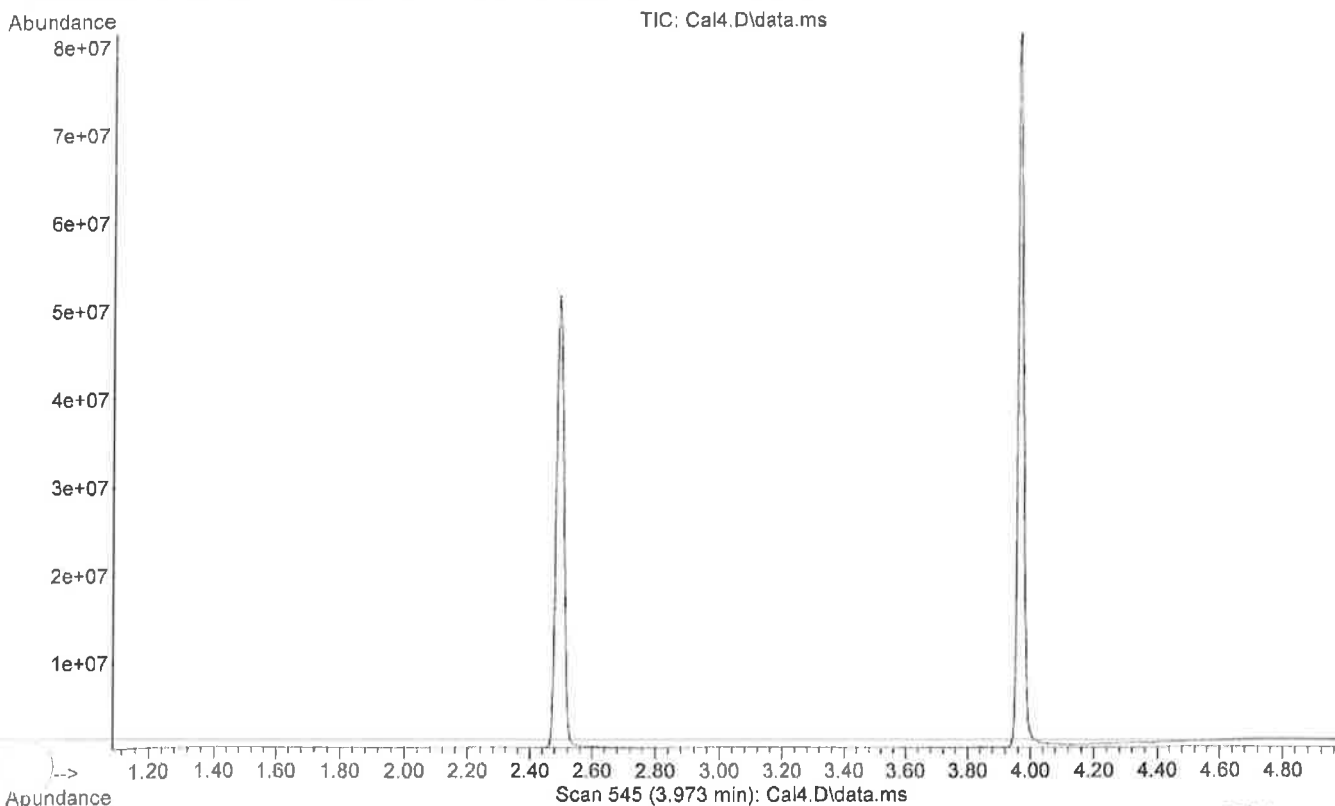
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min

The column is a 12.5 meter Agilent 19091A-102

Scanned from 40.00 amu to 500.00 amu

Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal4.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 11:24
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 5
Information: Calibrator 4 Misc. Information: Methanol



TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
 Data File : Cal4.D
 Acq On : 30 Sep 2019 11:24
 Operator : Rachel R. Strandquist
 Sample : Calibrator 4
 Misc : Methanol
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 30 11:55:22 2019
 Quant Method : C:\msdchem\1\methods\THC-MS.M
 Quant Title : THC Quantitation
 QLast Update : Mon Sep 30 11:54:30 2019
 Response via : Initial Calibration

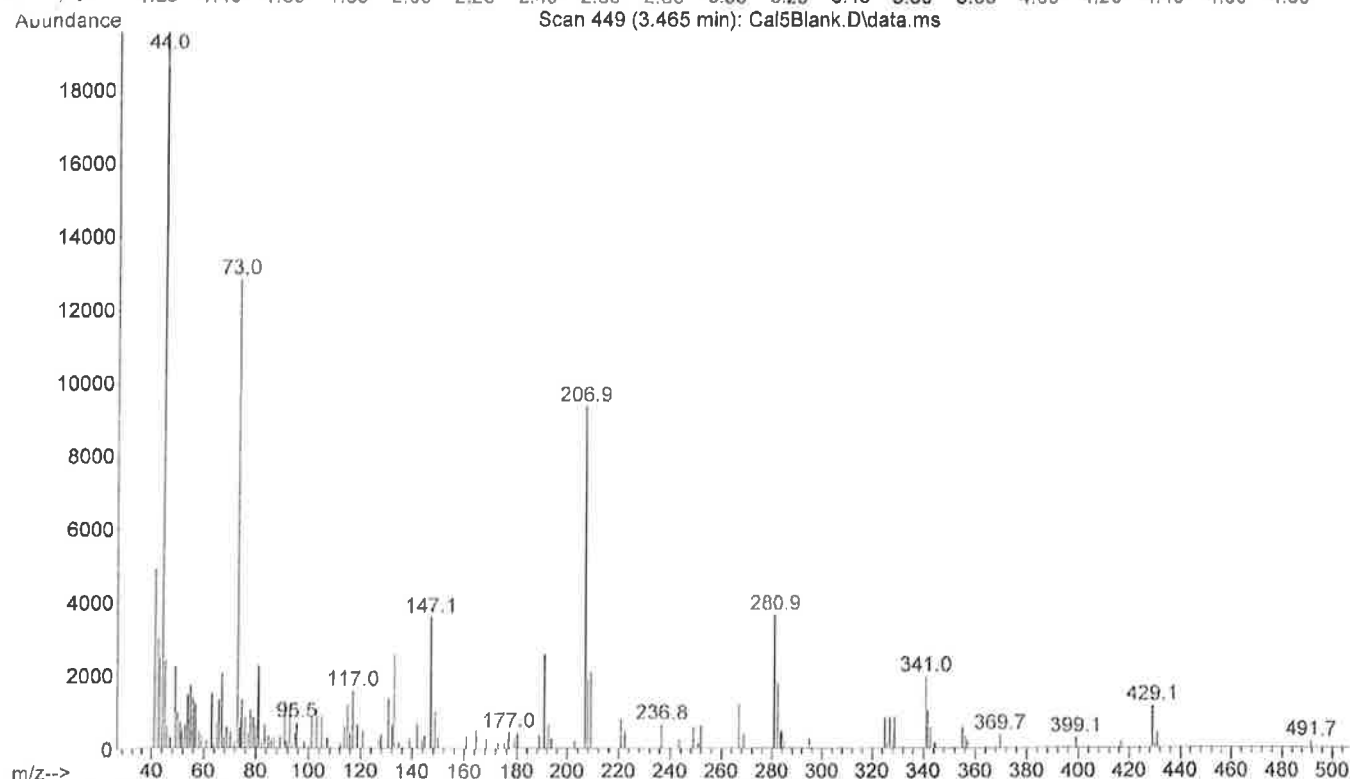
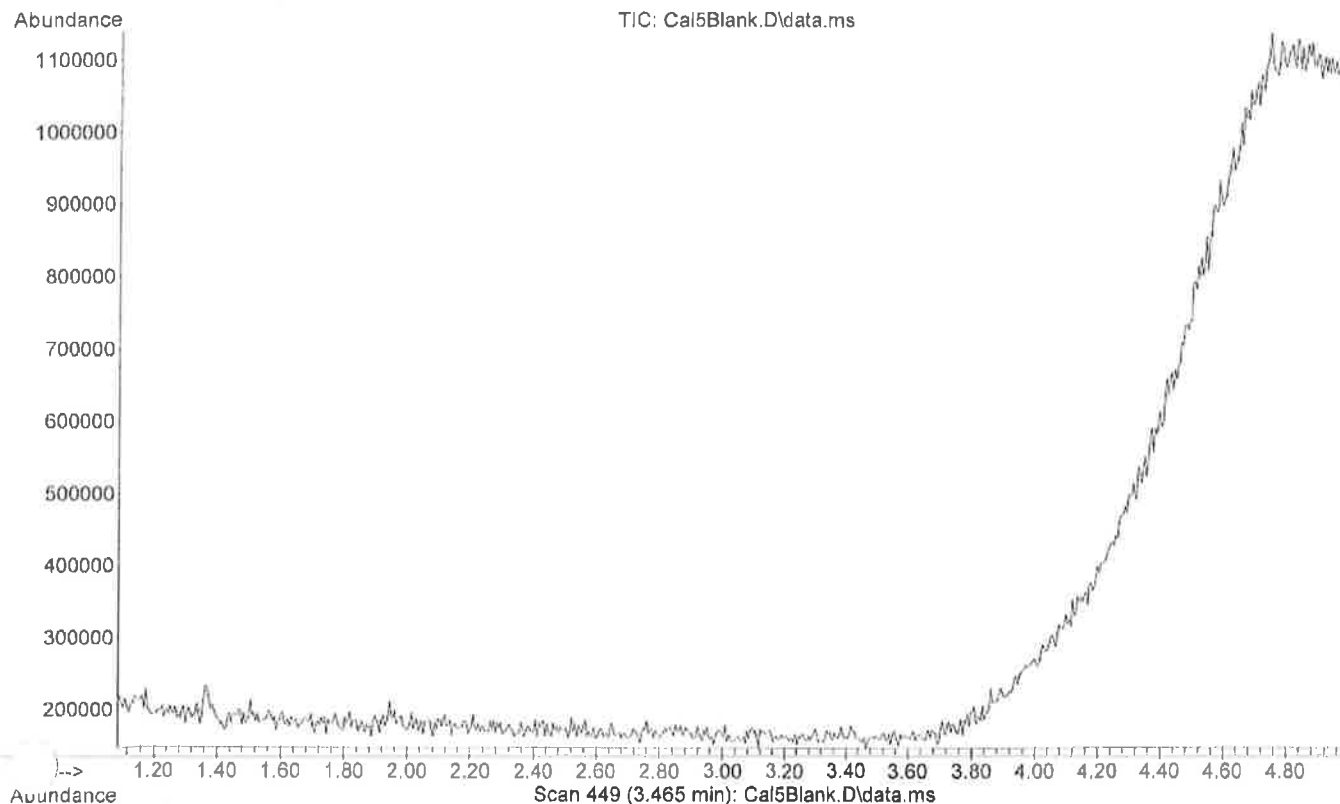
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.499	TIC	881874622	149.90	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.972	TIC	1011704398 *	290.22	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

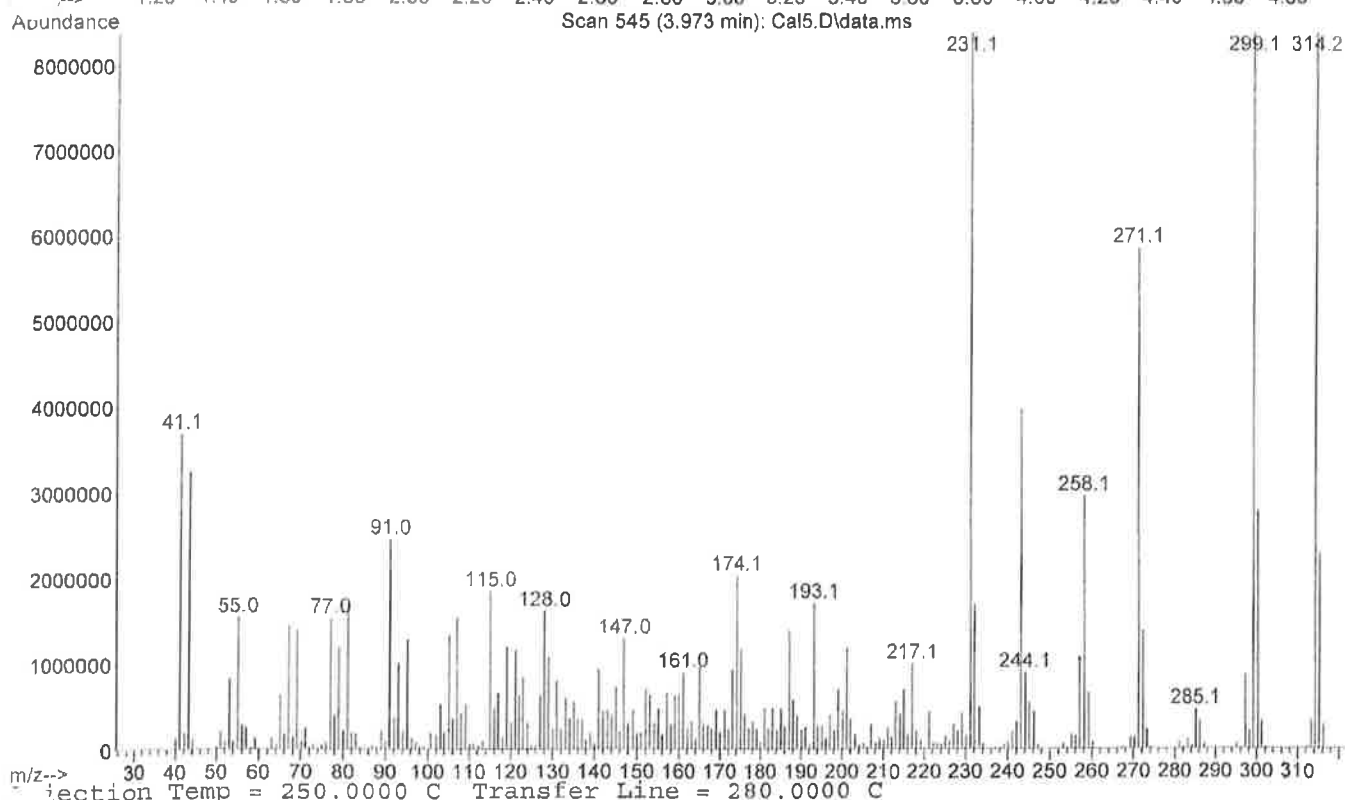
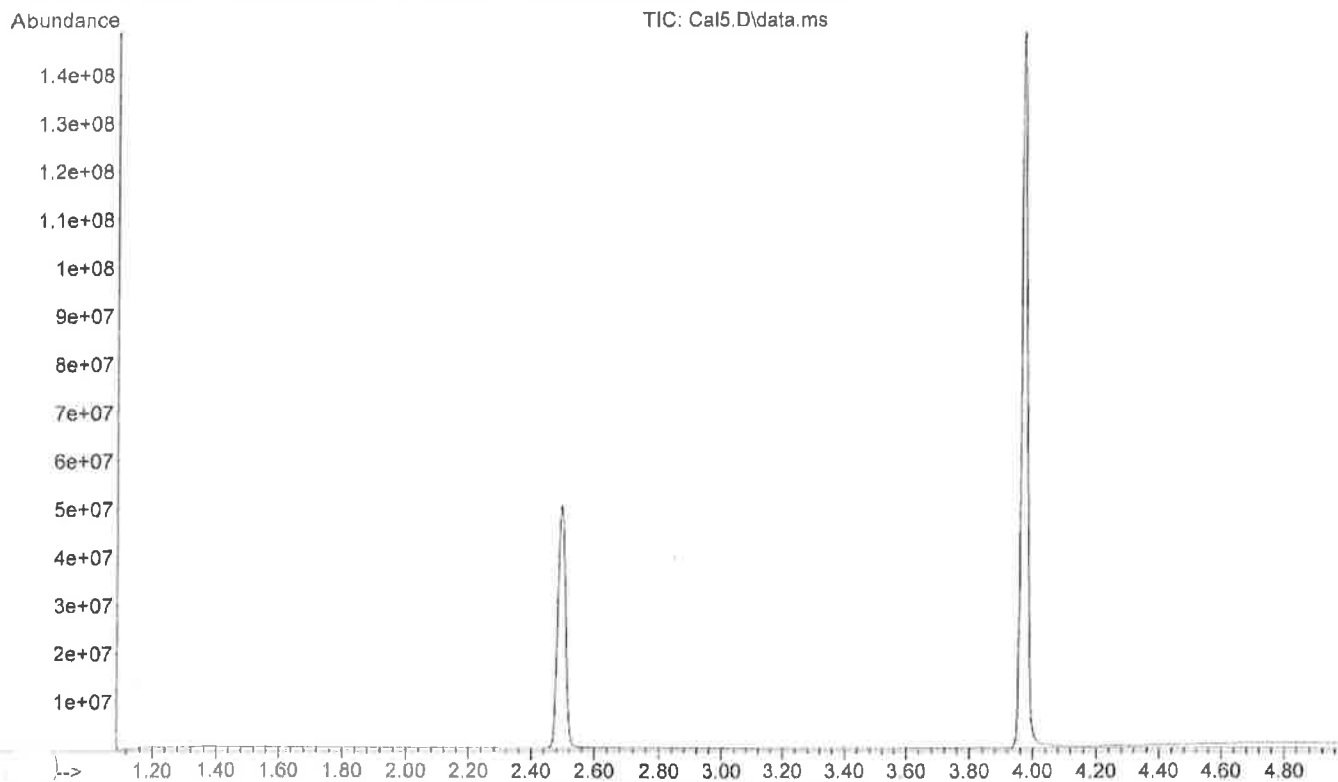
THC-MS.M Mon Sep 30 11:55:22 2019

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal5Blank.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 11:39
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1
Information: Calibrator 5 Blank Misc. Information: Methanol
Abundance TIC: Cal5Blank.D\data.ms



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Cal5.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 11:46
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 6
Information: Calibrator 5 Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : Cal5.D
Acq On : 30 Sep 2019 11:46
Operator : Rachel R. Strandquist
Sample : Calibrator 5
Misc : Methanol
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 30 11:55:45 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)

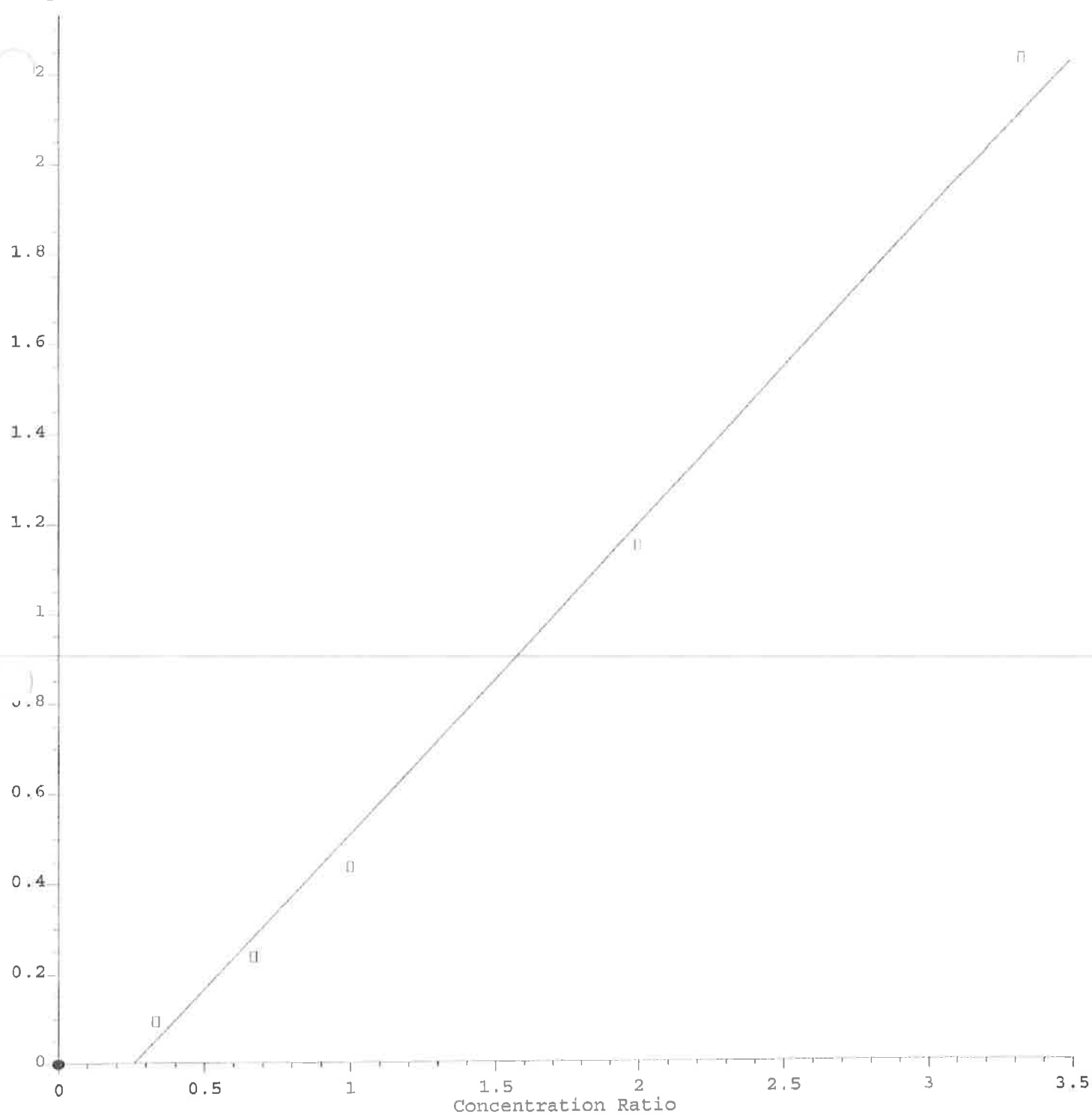
Internal Standards						
1) Tribenzylamine	2.499	TIC	876989279	149.90	ug/mL	0.00
Target Compounds						
2) THC	3.977	TIC	1950617462 *	526.11	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 11:55:45 2019

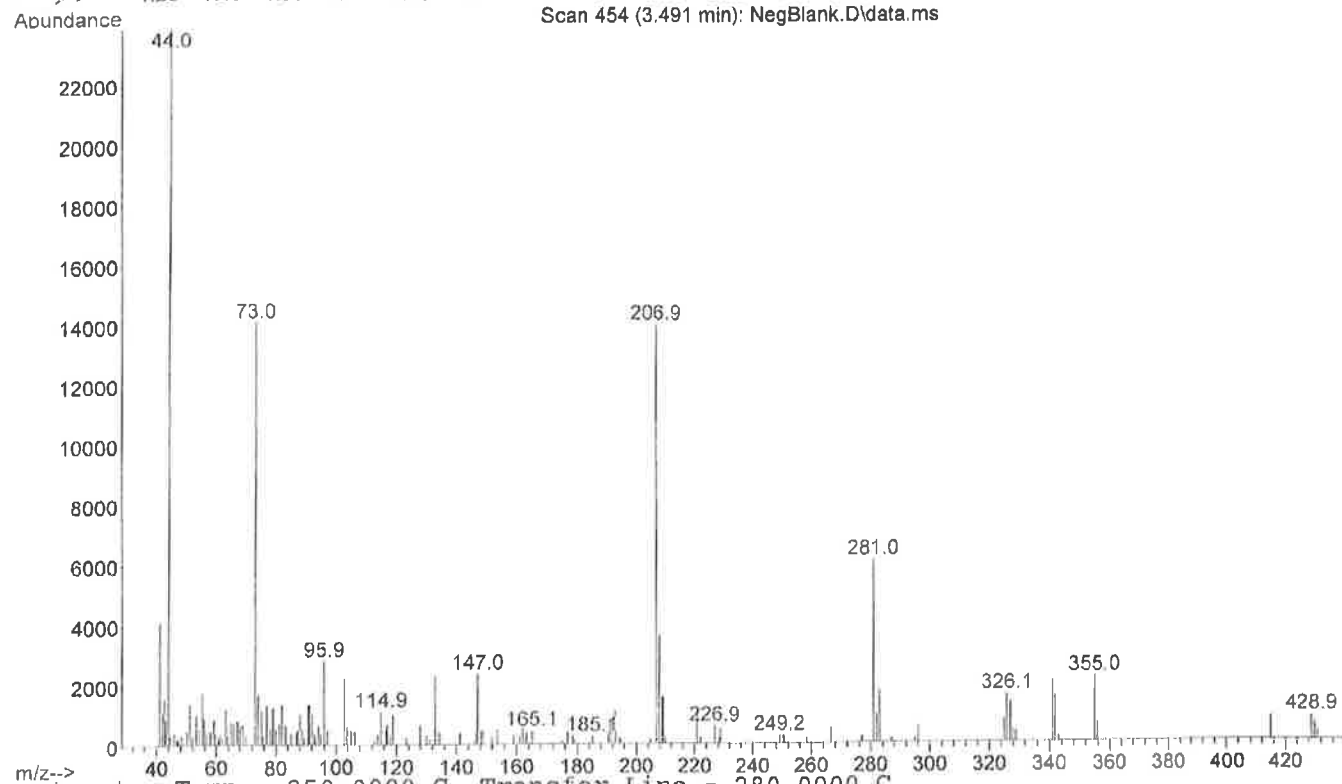
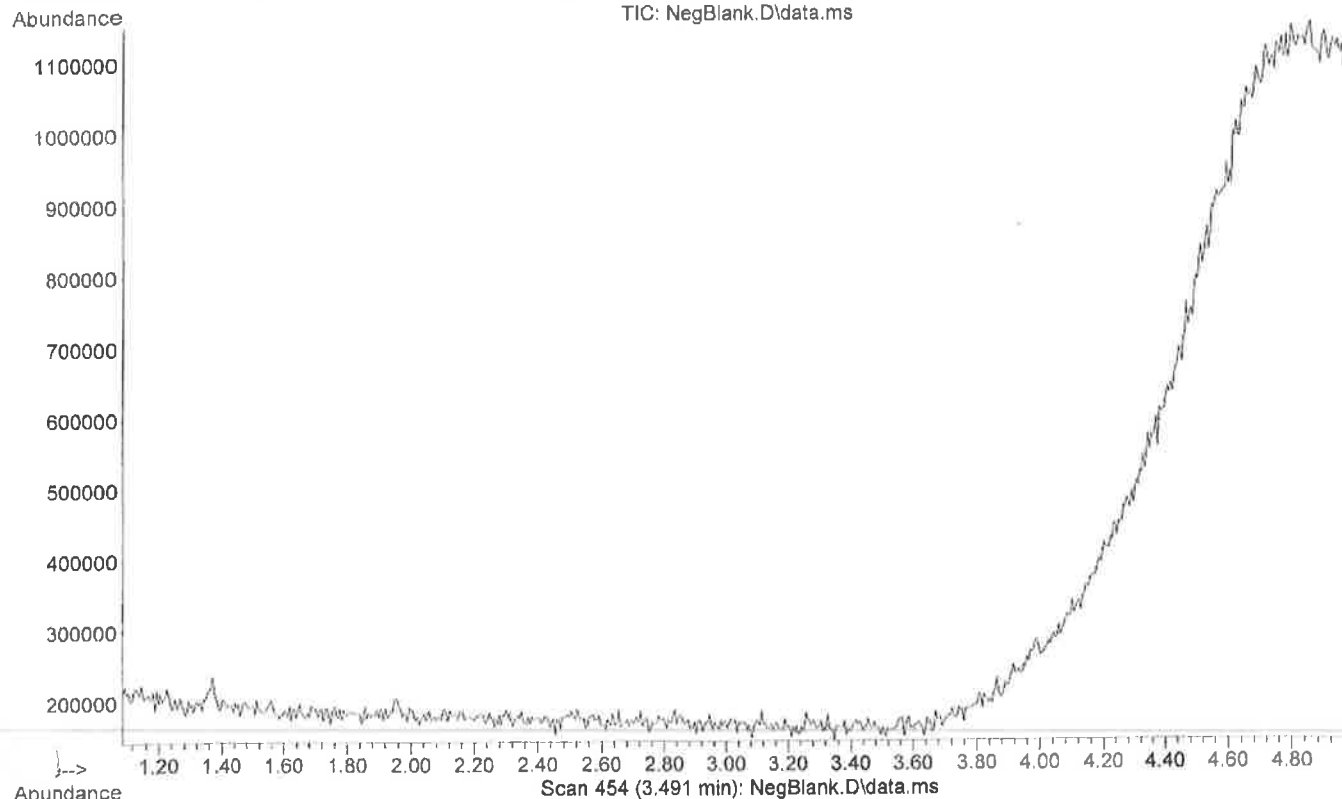
THC

Response Ratio



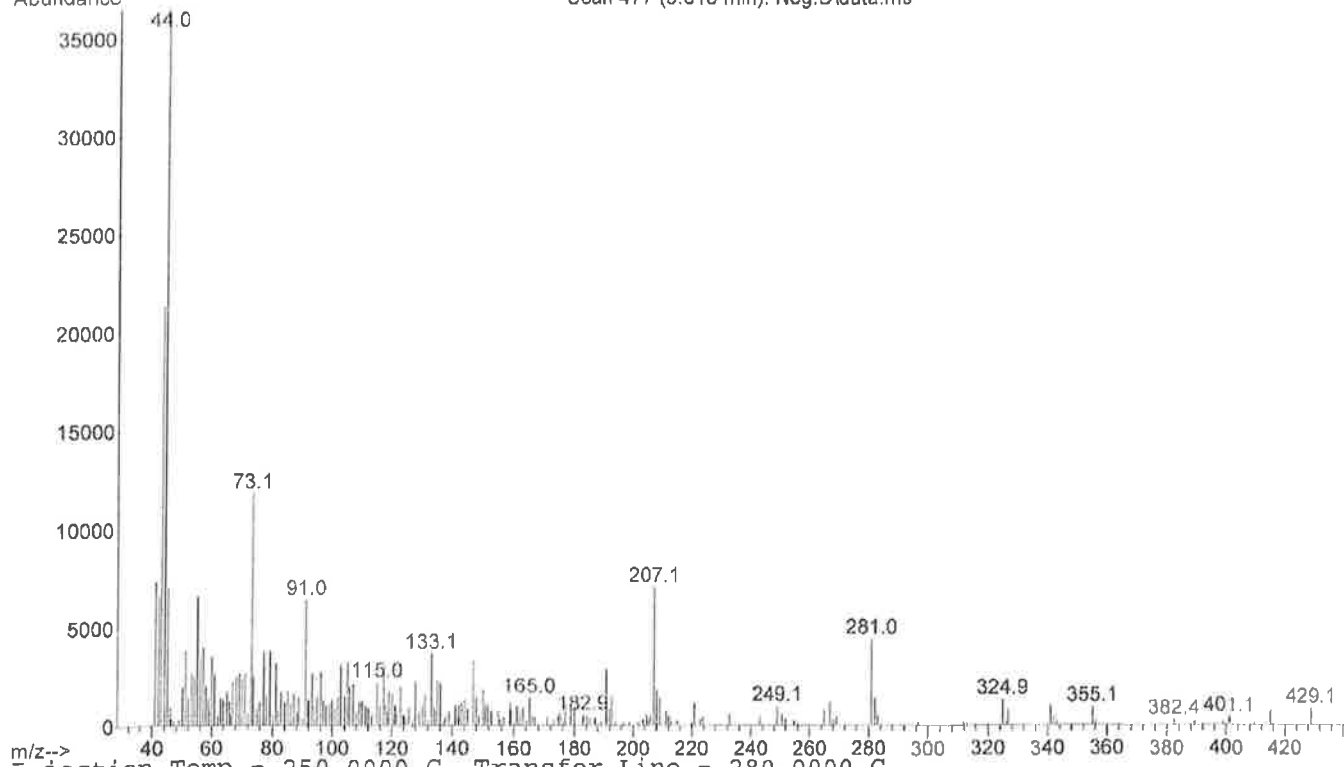
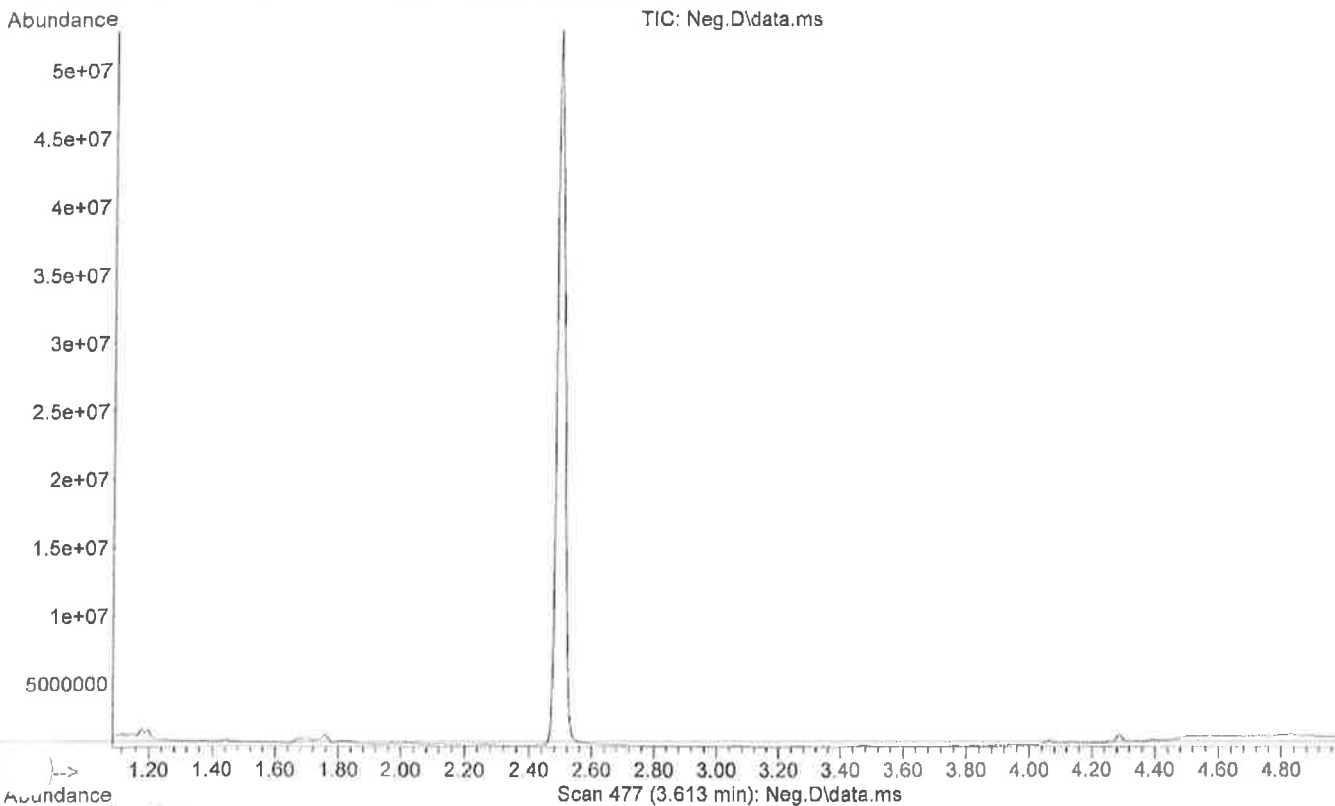
Response = $6.84e-001 * \text{Amt} - 1.78e-001$
Coef of Det (r^2) = 0.988 Curve Fit: wlr(1/a)
Method Name: C:\msdchem\1\methods\THC-MS.M
Calibration Table Last Updated: Mon Sep 30 10:41:46 2019

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\NegBlank.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 12:01
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1
Information: Negative Blank Misc. Information: Methanol
TIC: NegBlank.D\data.ms



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9380 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Neg.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 12:09
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 7
Information: Negative Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : Neg.D
Acq On : 30 Sep 2019 12:09
Operator : Rachel R. Strandquist
Sample : Negative
Misc : Methanol
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 30 14:13:03 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.502	TIC	943722402	149.90	ug/mL	0.00
Target Compounds						
2) THC	3.941	TIC	1528710	39.30	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 14:13:04 2019

$$\% \text{ THC} = \frac{39.30 \text{ ug/mL} \times 100}{\frac{100030 \text{ ug}}{2 \text{ mL}}} = \frac{3930}{50015}$$

$$\text{THC \%} = 0.08\%$$

$$< 0.01 \text{ PPS}$$

$$< 0.1\%$$

Tennessee Bureau of Investigation: Memphis Crime Laboratory

Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\PosBlank.D

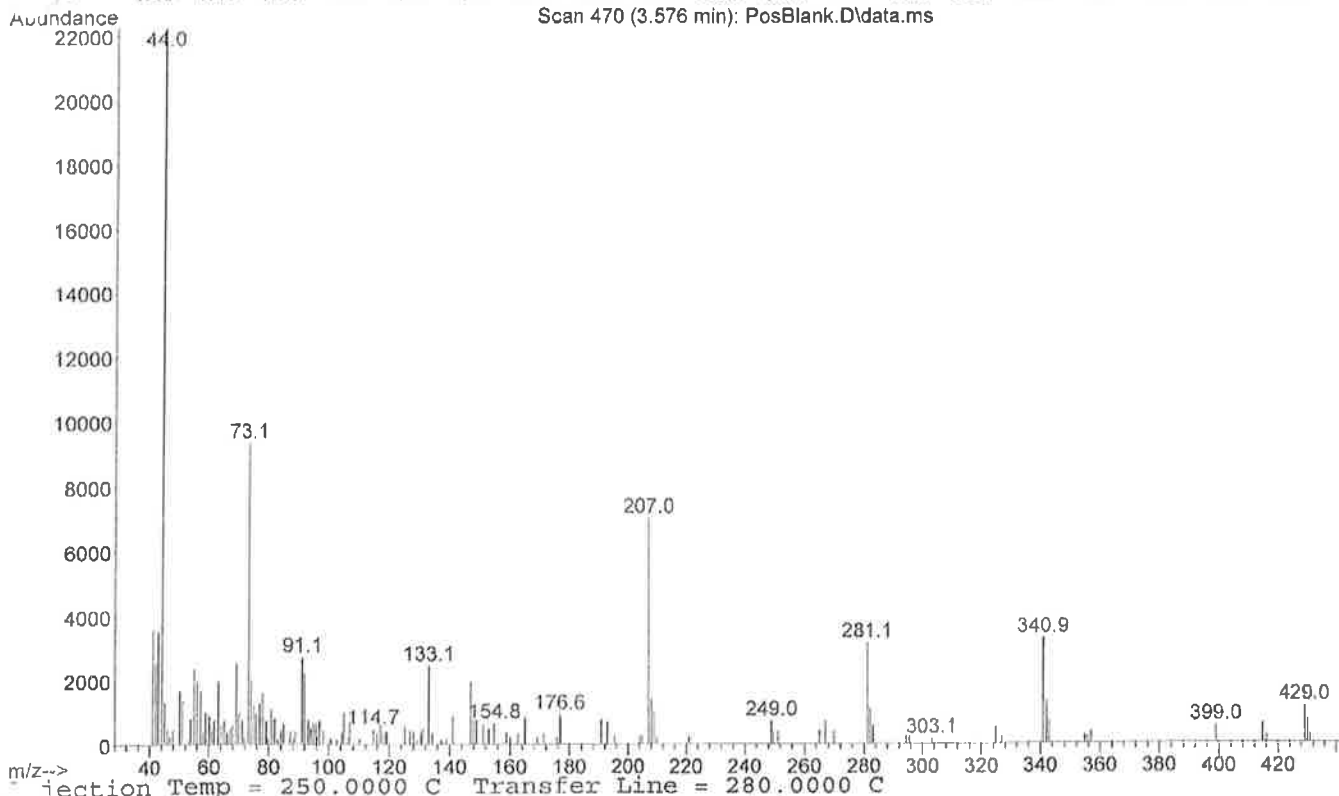
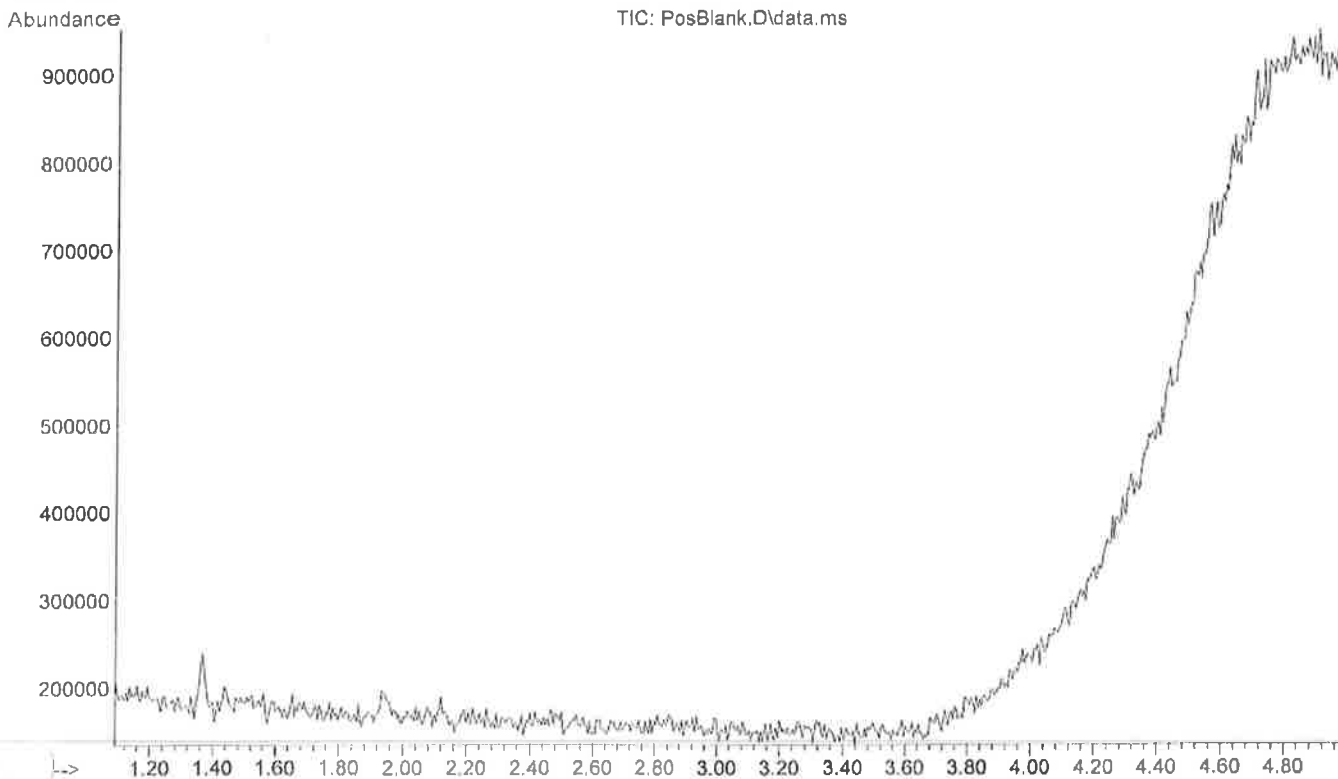
Instrument: GRIZZ (model: 5975 Serial number: US11203704)

Tuned on 30 Sep 2019 7:29 am

Acquired by Rachel R. Strandquist on 30 Sep 2019 12:31

Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1

Information: Positive Blank Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C

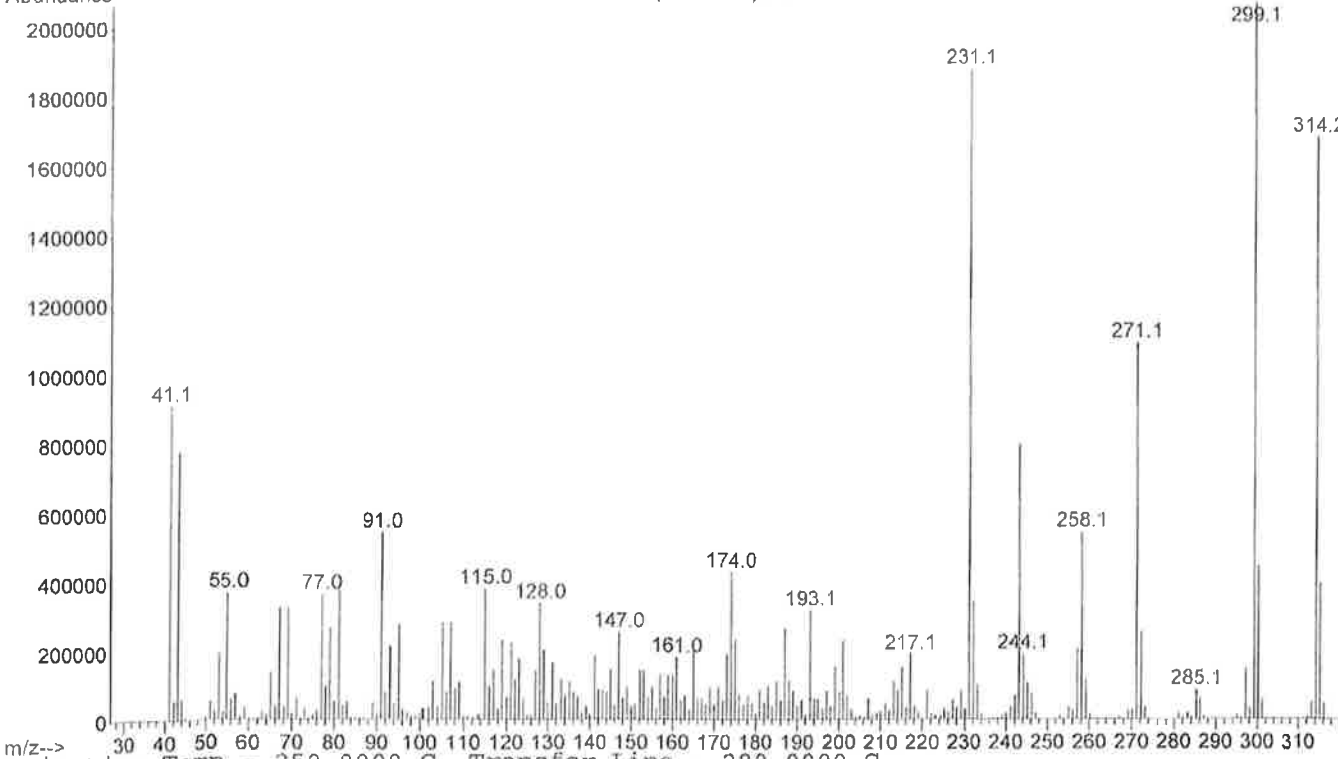
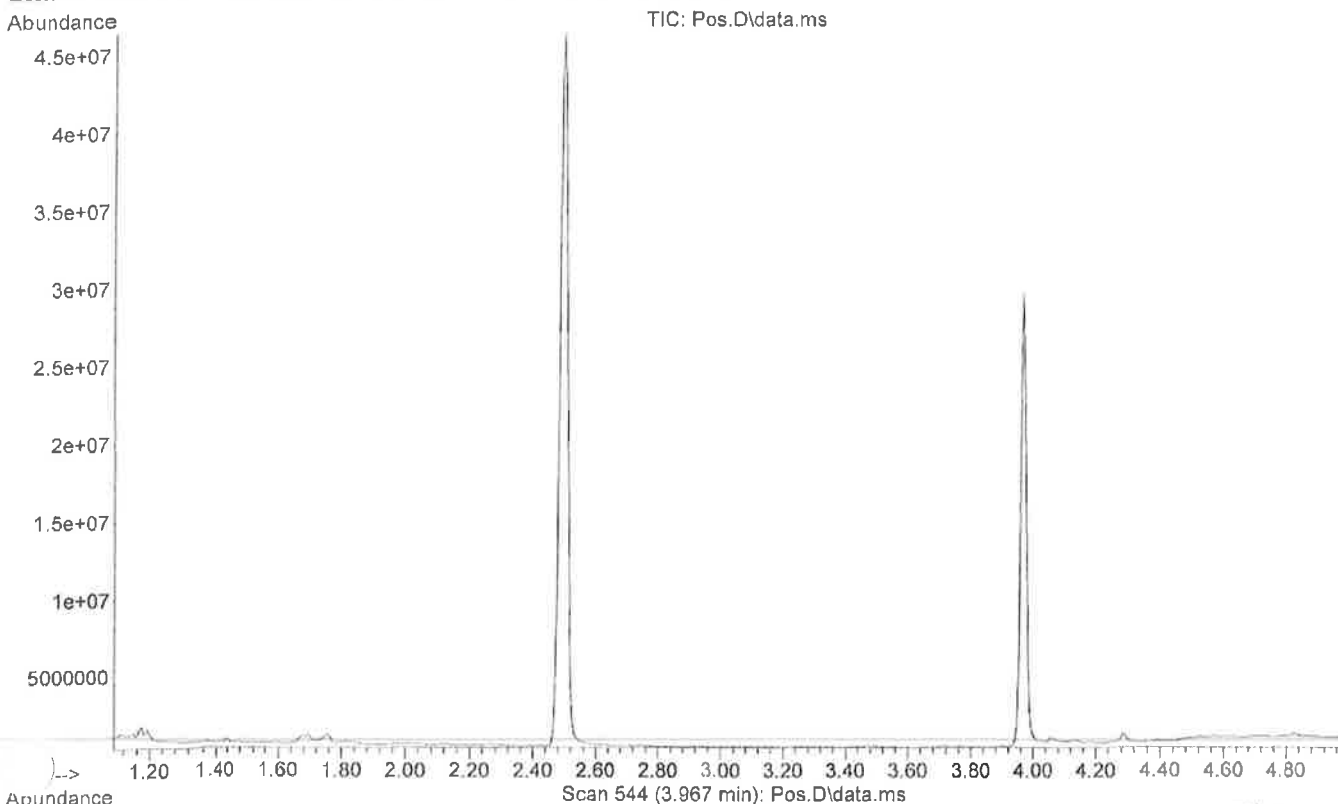
Split Ratio = 100.0000 Column Flow = 0.9379 mL/min

The column is a 12.5 meter Agilent 19091A-102

Scanned from 40.00 amu to 500.00 amu

Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\Pos.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 12:39
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 8
Information: Positive Misc. Information: Methanol



TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : Pos.D
Acq On : 30 Sep 2019 12:39
Operator : Rachel R. Strandquist
Sample : Positive
Misc : Methanol
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 30 13:47:58 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.497	TIC	804247309	149.90	ug/mL	0.00
Target Compounds						
2) THC	3.969	TIC	380967184 *	142.70	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

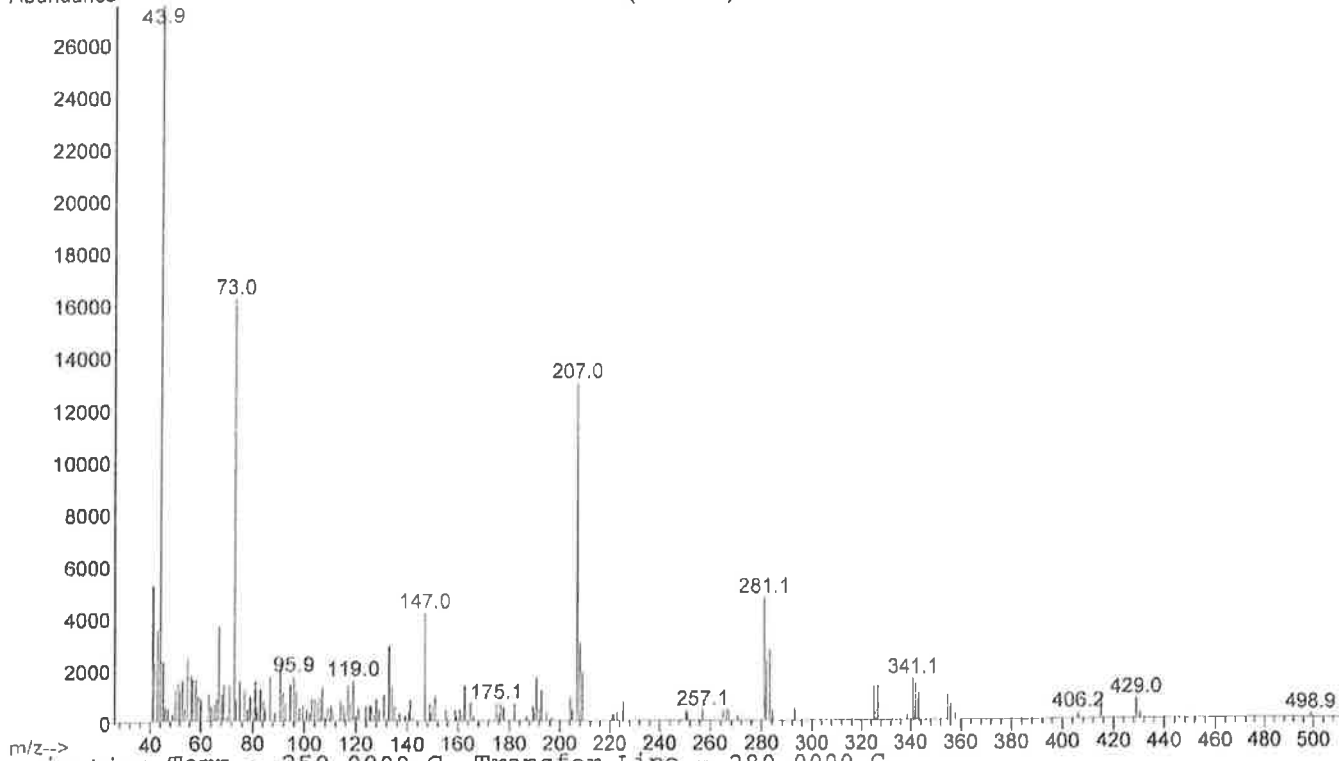
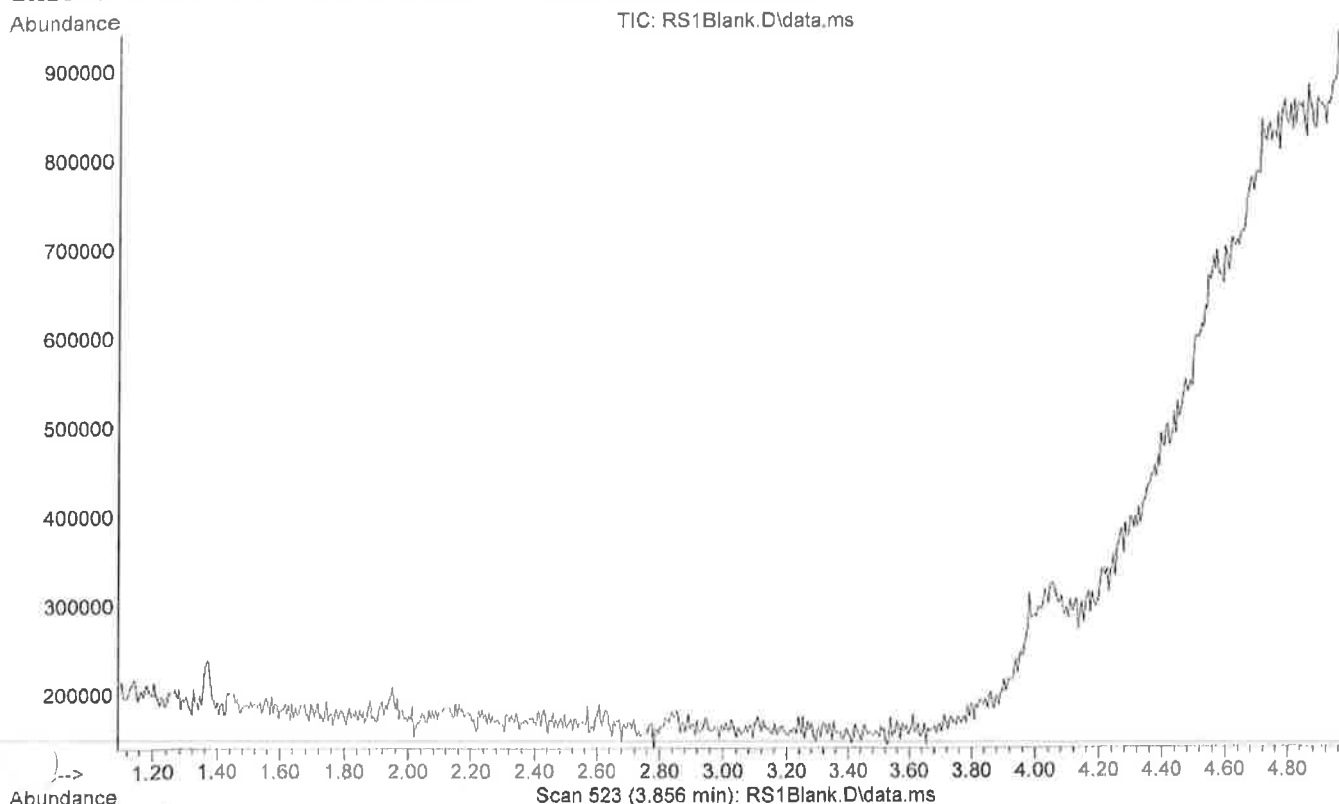
THC-MS.M Mon Sep 30 13:47:59 2019

$$\begin{array}{rcl} \% \text{ THC} = & \frac{142.70 \text{ ug/mL} \times 100}{99980 \text{ ug}} & = \frac{14,270}{99,990} \end{array}$$

2 mL

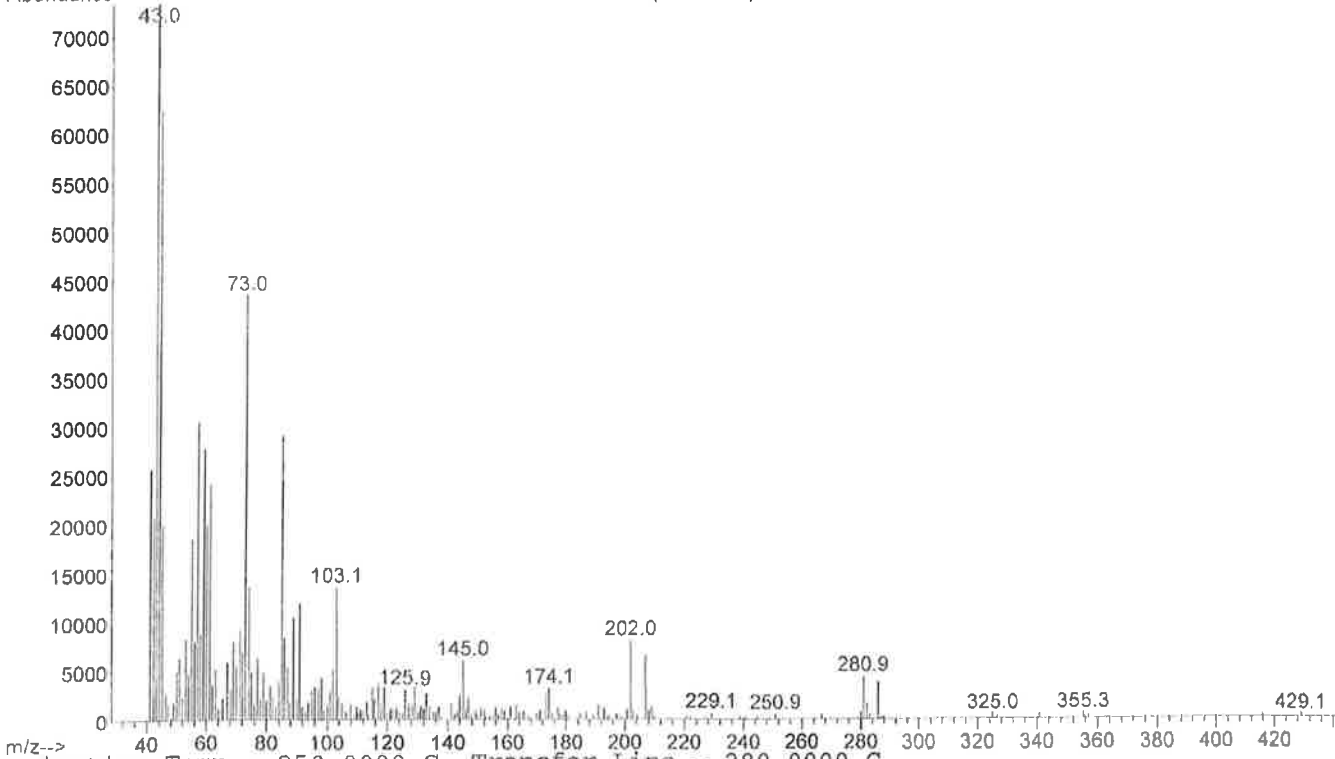
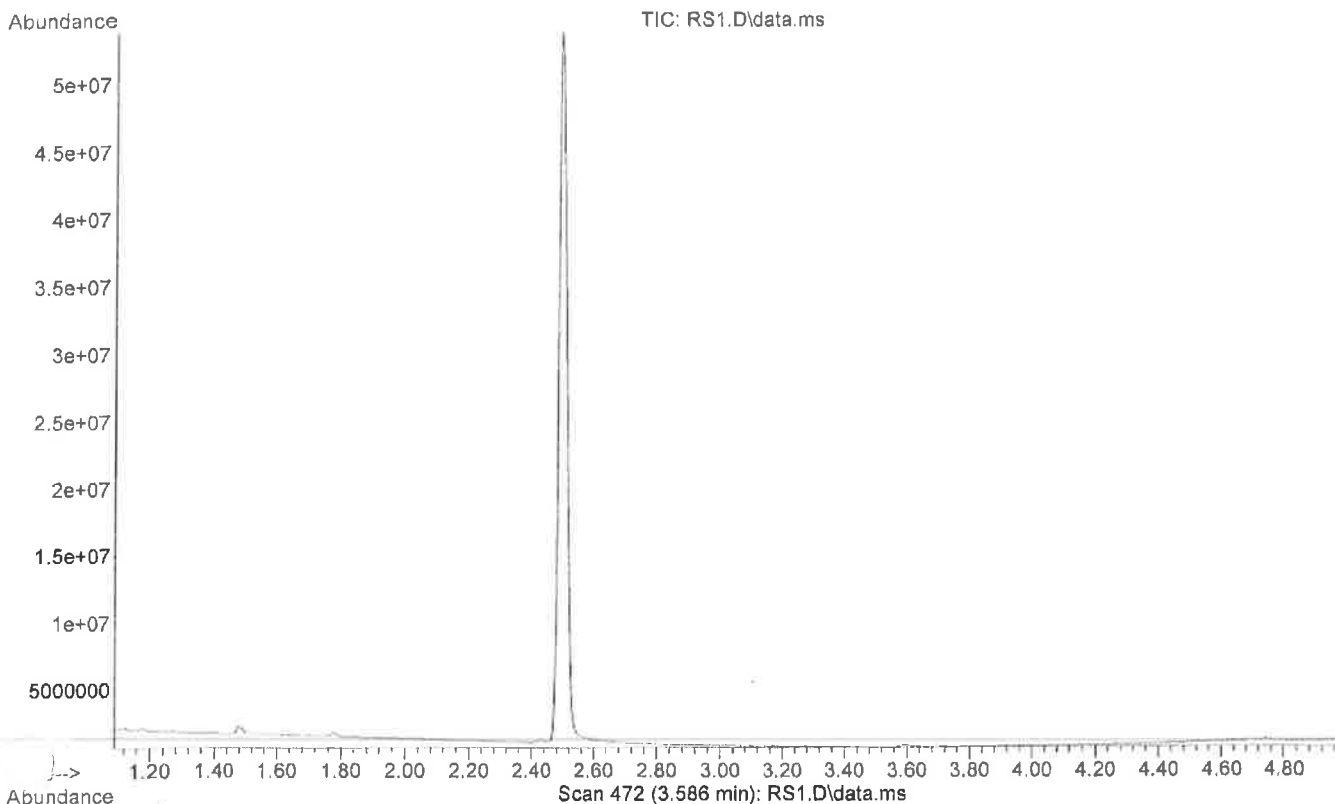
0.29% THC

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\RS1Blank.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 12:54
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1
Information: RS 1 Blank Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9379 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\RS1.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 13:01
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 9
Information: RS 1 Misc. Information: Methanol



TBI Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : RS1.D
Acq On : 30 Sep 2019 13:01
Operator : Rachel R. Strandquist
Sample : RS 1
Misc : Methanol
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 30 14:13:20 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.504	TIC	992920628	149.90	ug/mL	0.00
Target Compounds						
2) THC	3.950	TIC	861995	39.13	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 14:13:20 2019

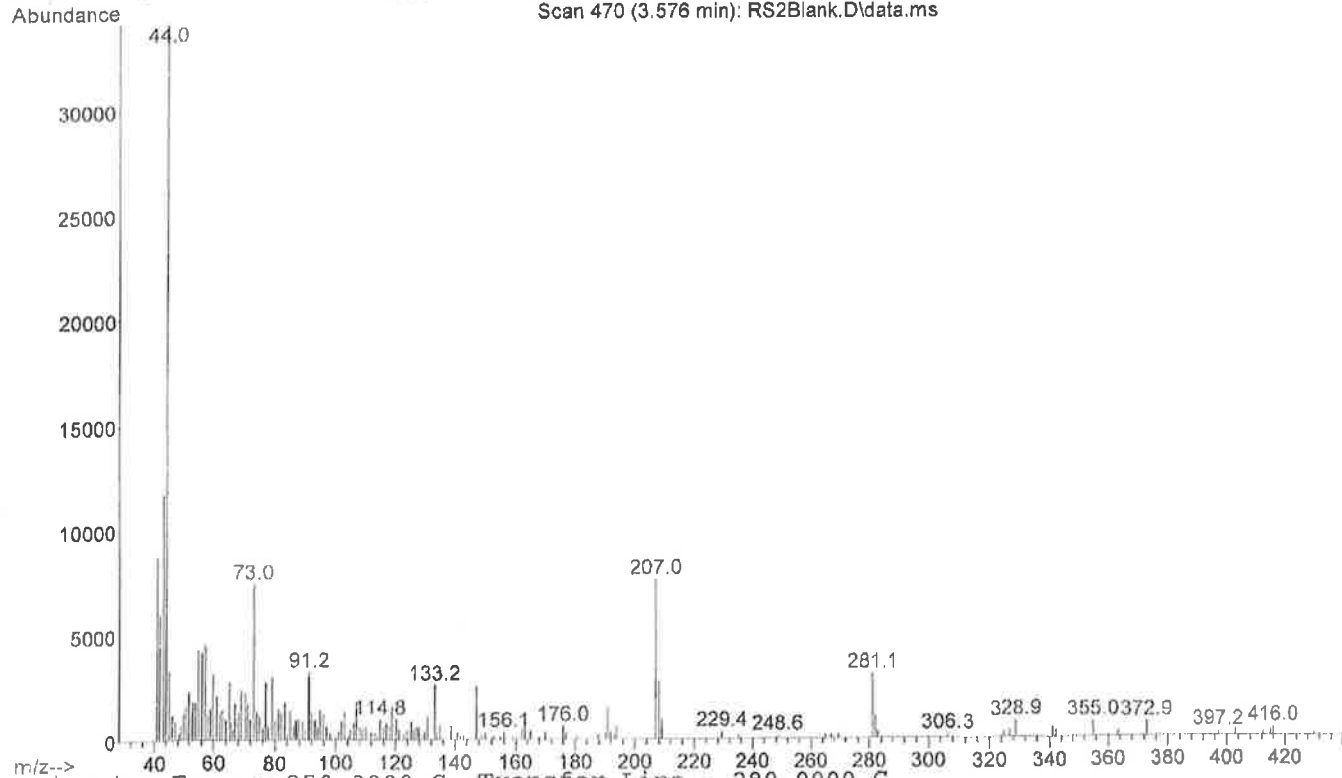
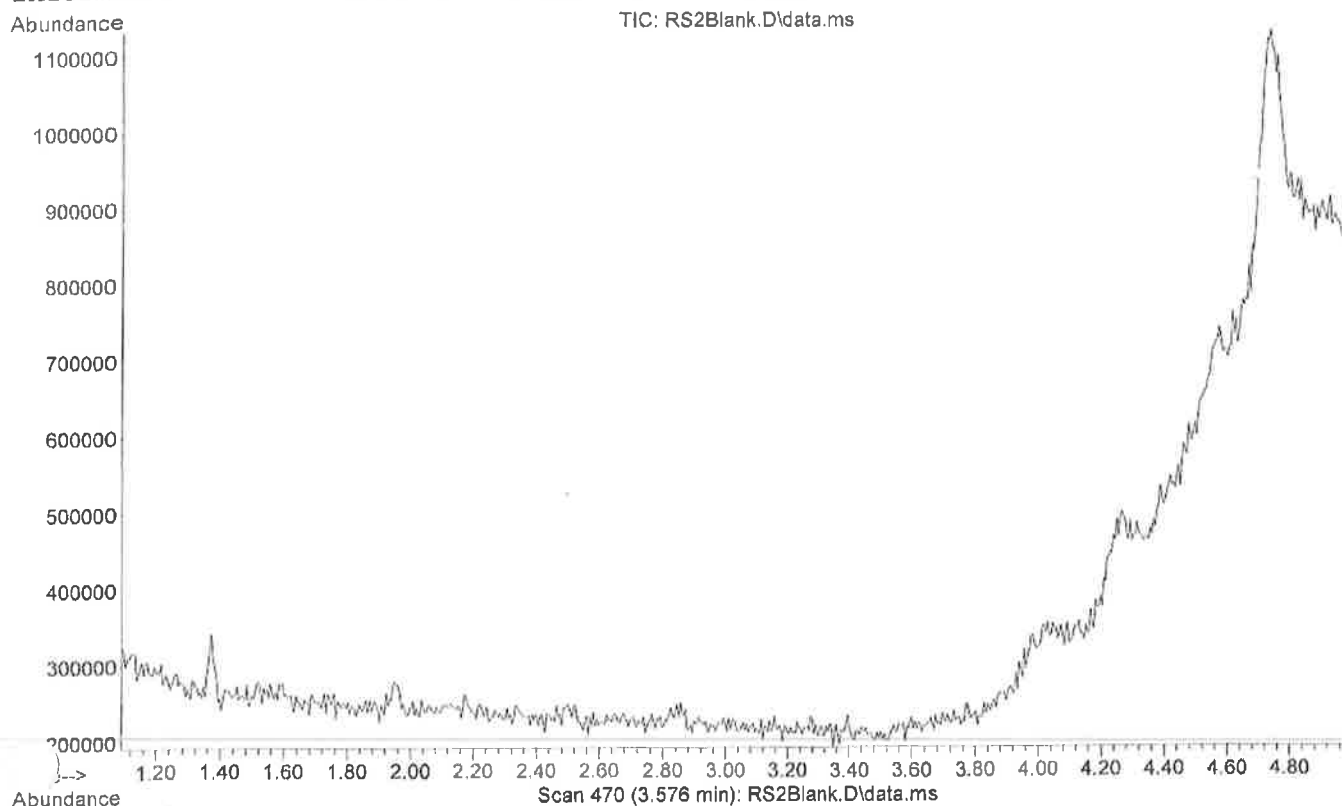
$$\text{THC \%} = \frac{39.13 \text{ ug/mL} \times 100}{99990 \text{ ug}} = \frac{3913}{49,995}$$

2mL

0.08% THC

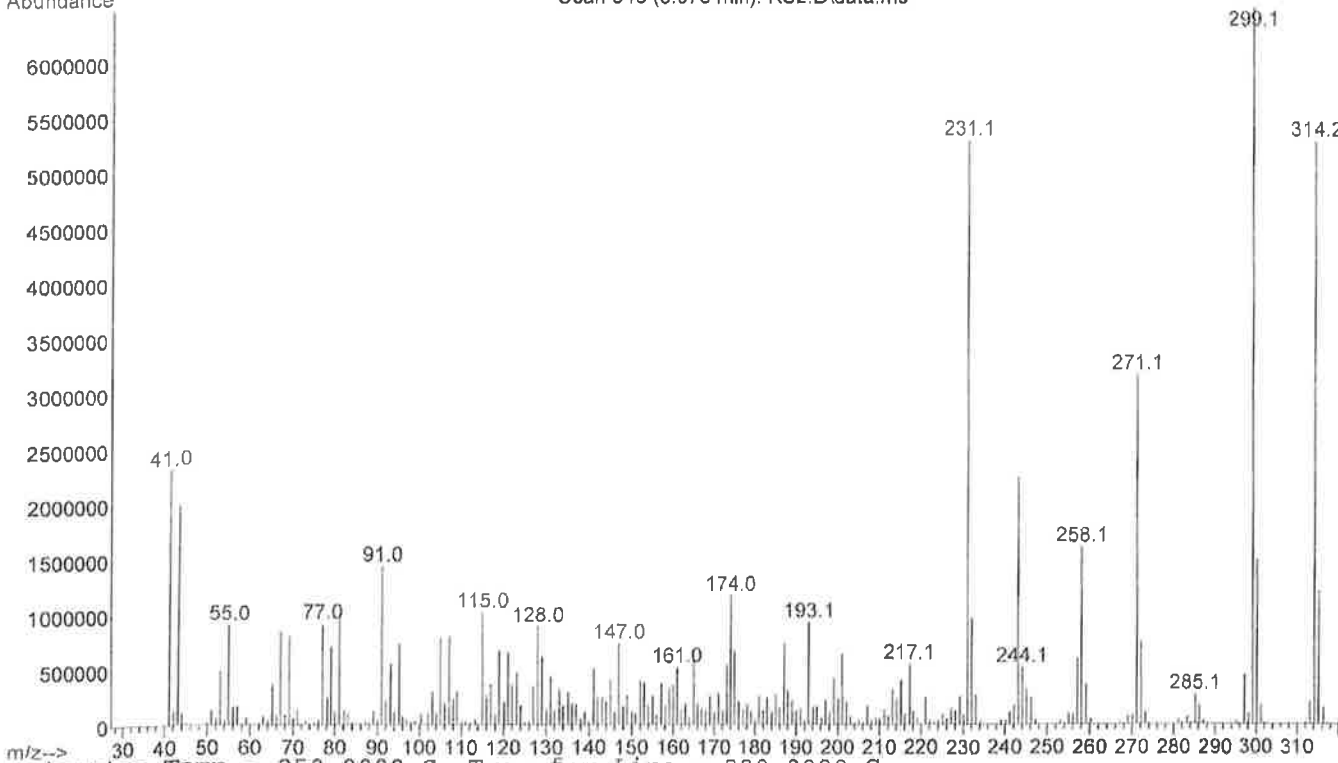
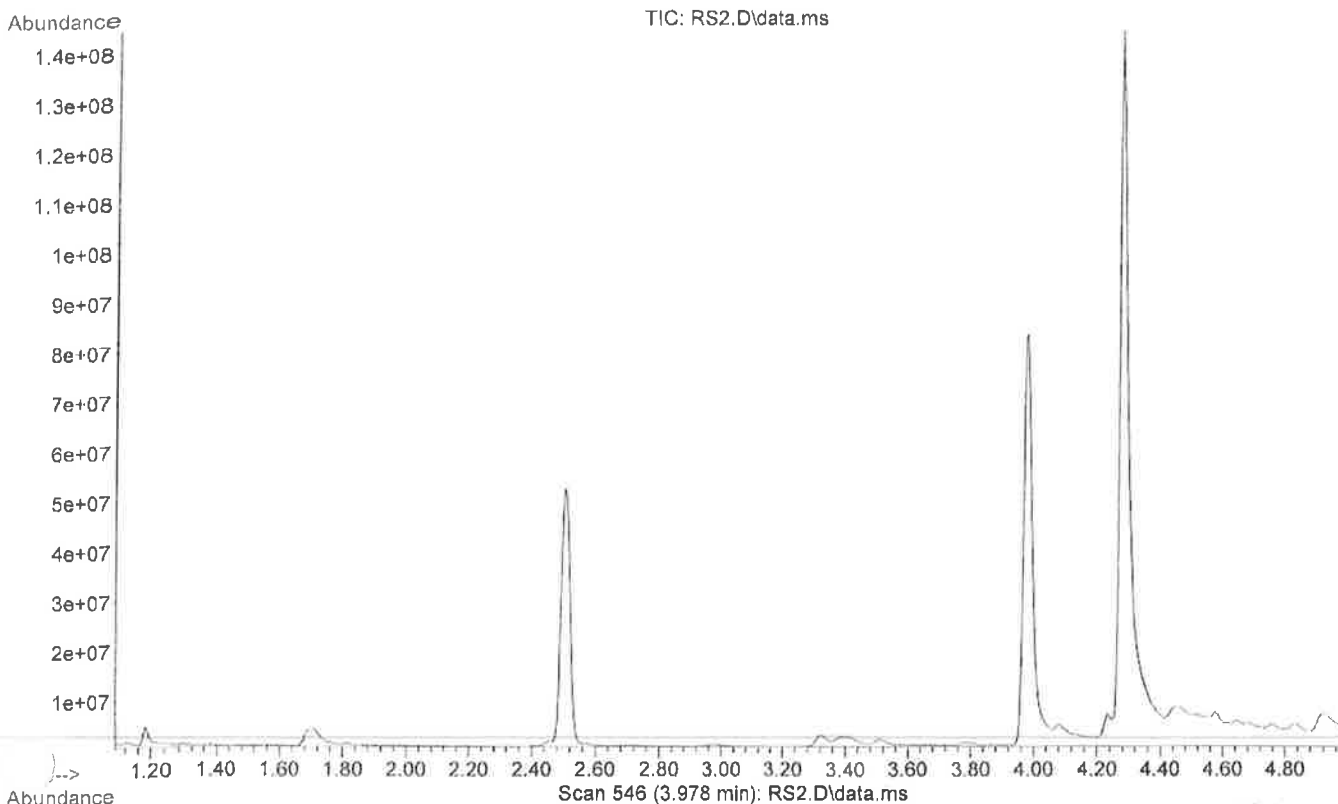
< 0.1%

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\RS2Blank.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 13:16
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1
Information: RS 2 Blank Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9379 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\RS2.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 13:24
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 10
Information: RS 2 Misc. Information: Methanol



The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : RS2.D
Acq On : 30 Sep 2019 13:24
Operator : Rachel R. Strandquist
Sample : RS 2
Misc : Methanol
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 30 13:48:39 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

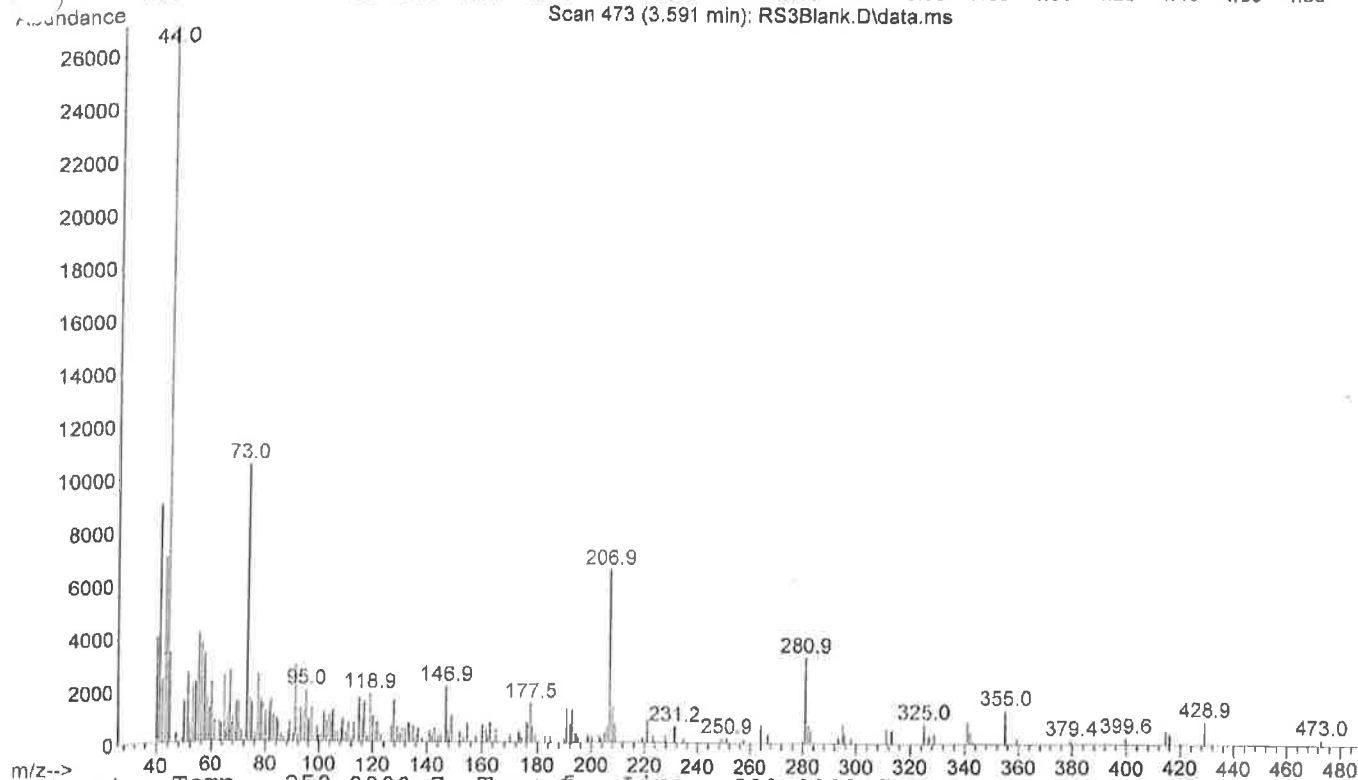
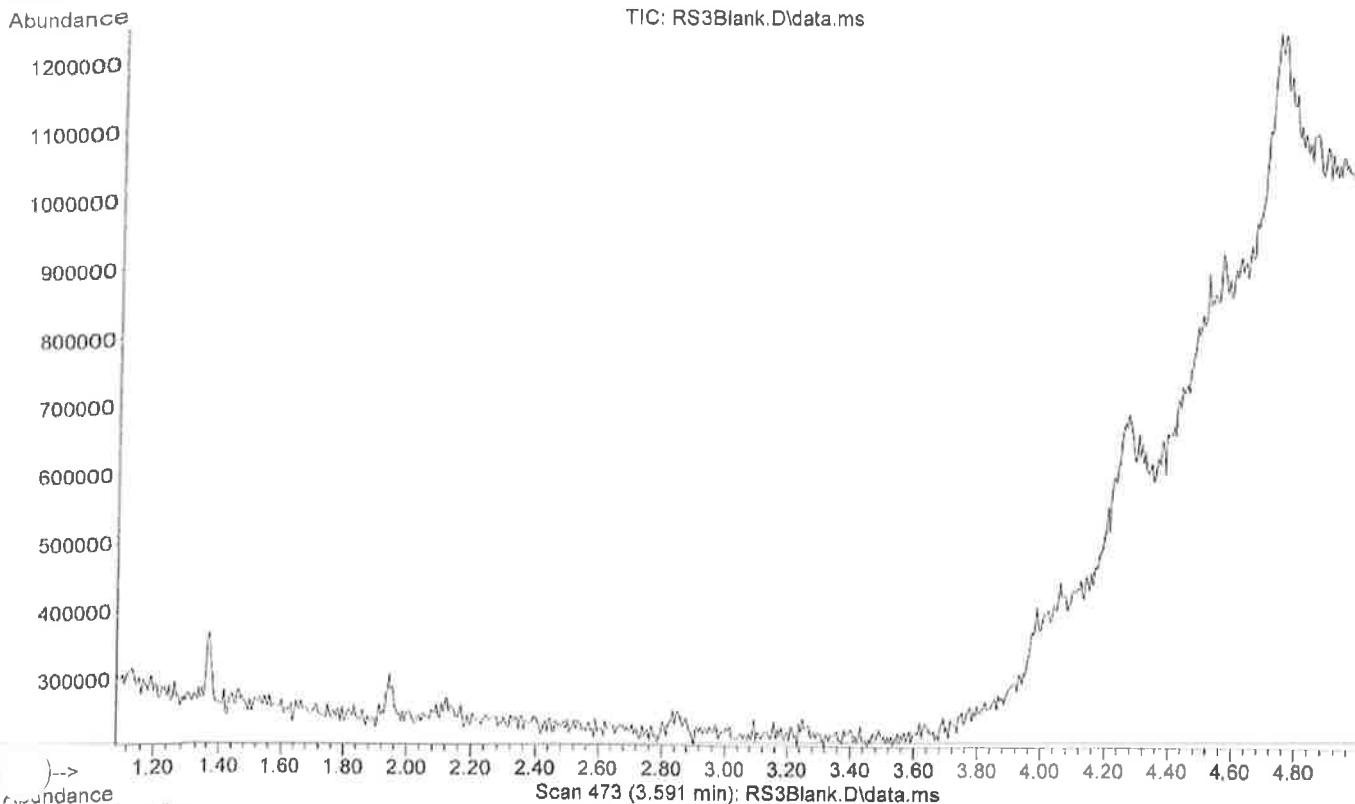
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tribenzylamine	2.509	TIC	1061421888	149.90	ug/mL	0.01
Target Compounds						
2) THC	3.983	TIC	1652921018 *	380.03	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 13:48:40 2019

$$\text{THC \%} = \frac{380.03 \text{ ug/mL} \times 100}{\left(\frac{99990 \text{ ug}}{2 \text{ mL}} \right)} = \frac{38,003}{49,995} = 0.76\%$$

Tennessee Bureau of Investigation: Memphis Crime Laboratory
Name of file: C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\RS3Blank.D
Instrument: GRIZZ (model: 5975 Serial number: US11203704)
Tuned on 30 Sep 2019 7:29 am
Acquired by Rachel R. Strandquist on 30 Sep 2019 13:39
Method: C:\MSDCHEM\1\METHODS\THC-MS.M Vial Number: 1
Information: RS 3 Blank Misc. Information: Methanol



Injection Temp = 250.0000 C Transfer Line = 280.0000 C
Split Ratio = 100.0000 Column Flow = 0.9378 mL/min
The column is a 12.5 meter Agilent 19091A-102
Scanned from 40.00 amu to 500.00 amu
Initial temp 230 C for 3.5 min, Ramped at 50 C/min to 280 C

Data Path : C:\msdchem\1\data\RACHEL\2019\September\09-30-19THC\
Data File : RS3.D
Acq On : 30 Sep 2019 13:46
Operator : Rachel R. Strandquist
Sample : RS 3
Misc : Methanol
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 30 13:54:20 2019
Quant Method : C:\msdchem\1\methods\THC-MS.M
Quant Title : THC Quantitation
QLast Update : Mon Sep 30 11:54:30 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	2.511	TIC	1068452392	149.90	ug/mL	0.02
Target Compounds						
2) THC	3.980	TIC	578425864 *	157.52	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS.M Mon Sep 30 13:54:21 2019

$$\% \text{ THC} = \frac{157.52 \text{ ug/mL} \times 100}{\left(\frac{99980 \text{ ug}}{2 \text{ mL}} \right)} = \frac{15,752}{49,990} =$$

0.32% THC

THC Competency

Laura Newberry

Sample 1L

Sample 2L

Sample 3L

Spices

132006906 Marijuana

C1818443 Hemp

Ben Hubert

Sample 1B

Sample 2B

Sample 3B

C1818443 Hemp

Spices

132006906 Marijuana

Scott Jenkins

Sample 1

Sample 2

Sample 3

181-015651 Marijuana

C1818443 Hemp

Spices

Memphis

RS - 1

RS - 2

RS - 3

Negative

Marijuana

Hemp

Parsley

132-006906

C1818440

CD - 1

CD - 2

CD - 3

Marijuana

Hemp

Negative

132-006906

C1818440

Parsley

Semi Quant

A

B

C

Hemp

Marijuana

Negative

Date: 5/30/19
 Trainer: Brett Trotter
 Trainee: Laura Newberry



Initial Competency Test for THC Quantitation

Standards and Reagents used:

Manufacturer and Lot Number or ID information

Methanol	Lot: 183018
Internal standard	Tribenzylamine Sigma-Aldrich Lot: BCBM5746V
Calibration THC	Cerilliant Lot: FE08221804
Control THC	Lipomed Lot: 135.1B71.026

Quantitation Results:

	Sample ID and Concentration	Pass/Fail
Unknown 1	1L, ^{Low} 0% THC Negative	Pass
Unknown 2	2L, ^{Low} 1.63% THC 1.67%	Pass
Unknown 3	3L, ^{Low} 0.44% THC 0.43%	Pass

*All technical records must be attached to this form

Laura Newberry has successfully completed the competency test for THC quantitation.

	Signature	Date
Trainee	<u><i>Laura Newberry</i></u>	<u>5/30/19</u>
Trainer	<u><i>Brett Trotter</i></u>	<u>5/30/19</u>
Supervisor	<u><i>Blenn B. Ewert</i></u>	<u>5/31/19</u>
Technical Leader	<u><i>Blenn B. Ewert</i></u>	<u>5/31/19</u>

Tetrahydrocannabinol Quantitation Answer Key

Analyst: Laura Newberry

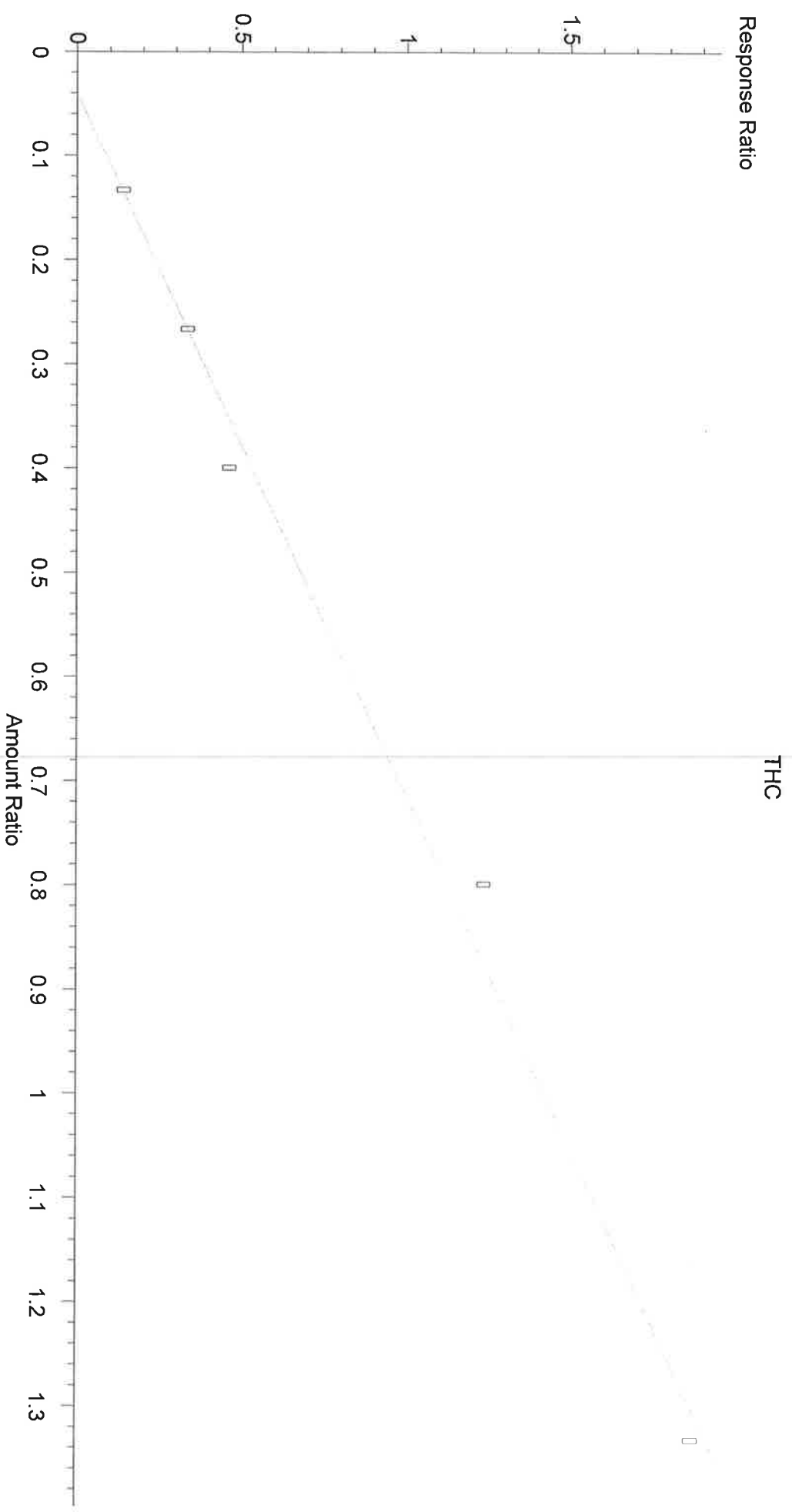
Trainer: Brett Trotter

Date: 5/22/19

- 1. Spices**
- 2. Marijuana sample**
- 3. Hemp sample**

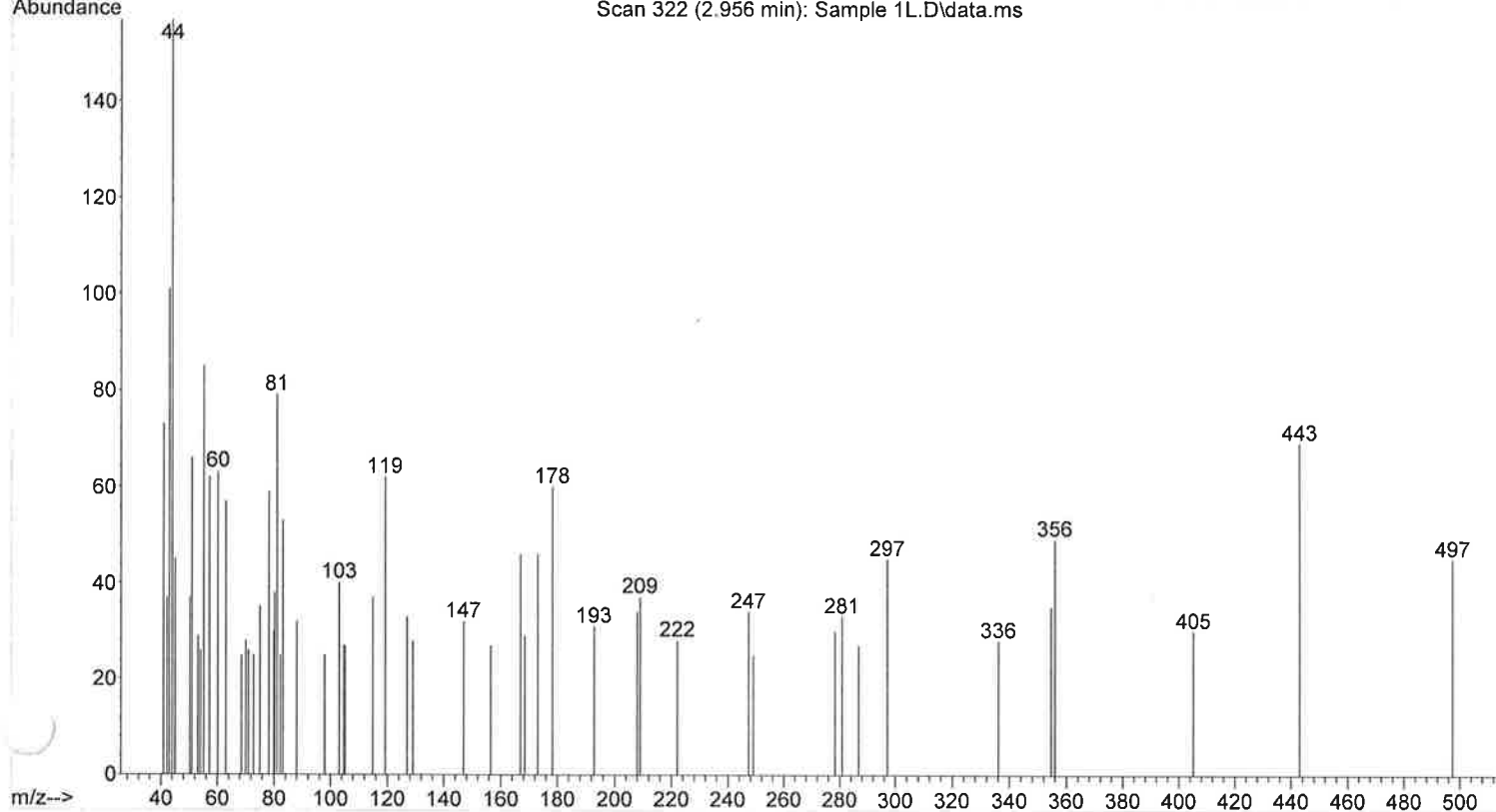
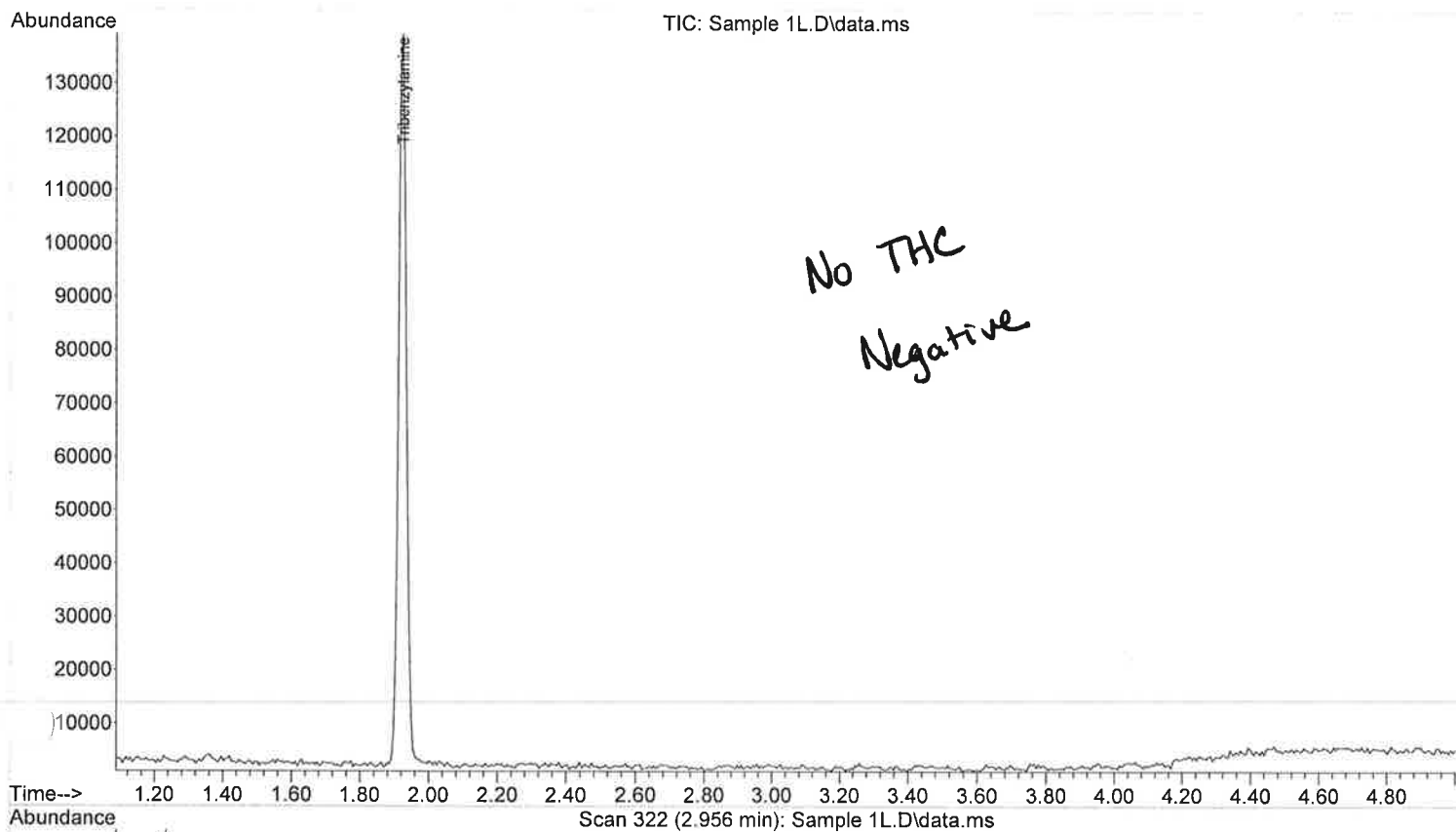
Calibration data of THC

LVLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
1	0.1331	0.138894	2.48	C:\msdchem\1\DATA\2019\LMNI5-21-19 Quant\THC 50.D
2	0.2662	0.333631	0.37	C:\msdchem\1\DATA\2019\LMNI5-21-19 Quant\THC 100.D
3	0.3994	0.459876	-13.11	C:\msdchem\1\DATA\2019\LMNI5-21-19 Quant\THC 150.D
4	0.7987	1.231149	9.94	C:\msdchem\1\DATA\2019\LMNI5-21-19 Quant\THC 300.D
5	1.3312	1.860684	-2.44	C:\msdchem\1\DATA\2019\LMNI5-21-19 Quant\THC 500.D

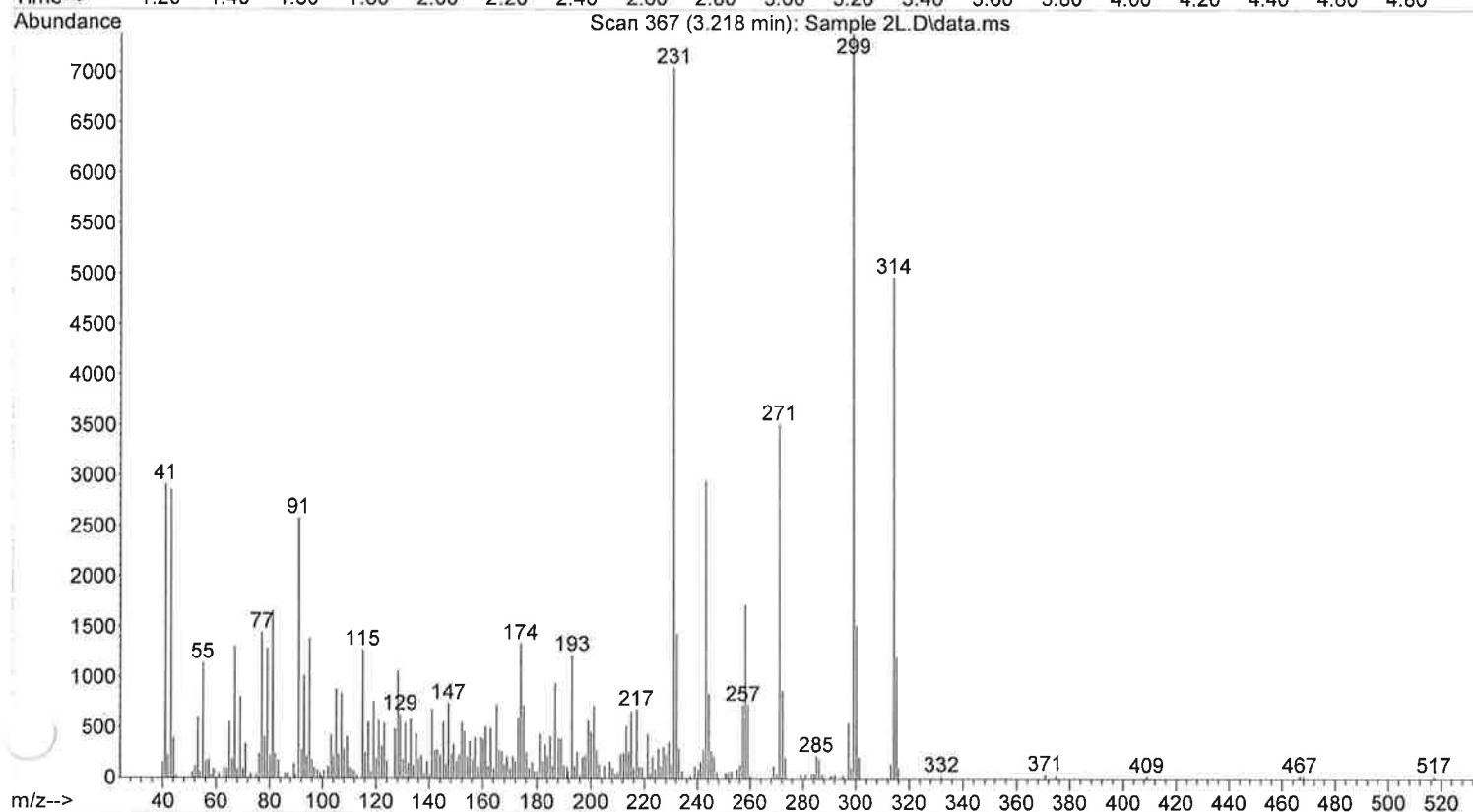
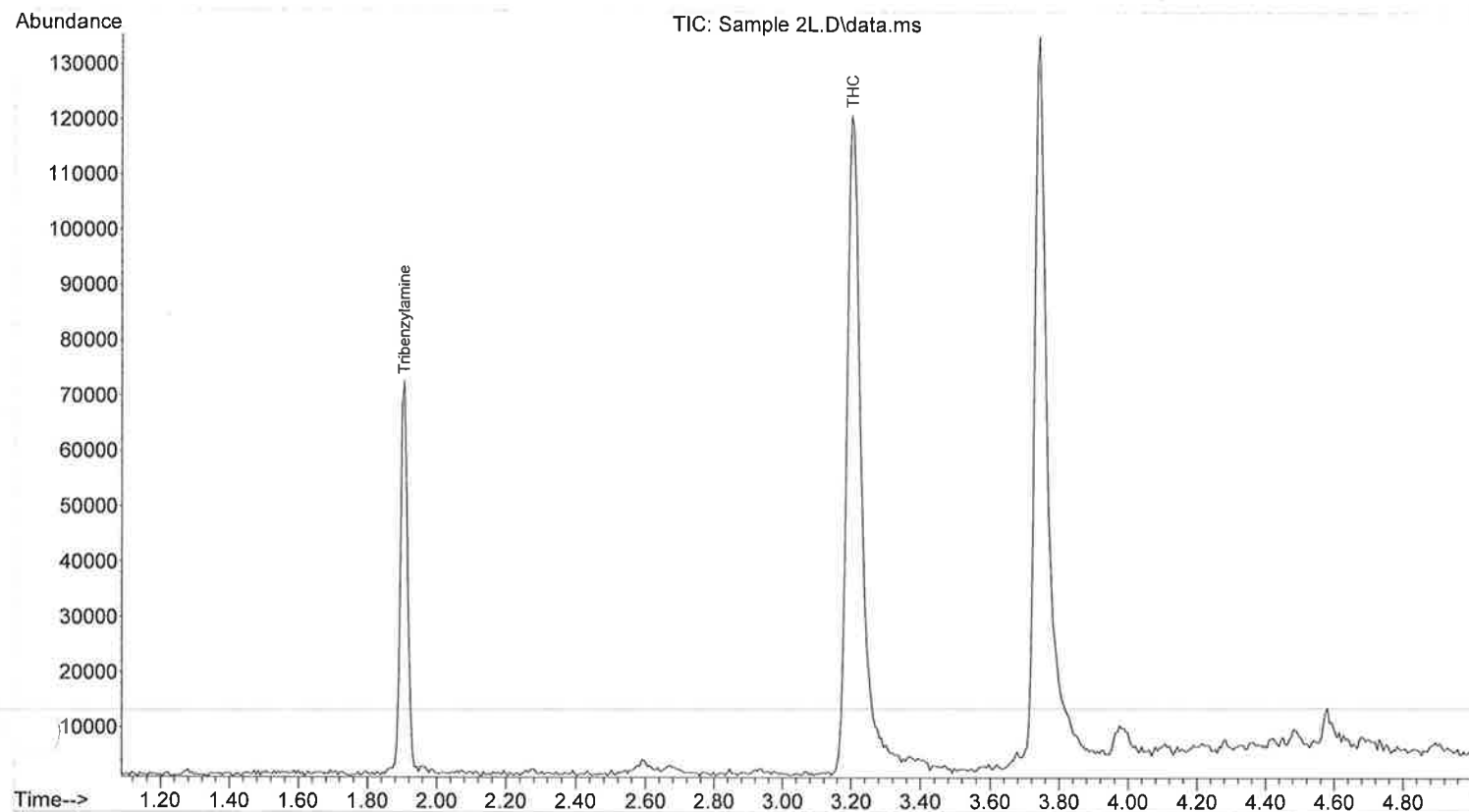


Resp Ratio = 1.48e+000 * Amt - 6.13e-002
 Coef of De² = 0.991 Curve Fit: Linear

File : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\Sample 1L.D
Operator : Laura Newberry
Acquired : 21 May 2019 19:54 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Methanol
Mi fo : Sample 1L
Vial Number: 13



File :C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\Sample 2L.D
Operator : Laura Newberry
Acquired : 21 May 2019 20:18 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Methanol
Mi fo : Sample 2L
Vial Number: 14



Data Path : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\
Data File : Sample 2L.D
Acq On : 21 May 2019 20:18
Operator : Laura Newberry
Sample : Methanol
C : Sample 2L
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 31 13:44:55 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Fri May 31 13:19:37 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

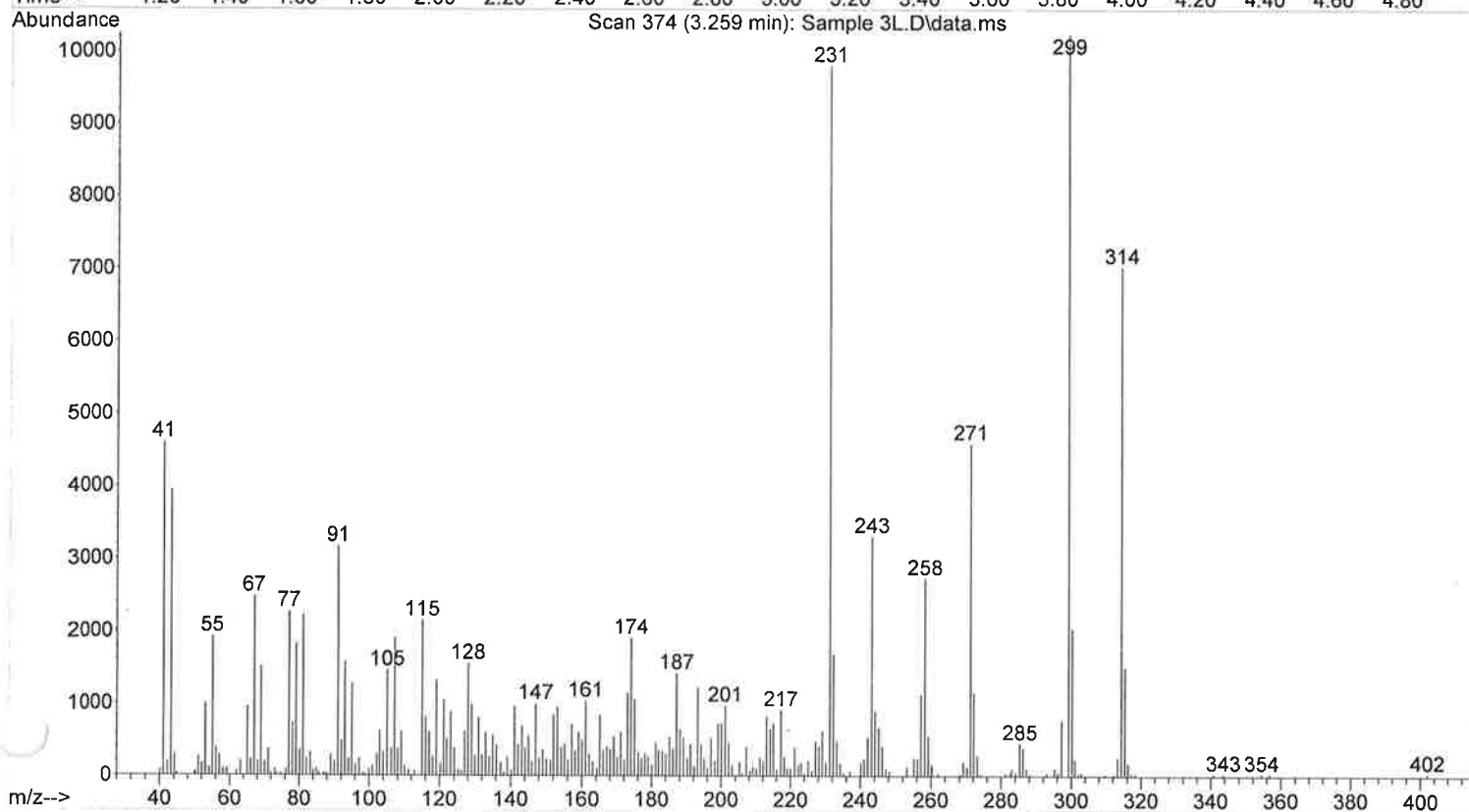
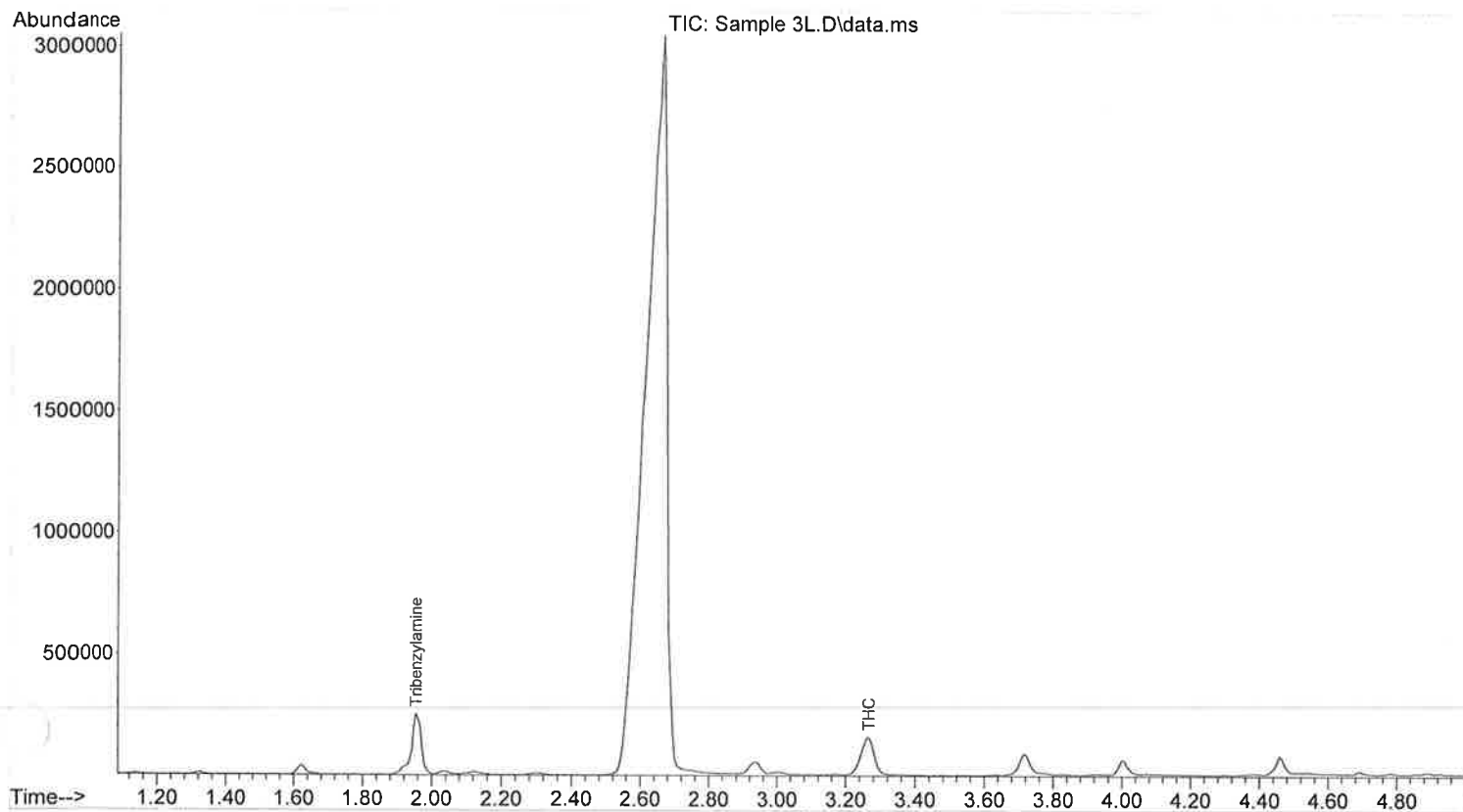
Internal Standards						
1) Tribenzylamine	1.909	TIC	1048194	375.60	ug/mL	-0.08
Target Compounds						Qvalue
2) THC	3.211	TIC	3440466	849.24	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Fri May 31 13:44:55 2019

$$\text{THC \%} = \frac{849.24 \text{ ug/mL} \times 100}{\left(\frac{101600 \text{ ug}}{2 \text{ mL}} \right)} = 1.6790$$

File : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\Sample 3L.D
Operator : Laura Newberry
Acquired : 21 May 2019 20:41 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Methanol
M info : Sample 3L
Vial Number: 15



Data Path : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\
Data File : Sample 3L.D
Acq On : 21 May 2019 20:41
Operator : Laura Newberry
Sample : Methanol
Vial : Sample 3L
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 31 13:46:46 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Fri May 31 13:19:37 2019
Response via : Initial Calibration

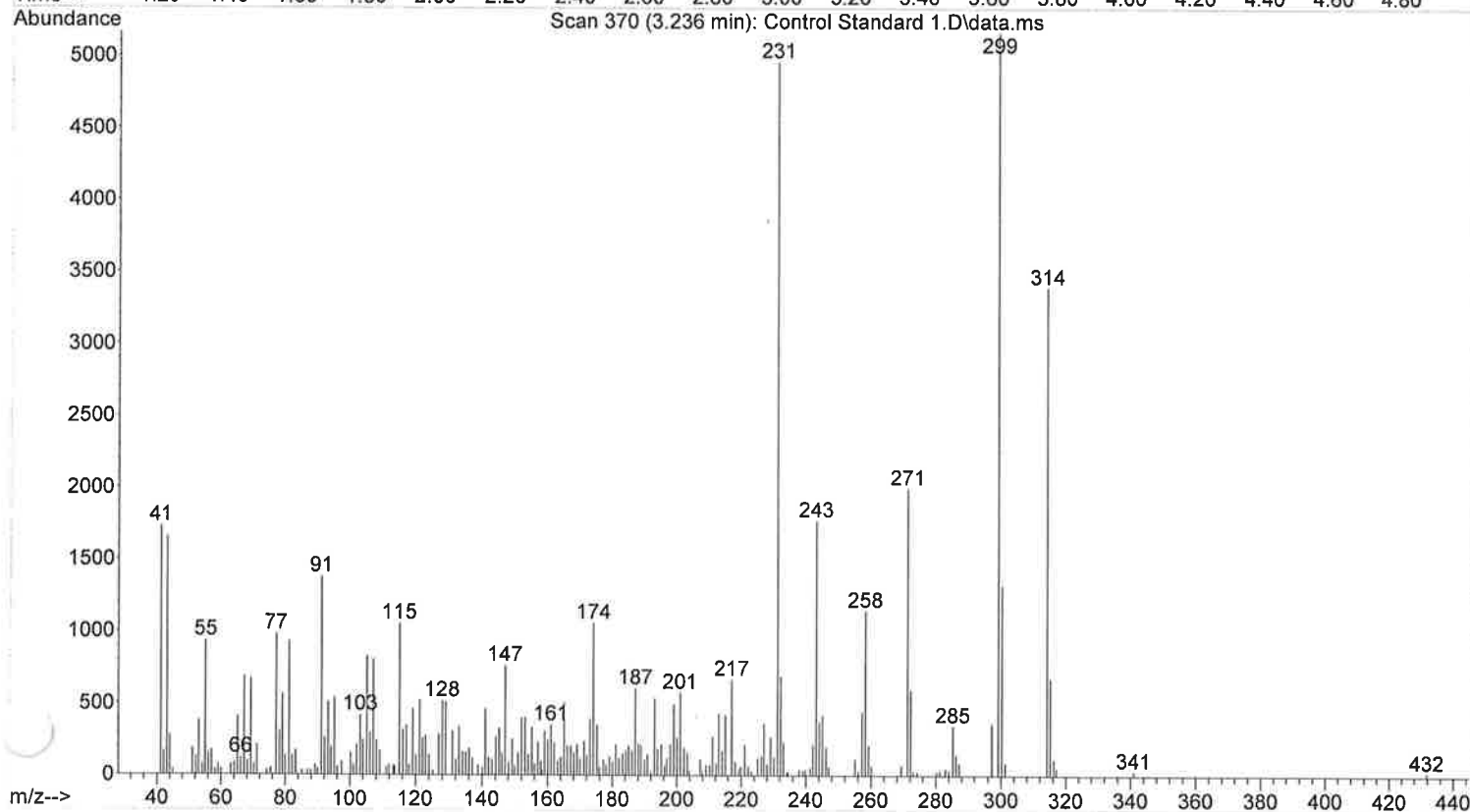
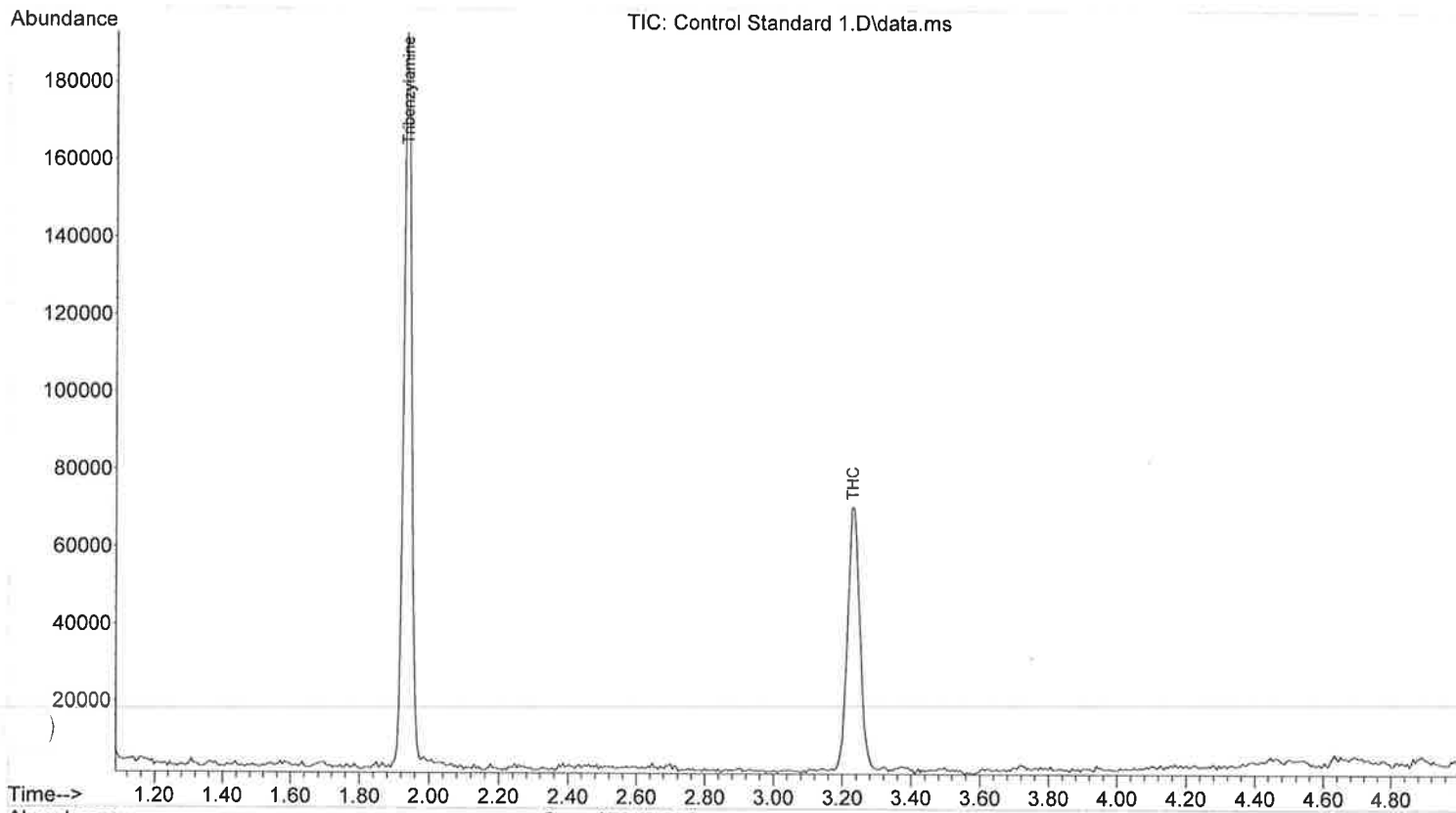
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tribenzylamine	1.958	TIC	4894941	375.60	ug/mL	-0.03
Target Compounds						
2) THC	3.267	TIC	4198106	233.41	ug/mL	Qvalue 100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Fri May 31 13:46:46 2019

$$\text{THC \%} = \frac{233.41 \text{ ug/mL} \times 100}{\left(\frac{109.33 \text{ mg} \times 1000}{2 \text{ mL}} \right)} = 0.43\%$$

File : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\Control Standard 1.D
Operator : Laura Newberry
Acquired : 21 May 2019 19:31 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Methanol
Mi fo : Control Standard 1
Vial Number: 12



Data Path : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\
Data File : Control Standard 1.D
Acq On : 21 May 2019 19:31
Operator : Laura Newberry
Sample : Methanol
C : Control Standard 1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 31 13:48:34 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Fri May 31 13:19:37 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.941	TIC	2995528	375.60	ug/mL	-0.05
Target Compounds						Qvalue
2) THC	3.235	TIC	1672240	157.37	ug/mL	100

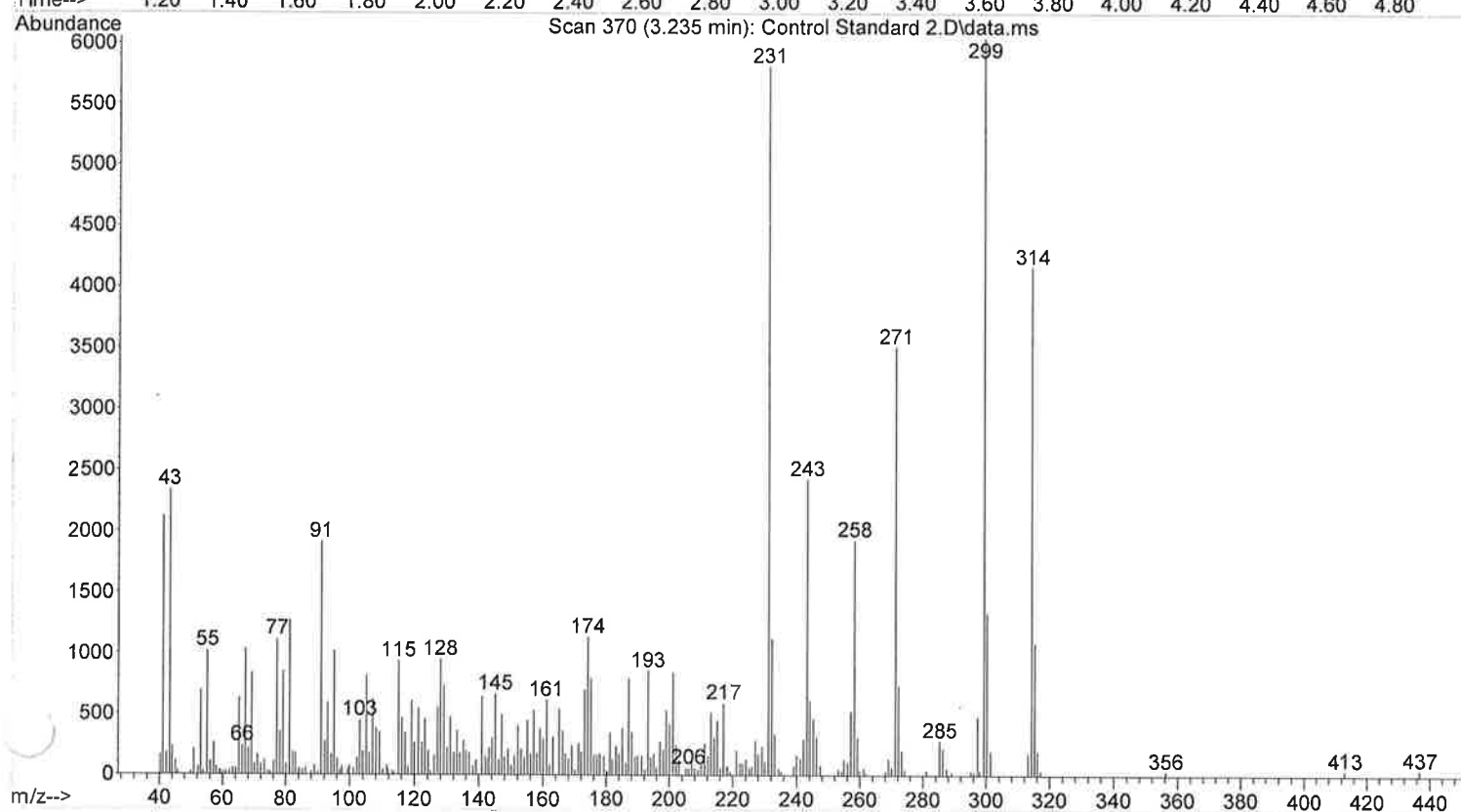
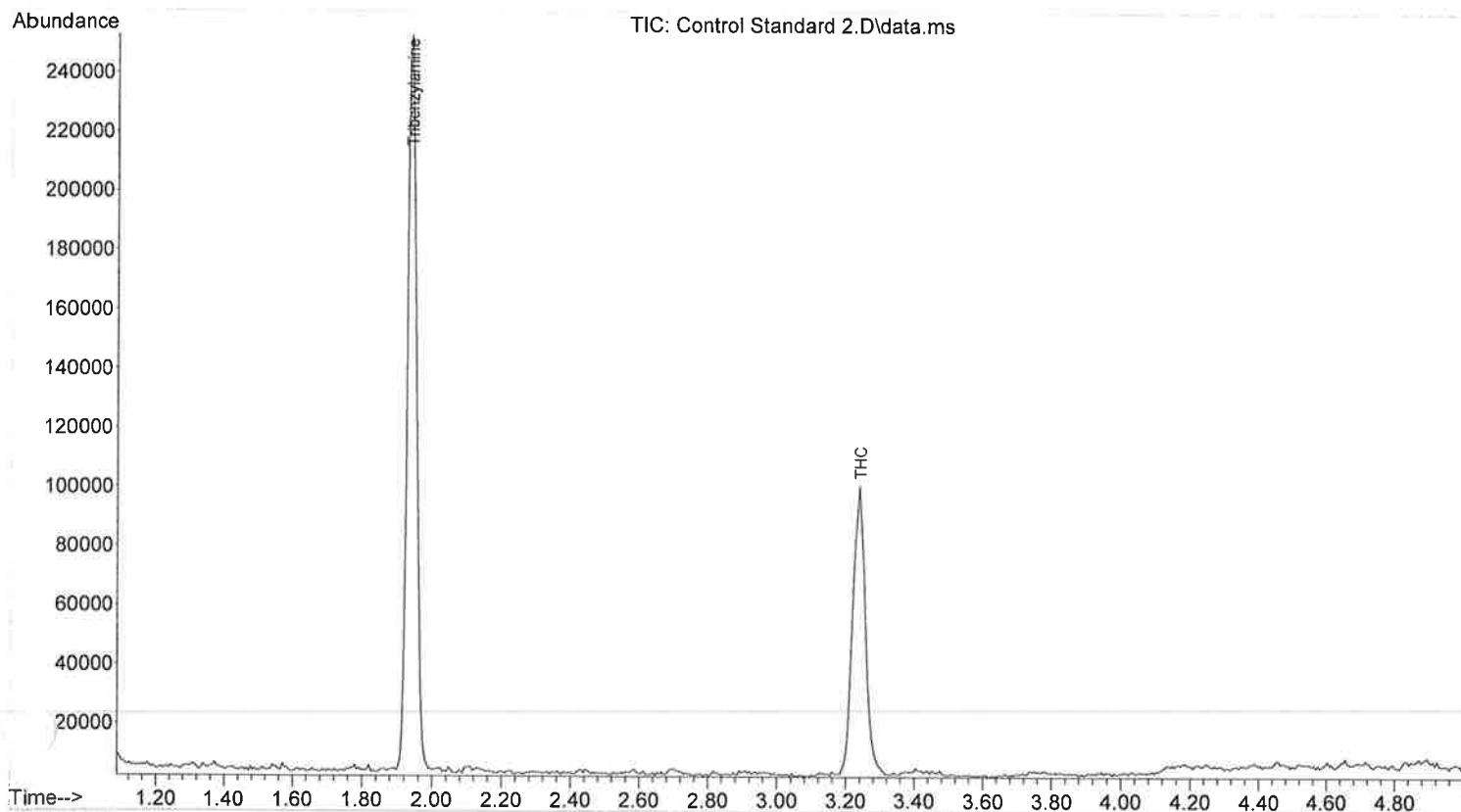
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Fri May 31 13:48:34 2019

$$\% \text{ THC} = \frac{157.37 \text{ ug/mL} \times 100}{\left(\frac{102.78 \text{ mg} \times 1000}{2 \text{ mL}} \right)} = 0.306 \%$$

$$\% \text{ Recovery} = \frac{0.306 \%}{0.300 \%} \times 100 = 102.1 \%$$

File :C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\Control Standard 2.D
Operator : Laura Newberry
Acquired : 21 May 2019 21:05 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Methanol
Mi fo : Control Standard 2
Vial Number: 16



Data Path : C:\msdchem\1\DATA\2019\LMN\5-21-19 Quant\
Data File : Control Standard 2.D
Acq On : 21 May 2019 21:05
Operator : Laura Newberry
Sample : Methanol
C : Control Standard 2
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 31 13:50:53 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Fri May 31 13:19:37 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.943	TIC	4584772	375.60	ug/mL	-0.05
Target Compounds						Qvalue
2) THC	3.243	TIC	2510598	154.66	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Fri May 31 13:50:53 2019

$$\% \text{ THC} = \frac{154.66 \text{ ug/mL} \times 100}{\left(\frac{104.48 \text{ mg} \times 1000}{2 \text{ mL}} \right)} = 0.29690$$

$$\% \text{ Recovery} = \frac{0.29690}{0.390} \times 100 = 98.7\%$$

THC Quant. Certification using GC/MS

h.35 effective 14-May-2019 of Forensic Chem. SOP

LMW
pg 4
5/21/19

Spiked Control Preparation

Balance: Index 30

Blank matrix: "Spices" prepped by BT

MBK 102.02 mg

Sp1 102.78 mg

Sp2 104.48 mg

Spiked using Eppendorf pipette ID# 254432 and Liponud Δ^9 THC
Lot# 135.1BT1.0L6 (300 mL spikes). Allowed to sit
for 4 hours.

Sample drying

Samples 1L, 2L, 3L ground using kitchen aid coffee grinder,

then placed in oven set to 80°C start 10:00 am end 2:00 pm.

Allowed to cool to room temperature.

Internal Standard prep (300 μg /mL Tribenzylamine) (IS = internal standard)

Balance: Index 30

37.56 mg Sigma Aldrich 90660-1006 Lot: BCBM5746V Tribenzylamine
dissolved to mark with methanol in 100 mL vol flask.

Calibration standards

Made using Δ^9 THC 1mg/mL Cerilliant Lot: FE08221804, internal standard
solution above, and methanol.

Pipettes: same as control as well as eppendorf ID# 338584

Date:

4/16/19

Trainer:

Brett Trotter

Trainee:

Ella Carpenter



Initial Competency Test for THC Quantitation

Standards and Reagents used:

Manufacturer and Lot Number or ID information

Methanol	Lot 183018 Bottle 2 (BTT hood)
Internal standard	Tribenzylamine Lot BCBAF5746V
Calibration THC	Cerilliant Lot FE08221804
Control THC	Lipomed Lot 135.1B71.066

Quantitation Results:

Sample ID and Concentration		Pass/Fail
Unknown 1	marijuana 0.64%	Pass
Unknown 2	no THC detected	Pass
Unknown 3	hemp 0.04%	Pass

*All technical records must be attached to this form

Ella Carpenter has successfully completed the competency test for THC quantitation.

	Signature	Date
Trainee	<u>Ella Carpenter</u>	<u>4/16/19</u>
Supervisor	<u>Glenn B. Everett</u>	<u>4-16-19</u>
Technical Leader	<u>Glenn B. Everett</u>	<u>4-16-19</u>
QA Manager	<u>Chad D. [Signature]</u>	<u>04-16-19</u>

Tetrahydrocannabinol Quantitation Answer Key

Analyst: Ella Carpenter

Trainer: Brett Trotter

Date: 4/16/19

1. Marijuana
2. Spices Mix
3. Hemp

Enc

THC quant.

* ① ~~control~~ wt ~~100.21mg~~ (citantro) ~~not used~~
spiked w/ THC std Lipomed Lot 135.1B71.0L6 - 300 ^{mc} ~~off~~ ul $\rightarrow$ not used

internal std

• 30.34 mg of tribenzylamine Lot BCB m5746V
taken up in 100 mL of MEOH Lot 183018 Bottle 2 (BTT hood)

- ~~repreped~~ 2nd ① control due to ~~pippe~~ ^{mc} pipette error
wt = 103.10 mg spiked w/ same THC

unknowns

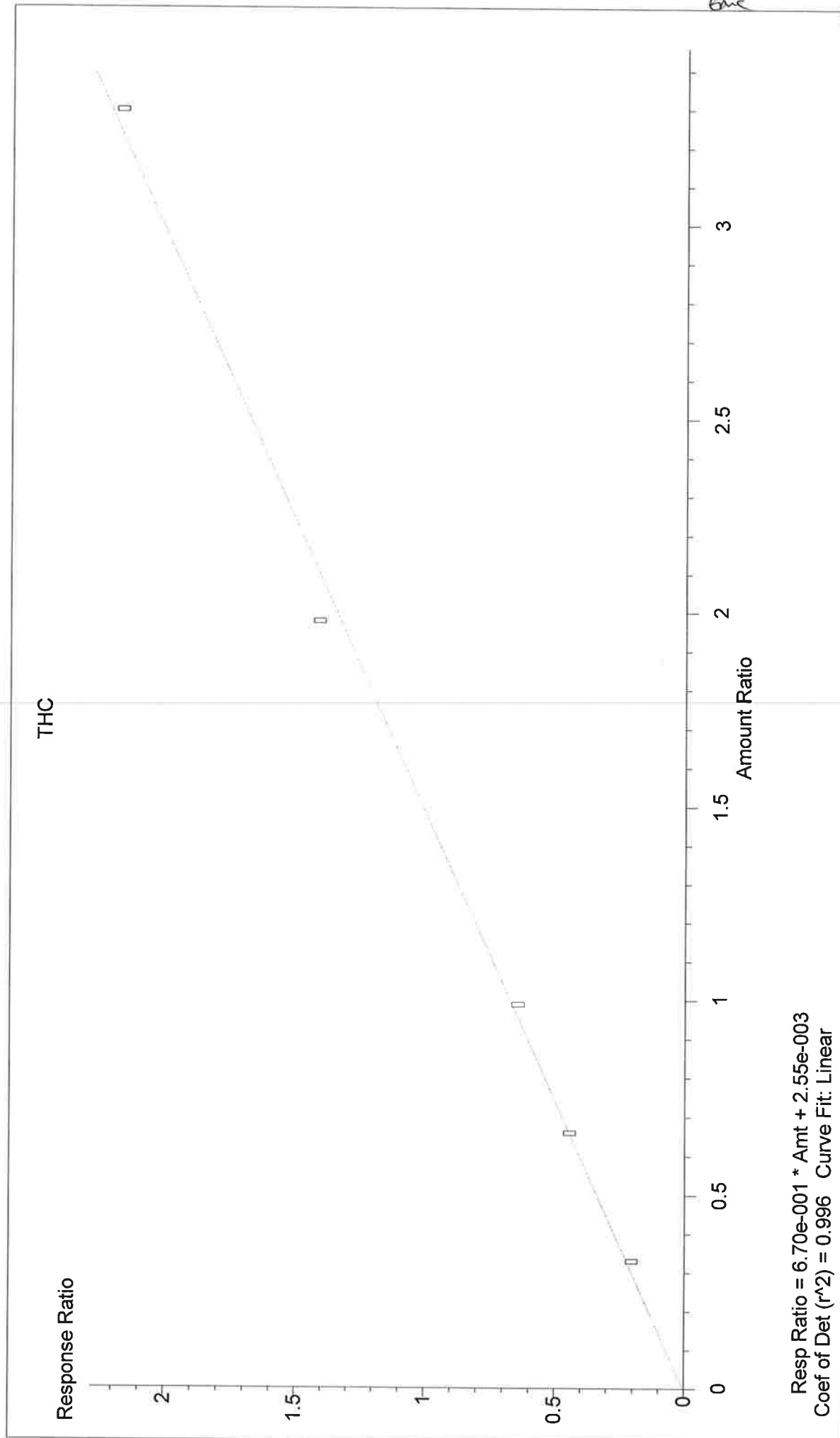
of unk 1 = 104.73 mg
unk 2 = ~~100.99~~ ^{mc} 99 mg 101.03 mg
unk 3 = 101.35 mg

Calibration stds

THC Cerilliant Lot FE 08221804 1 mg/mL

Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
50	0.3296	0.204202	-8.63	C:\msdchem\1\DATA\2019\EMC\QT 041619\THC 50.D
100	0.6592	0.443571	-0.19	C:\msdchem\1\DATA\2019\EMC\QT 041619\THC 100.D
150	0.9888	0.643556	-3.28	C:\msdchem\1\DATA\2019\EMC\QT 041619\THC 150.D
300	1.9776	1.411346	6.26	C:\msdchem\1\DATA\2019\EMC\QT 041619\THC 300.D
500	3.2960	2.170587	-1.87	C:\msdchem\1\DATA\2019\EMC\QT 041619\THC 500.D



Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : THC 50.D
Acq On : 16 Apr 2019 10:23
Operator : EMC
Sample : Standard
Solvent : Methanol
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Apr 16 13:57:48 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.946	TIC	7568220	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.243	TIC	1545442	45.64	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:57:48 2019

(4)

Emc

Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : THC 100.D
Acq Qn : 16 Apr 2019 10:46
Operator : EMC
Sample : Standard
Solvent : Methanol
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Apr 16 13:57:27 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.948	TIC	10010736	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.248	TIC	4440468	99.81	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:57:27 2019

Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : THC 150.D
Acq Qn : 16 Apr 2019 11:09
Operator : EMC
Sample : Standard
Solvent : Methanol
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Apr 16 13:57:14 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.949	TIC	9622925	151.70	ug/mL	0.00
Target Compounds						
2) THC	3.253	TIC	6192893	145.07	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:57:15 2019

Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : THC 300.D
Acq Qn : 16 Apr 2019 11:32
Operator : EMC
Sample : Standard
Solvent : Methanol
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Apr 16 13:56:48 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.949	TIC	9550287	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.265	TIC	13478756	318.83	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:56:48 2019

Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : THC 500.D
Acq Qn : 16 Apr 2019 11:56
Operator : EMC
Sample : Standard
Solvent : Methanol
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Apr 16 13:55:53 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.950	TIC	8951007	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.278	TIC	19428941	490.66	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:55:54 2019

Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : Control .D
Acq On : 16 Apr 2019 12:19
Operator : EMC
Sample : Control
Solvent : Methanol
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Apr 16 13:59:35 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.952	TIC	7634243	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.255	TIC	4503297	132.92	ug/mL	100

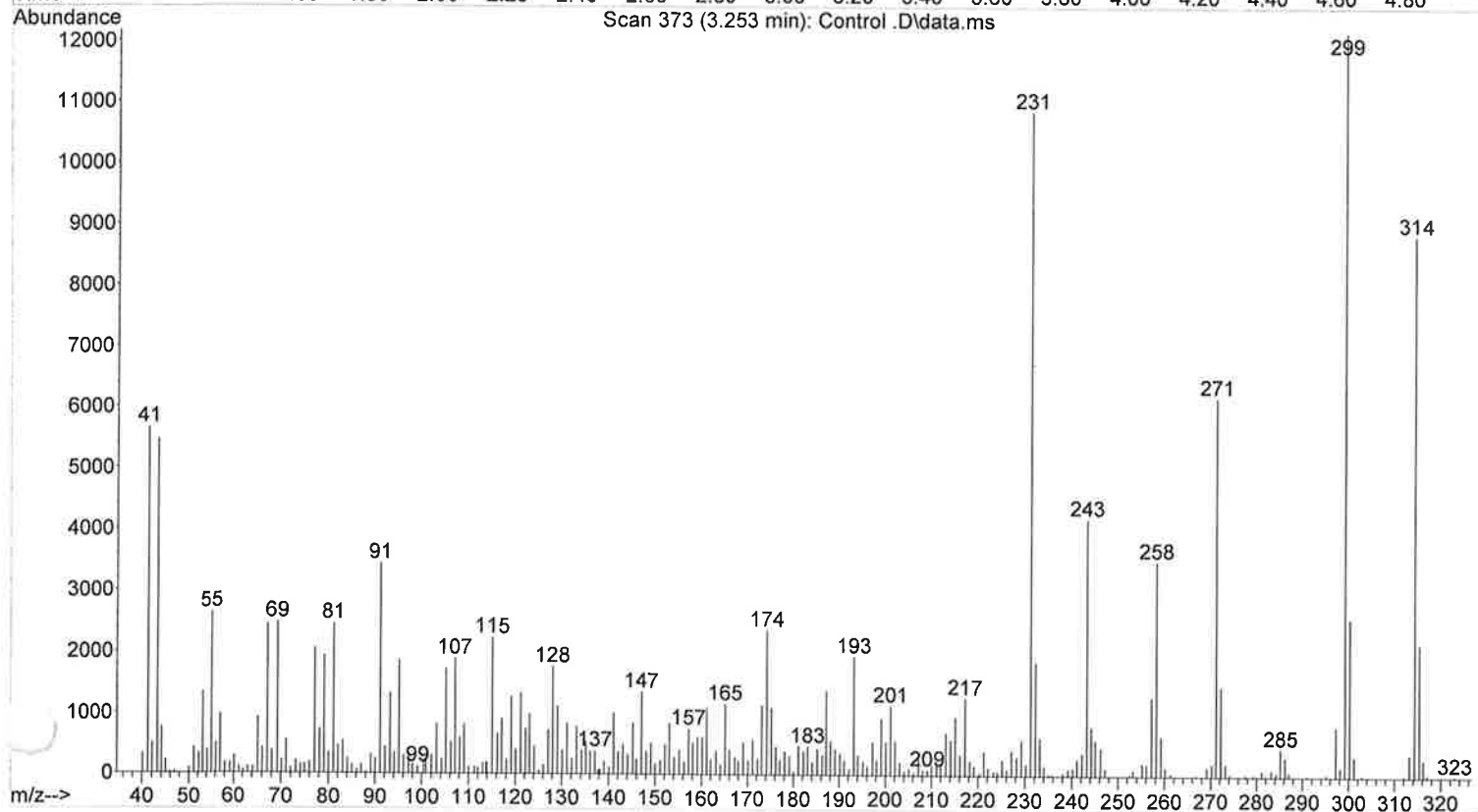
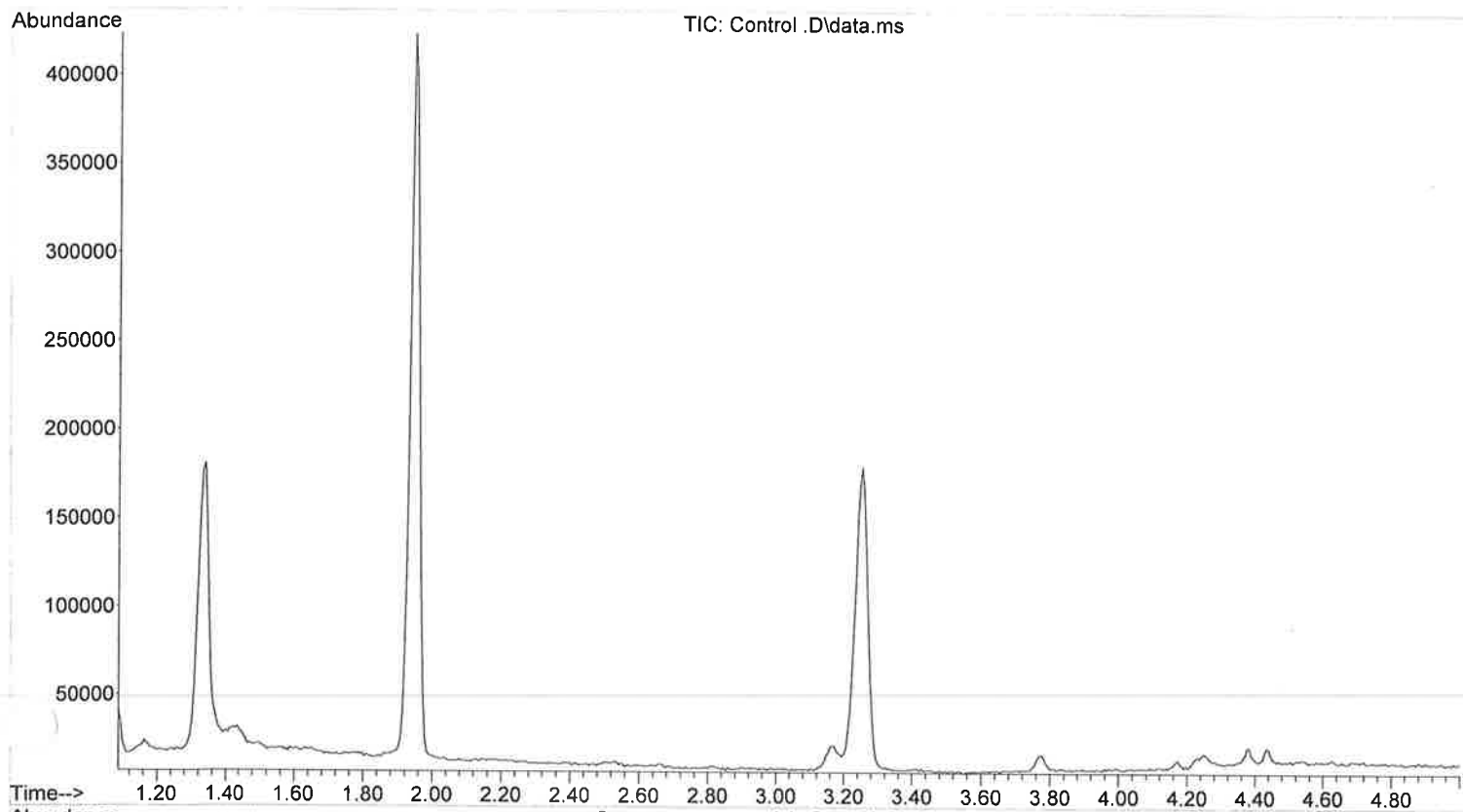
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:59:35 2019

$$\text{plant material wt} = 103.10 \text{ g} \Rightarrow \frac{103100 \text{ ug}}{2 \text{ mL}} \times \frac{\text{ave } 5150}{5150} \frac{132.92 (100)}{51550} = 0.2578 = 0.26 \%$$

File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Control.D
Operator : EMC
Acquired : 16 Apr 2019 12:19 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Control
Mi fo : Methanol
Vial Number: 37

Emc 9



Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : Unknown 1.D
Acq On : 16 Apr 2019 12:42
Operator : EMC
Sample : Plant material
Solvent : Methanol
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Apr 16 14:01:36 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.956	TIC	9391027	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.282	TIC	13867932	333.63	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 14:01:36 2019

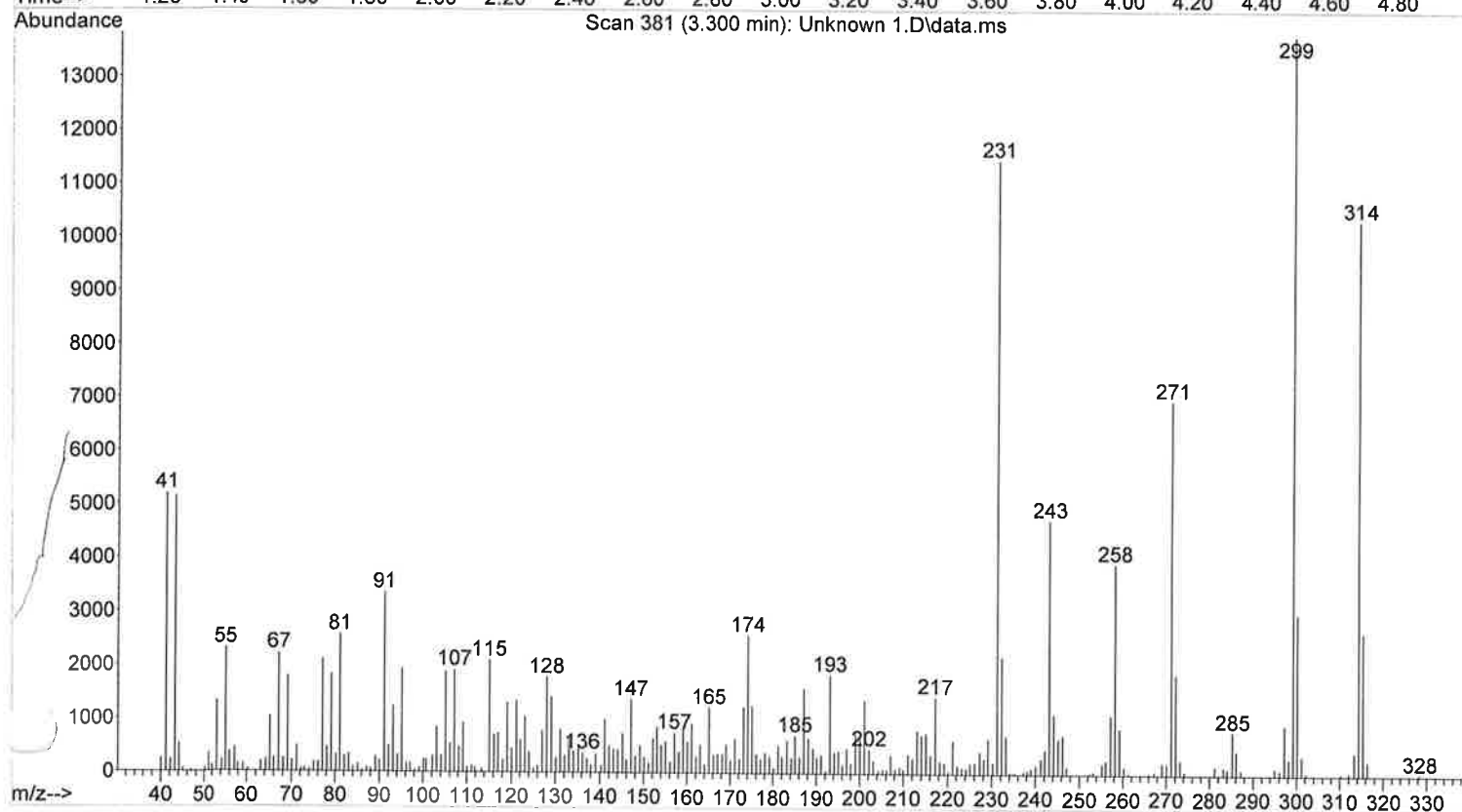
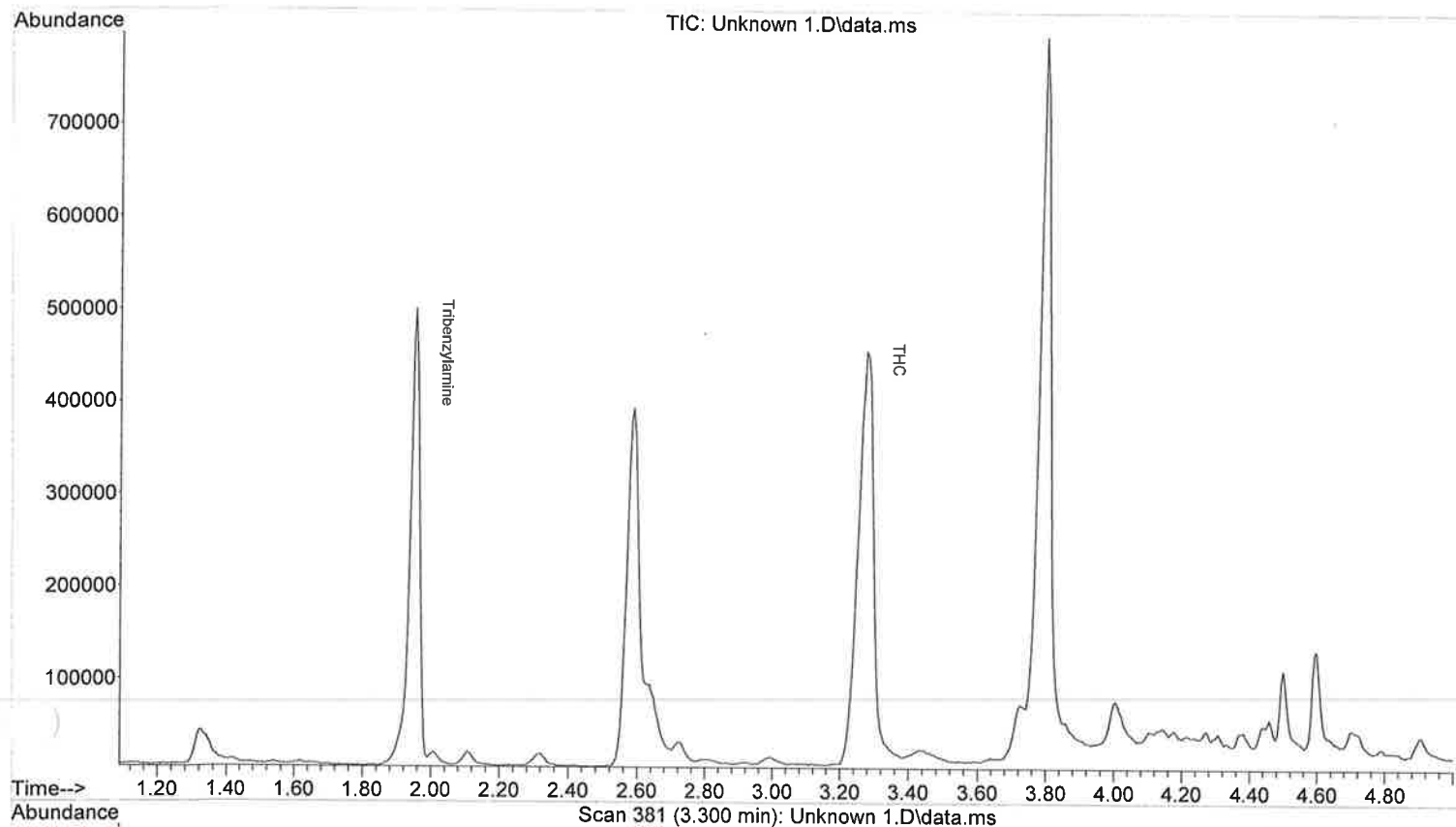
$$\text{plant material wt} = 104.73 \text{ mg} \Rightarrow \frac{104730 \text{ ug}}{2 \text{ mL}} = 52365 \text{ ug/mL}$$

$$\frac{333.63(100)}{52365} = 0.6371 = 0.64\%$$

File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Unknown 1.D
Operator : EMC
Acquired : 16 Apr 2019 12:42 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Plant material
Mi fo : Methanol
Vial Number: 39

EMC

11



Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : Unknown 2.D
Acq Qn : 16 Apr 2019 13:05
Operator : EMC
Sample : Plant material
Solvent : Methanol
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Apr 16 14:02:44 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.955	TIC	8968629	151.70	ug/mL	0.00
Target Compounds						
2) THC	3.398	TIC	114118	2.30	ug/mL	Qvalue 100

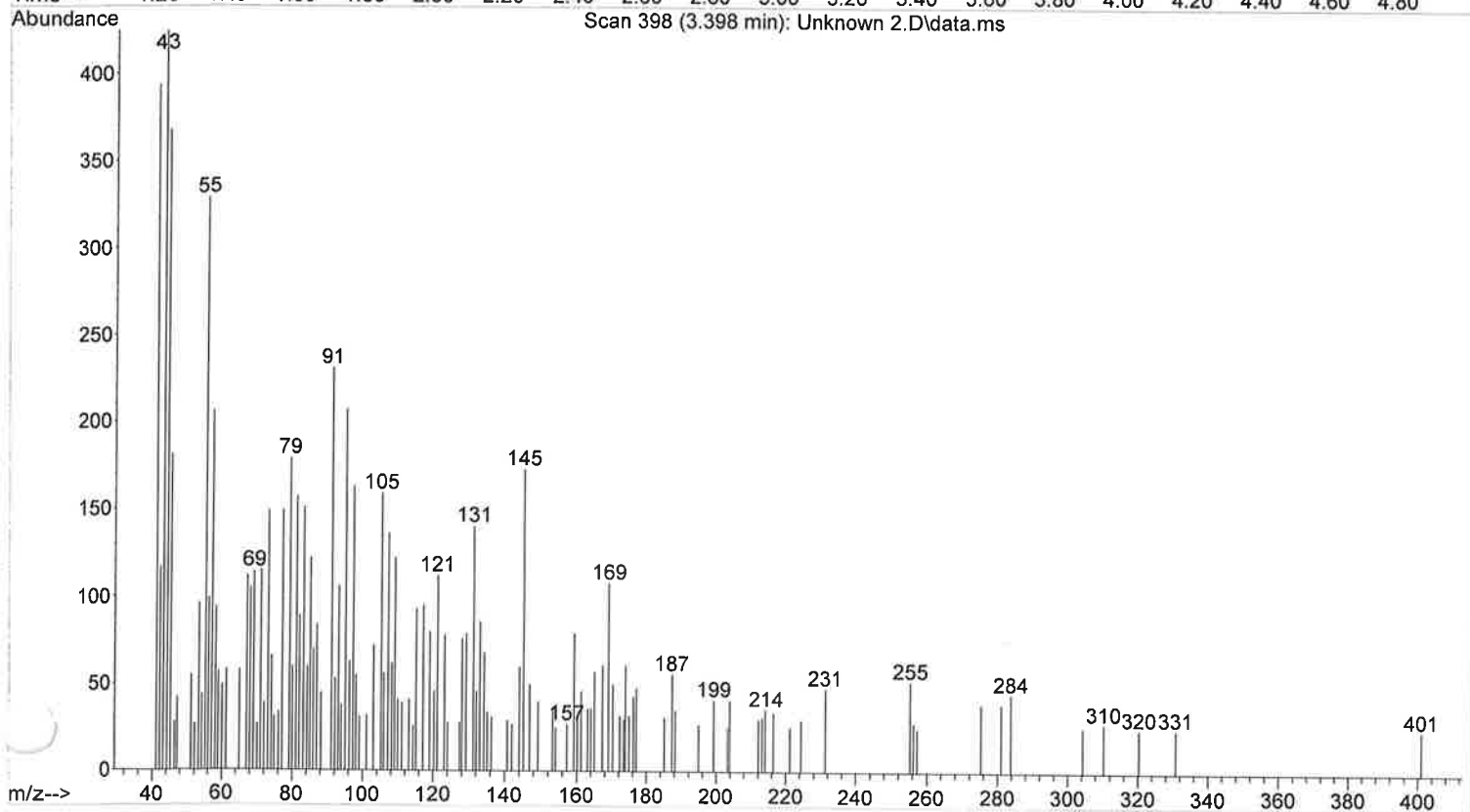
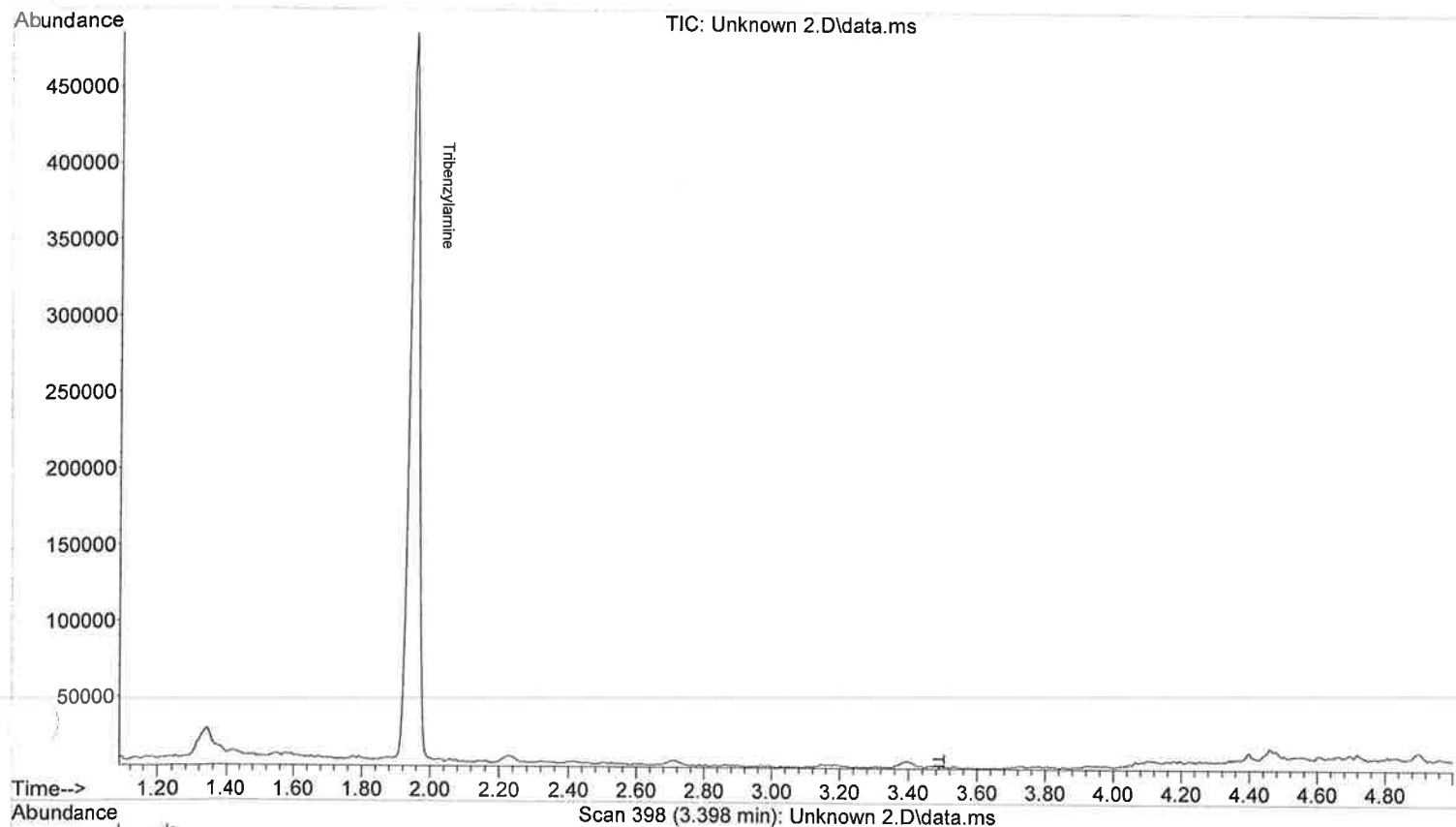
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 14:02:45 2019

- negative for THC (not detected by MS)

File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Unknown 2.D
Operator : EMC
Acquired : 16 Apr 2019 13:05 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Plant material
Mi fo : Methanol
Vial Number: 41

Emc (13)



Data Path : C:\msdchem\1\DATA\2019\EMC\QT 041619\
Data File : Unknown 3.D
Acq On : 16 Apr 2019 13:29
Operator : EMC
Sample : Plant material
Solvent : Methanol
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Apr 16 14:04:00 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 13:51:59 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.958	TIC	8465433	151.70	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.259	TIC	754418	19.59	ug/mL	100

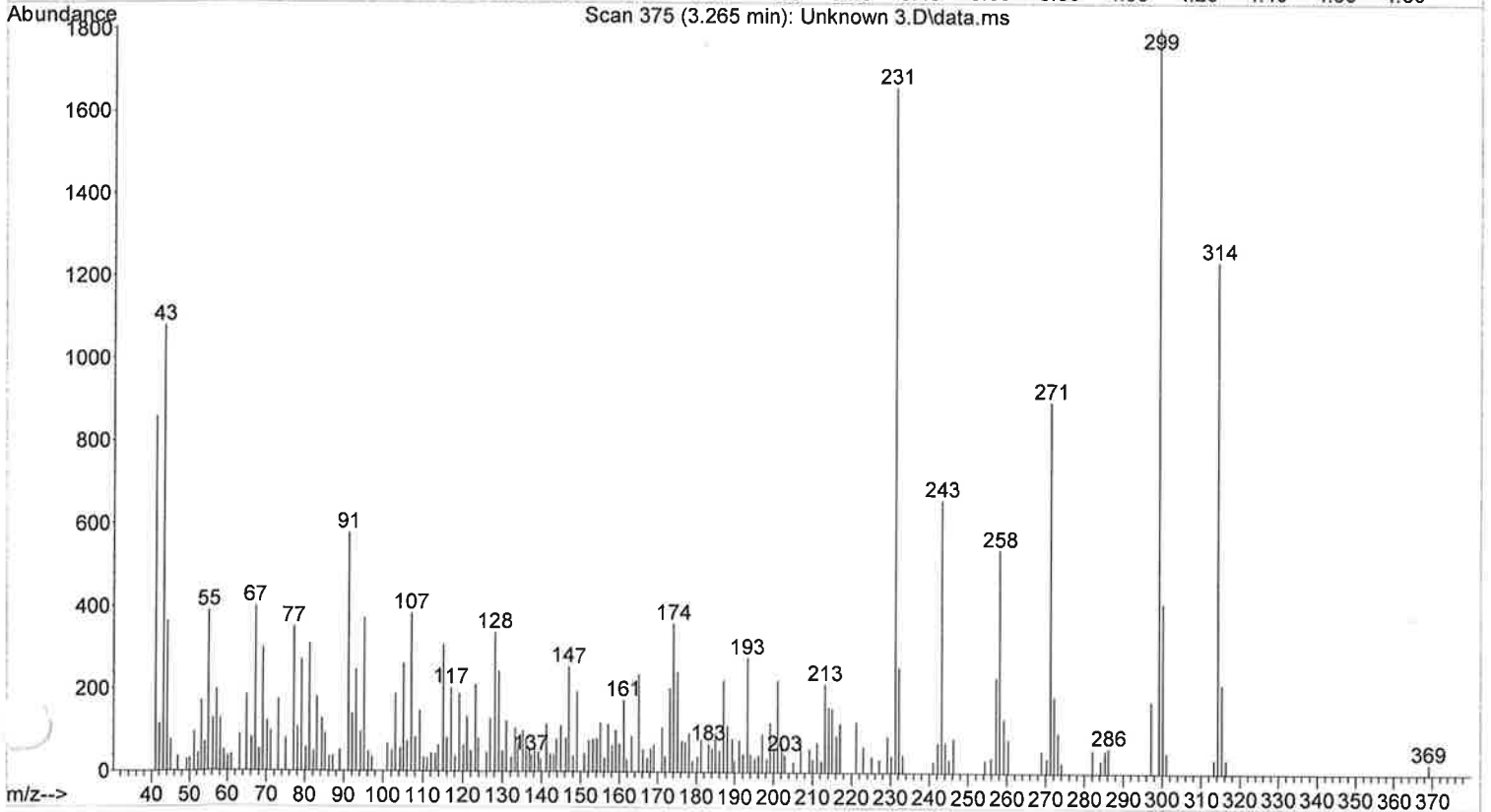
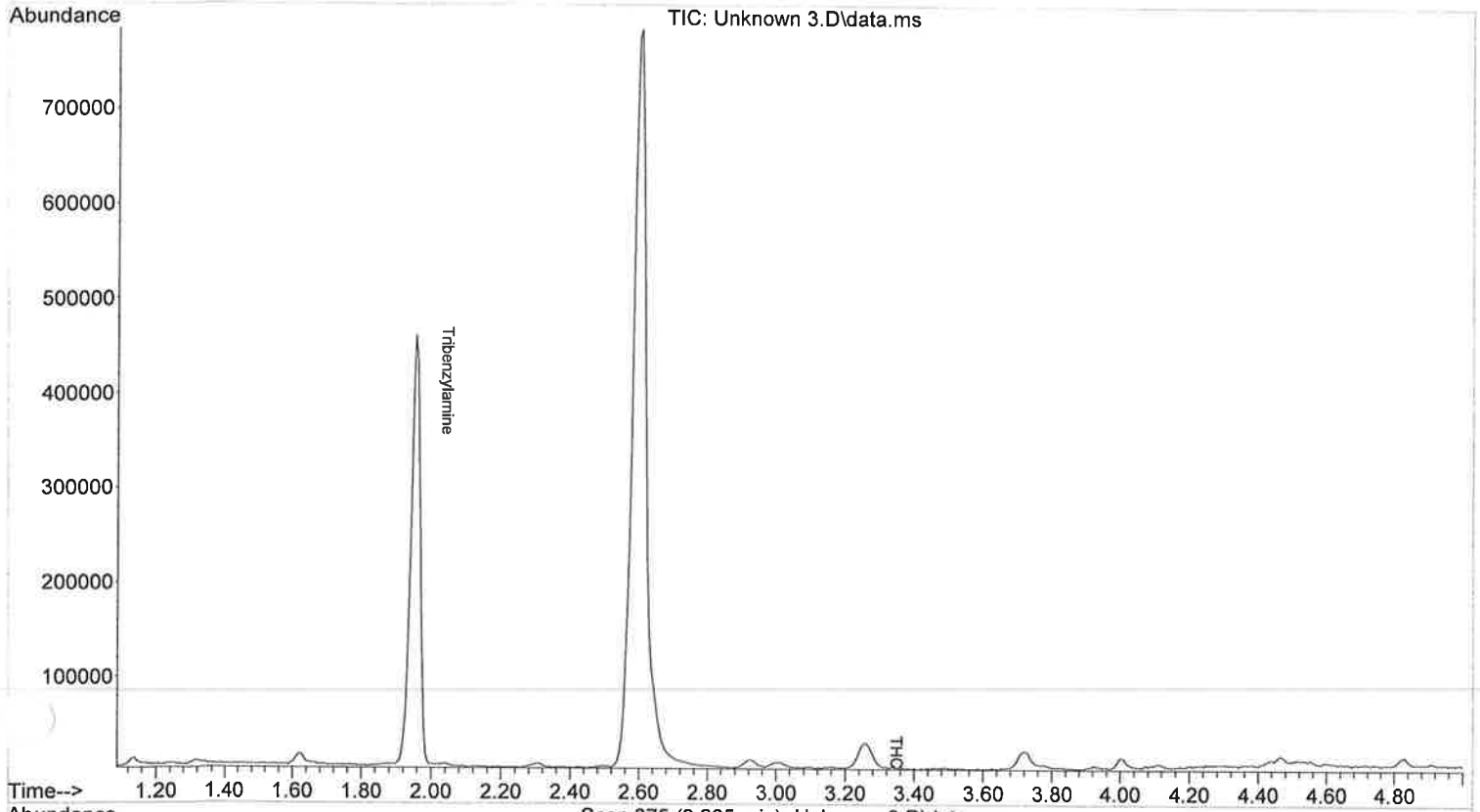
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 14:04:00 2019

$$\text{plant material wt} = 101.35 \text{ mg} \Rightarrow \frac{101.35 \text{ mg}}{2 \text{ mL}} = 50675 \text{ ug/mL}$$

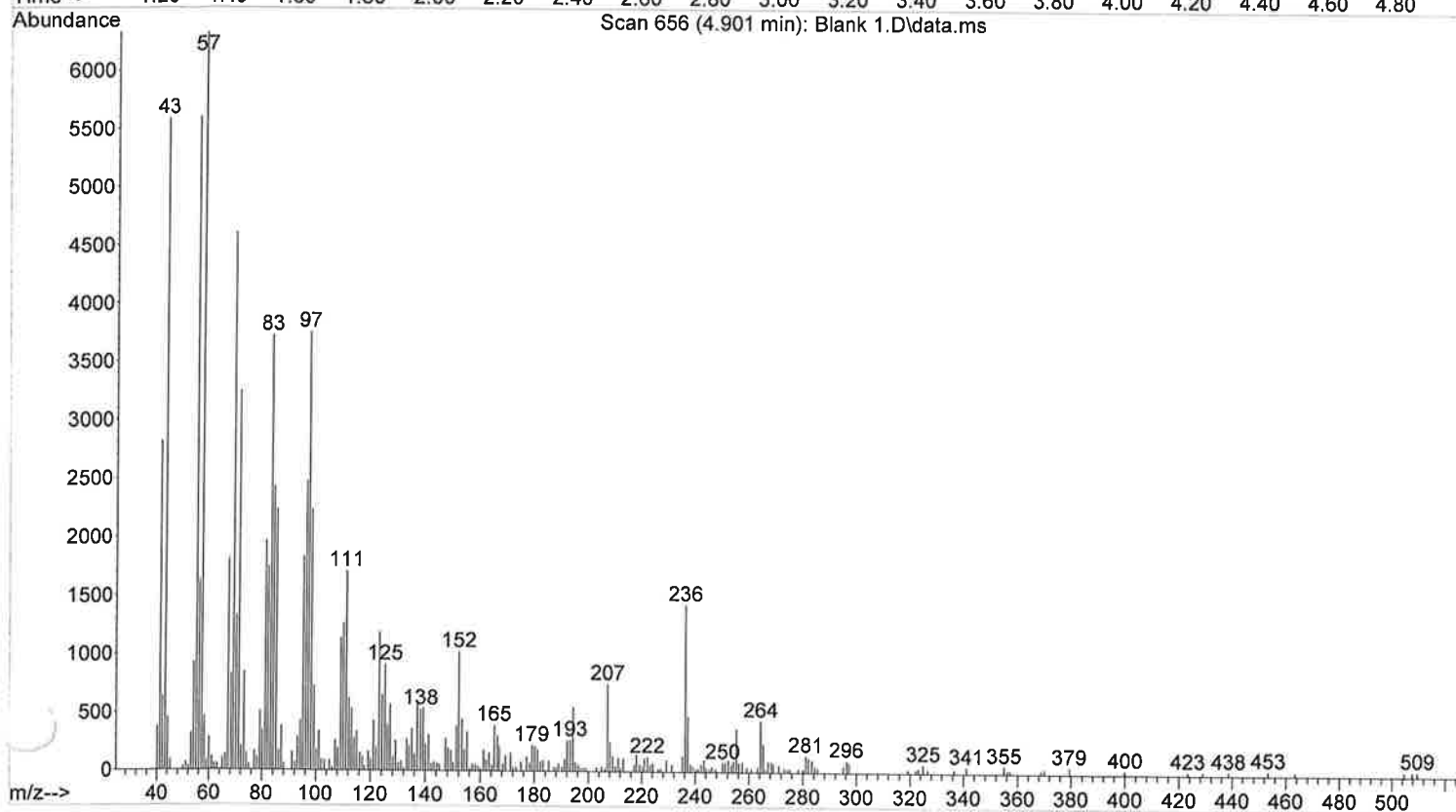
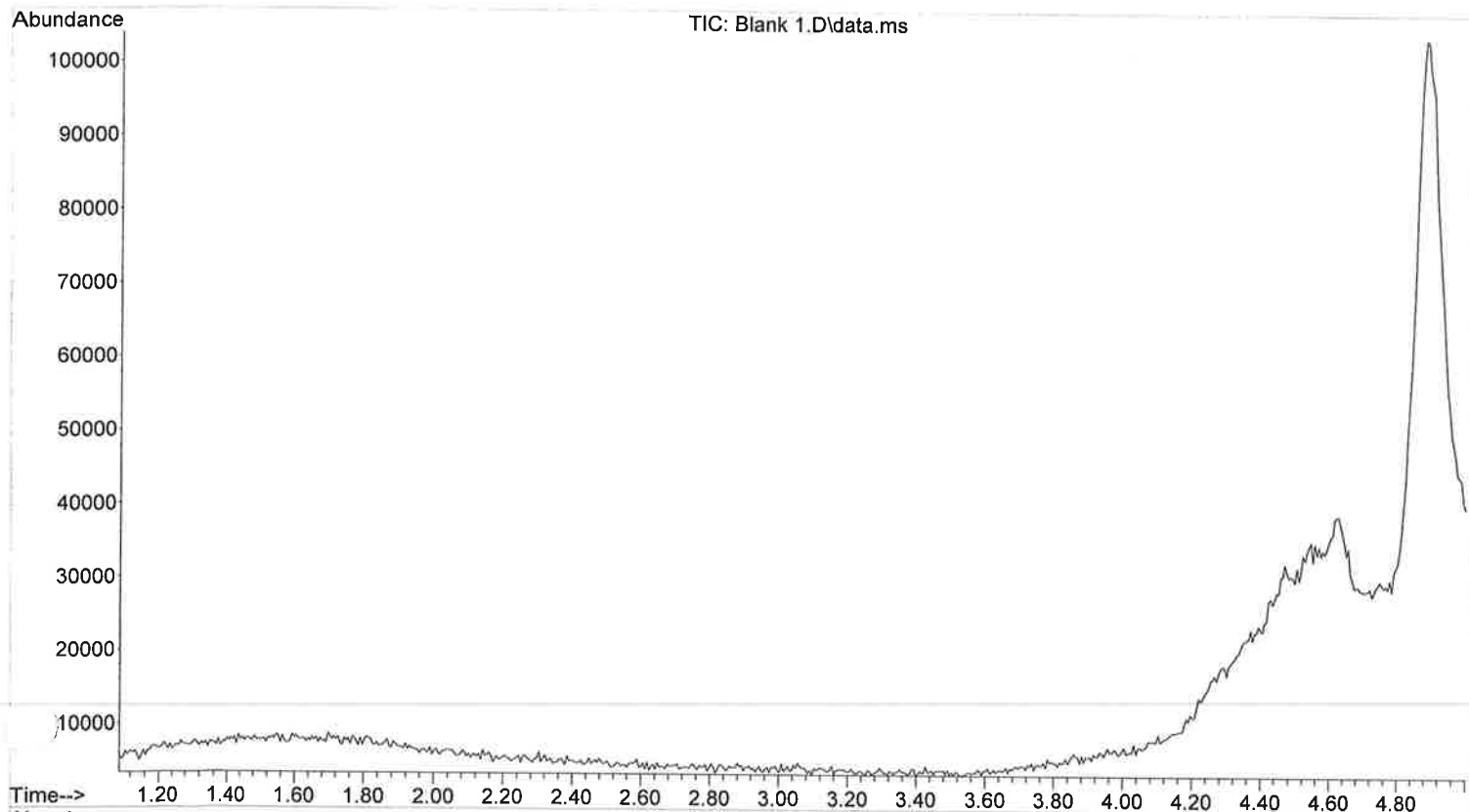
$$\frac{19.59(100)}{50675} = 0.0386 = 0.04\%$$

File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Unknown 3.D
 Operator : EMC
 Acquired : 16 Apr 2019 13:29 using AcqMethod THC-MS.M
 Instrument : Cumpo
 Sample Name: Plant material
 Mi fo : Methanol
 Vial Number: 43



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 1.D
Operator : EMC
Acquired : 16 Apr 2019 10:15 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Blank
Mi fo : Methanol
Vial Number: 26

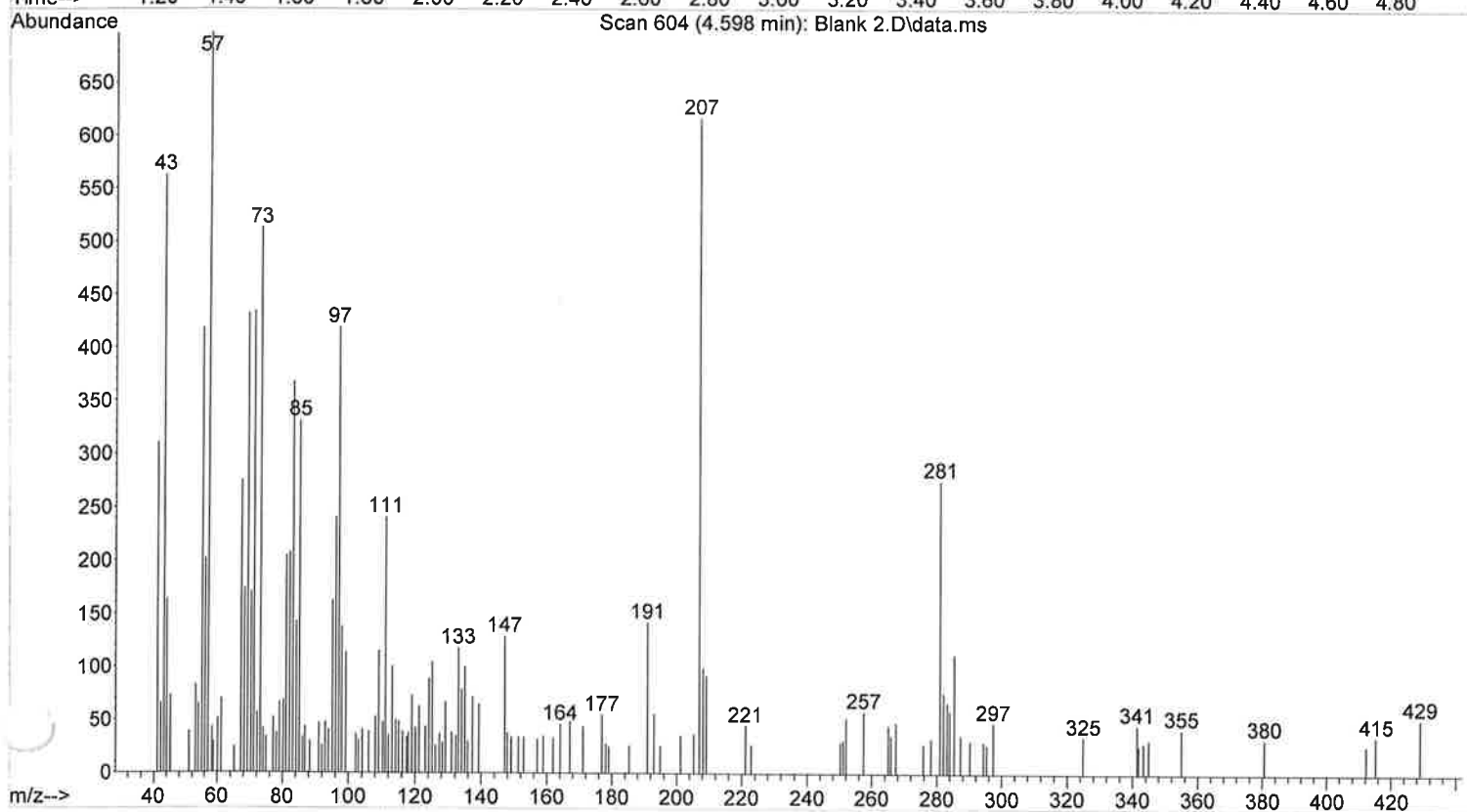
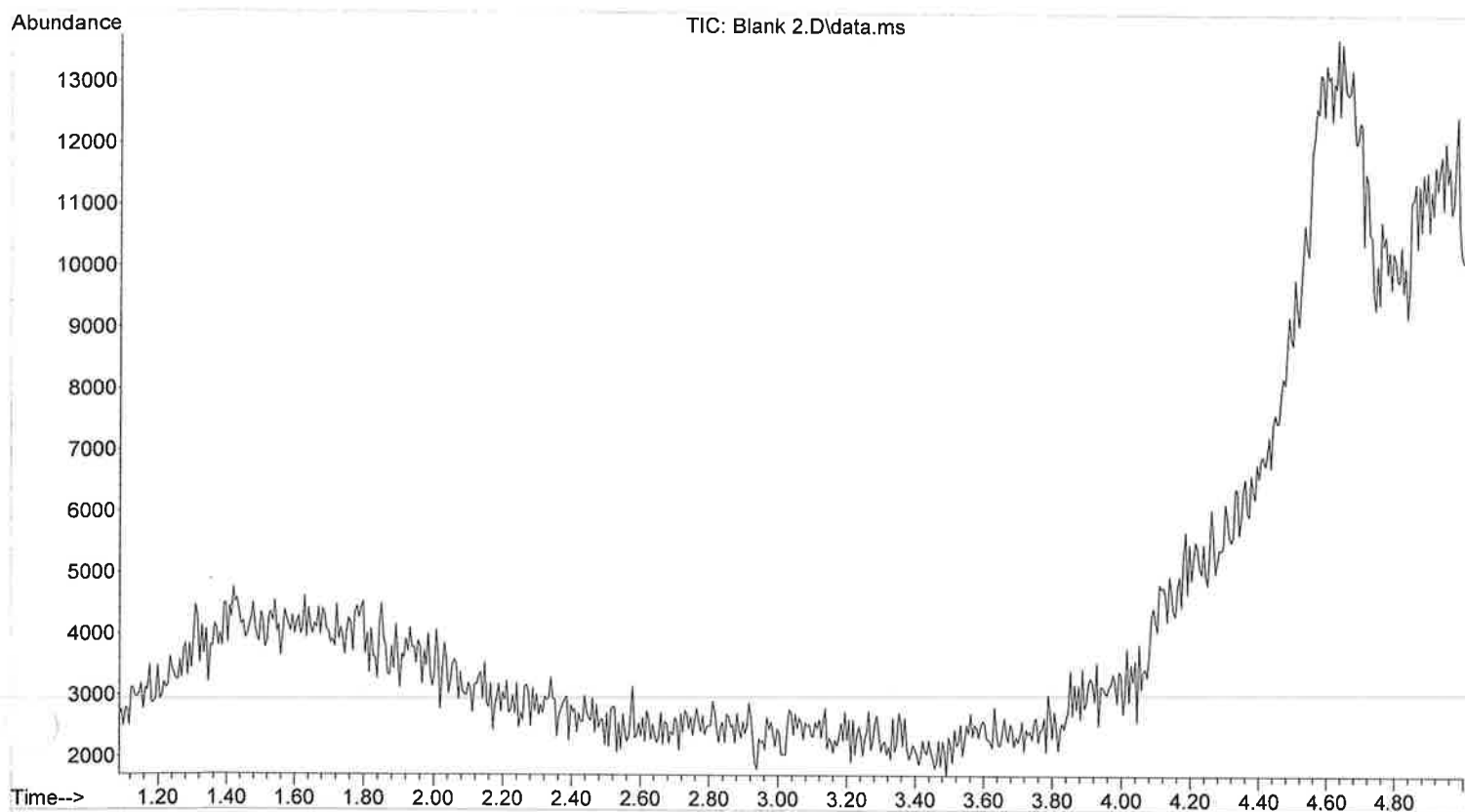
Emc (w)



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 2.D
Operator : EMC
Acquired : 16 Apr 2019 10:38 using AcqMethod THC-MS.M
Instrument : Cumpo
Sample Name: Blank
Mi fo : Methanol
Vial Number: 28

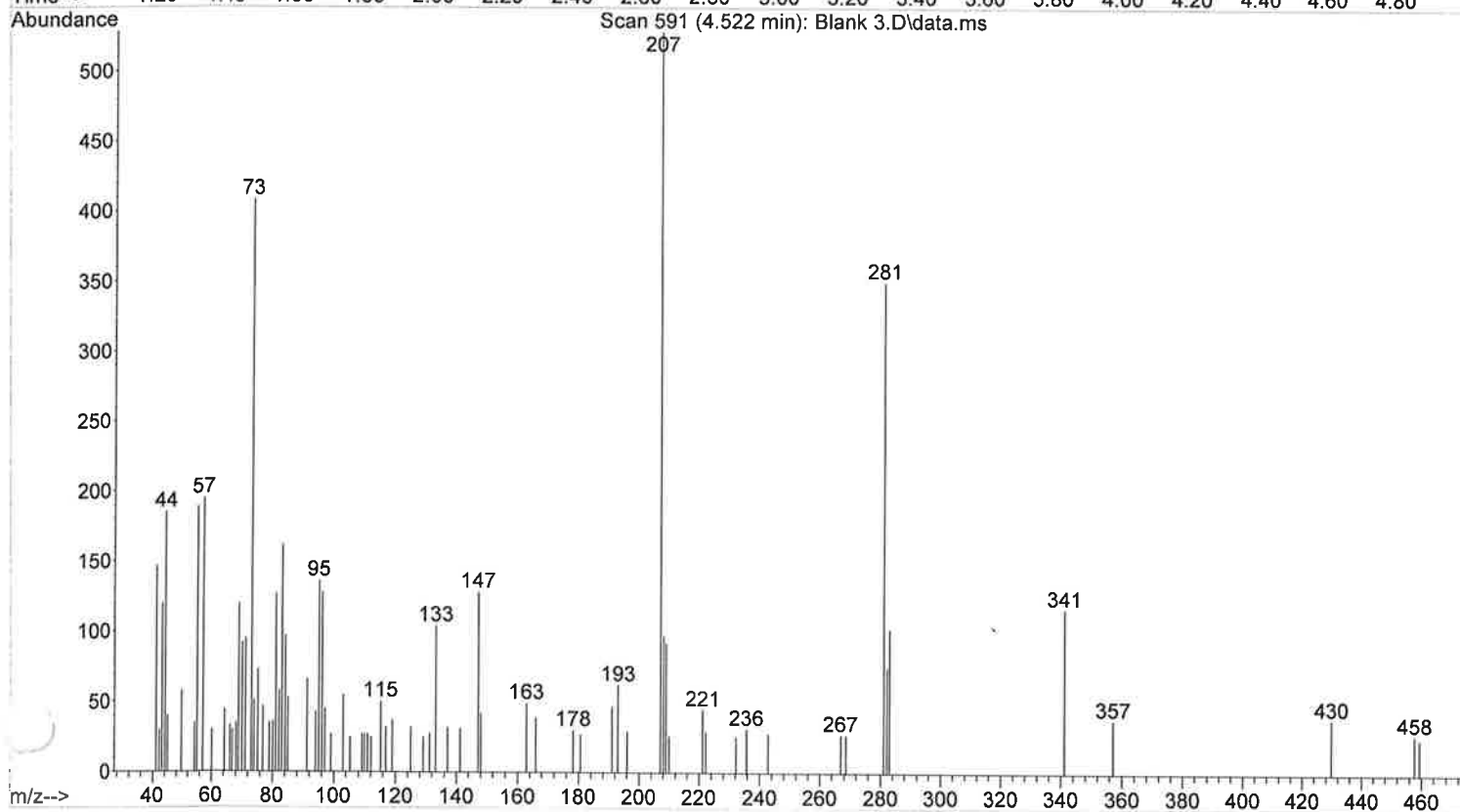
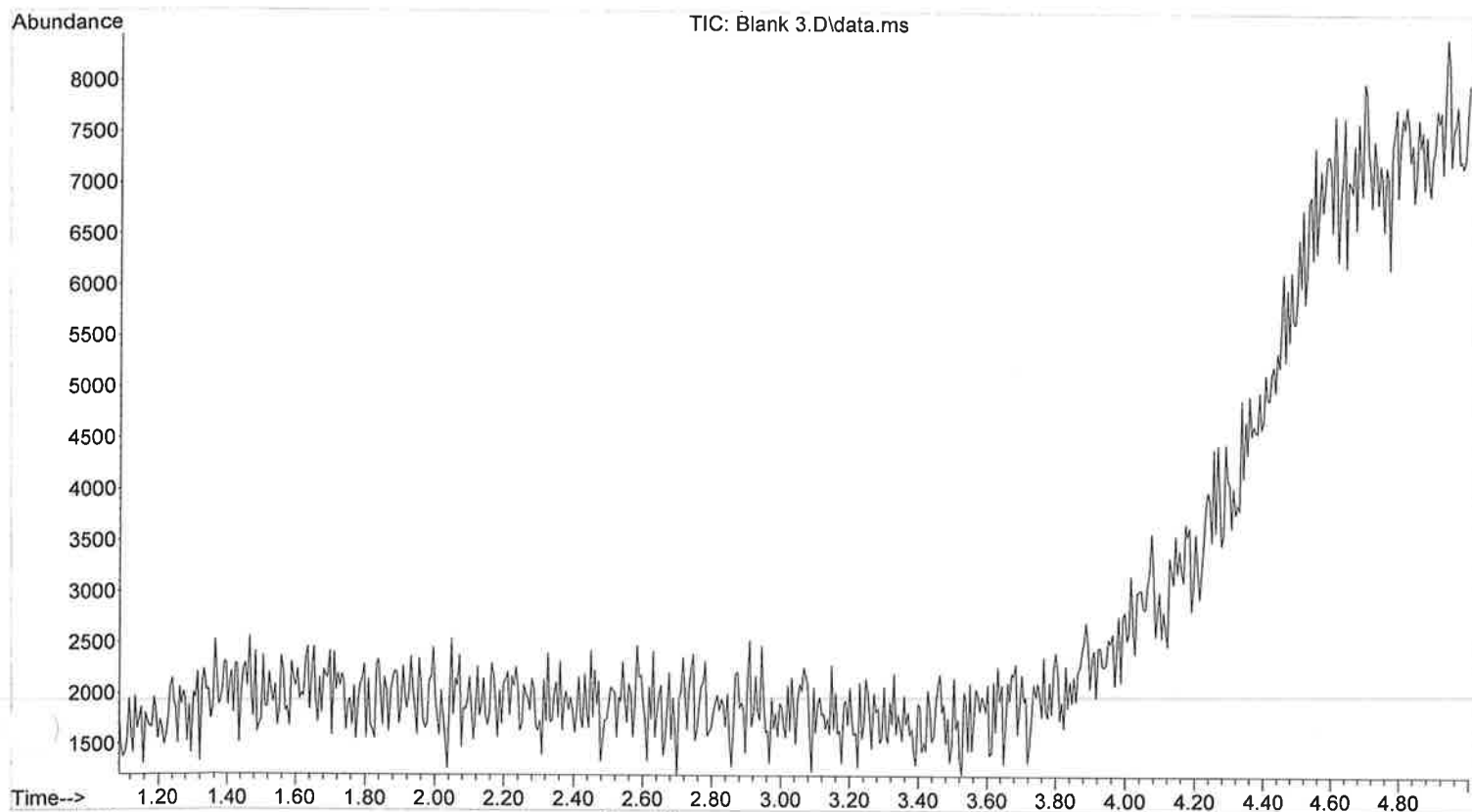
Eme

17



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 3.D
Operator : EMC
Acquired : 16 Apr 2019 11:01 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Blank
Mi : Methanol
Vial Number: 30

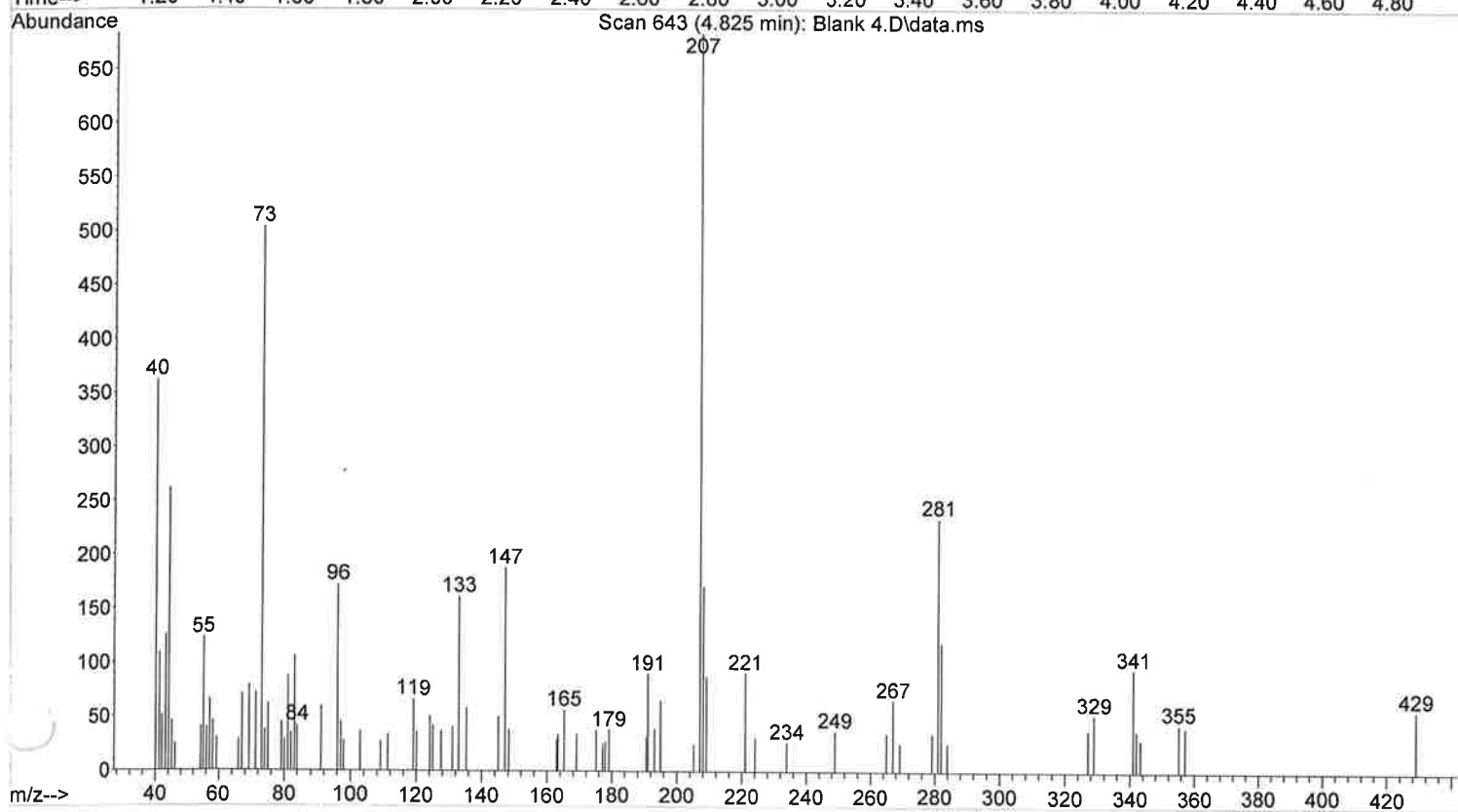
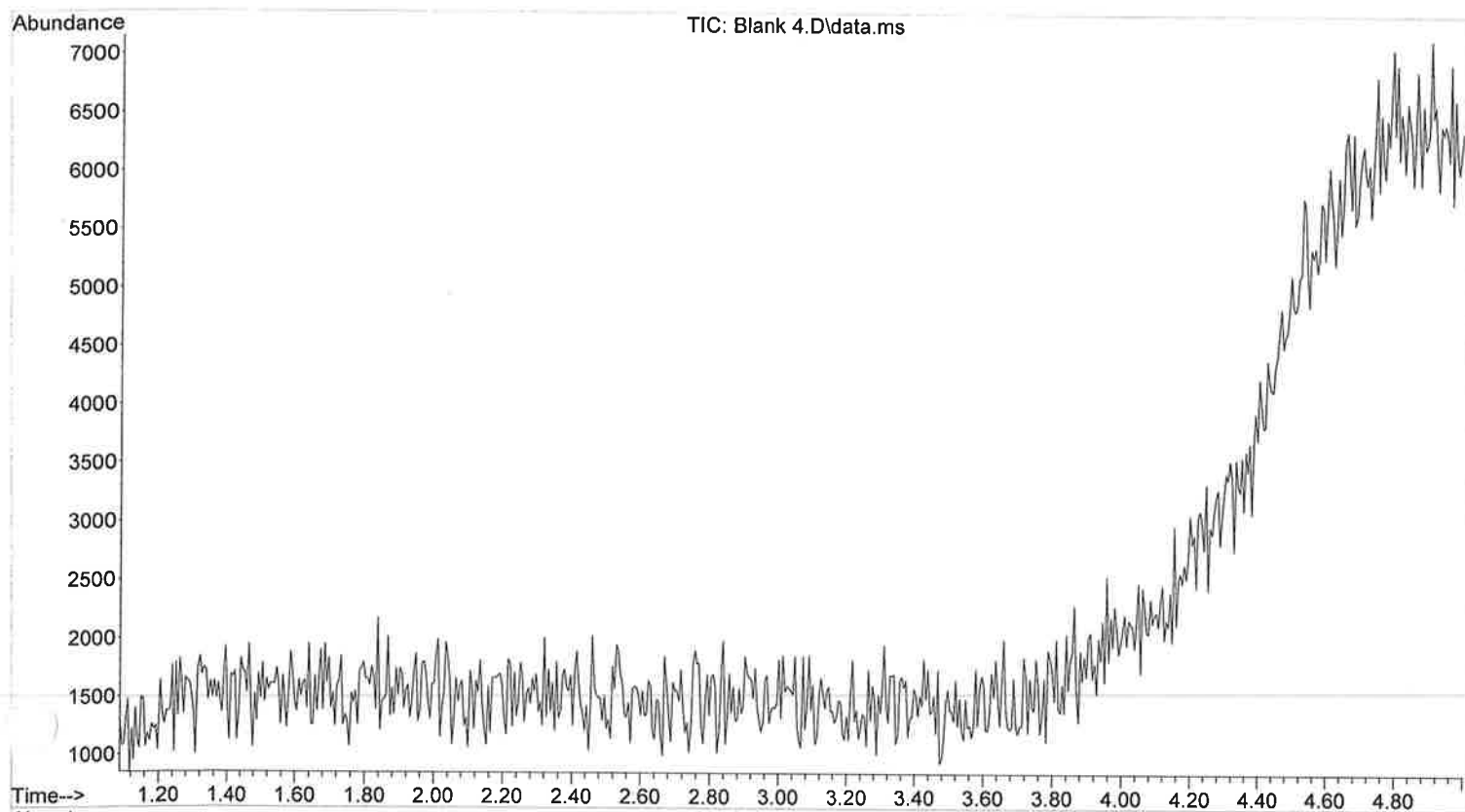
Emc 18



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 4.D
Operator : EMC
Acquired : 16 Apr 2019 11:25 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Blank
Mi fo : Methanol
Vial Number: 32

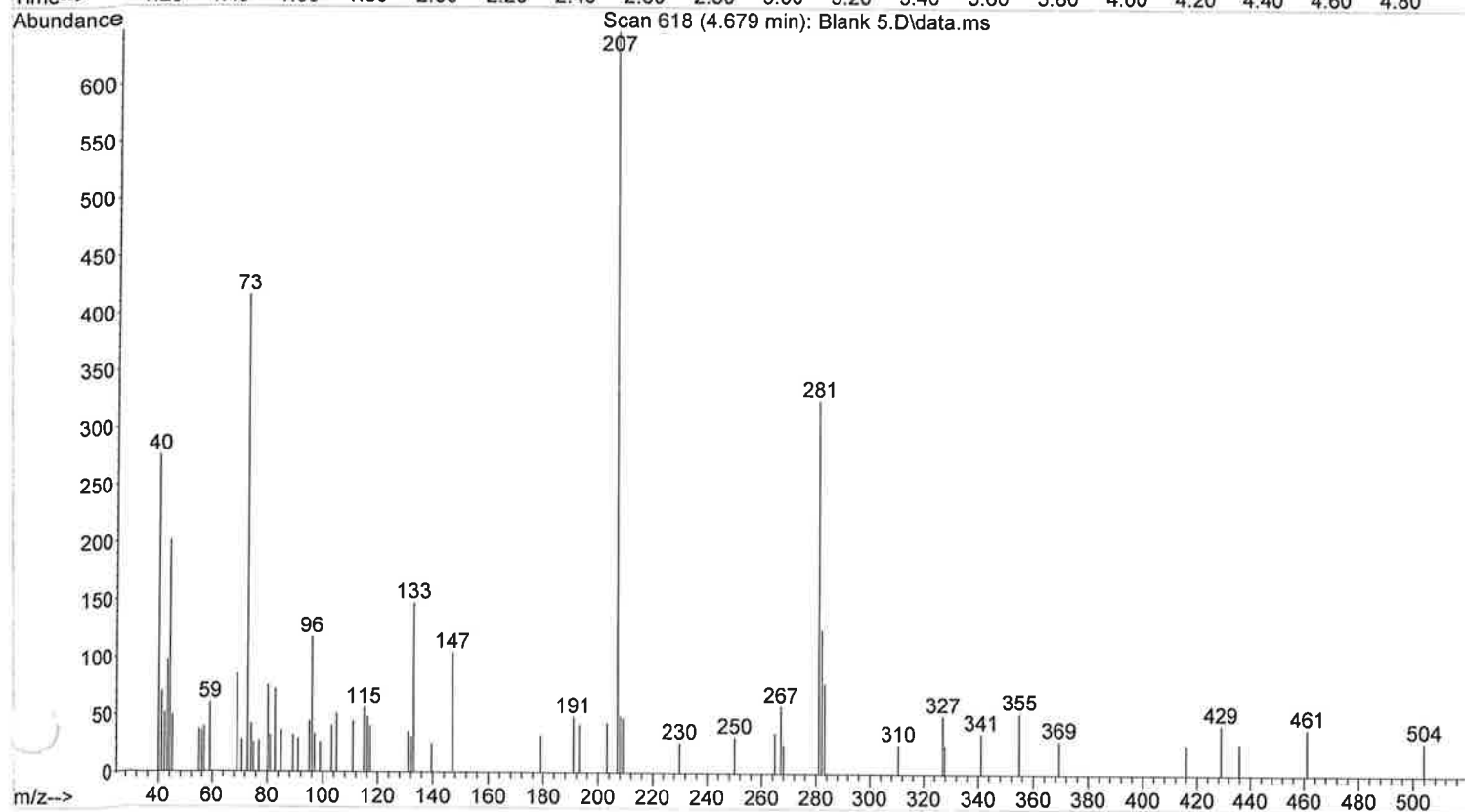
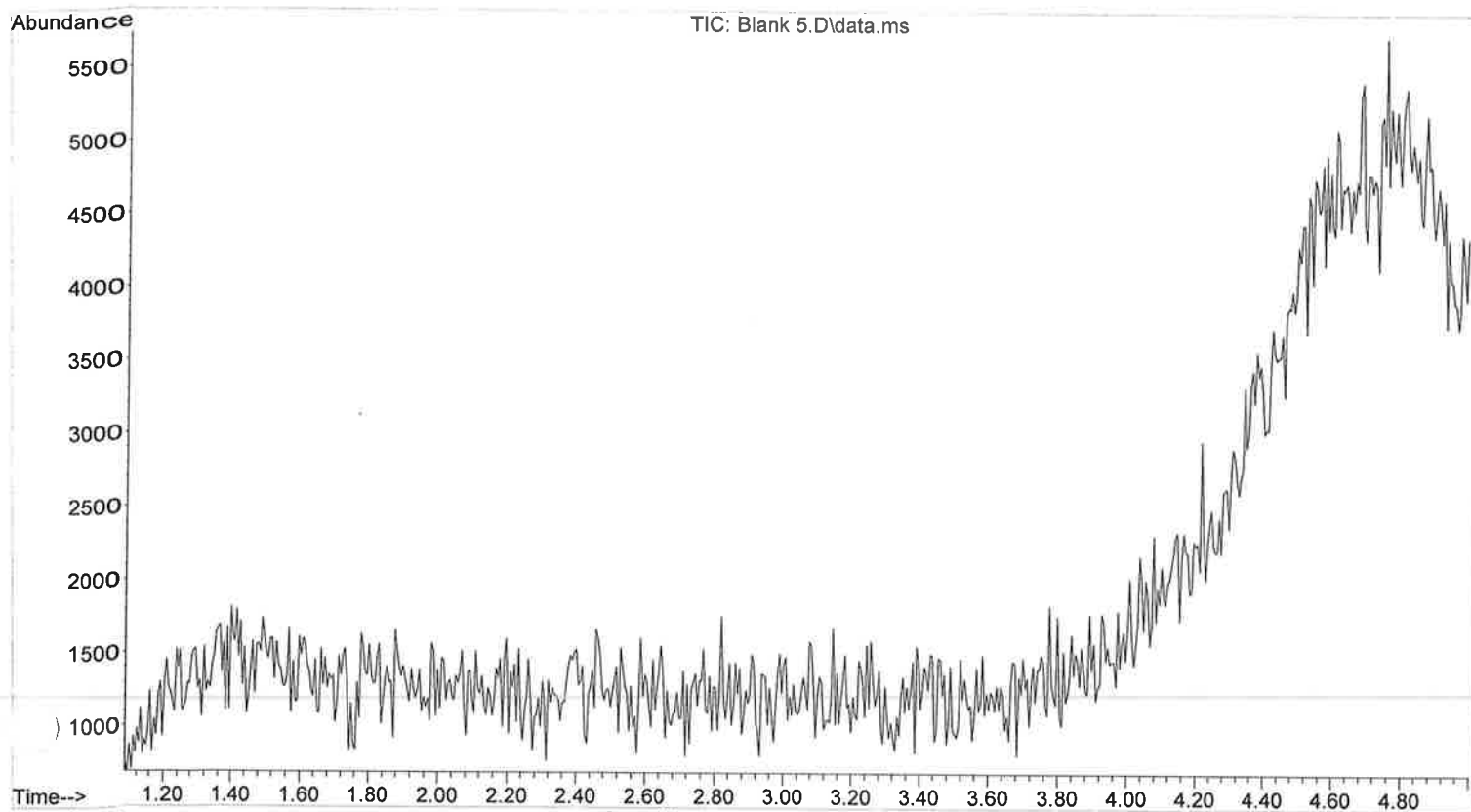
Emc

79



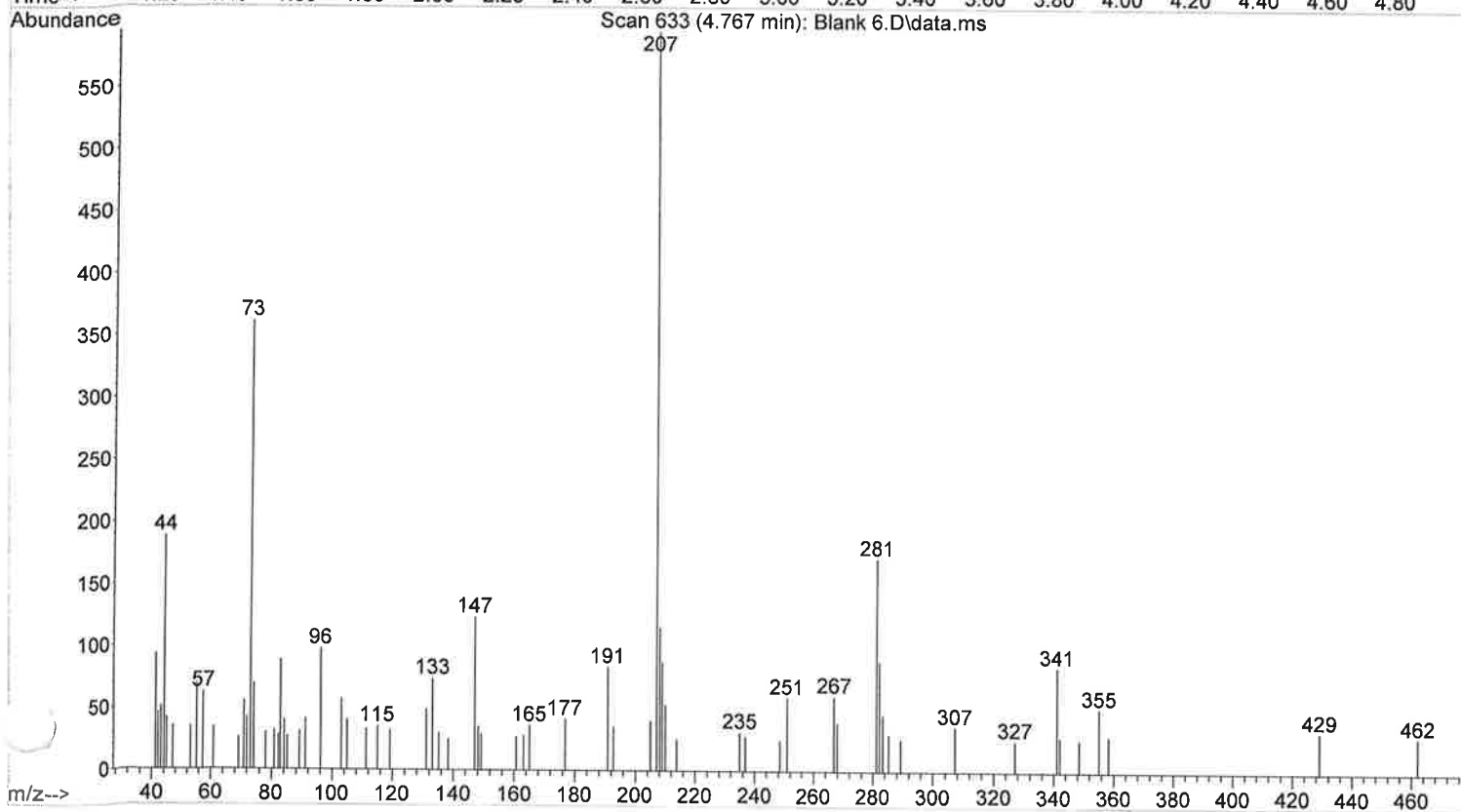
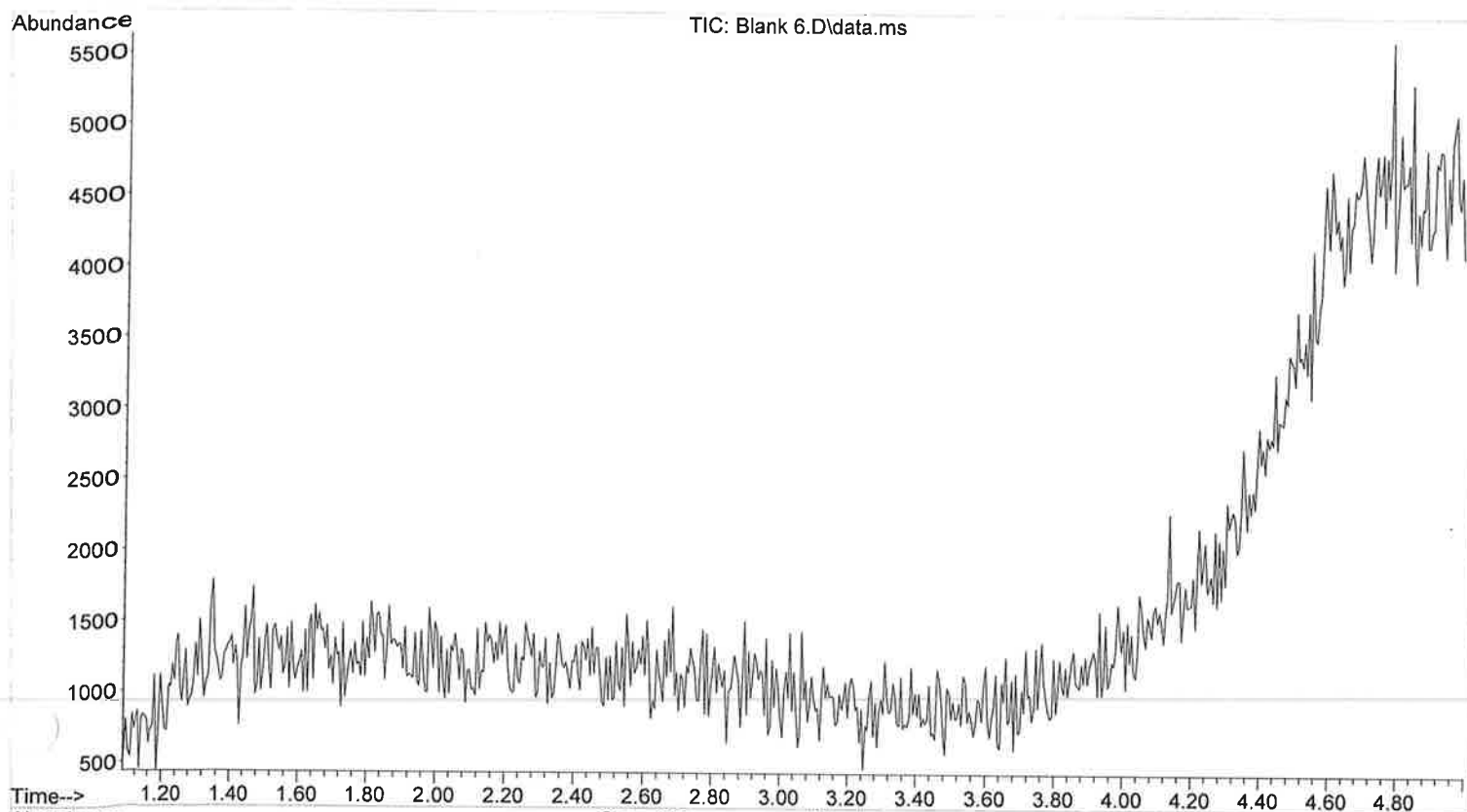
File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 5.D
Operator : EMC
Acquired : 16 Apr 2019 11:48 using AcqMethod THC-MS.M
Instrument : Qumbo
Sample Name: Blank
Mi fo : Methanol
Vial Number: 34

Eme (20)



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 6.D
Operator : EMC
Acquired : 16 Apr 2019 12:11 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Blank
Mi fo : Methanol
Vial Number: 36

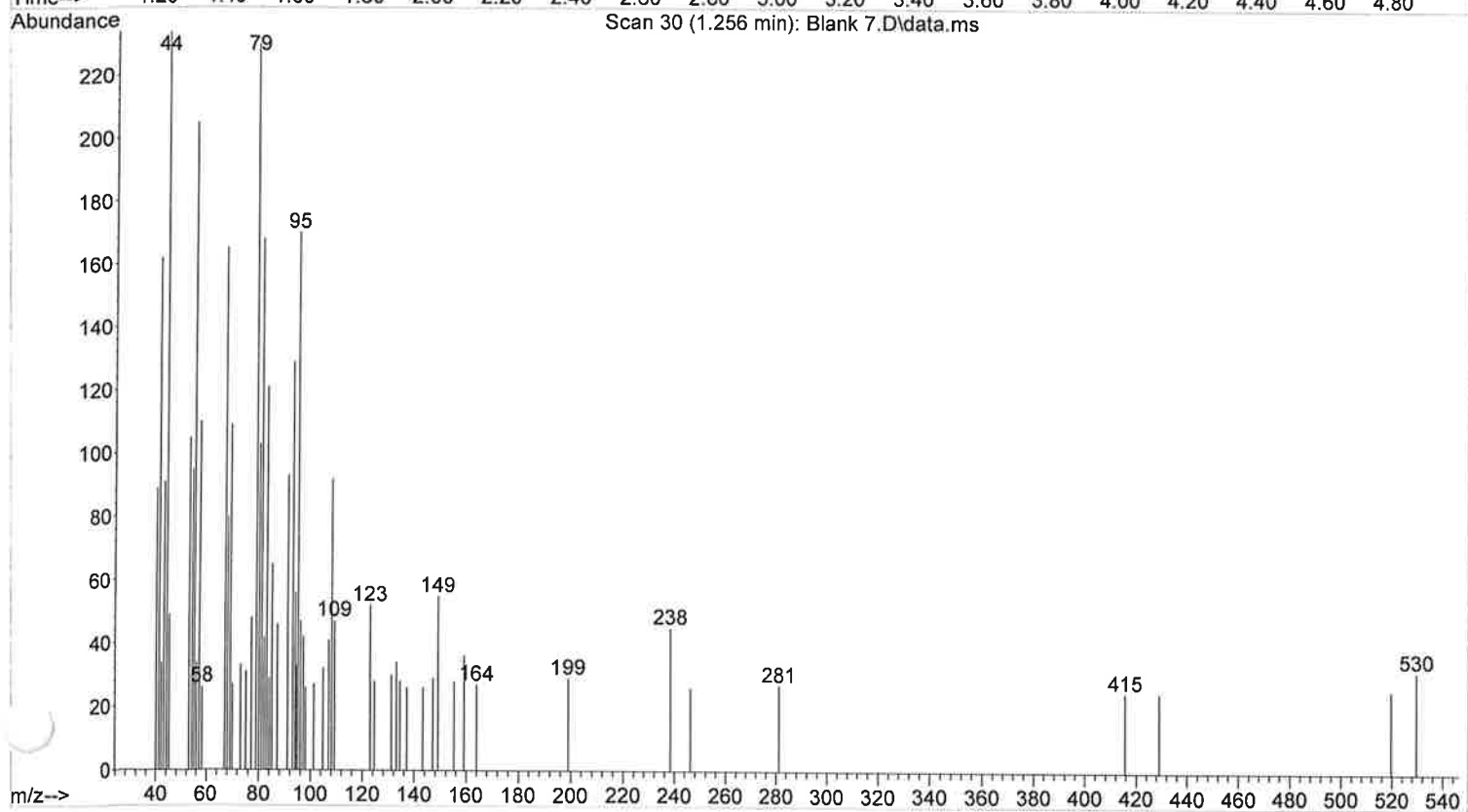
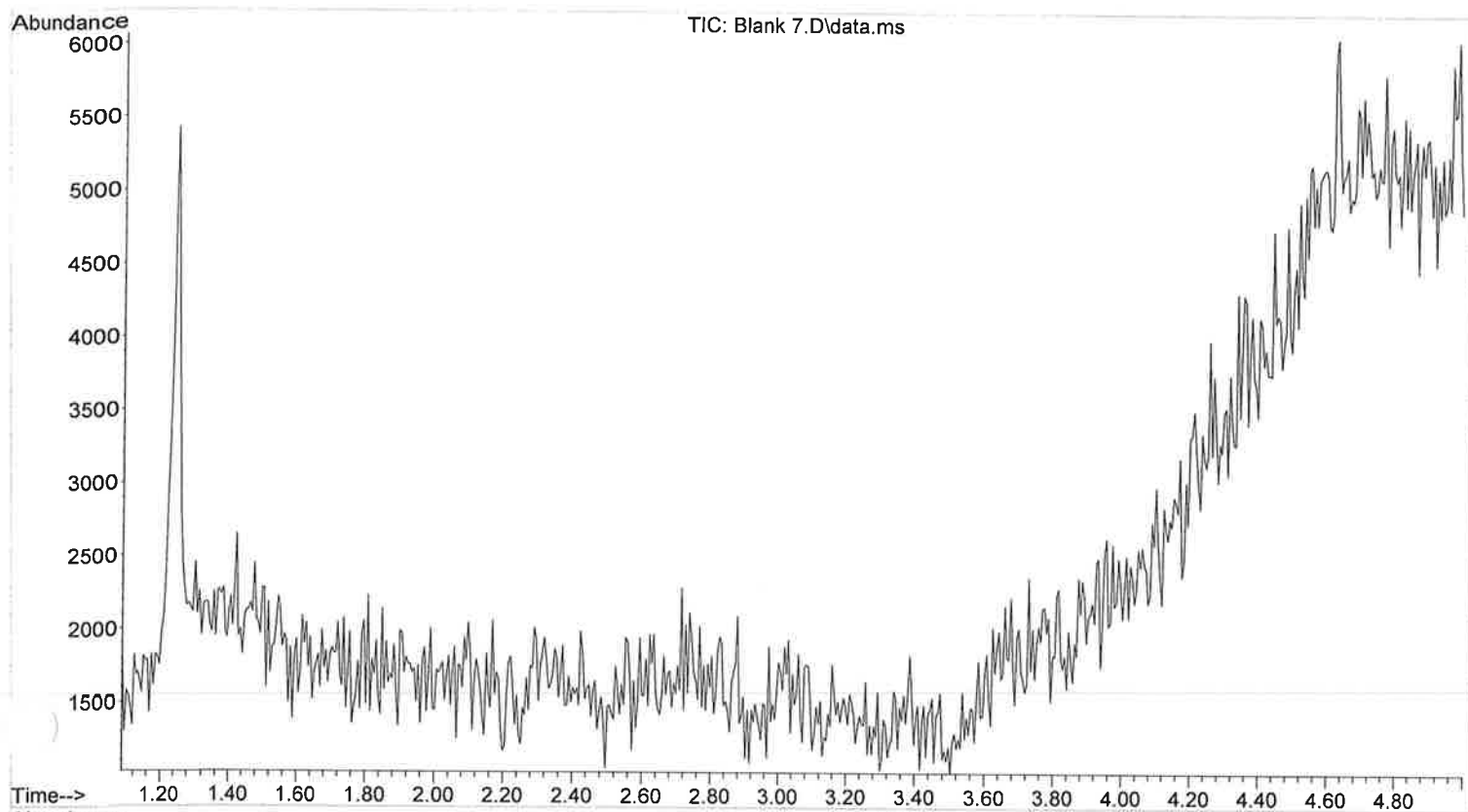
One (21)



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 7.D
Operator : EMC
Acquired : 16 Apr 2019 12:34 using AcqMethod THC-MS.M
Instrument : Cumpo
Sample Name: Blank
Mi fo : Methanol
Vial Number: 38

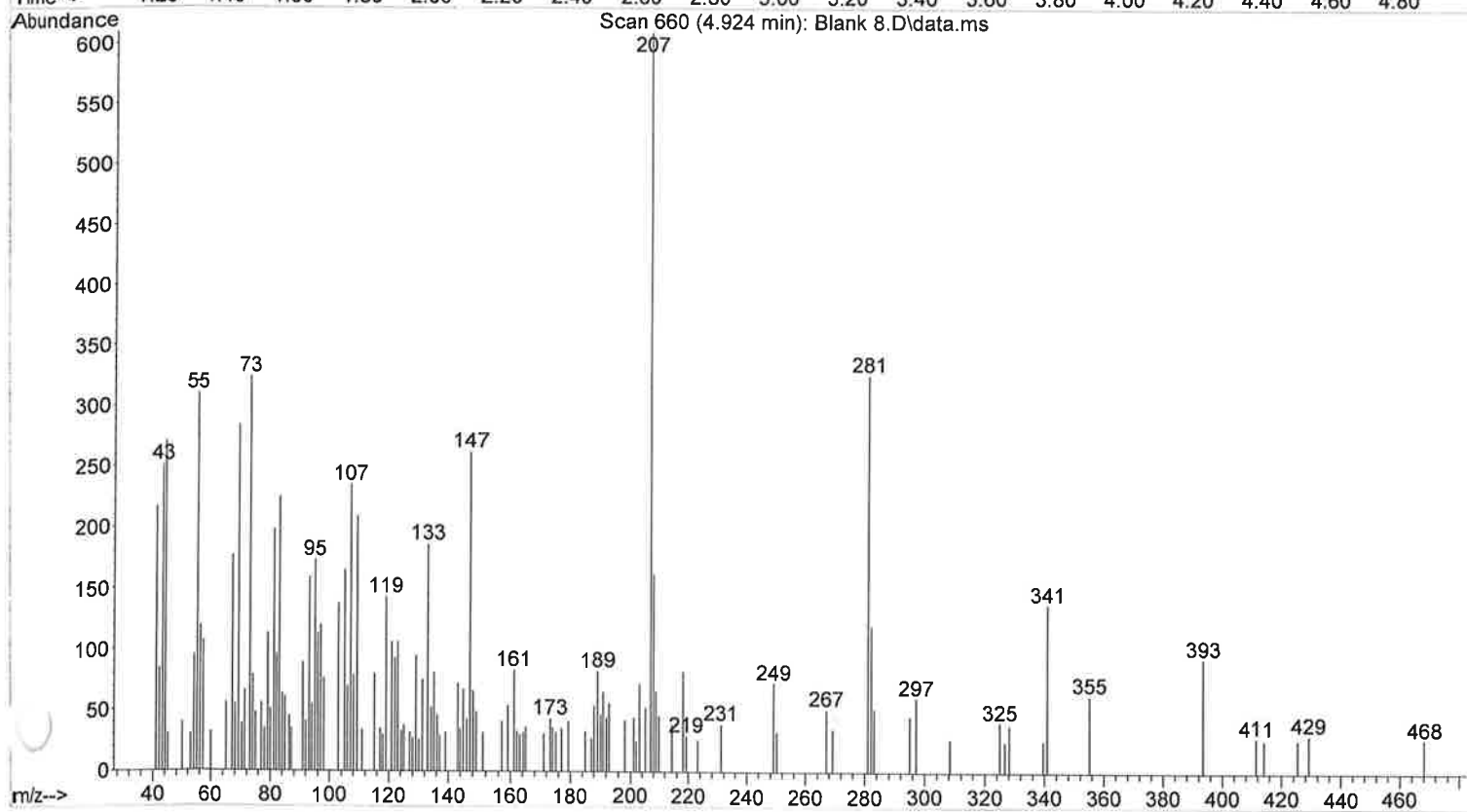
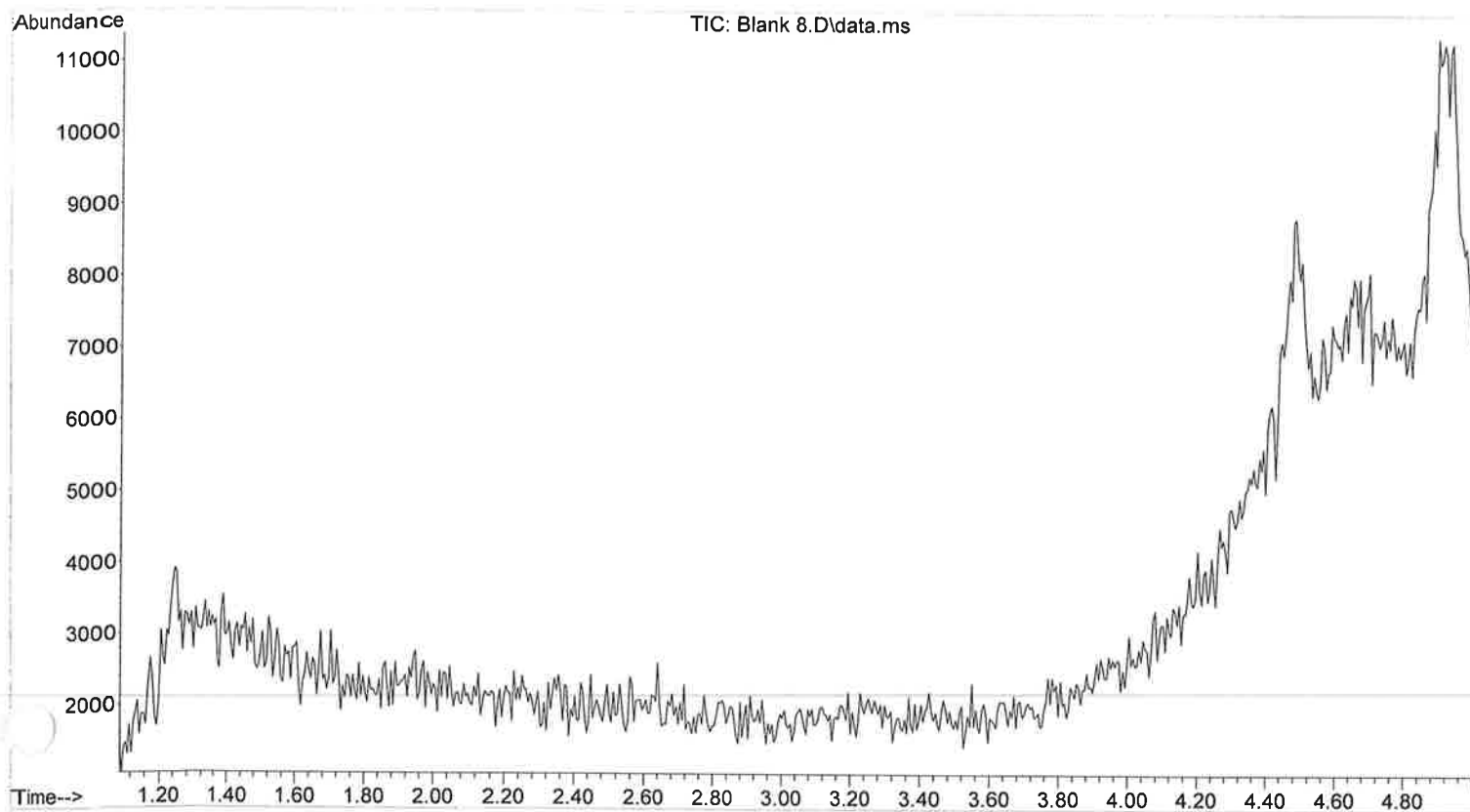
6me

22



File : C:\msdchem\1\DATA\2019\EMC\QT 041619\Blank 8.D
Operator : EMC
Acquired : 16 Apr 2019 12:58 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Blank
Methanol
Vial Number: 40

EMC (23)



Date: 4-16-19
Trainer: Brett Trotter
Trainee: Glenn Everett



Initial Competency Test for THC Quantitation

Standards and Reagents used:

Manufacturer and Lot Number or ID information

Methanol	Fisher Lot 183018 Bottle 2
Internal standard	Tribenzylamine BCBM5746V
Calibration THC	Δ9THC Cerilliant Lot FE03711702
Control THC	Δ9THC Lipomed Lot 135.1871.026

Quantitation Results:

Sample ID and Concentration		Pass/Fail
Unknown 1	Hemp 0.22%	Pass
Unknown 2	Marijuana 0.68%	Pass
Unknown 3	Negative	Pass

*All technical records must be attached to this form

Glenn Everett has successfully completed the competency test for THC quantitation.

	Signature	Date
Trainee	<u>Glenn B. Everett</u>	<u>4-16-19</u>
Method Validator	<u>Brett Trotter</u>	<u>4-16-19</u>
CLRS	<u>[Signature]</u>	<u>4-16-19</u>
QA Manager	<u>[Signature]</u>	<u>04-16-19</u>

Tetrahydrocannabinol Quantitation Answer Key

Analyst: Glenn Everett

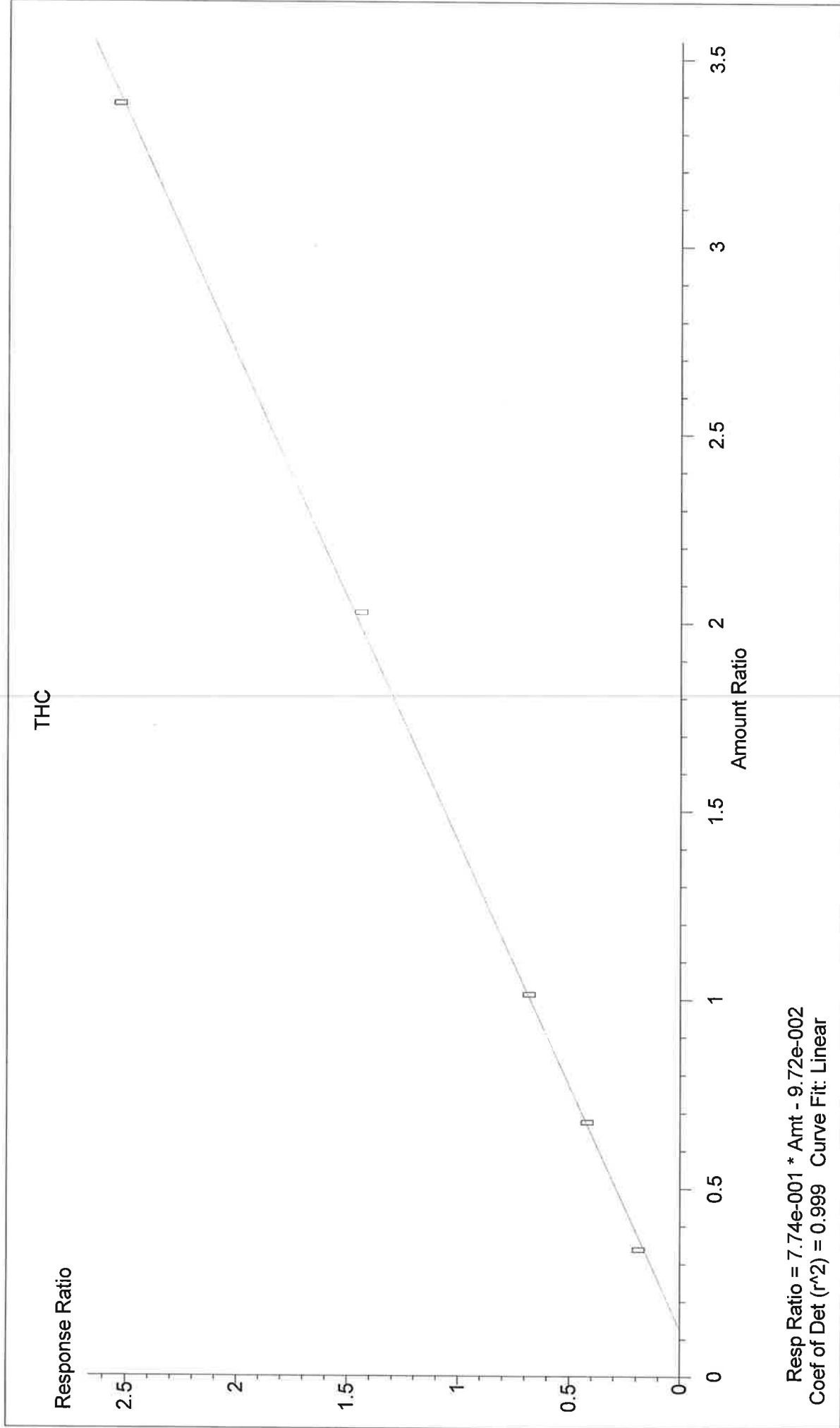
Trainer: Brett Trotter

Date: 4/11/10

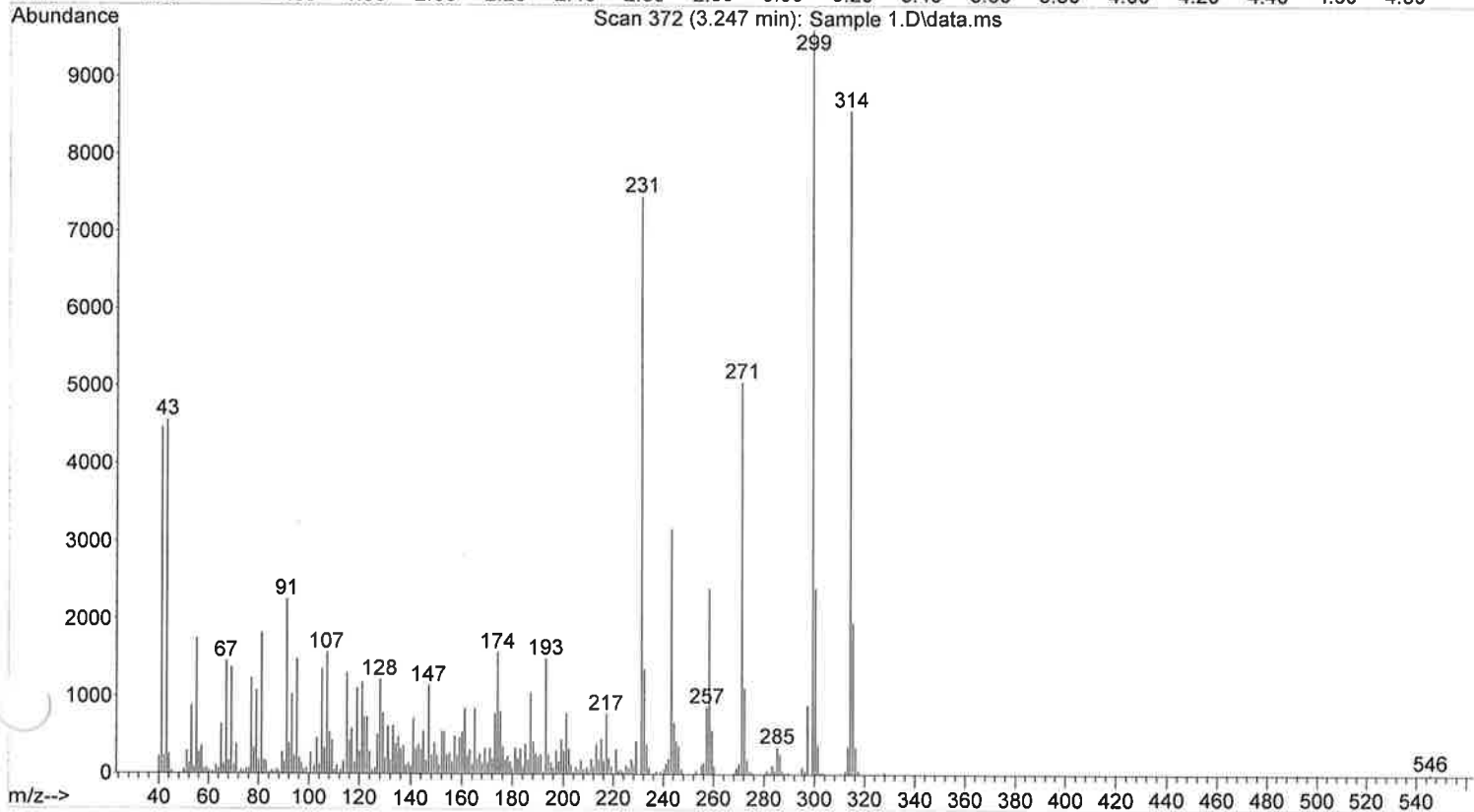
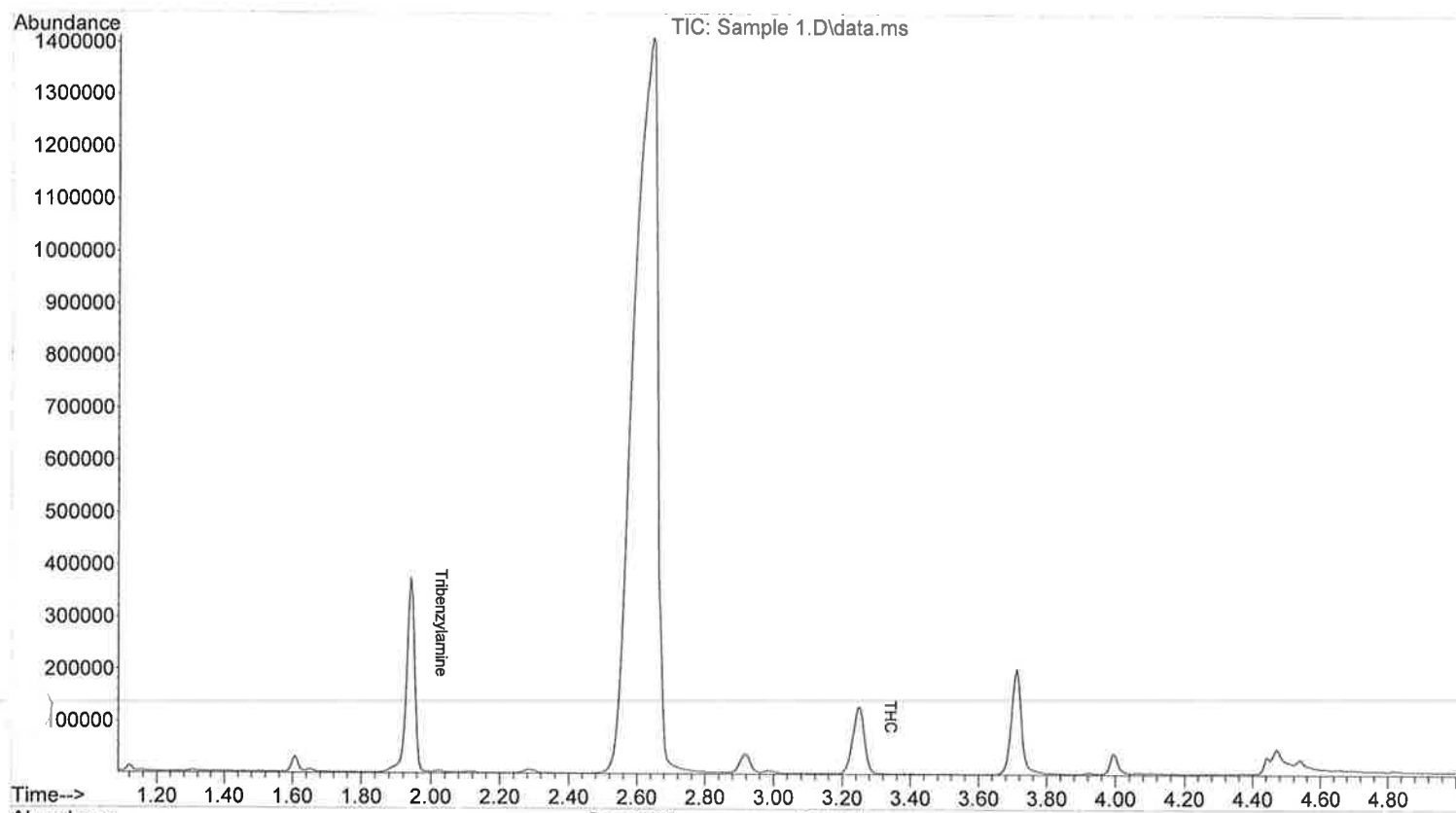
- 1. Hemp Sample**
- 2. Marijuana**
- 3. Oregano**

Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
50	0.3378	0.187979	14.44	C:\msdchem\1\DATA\2019\GBE\4-11-19\Standard 50.D
100	0.6757	0.419405	-1.47	C:\msdchem\1\DATA\2019\GBE\4-11-19\Standard 100.D
150	1.0135	0.680545	-0.95	C:\msdchem\1\DATA\2019\GBE\4-11-19\Standard 150.D
300	2.0270	1.442010	-2.00	C:\msdchem\1\DATA\2019\GBE\4-11-19\Standard 300.D
500	3.3784	2.535511	0.73	C:\msdchem\1\DATA\2019\GBE\4-11-19\Standard 500.D



File : C:\msdchem\1\DATA\2019\GBE\4-11-19\Sample 1.D
Operator : GBE
Acquired : 11 Apr 2019 13:26 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Sample 1
Misc info : Sample 1
Vial Number: 12



Data Path : C:\msdchem\1\DATA\2019\GBE\4-11-19\
Data File : Sample 1.D
Acq On : 11 Apr 2019 13:26
Operator : GBE
Sample : Sample 1
Misc : Sample 1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 16 13:01:16 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 12:59:06 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.946	TIC	6044721	148.00	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.253	TIC	3075208	115.89	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

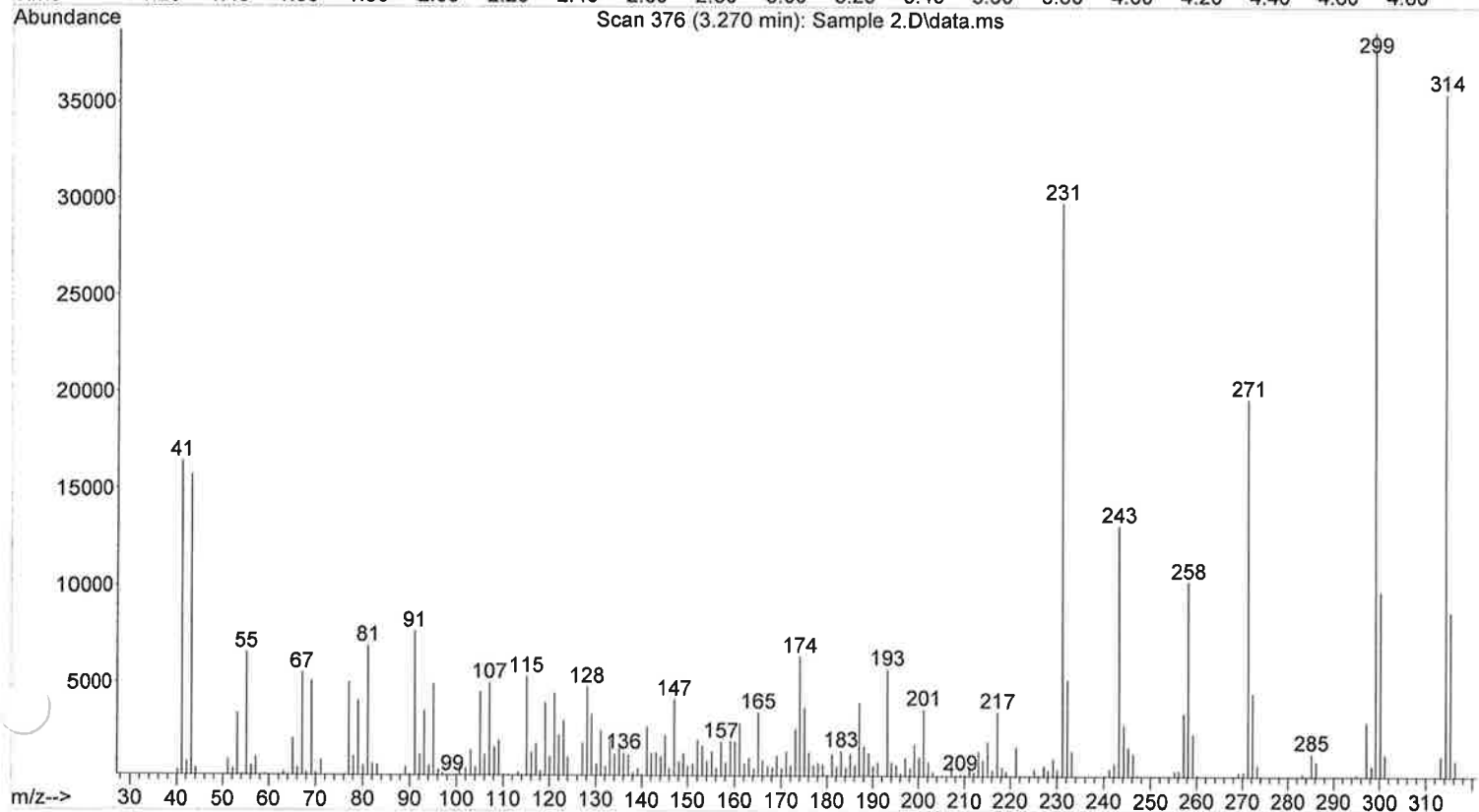
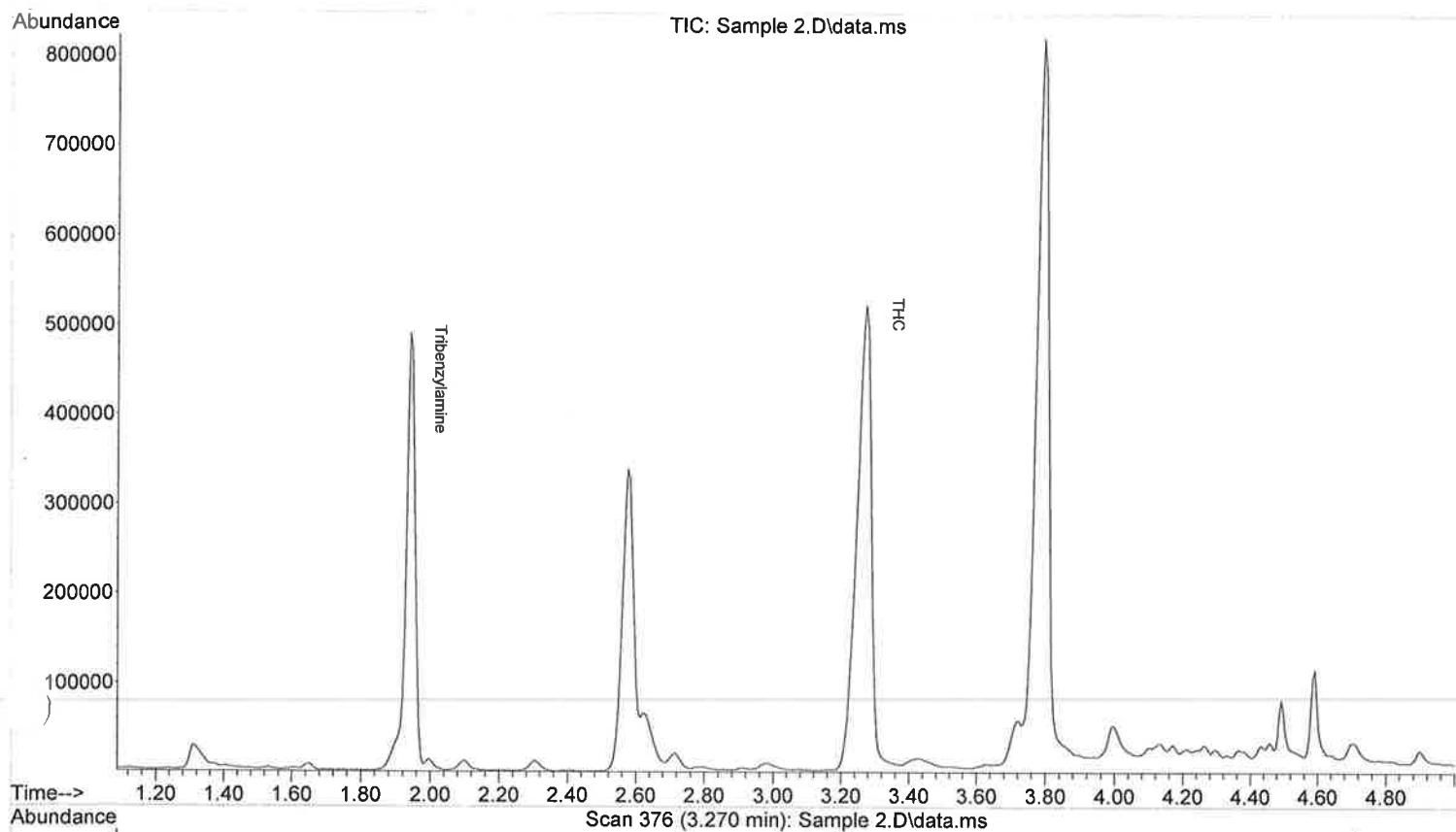
THC Quant.M Tue Apr 16 13:01:16 2019

$$\frac{103.57}{2} \times 1000 = 51785$$

$$\frac{115.89}{51785} \times 100 = 0.223\% \text{ THC}$$

Hemp

File : C:\msdchem\1\DATA\2019\GBE\4-11-19\Sample 2.D
Operator : GBE
Acquired : 11 Apr 2019 13:41 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Sample 2
Misc Info : Sample 2
Vial Number: 14



Data Path : C:\msdchem\1\DATA\2019\GBE\4-11-19\
Data File : Sample 2.D
Acq On : 11 Apr 2019 13:41
Operator : GBE
Sample : Sample 2
Misc : Sample 2
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 16 13:08:30 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 12:59:06 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.947	TIC	8715309	148.00	ug/mL	0.00
Target Compounds						
2) THC	3.278	TIC	15100390	349.97	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:08:30 2019

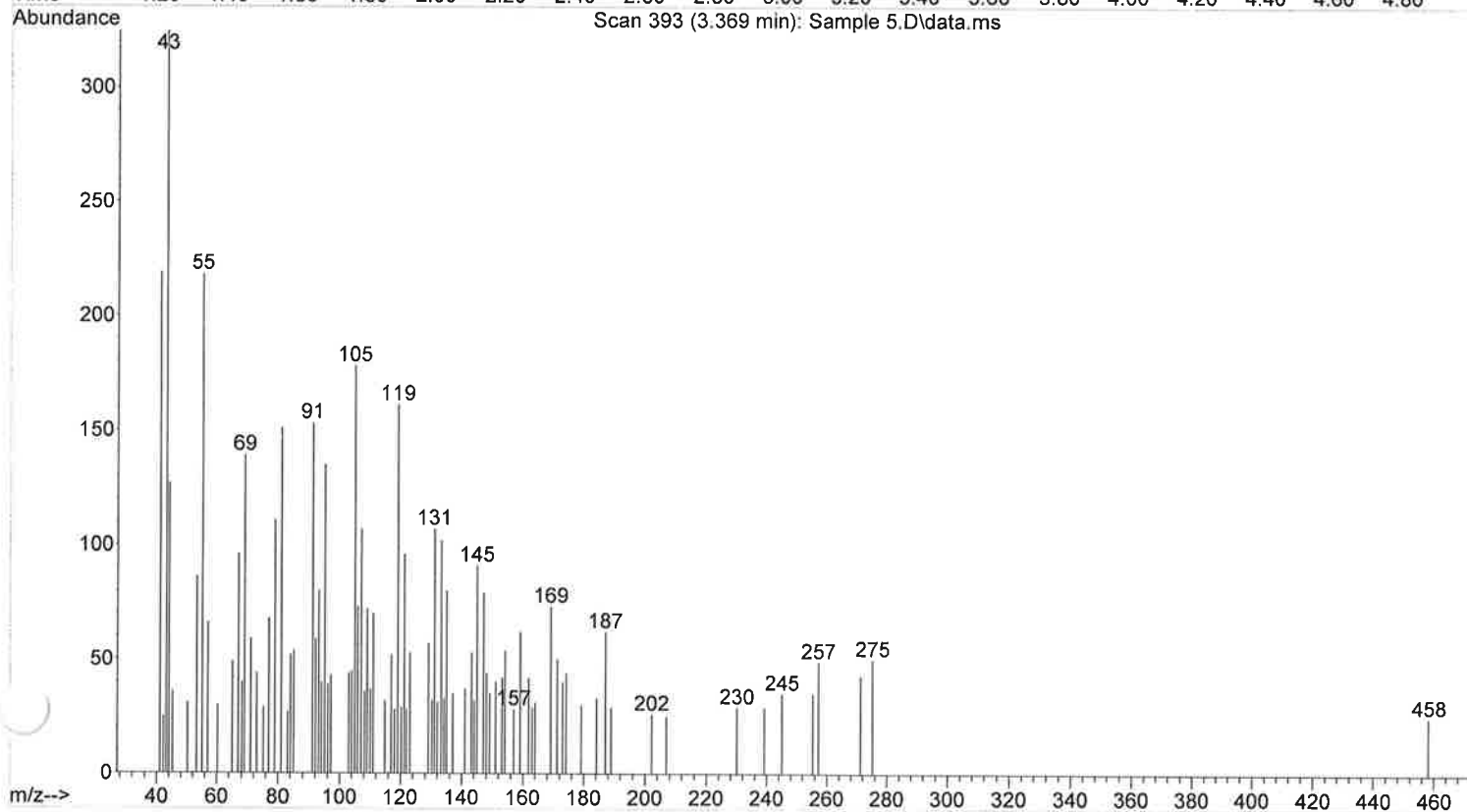
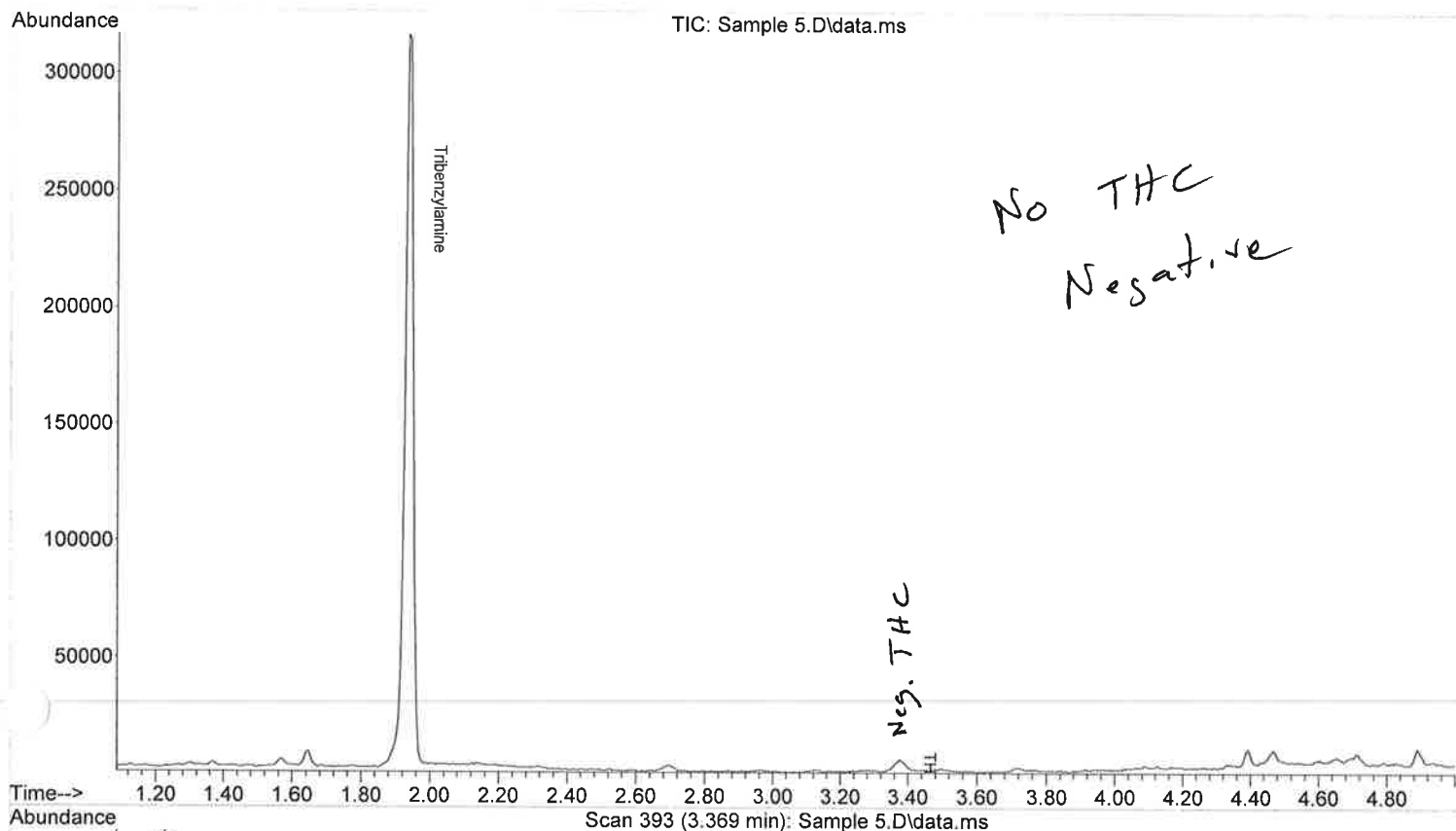
$$\frac{101.795}{2} \times 1000 = 50895$$

$$\frac{349.97}{50895} \times 100 = 0.687\%$$

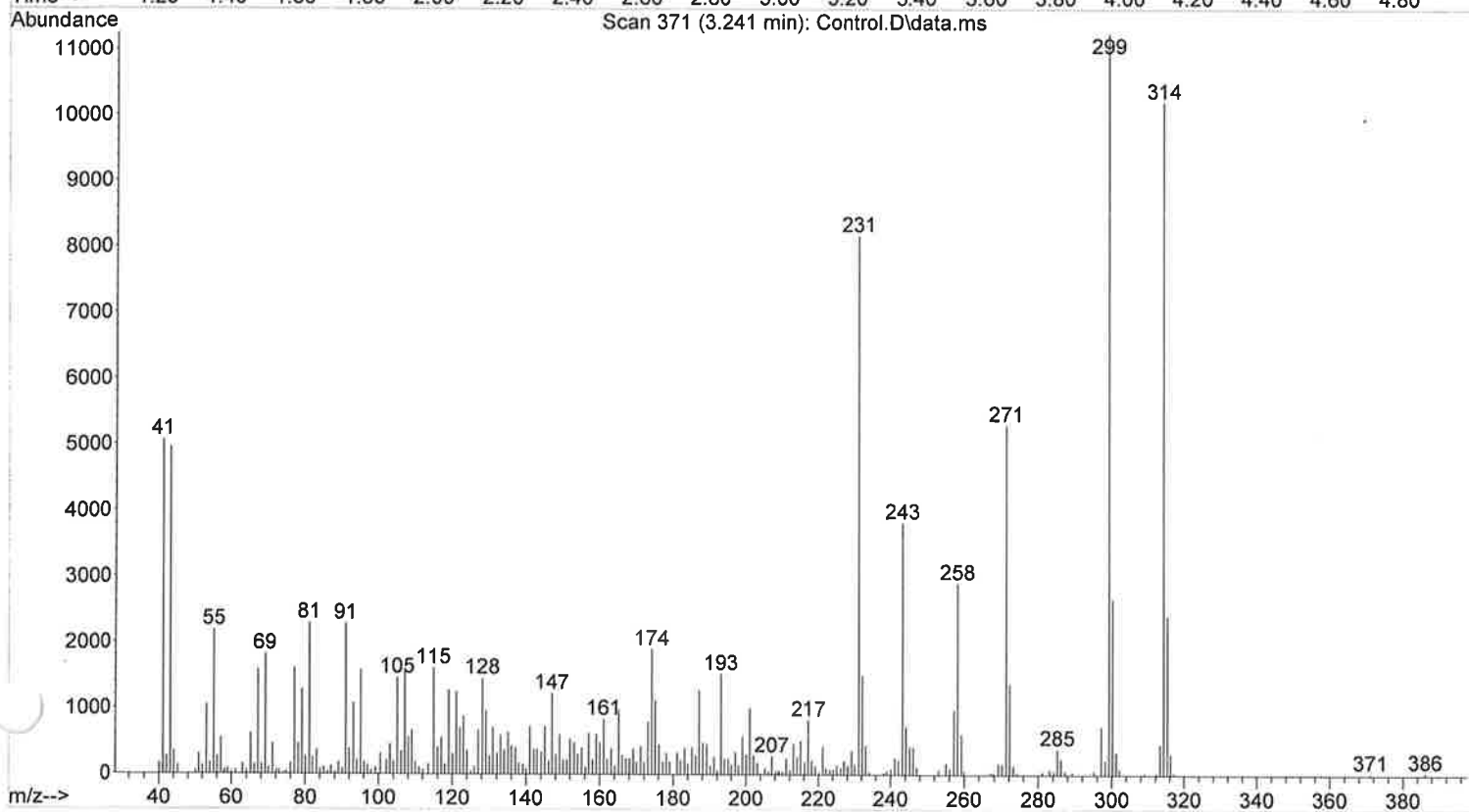
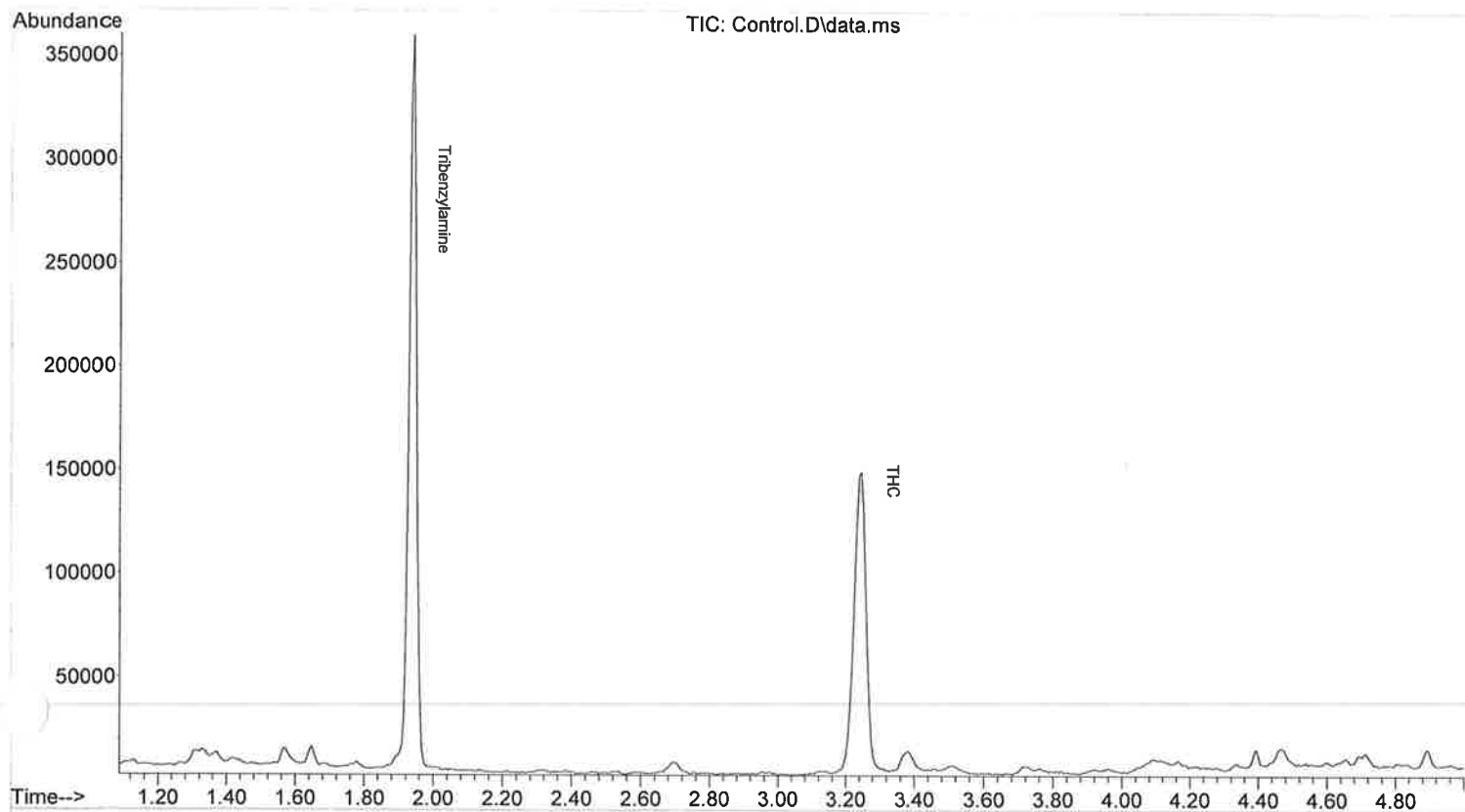
THC

Marijuana

File : C:\msdchem\1\DATA\2019\GBE\4-11-19\Sample 5.D
Operator : GBE
Acquired : 11 Apr 2019 15:33 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Sample 5
Misc Info : Sample 5
Vial Number: 22



File : C:\msdchem\1\DATA\2019\GBE4-11-19\Control.D
Operator : GBE
Acquired : 11 Apr 2019 14:13 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Control
Misc Info : Control
Vial Number: 18



Data Path : C:\msdchem\1\DATA\2019\GBE\4-11-19\
Data File : Control.D
Acq On : 11 Apr 2019 14:13
Operator : GBE
Sample : Control
Misc : Control
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Apr 16 13:23:39 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Tue Apr 16 12:59:06 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.944	TIC	5531499	148.00	ug/mL	0.00
Target Compounds						Qvalue
2) THC	3.247	TIC	3617790	143.68	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Tue Apr 16 13:23:40 2019

$$\frac{143.68}{148.00 \text{ ME}} \times 100 = 97\% \text{ ME}$$

THC

95.78%

Date: 4/15/19
Trainer: Glenn Everett
Trainee: Brett Trotter



Initial Competency Test for THC Quantitation

Standards and Reagents used:

Manufacturer and Lot Number or ID information

Methanol	Fisher Chemical - 183018
Internal standard	Aldrich - Tribenzylamine - BCB5746V
Calibration THC	Cerilliant - FE08221804
Control THC	Lipomed - 135 - 1B71.0L6

Quantitation Results:

	Sample ID and Concentration	Pass/Fail
Unknown 1	THC - 0.309%	pass
Unknown 2	Negative for THC -	pass
Unknown 3	THC - 0.490%	pass

*All technical records must be attached to this form

Brett Trotter has successfully completed the competency test for THC quantitation.

	Signature	Date
Trainee	<u>Brett Trotter</u>	<u>4/15/19</u>
Supervisor	<u>Glenn B. Everett</u>	<u>4-22-19</u>
Technical Leader	<u>Glenn B. Everett</u>	<u>4-22-19</u>
QA Manager	<u>Chad D. [Signature]</u>	<u>04-23-19</u>

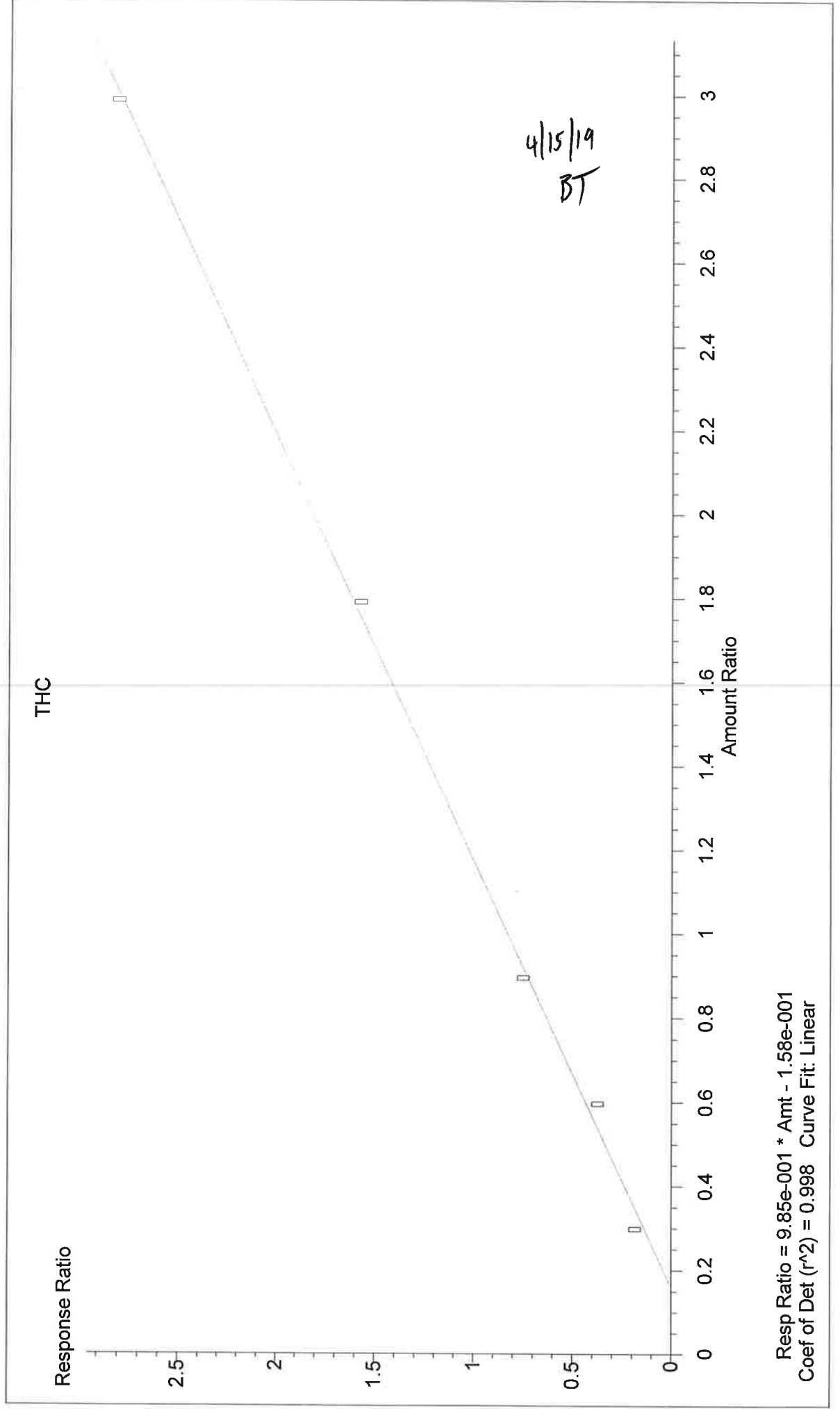
THC Quantitation Answer Key

Brett Trotter Proficiency Test

1. Hemp
2. Negative
3. Marijuana

Calibration data of THC

LvLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
50	0.2985	0.185101	35.52	C:\msdchem\1\DATA\2019\BTT\4-15-19\THC 50.D
100	0.5970	0.373392	-13.32	C:\msdchem\1\DATA\2019\BTT\4-15-19\THC 100.D
150	0.8955	0.748353	3.23	C:\msdchem\1\DATA\2019\BTT\4-15-19\THC 150.D
300	1.7910	1.571997	-2.20	C:\msdchem\1\DATA\2019\BTT\4-15-19\THC 300.D
500	2.9851	2.804959	0.75	C:\msdchem\1\DATA\2019\BTT\4-15-19\THC 500.D



Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : THC 50.D
Acq On : 15 Apr 2019 9:08
Operator : BTT
Sample : Standard
SOLVENT : Methanol
ALS Vial : 27 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 13:51:37 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 10:40:44 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.927	TIC	10915169	167.50	ug/mL	-0.06
Target Compounds						Qvalue
2) THC	3.226	TIC	2020404	58.25	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 13:51:37 2019

Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : THC 100.D
Acq On : 15 Apr 2019 9:23
Operator : BTT
Sample : Standard
Misc : Methanol
ALS Vial : 29 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 13:58:03 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 13:50:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.927	TIC	7528016	167.50	ug/mL	-0.07
Target Compounds						Qvalue
2) THC	3.226	TIC	2810902	90.25	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 13:58:03 2019

Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : THC 150.D
Acq On : 15 Apr 2019 9:39
Operator : BTT
Sample : Standard
Solvent : Methanol
ALS Vial : 31 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 13:58:15 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 13:50:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)

Internal Standards						
1) Tribenzylamine	1.925	TIC	6523066	167.50	ug/mL	-0.07
Target Compounds						
2) THC	3.229	TIC	4881555	153.98	ug/mL	Qvalue 100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 13:58:15 2019

Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : THC 300.D
Acq On : 15 Apr 2019 9:54
Operator : BTT
Sample : Standard
Misc : Methanol
ALS Vial : 33 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 13:58:29 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 13:50:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.925	TIC	6056880	167.50	ug/mL	-0.07
Target Compounds						Qvalue
2) THC	3.237	TIC	9521400	293.98	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 13:58:30 2019

Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : THC 500.D
Acq On : 15 Apr 2019 10:10
Operator : BTT
Sample : Standard
RISC : Methanol
ALS Vial : 35 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 13:58:43 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 13:50:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.926	TIC	6099332	167.50	ug/mL	-0.07
Target Compounds						Qvalue
2) THC	3.249	TIC	17108376	503.54	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 13:58:43 2019

Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : Control Standard.D
Acq On : 15 Apr 2019 11:27
Operator : BTT
Sample : Control
RISC : Methanol
ALS Vial : 44 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 14:01:07 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 13:50:57 2019
Response via : Initial Calibration

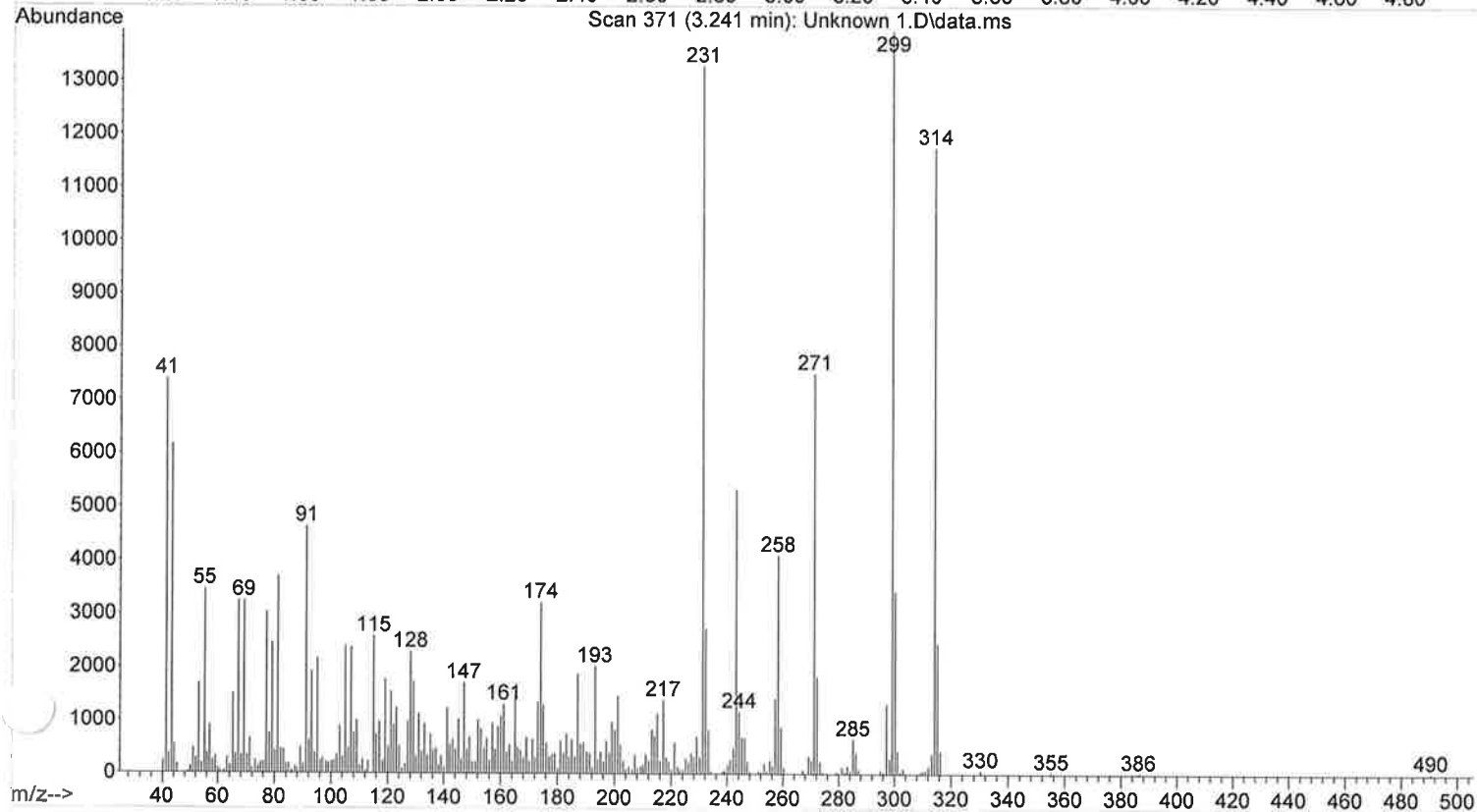
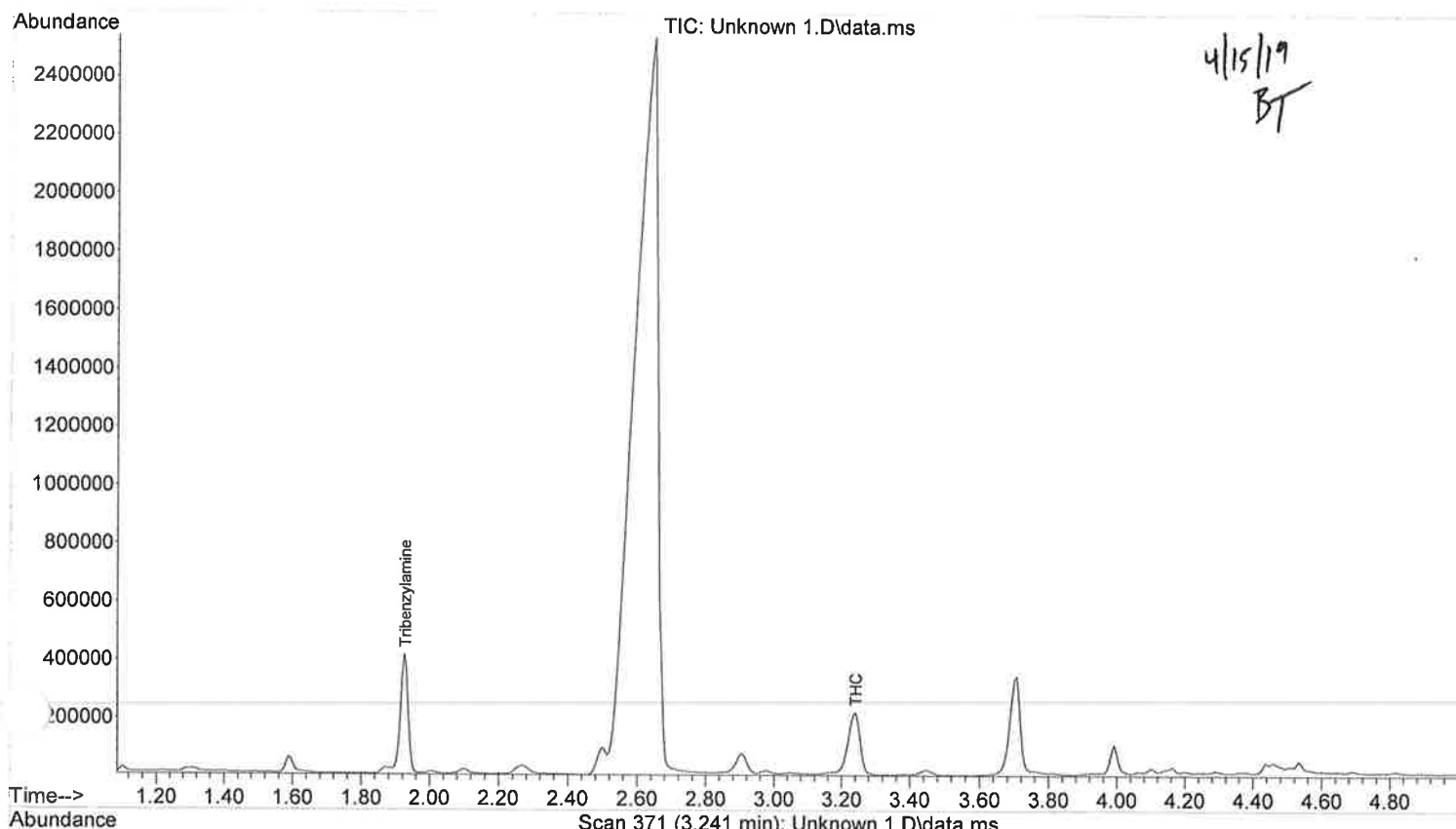
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.928	TIC	6320119	153.40	ug/mL	-0.06
Target Compounds						Qvalue
2) THC	3.231	TIC	3989255	122.78	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 14:01:07 2019

File : C:\msdchem\1\DATA\2019\BTT\4-15-19\Unknown 1.D
Operator : BTT
Acquired : 15 Apr 2019 10:41 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Plant material
Misc Info : Methanol
Vial Number: 39



Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : Unknown 1.D
Acq On : 15 Apr 2019 10:41
Operator : BTT
Sample : Plant material
SOLVENT : Methanol
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Apr 15 14:01:31 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 14:01:02 2019
Response via : Initial Calibration

4/15/19
BT

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.928	TIC	6342838	153.40	ug/mL	-0.06
Target Compounds						
2) THC	3.242	TIC	5463164	158.60	ug/mL	Qvalue 100

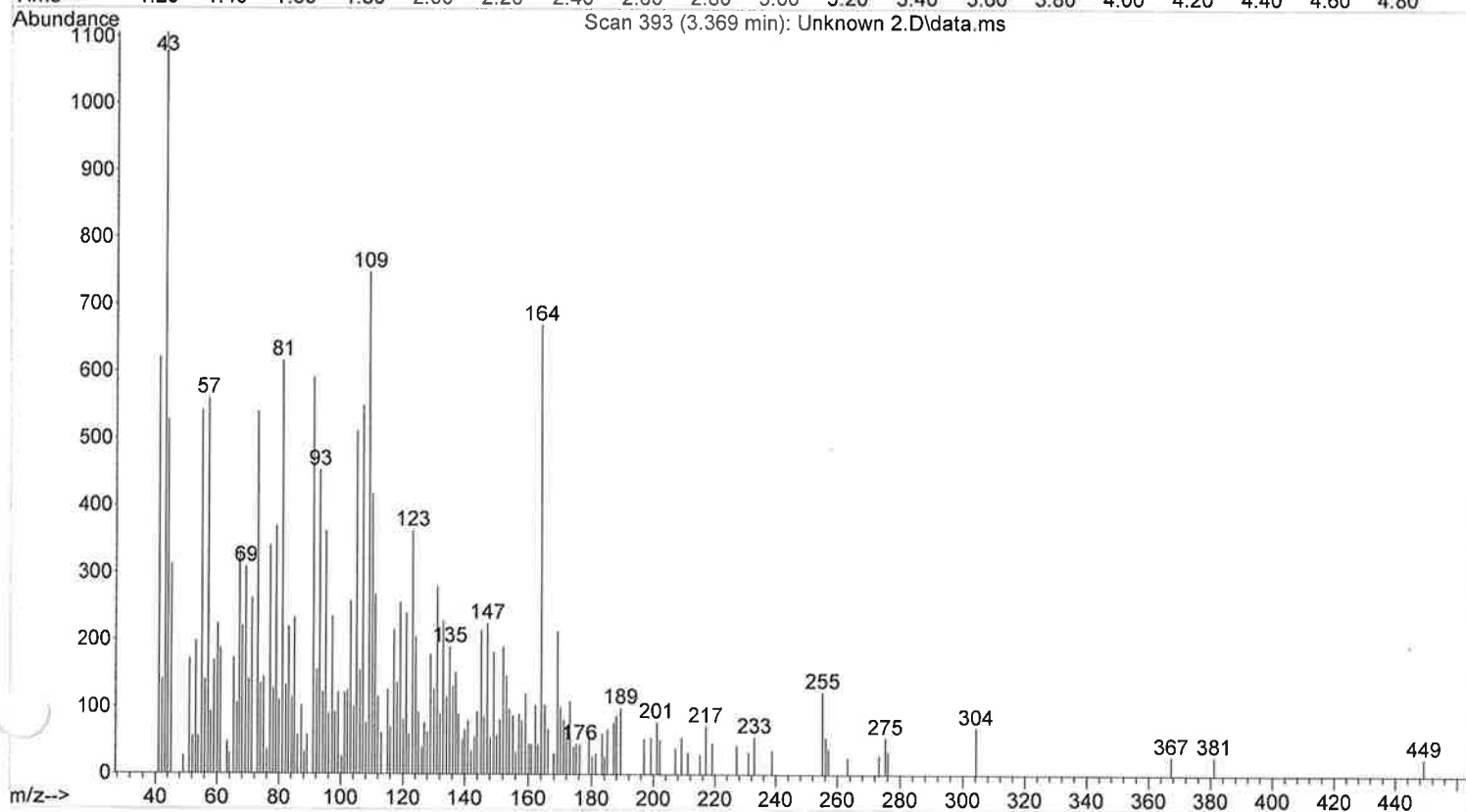
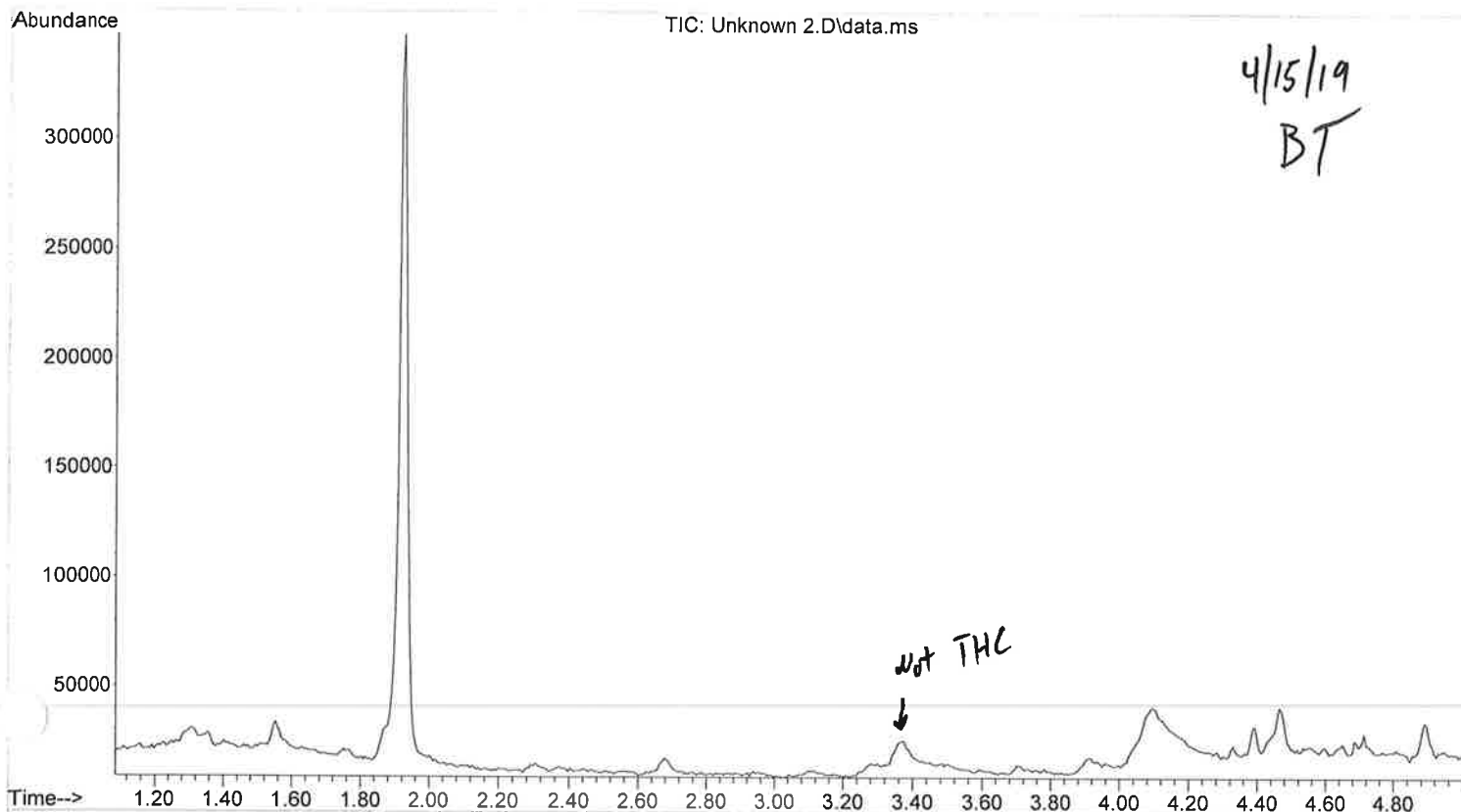
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 14:01:31 2019

Sample 1 = 102.62 mg

$$\frac{158.60 \text{ ug/mL}}{\left(\frac{102.62 \text{ mg}}{2 \text{ mL}} \right) \times \frac{1000 \text{ ug}}{1 \text{ mg}}} \times 100 = 0.309\% \text{ THC}$$

File : C:\msdchem\1\DATA\2019\BTT\4-15-19\Unknown 2.D
Operator : BTT
Acquired : 15 Apr 2019 10:56 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Plant material
Meth Info : Methanol
Vial Number: 41



Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : Unknown 2.D
Acq On : 15 Apr 2019 10:56
Operator : BTT
Sample : Plant material
LISC : Methanol
ALS Vial : 41 Sample Multiplier: 1

4/15/19
BT

Quant Time: Apr 15 14:02:40 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 14:01:02 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

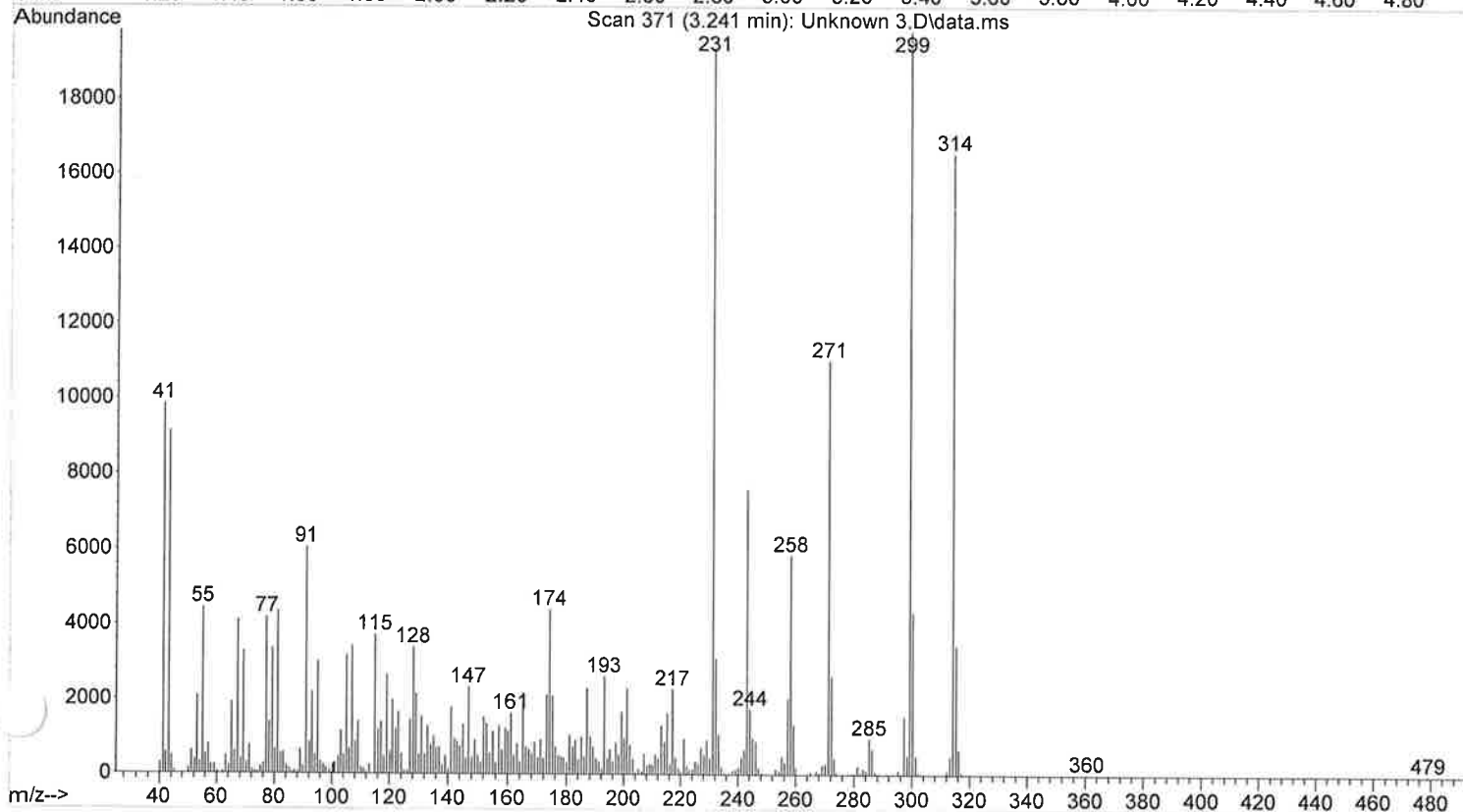
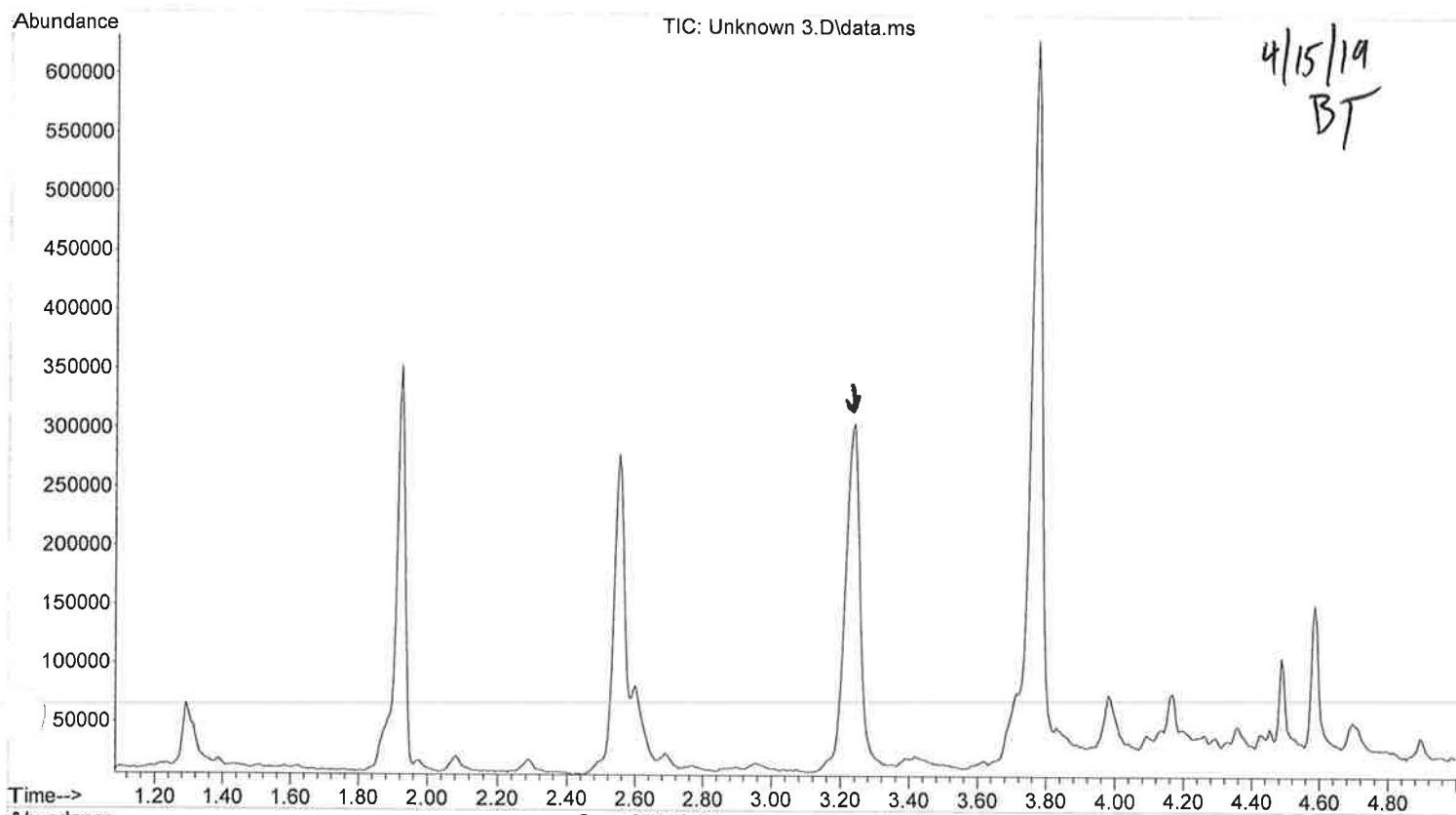
Internal Standards						
1) Tribenzylamine	1.926	TIC	6107178	153.40	ug/mL	-0.07
Target Compounds						
2) THC	3.372	TIC	677169	41.79	ug/mL	Qvalue 100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 14:02:41 2019

Not THC by GC/MS data.
BT

File : C:\msdchem\1\DATA\2019\BTT\4-15-19\Unknown 3.D
Operator : BTT
Acquired : 15 Apr 2019 11:12 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Plant material
Methanol
Vial Number: 43



Data Path : C:\msdchem\1\DATA\2019\BTT\4-15-19\
Data File : Unknown 3.D
Acq On : 15 Apr 2019 11:12
Operator : BTT
Sample : Plant material
Lisc : Methanol
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Apr 15 14:03:29 2019
Quant Method : C:\msdchem\1\METHODS\THC Quant.M
Quant Title : BT THC Quant
QLast Update : Mon Apr 15 14:01:02 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Tribenzylamine	1.927	TIC	6306681	153.40	ug/mL	-0.07
Target Compounds						Qvalue
2) THC	3.241	TIC	8873525	243.55	ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC Quant.M Mon Apr 15 14:03:29 2019

Sample 3 = 99.38 mg

$$\frac{243.55 \text{ ug/mL}}{\left(\frac{99.38 \text{ mg}}{2 \text{ mL}} \right) \times \frac{1000 \text{ ug}}{1 \text{ mg}}} \times 100 = 0.490 \% \text{ THC}$$

Date: 9/6/19
 Trainer: Brett Trotter
 Trainee: Scott Jenkins



Initial Competency Test for THC Quantitation

Standards and Reagents used:

Manufacturer and Lot Number or ID information	
Methanol	183 859
Internal standard	BCB M57 460
Calibration THC	Fe0822 7804
Control THC	1351371 046

Quantitation Results:

Sample ID and Concentration		Pass/Fail
Unknown 1	delta-9-Tetrahydrocannabinol Greater Than 1%	
Unknown 2	THC 0.36% ± 0.12	
Unknown 3	No THC present	

*All technical records must be attached to this form

Scott Jenkins has successfully completed the competency test for THC quantitation.

	Signature	Date
Trainee	<u>[Signature]</u>	<u>9/6/19</u>
Trainer	<u>Brett Trotter</u>	<u>9/6/19</u>
Supervisor	<u>John B. Everett</u>	<u>9-19-19</u>
Technical Leader	<u>John B. Everett</u>	<u>9-19-19</u>

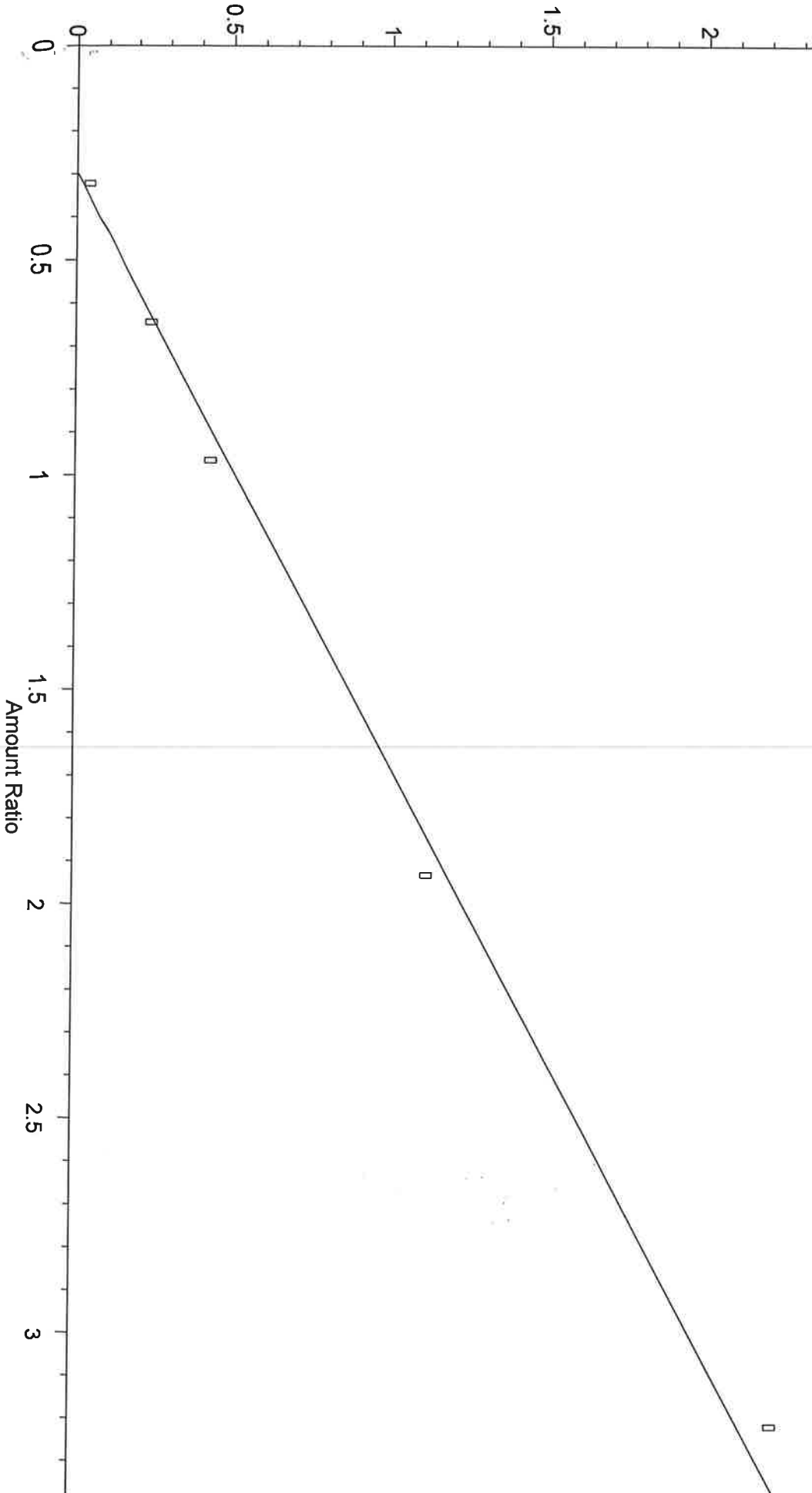
Calibration data of THC

LVLID	Amount (ratio)	Response (ratio)	bias (%)	Data File
50	0.3218	0.040552	124.33	D:\MassHunter\GCMS\1\sequence\SJ\THC50.D
100	0.6435	0.240147	-3.85	D:\MassHunter\GCMS\1\sequence\SJ\THC100.D
150	0.9653	0.429765	-10.74	D:\MassHunter\GCMS\1\sequence\SJ\THC150.D
300	1.9305	1.111732	-5.51	D:\MassHunter\GCMS\1\sequence\SJ\THC 300.D
500	3.2175	2.206897	4.93	D:\MassHunter\GCMS\1\sequence\SJ\THC500.D

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5)
9/6/19

THC

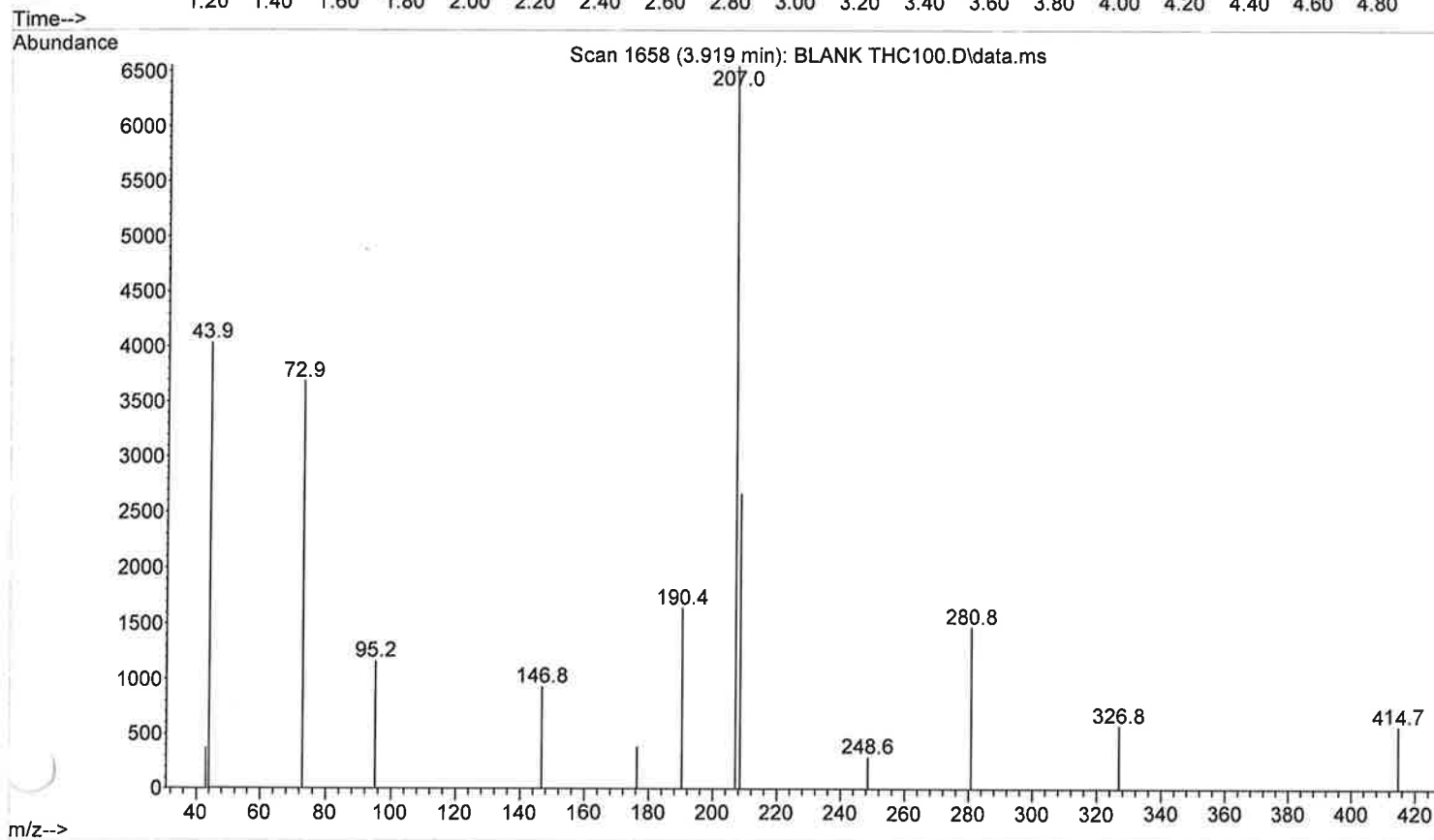
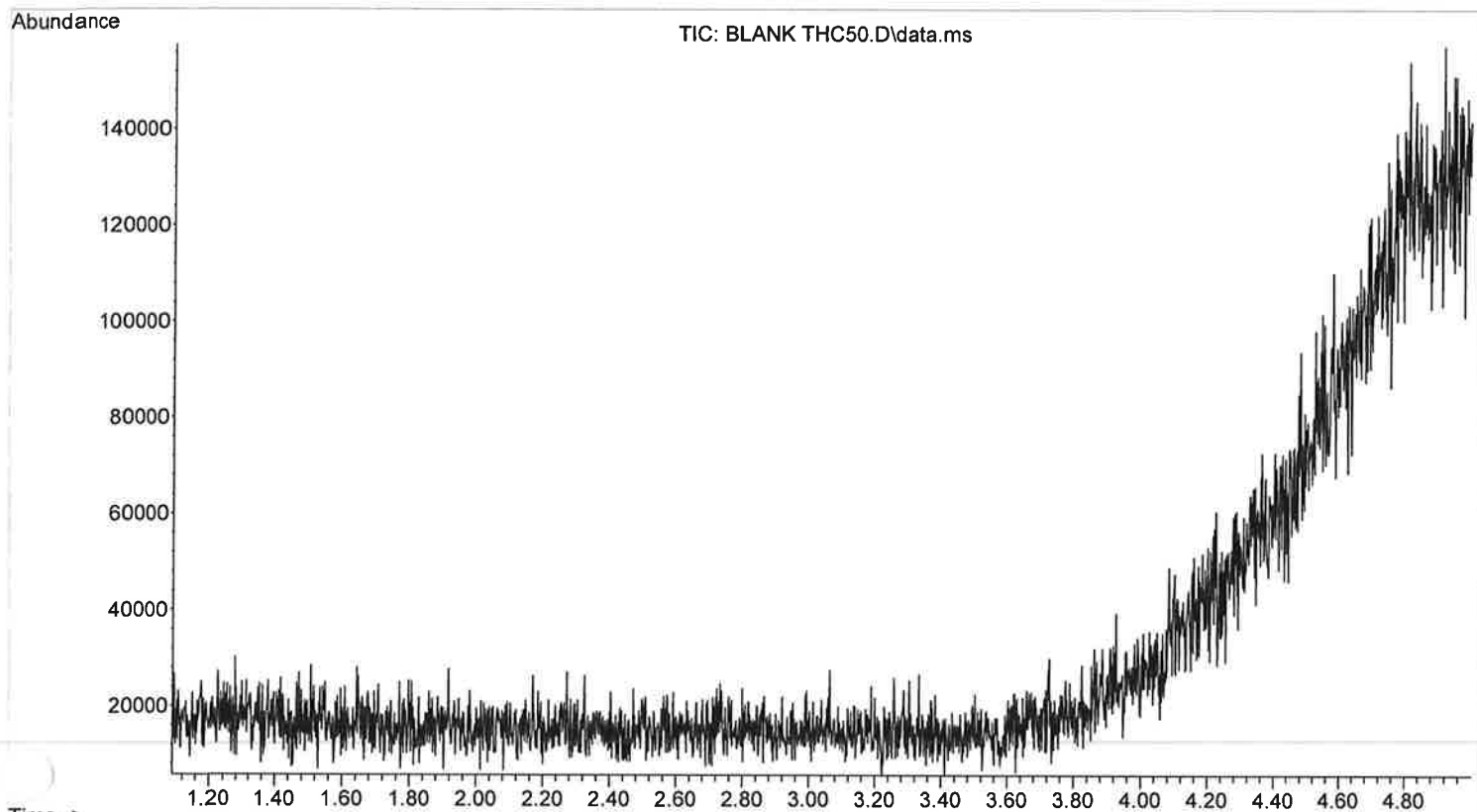
Response Ratio



Resp Ra = 7.201e-001 * Amt - 2.136e-001
Coef of Det (r^2) = 0.994102 Curve Fit: wlr(1/a)

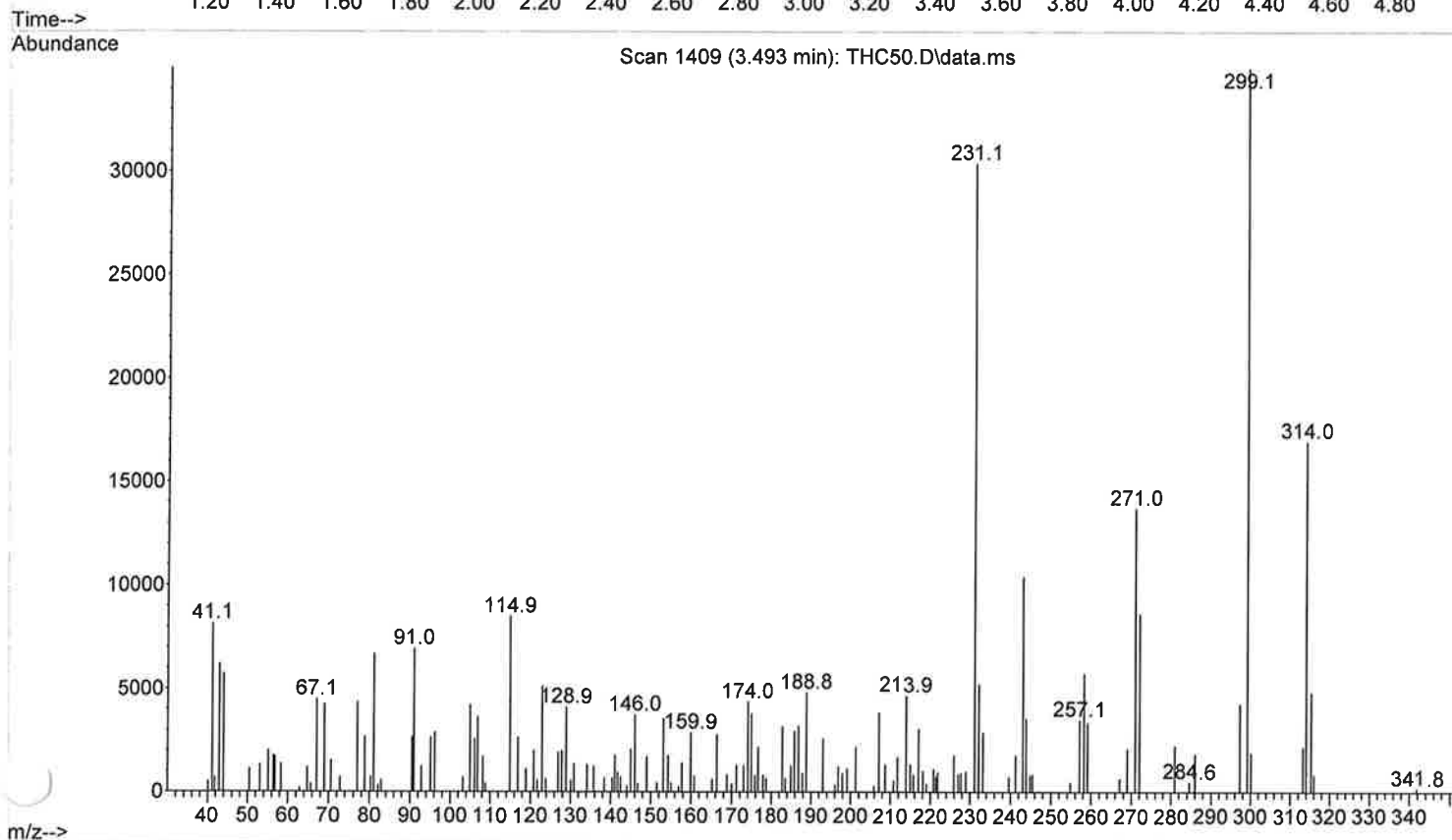
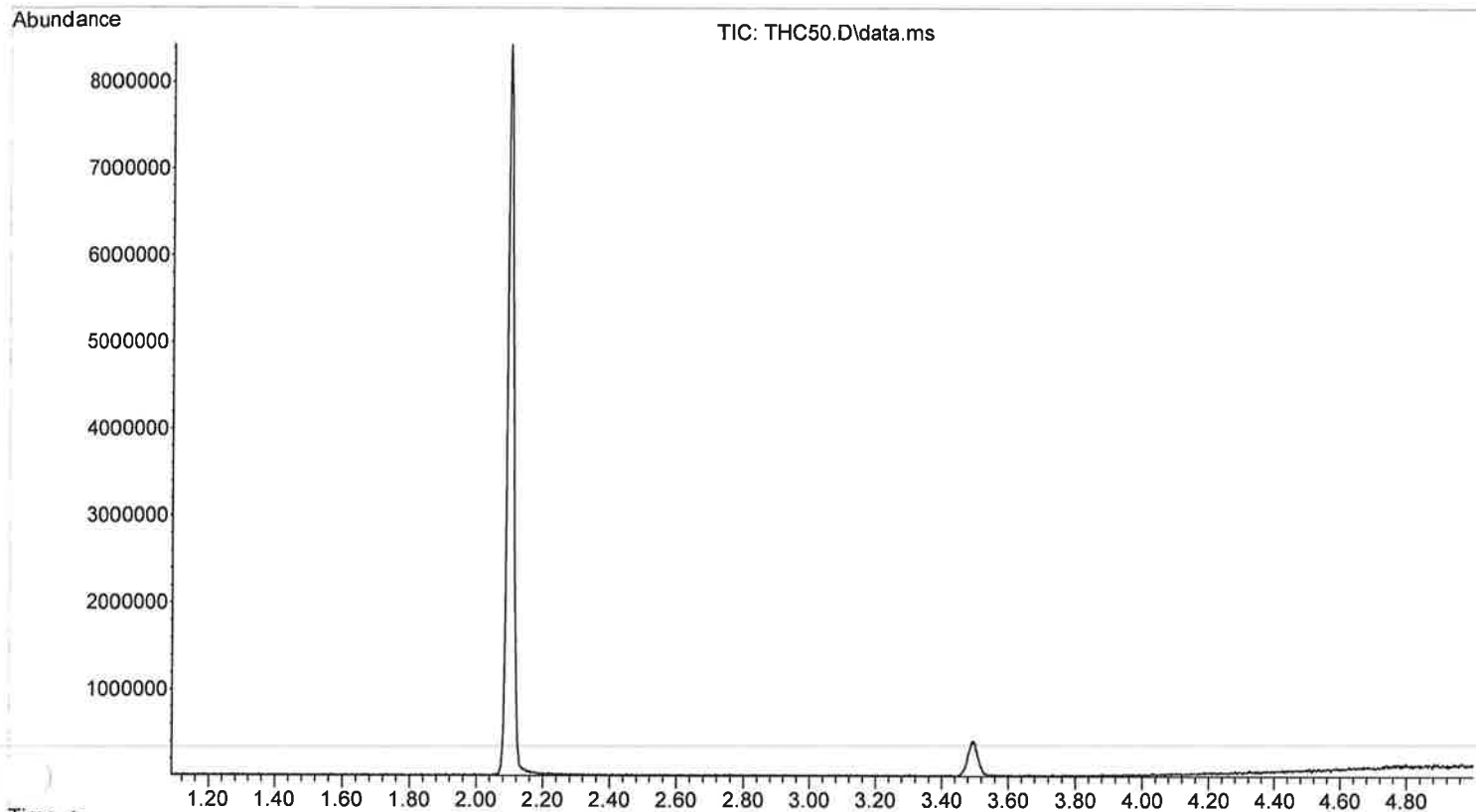
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC50.D
Operator : SJ
Acquired : 05 Sep 2019 13:01 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC50
Misc Info :
Vial Number: 52

3
SJ 9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC50.D
Operator : SJ
Acquired : 05 Sep 2019 13:09 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC50
Misc Info :
Vial Number: 53

4
53
9/6/19



5
SJ
9/6/19

Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : THC50.D
Acq On : 05 Sep 2019 13:09
Operator : SJ
Sample : THC50
ALS Vial : 53 Sample Multiplier: 1

Quant Time: Sep 06 08:44:44 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

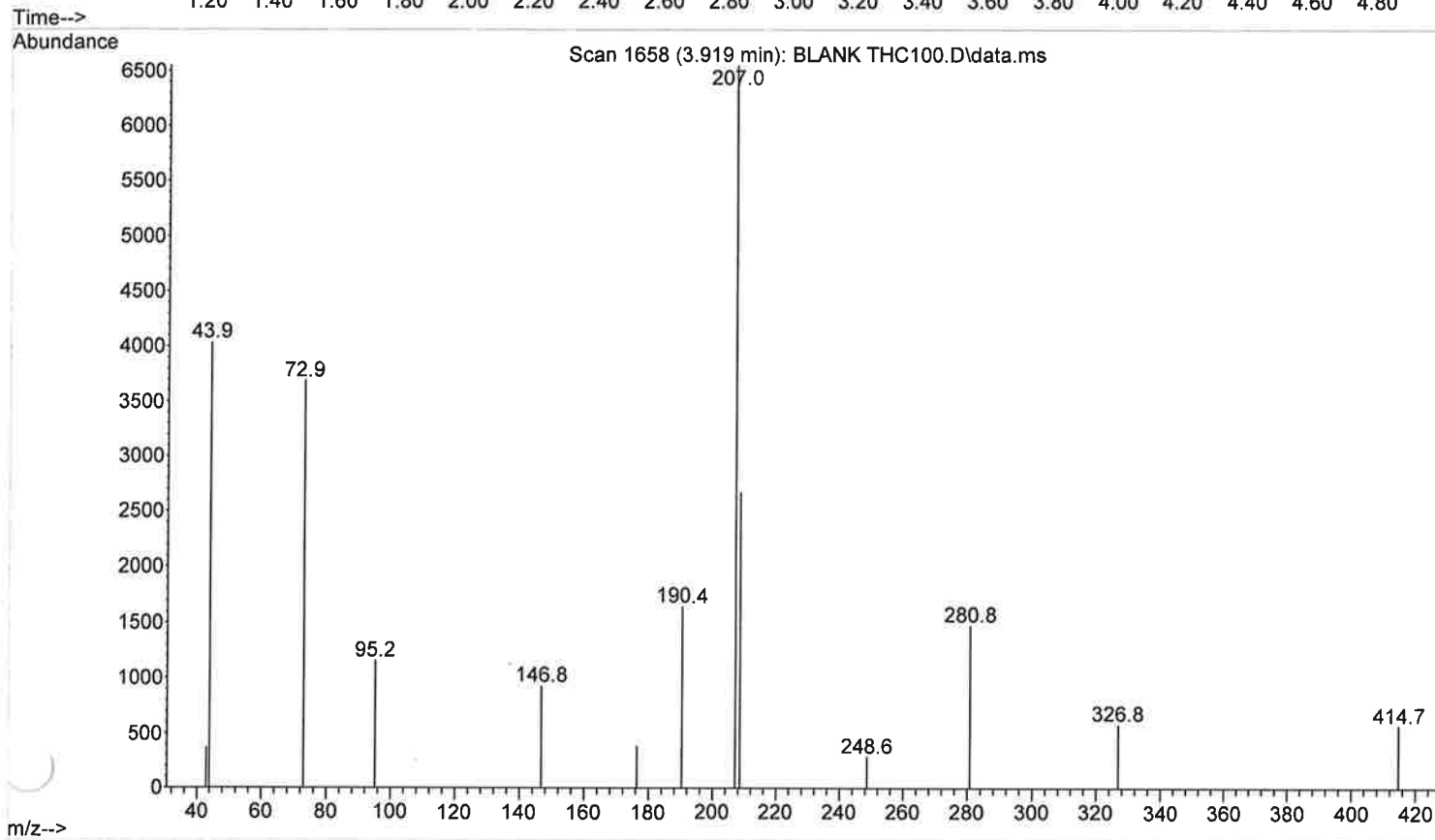
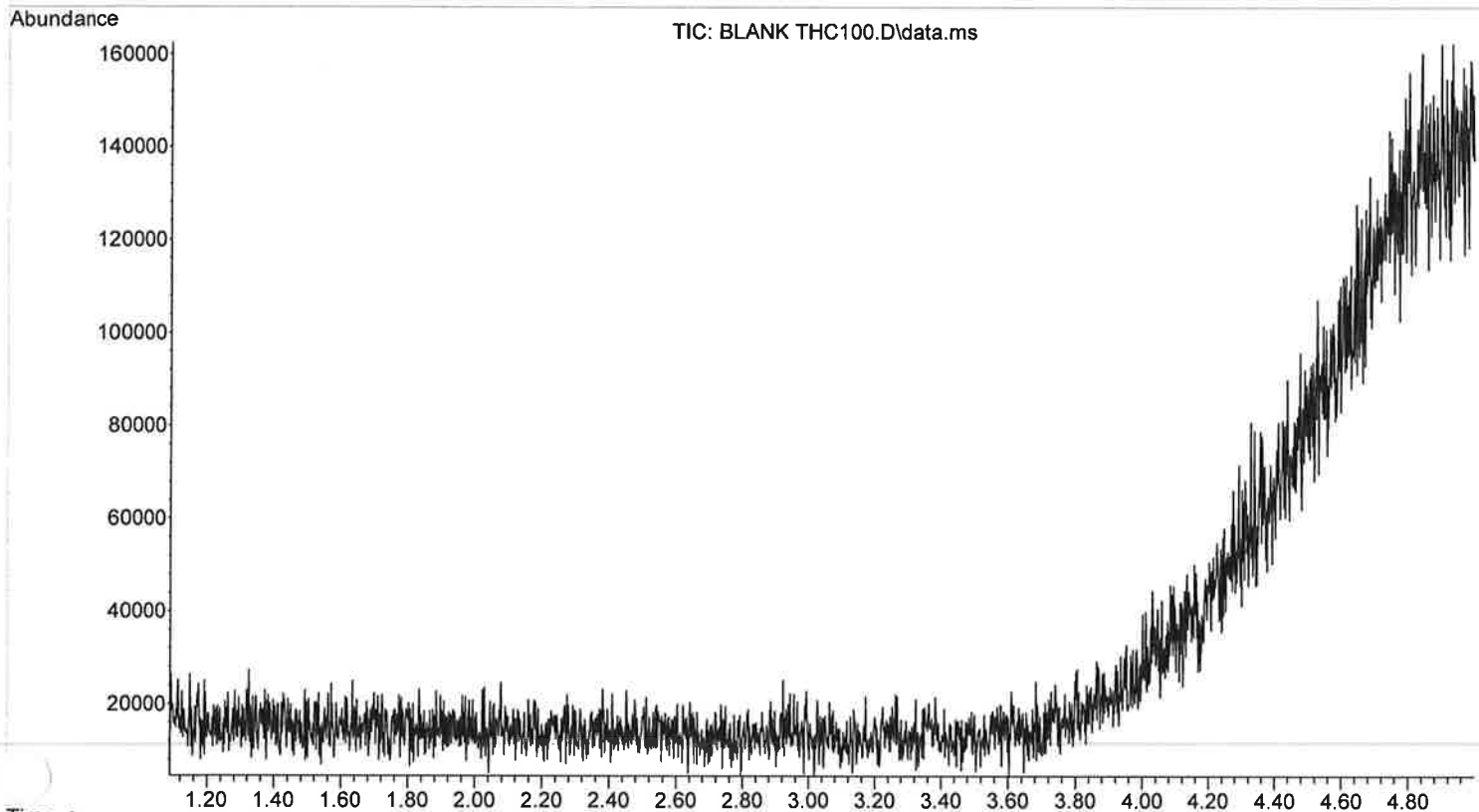
Internal Standards						
1) TRIBENZYLAMINE	2.102	TIC	10876504	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.492	TIC	441064	54.85	UG/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:44:44 2019

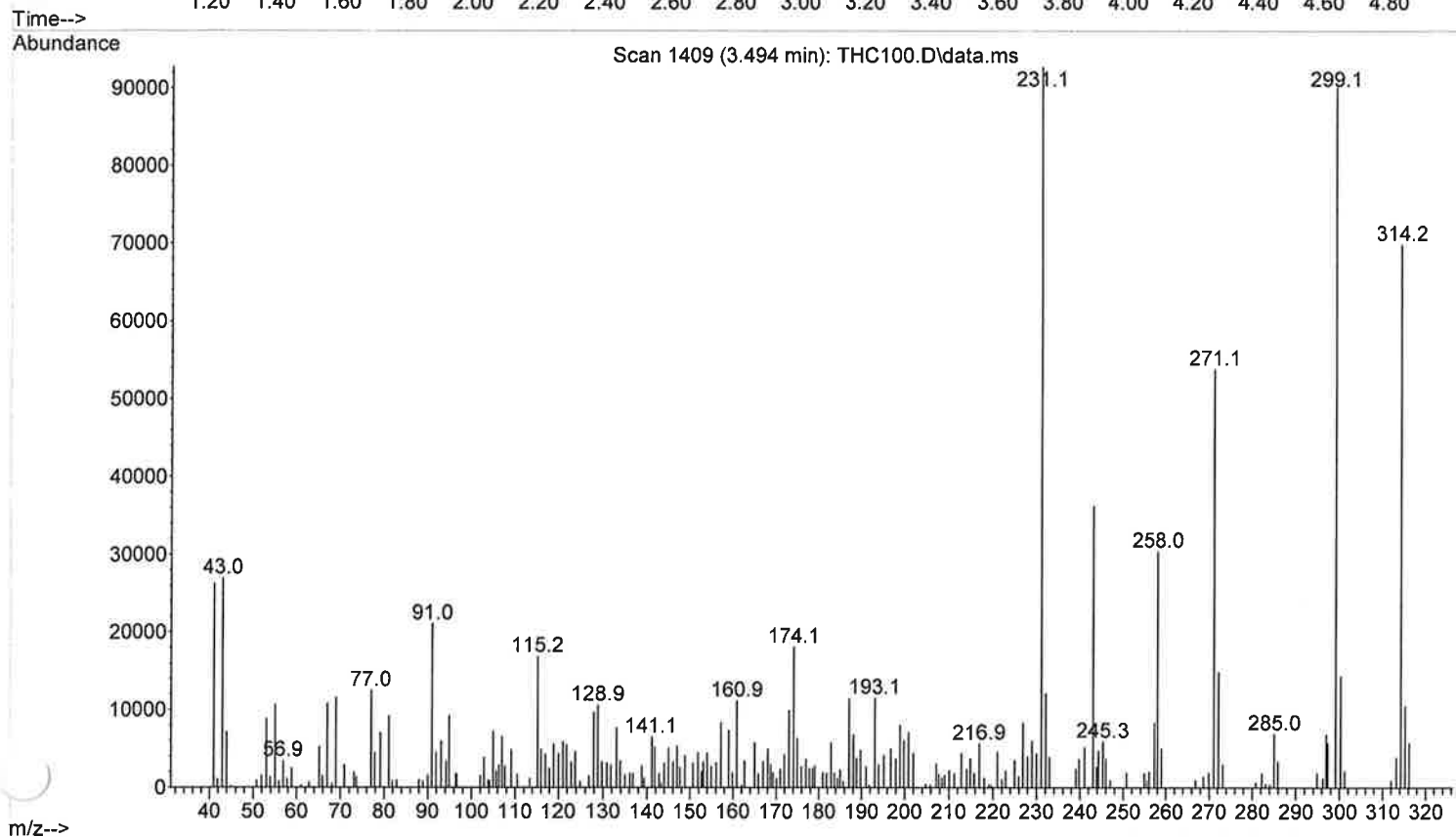
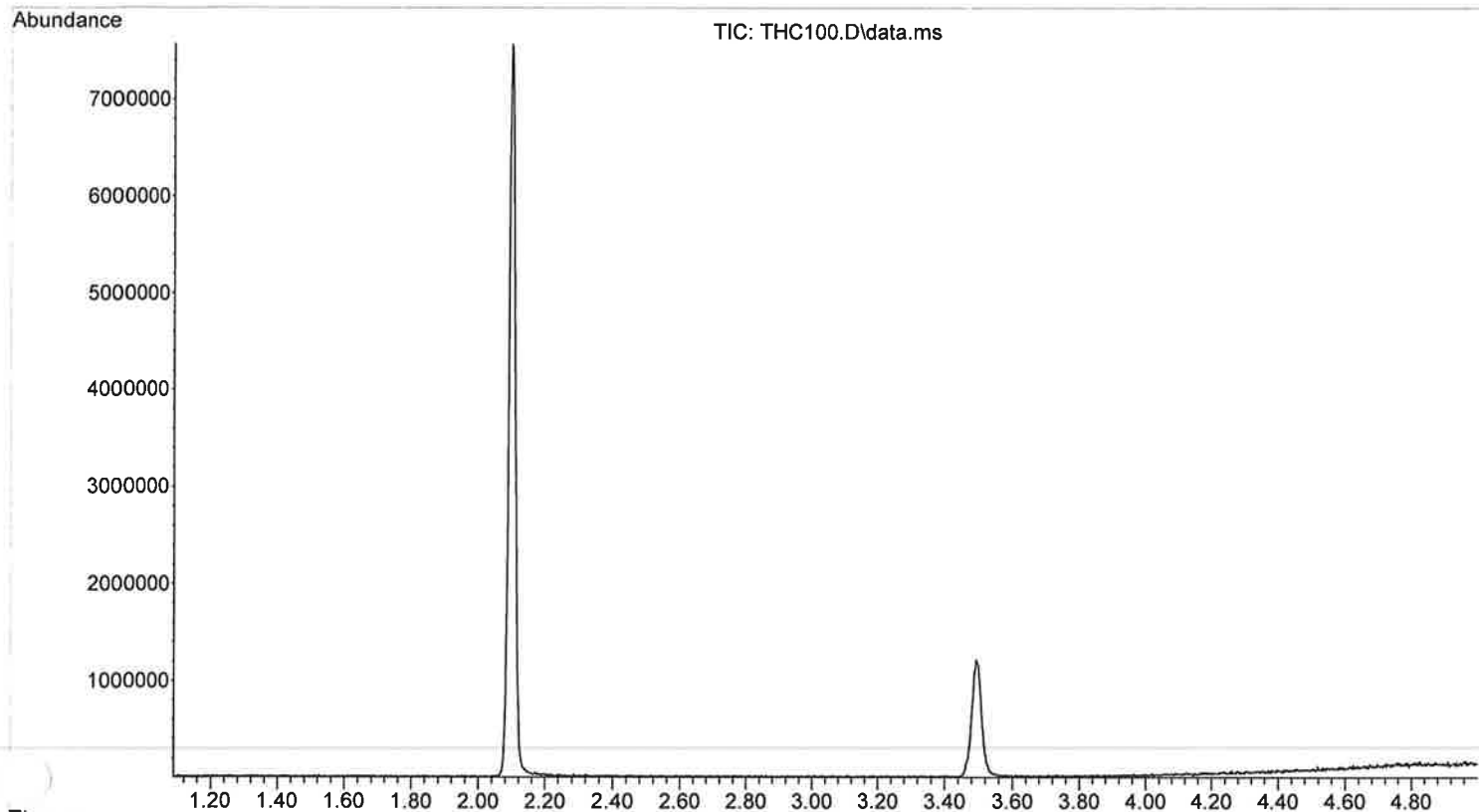
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC100.D
Operator : SJ
Acquired : 05 Sep 2019 13:25 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC100
Misc Info :
Vial Number: 52

6
52
9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC100.D
Operator : SJ
Acquired : 05 Sep 2019 13:33 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC100
Misc Info :
Vial Number: 54

7
5)
9/6/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : 'THC100.D'
Acq On : 05 Sep 2019 13:33
Operator : SJ
Sample : THC100
ALS Vial : 54 Sample Multiplier: 1

Quant Time: Sep 06 08:46:06 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) TRIBENZYLAMINE	2.098	TIC	10144879	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.494	TIC	2436264	97.92	UG/mL	100

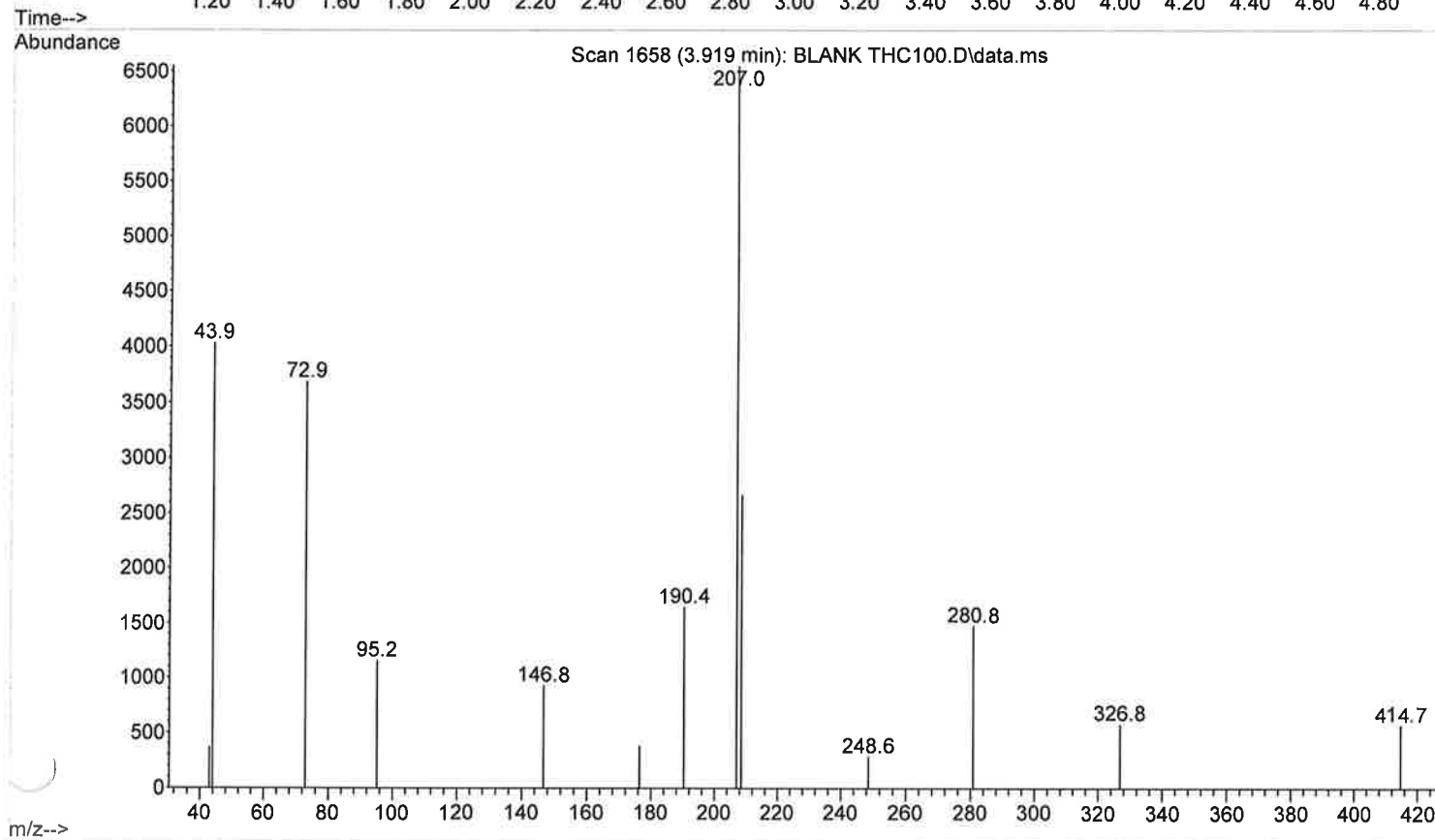
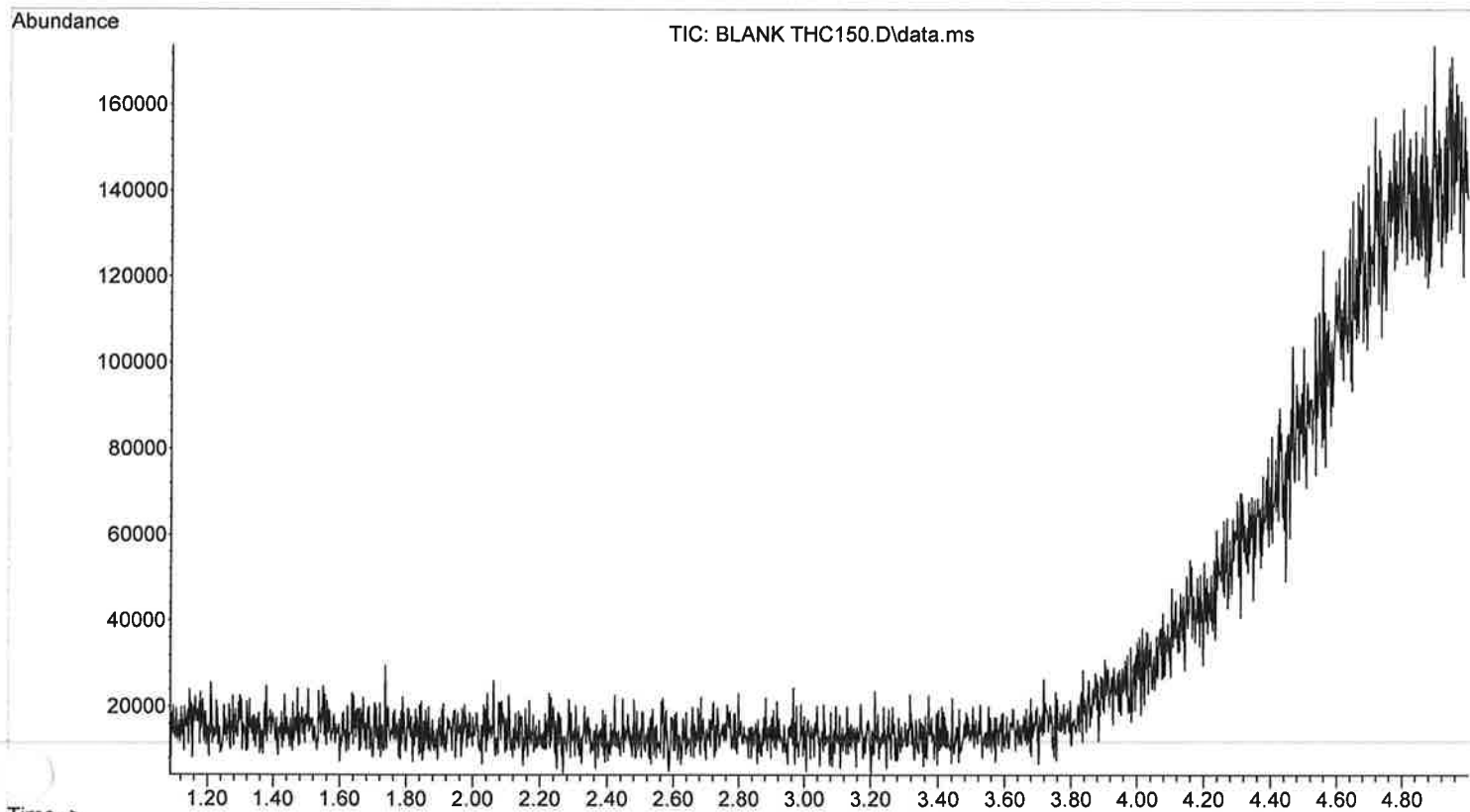
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:46:06 2019

8
SJ
9/6/19

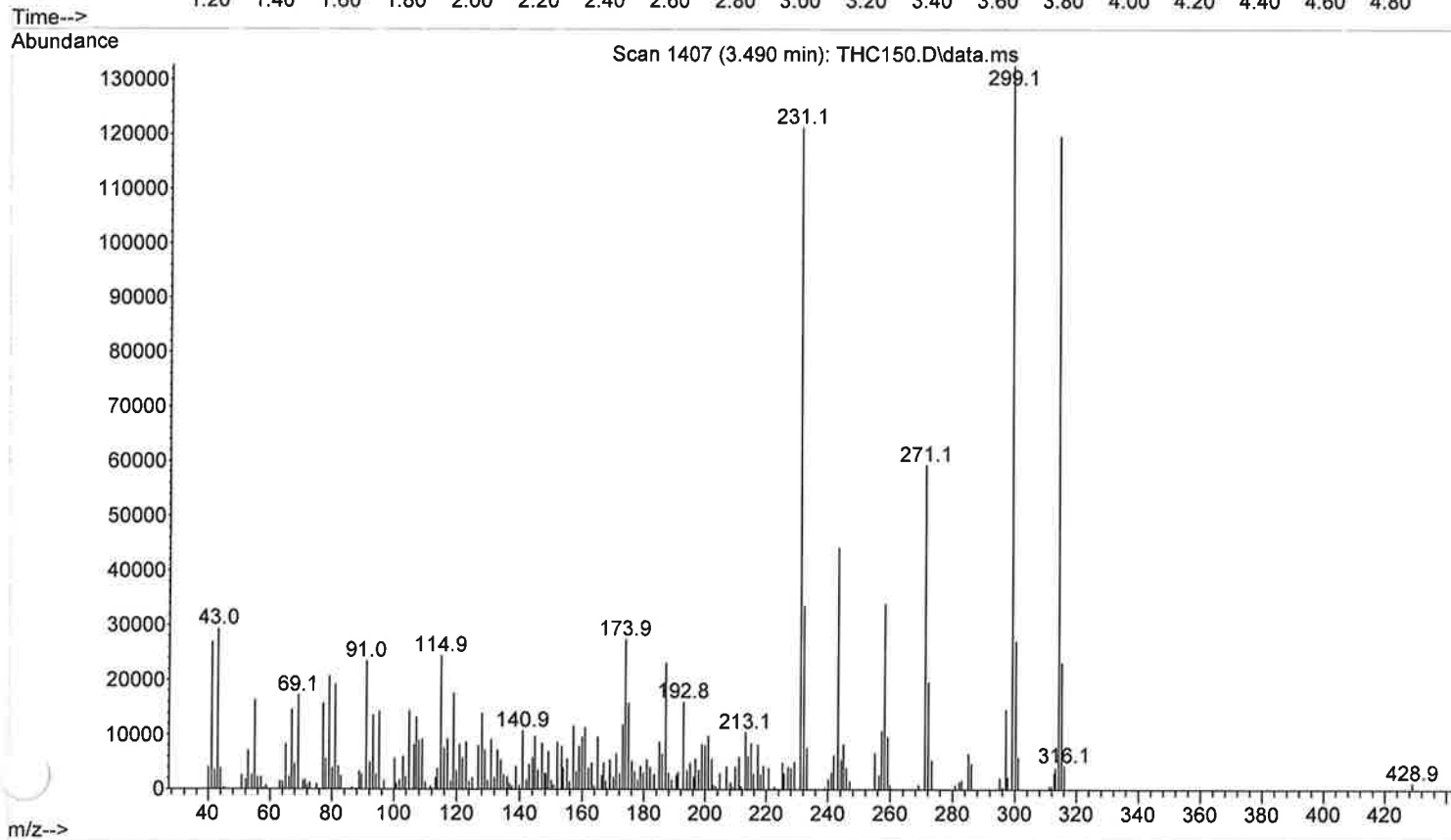
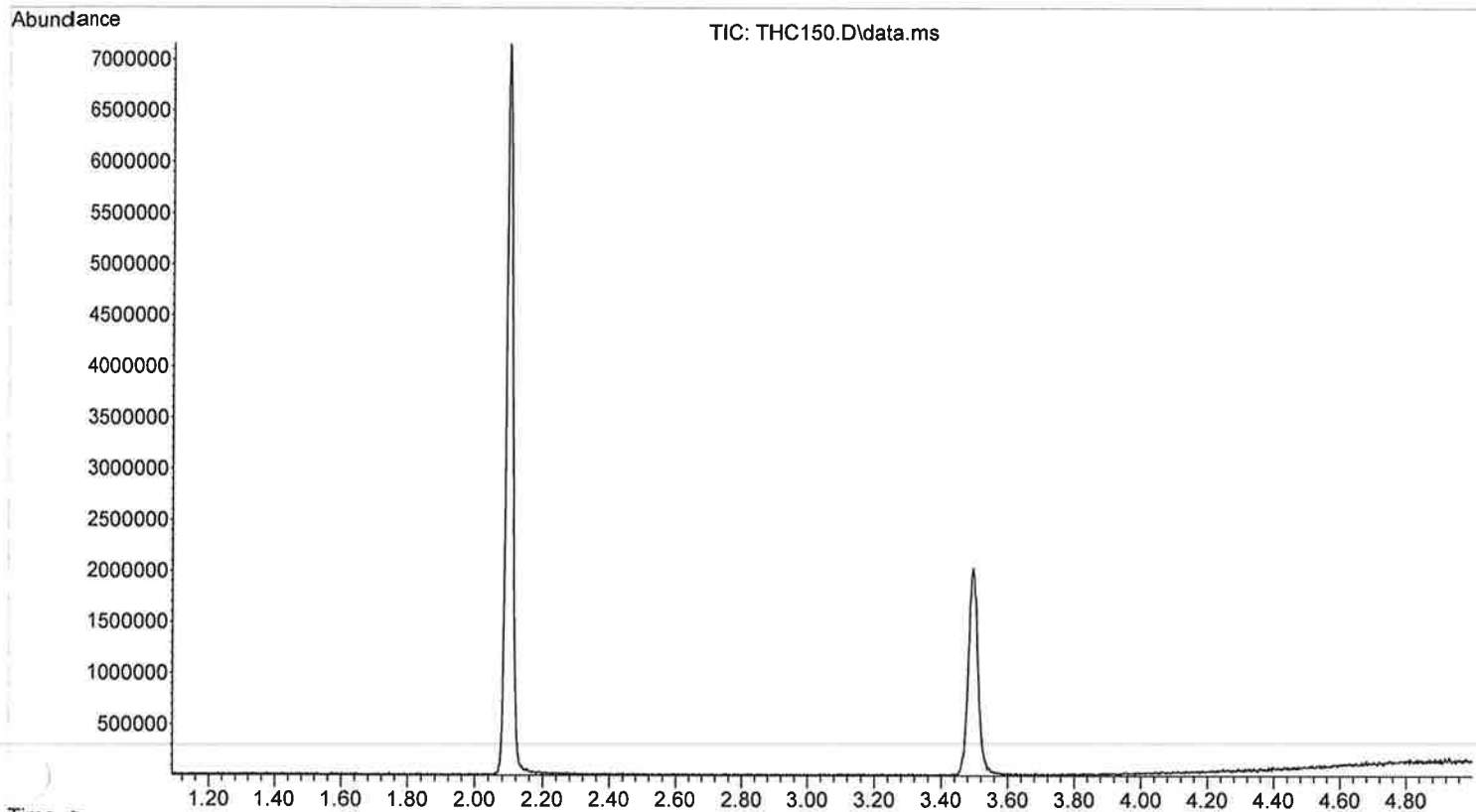
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC150.D
Operator : SJ
Acquired : 05 Sep 2019 13:49 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC150
Misc Info :
Vial Number: 52

9
5)
9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC150.D
Operator : SJ
Acquired : 05 Sep 2019 13:58 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC150
Misc Info :
Vial Number: 55

LO
8)
9/6/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : THC150.D
Acq On : 05 Sep 2019 13:58
Operator : SJ
Sample : THC150
ALS Vial : 55 Sample Multiplier: 1

SJ
9/6/19

Quant Time: Sep 06 08:46:33 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

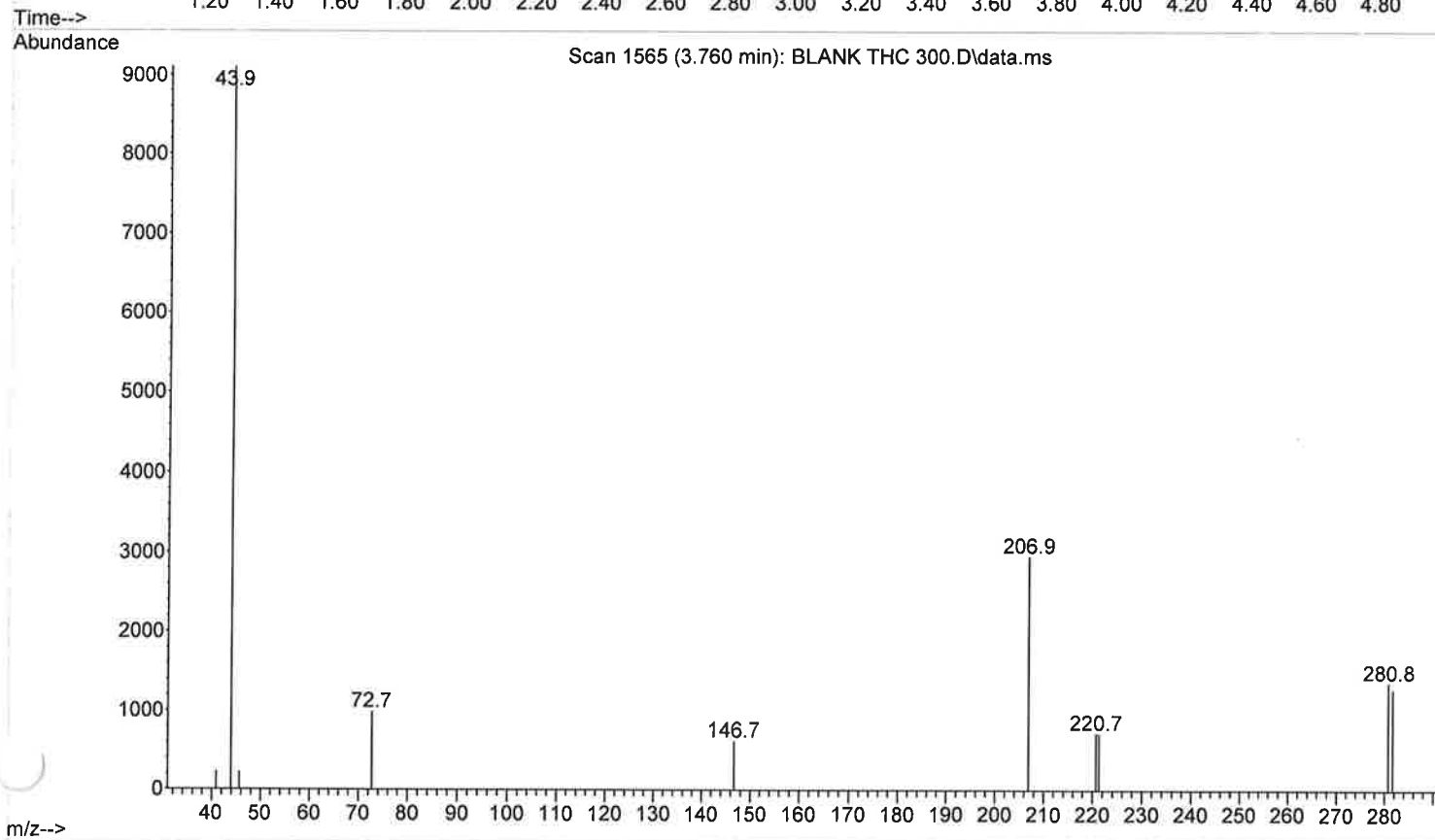
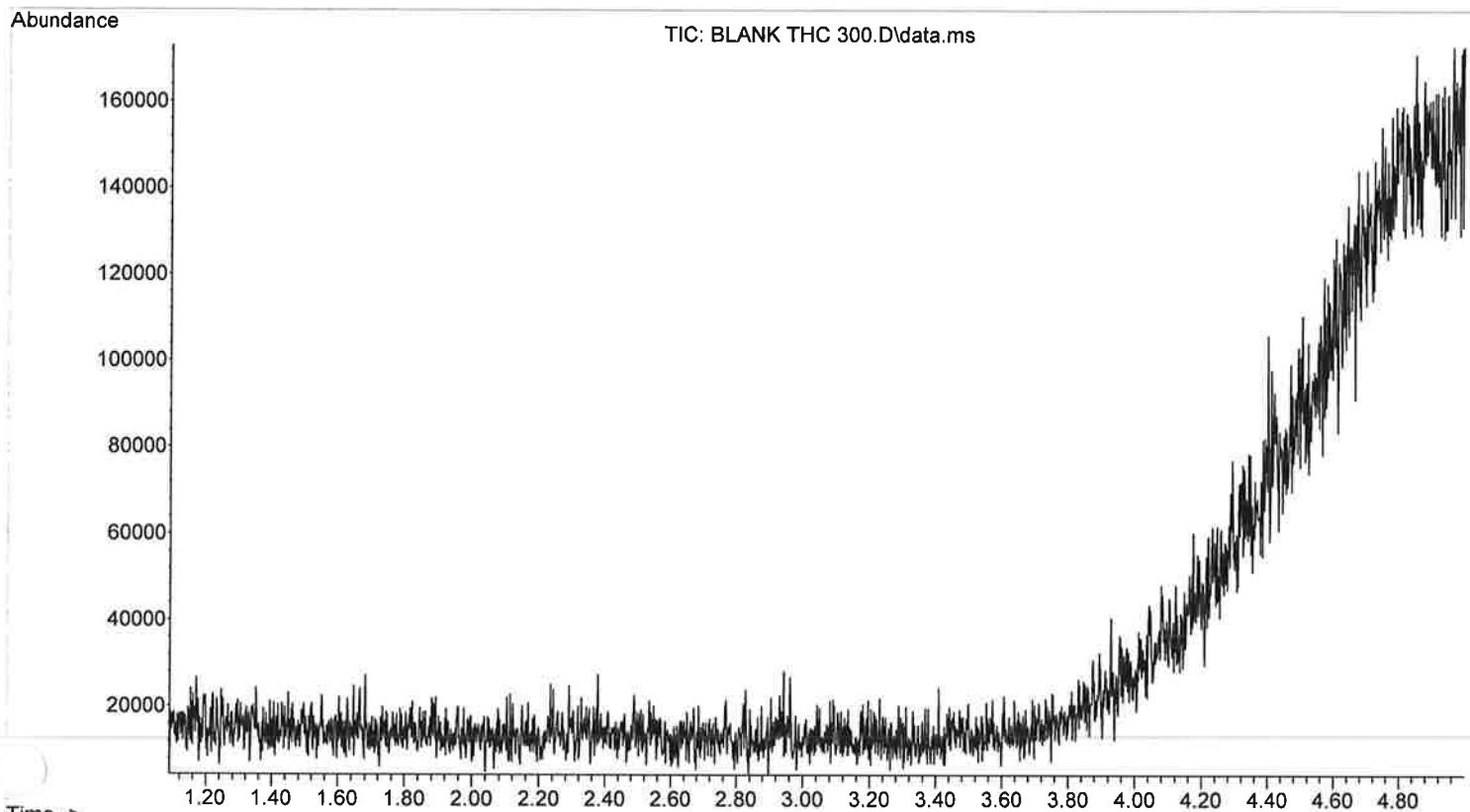
Internal Standards						
1) TRIBENZYLAMINE	2.100	TIC	9405998	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.497	TIC	4042372	138.85	UG/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:46:33 2019

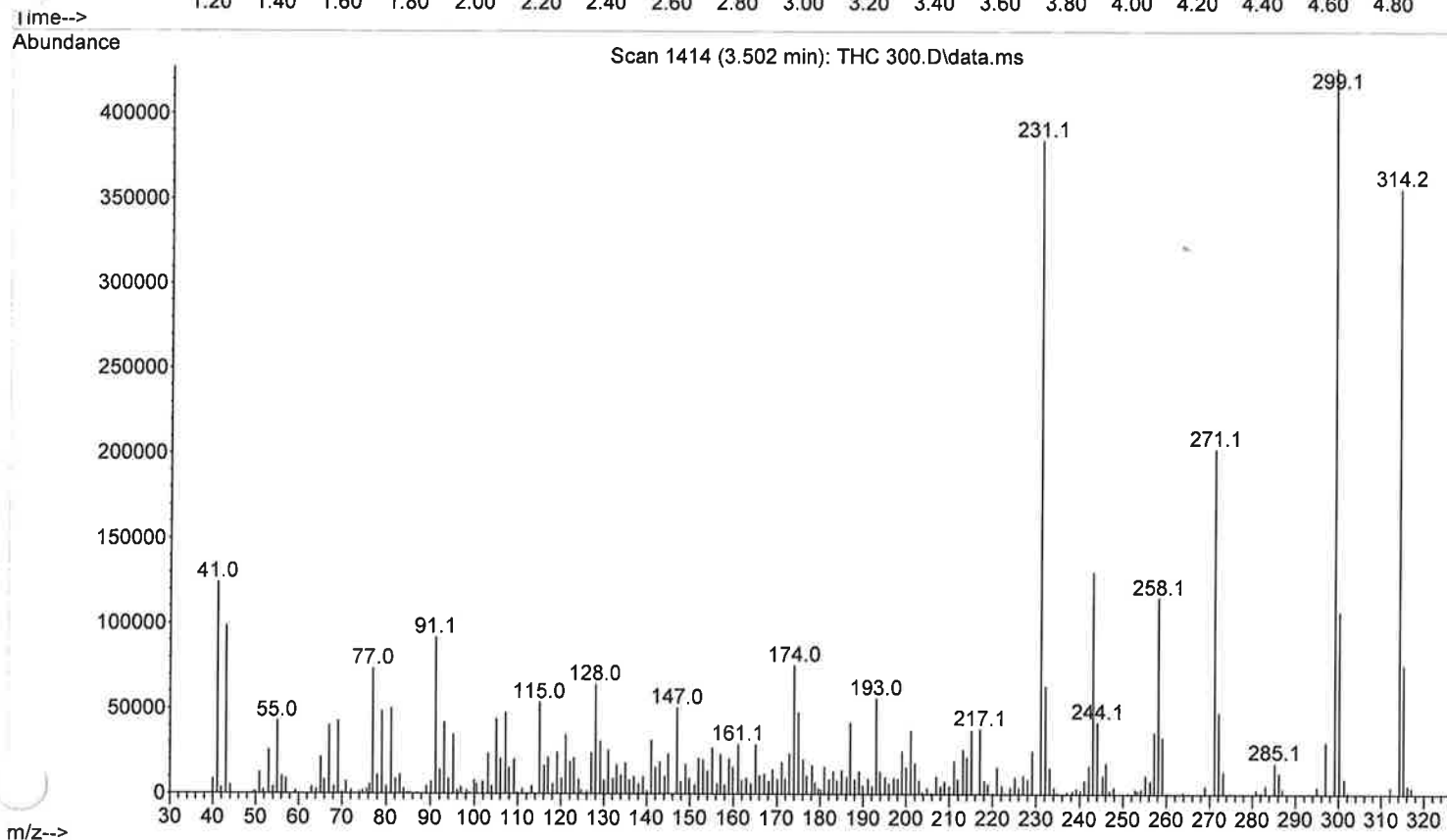
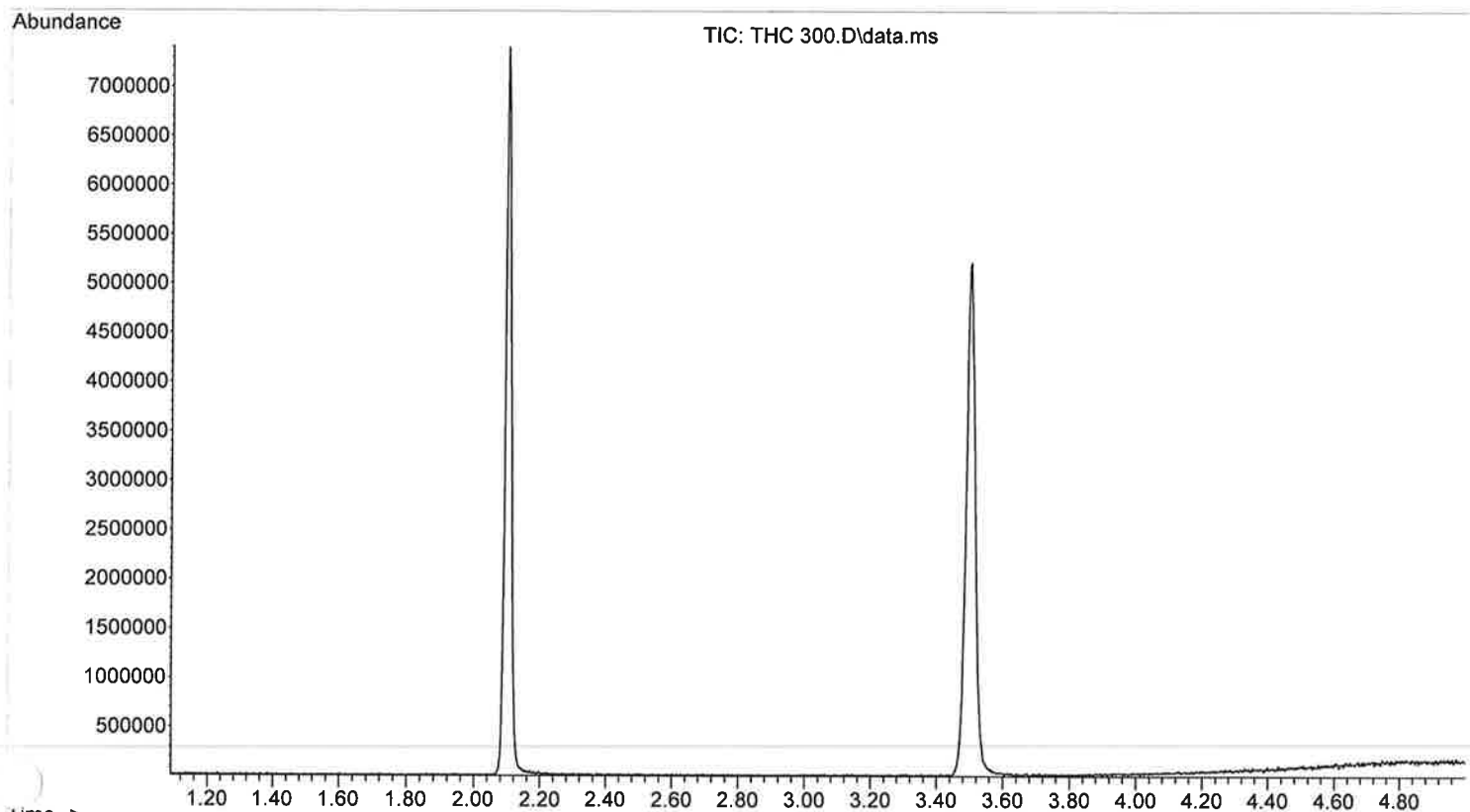
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC 300.D
Operator : SJ
Acquired : 05 Sep 2019 14:14 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC 300
Misc Info :
Vial Number: 52

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SJ
9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC 300.D
Operator : SJ
Acquired : 05-Sep-2019 14:22 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC 300
Misc Info :
Vial Number: 56

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SJ
9/6/19



(6)
SJ
9/4/19

Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : THC 300.D
Acq On : 05 Sep 2019 14:22
Operator : SJ
Sample : THC 300
ALS Vial : 56 Sample Multiplier: 1

Quant Time: Sep 06 08:46:55 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

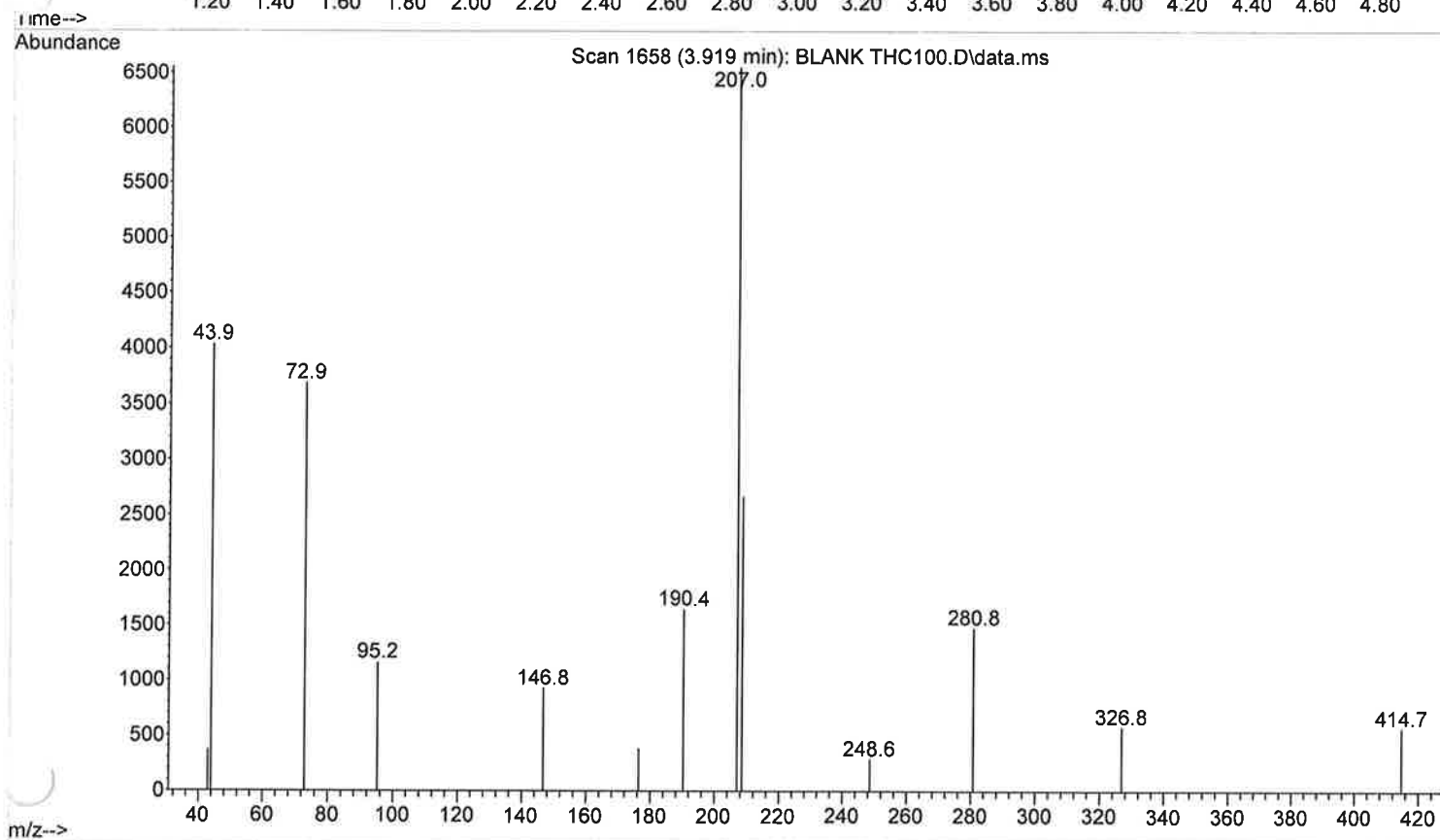
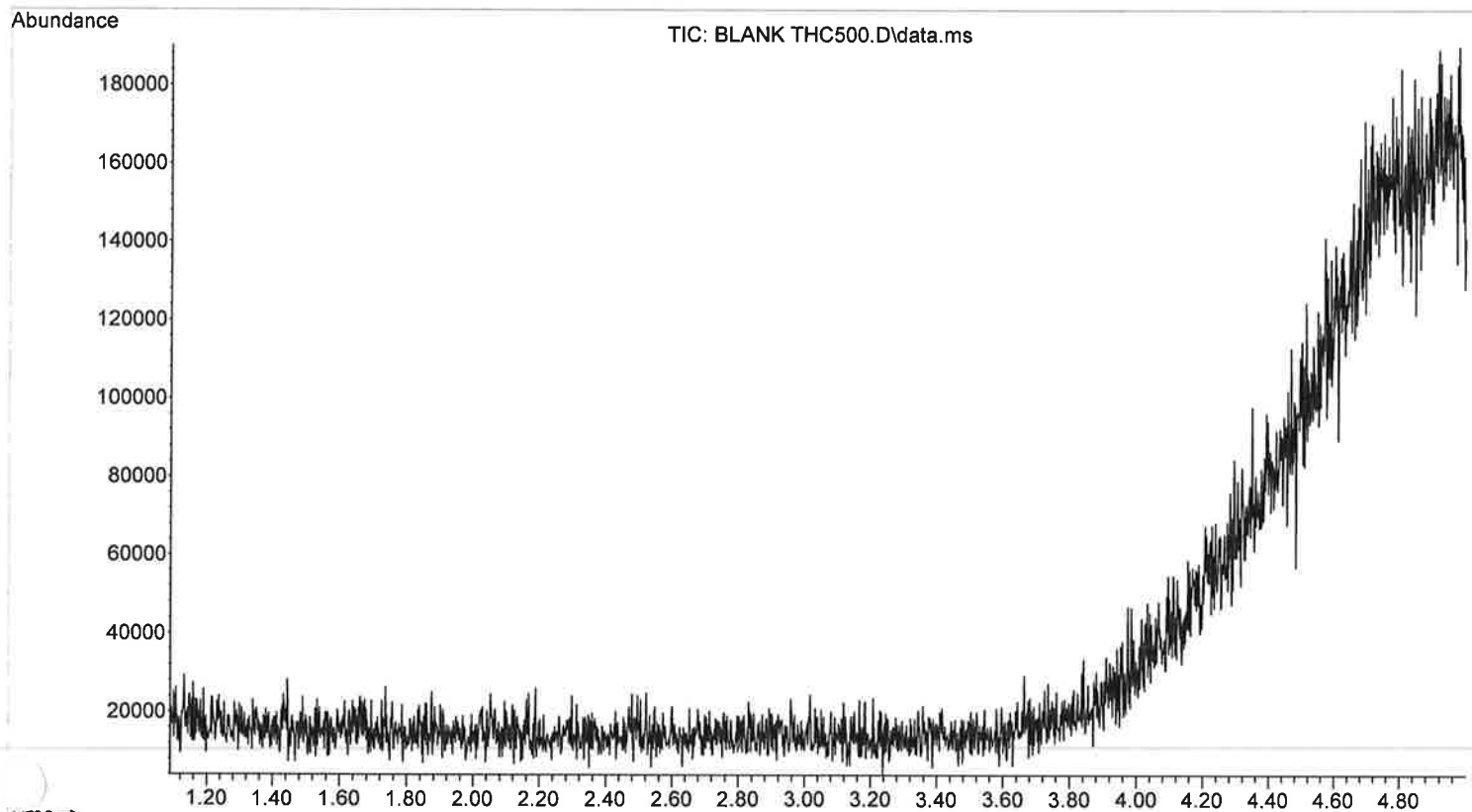
Internal Standards						
1) TRIBENZYLAMINE	2.102	TIC	9203742	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.504	TIC	10232096	286.02	UG/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:46:55 2019

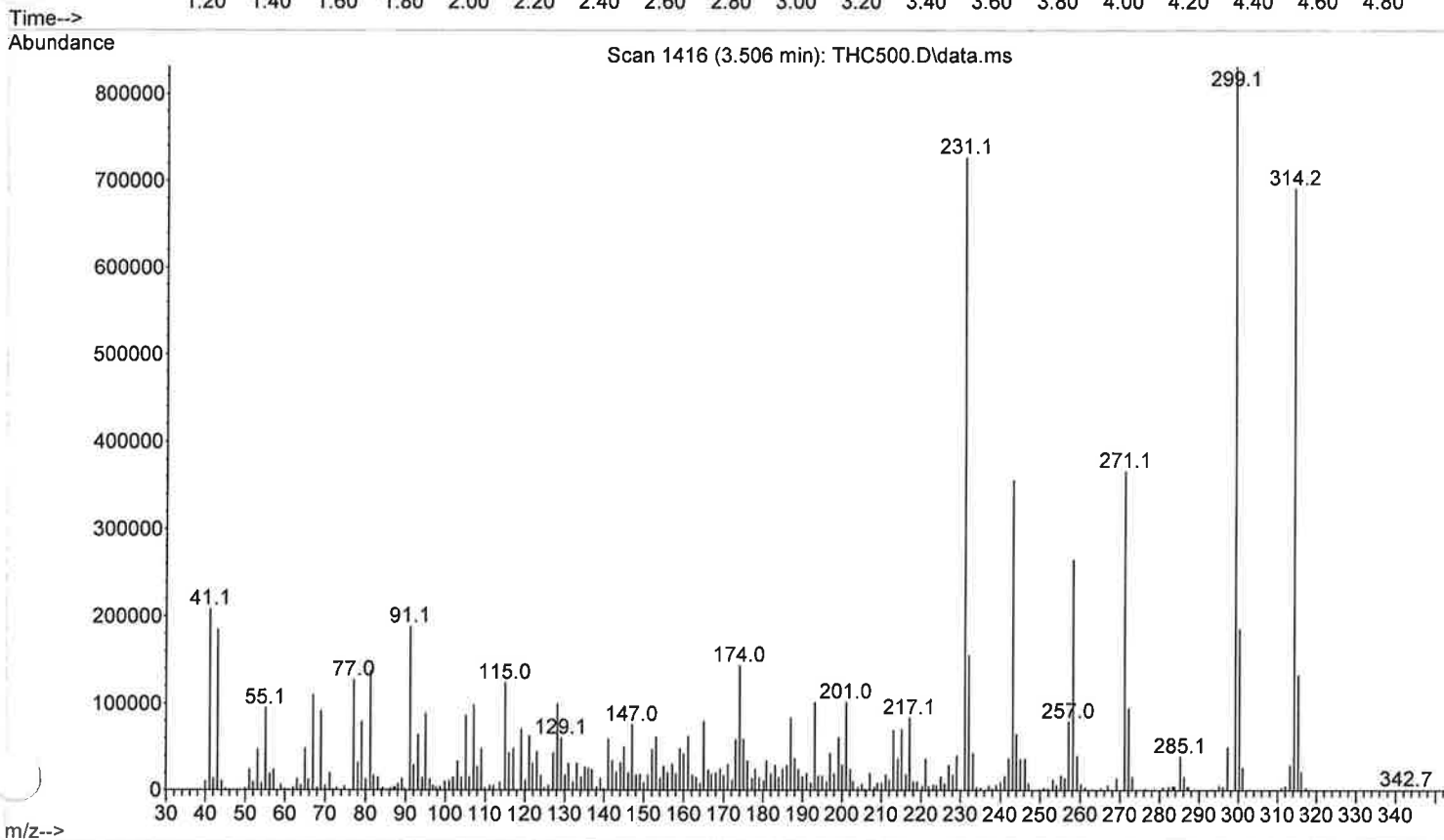
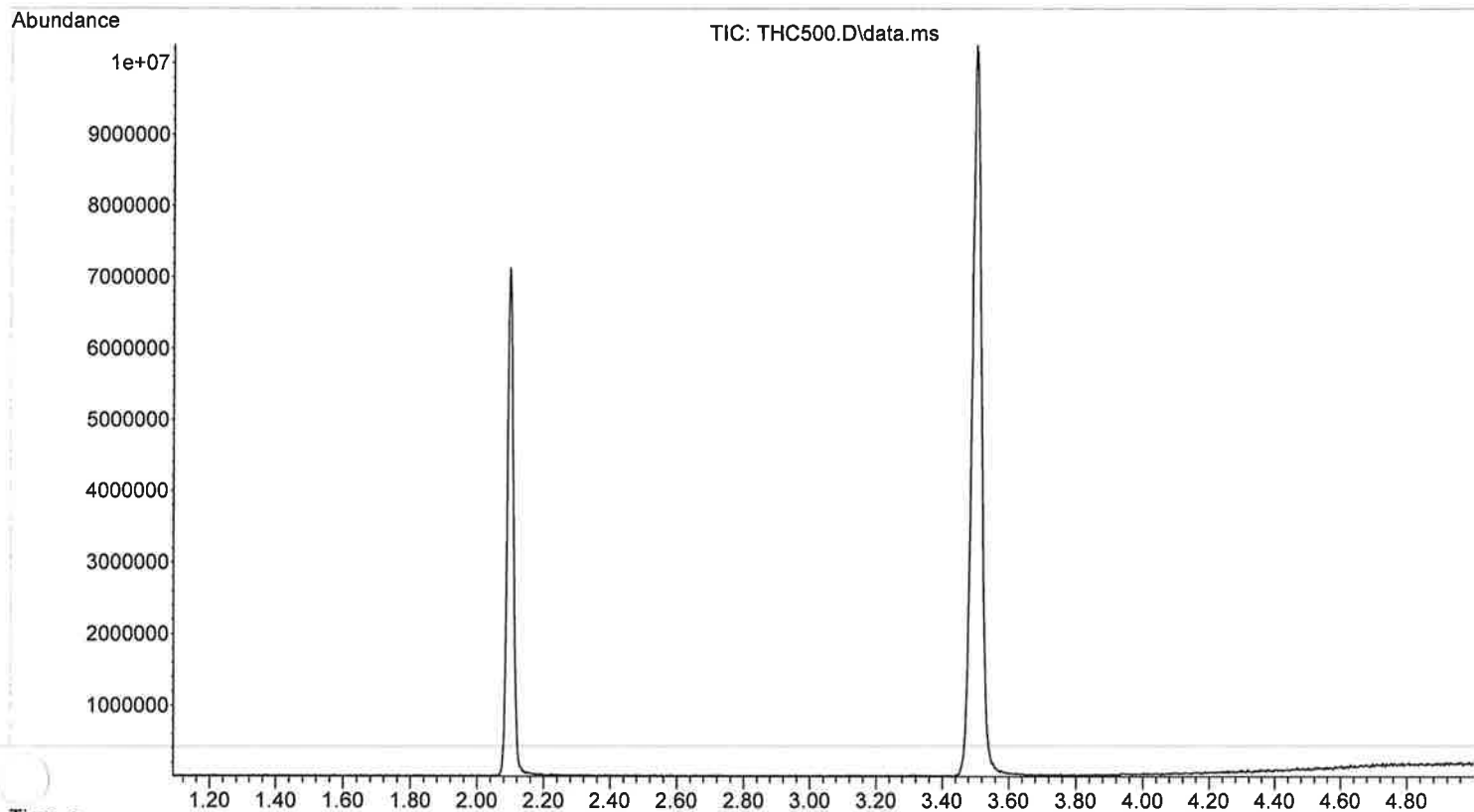
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC500.D
Operator : SJ
Acquired : 05 Sep 2019 14:38 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC500
Misc Info :
Vial Number: 52

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9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC500.D
Operator : SJ
Acquired : 05 Sep 2019 14:46 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC500
Misc Info :
Vial Number: 57

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5)
9/6/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : THC500.D
Acq On : 05 Sep 2019 14:46
Operator : SJ
Sample : THC500
ALS Vial : 57 Sample Multiplier: 1

SJ
9/6/19

Quant Time: Sep 06 08:47:21 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

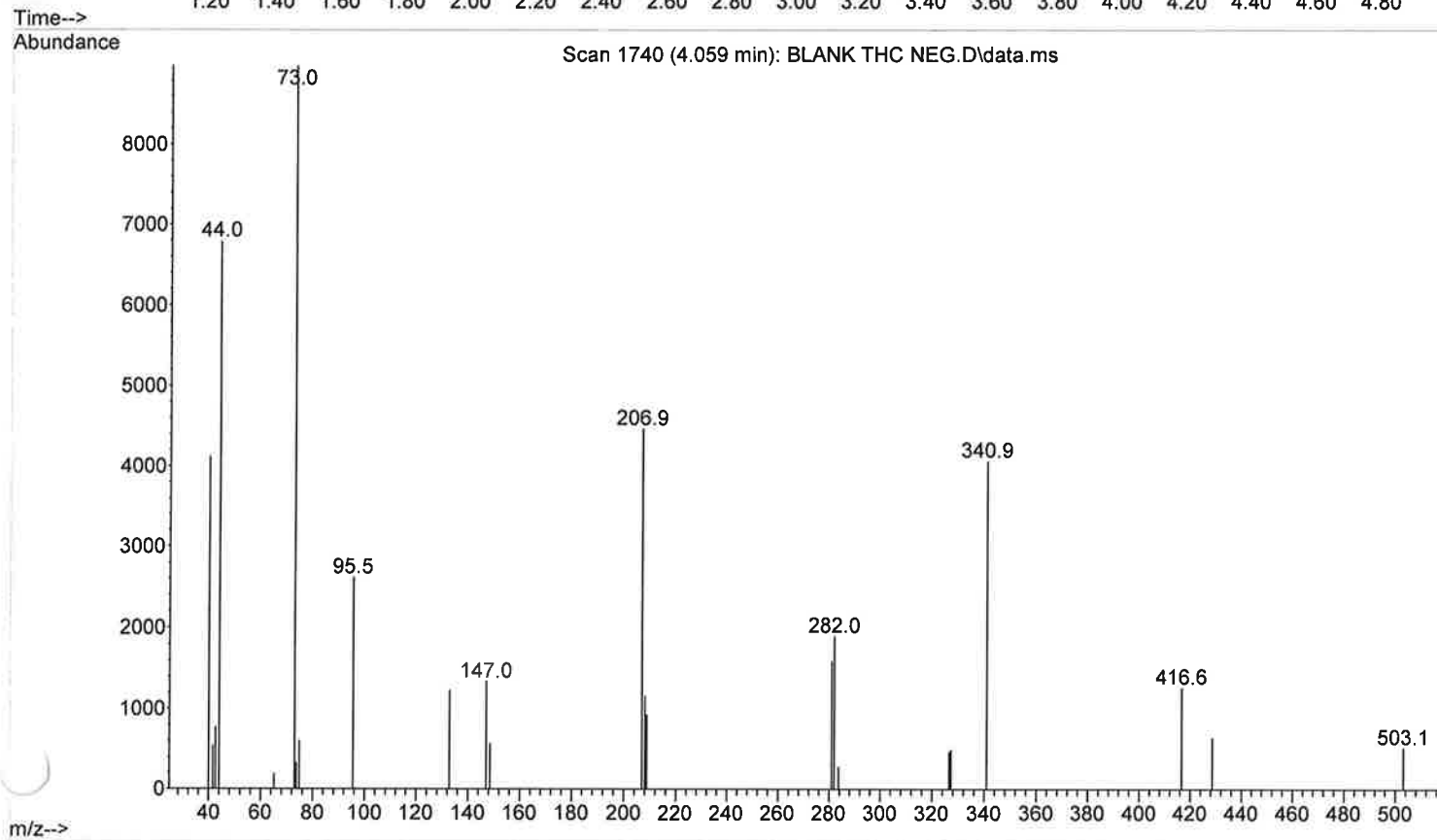
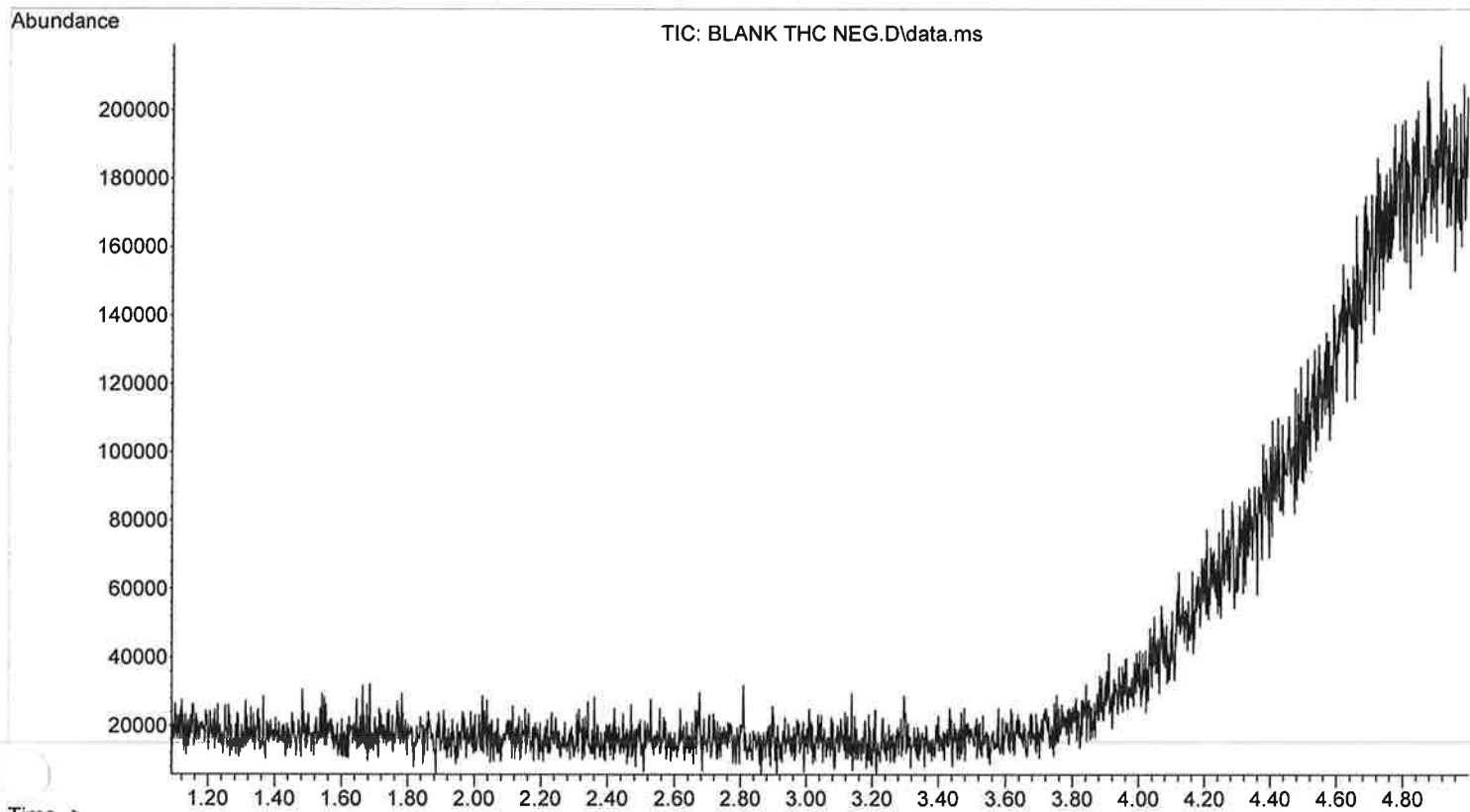
Internal Standards						
1) TRIBENZYLAMINE	2.100	TIC	9236293	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.506	TIC	20383549	522.36	UG/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:47:21 2019

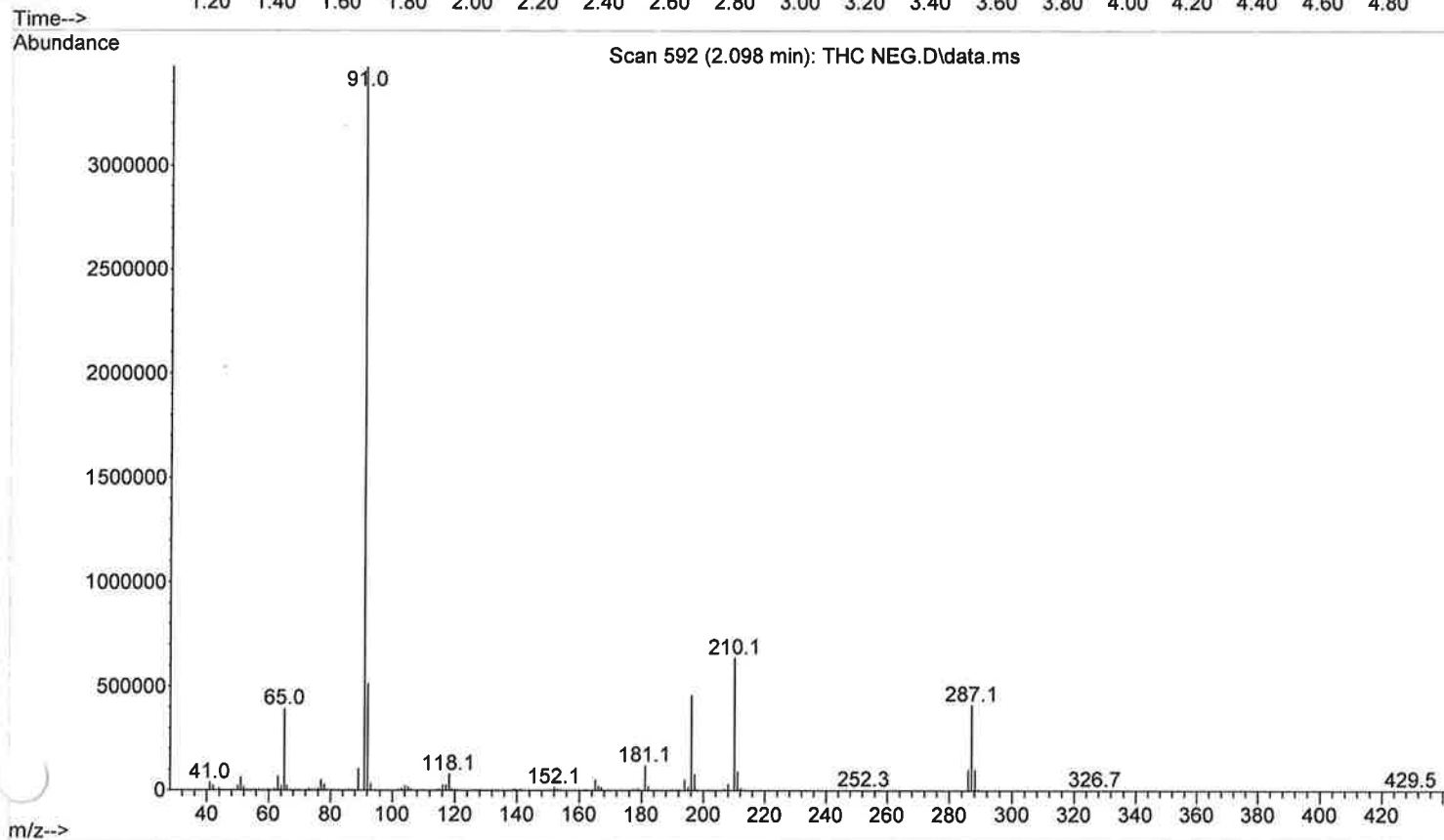
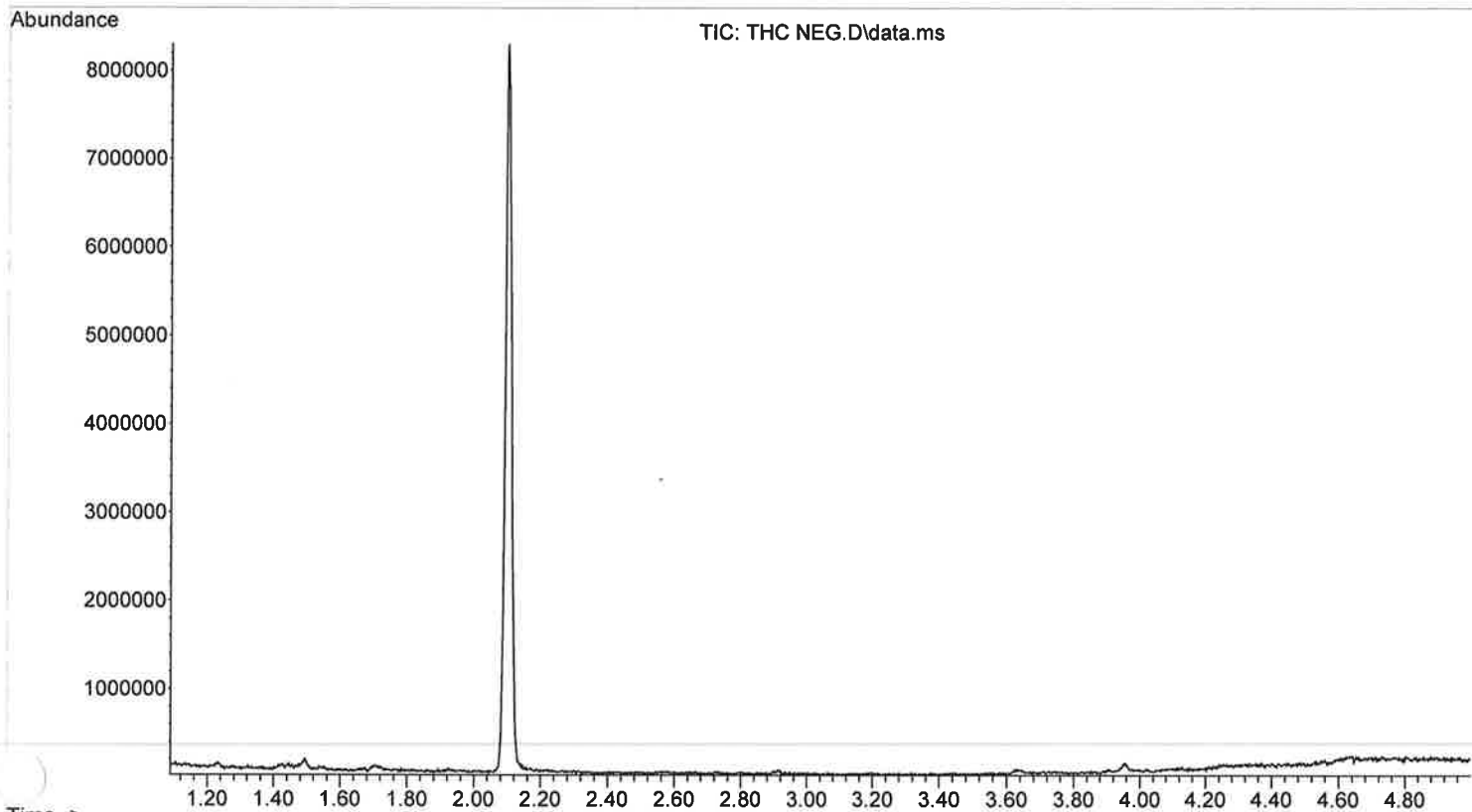
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC NEG.D
Operator : SJ
Acquired : 05 Sep 2019 15:02 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC NEG
Misc Info :
Vial Number: 52

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SJ
9/5/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC NEG.D
Operator : SJ
Acquired : 05 Sep 2019 15:10 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC NEG
Misc Info :
Vial Number: 58

19
SJ
9/6/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : THC NEG.D
Acq On : 05 Sep 2019 15:10
Operator : SJ
Sample : THC NEG
ALS Vial : 58 Sample Multiplier: 1

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SJ
9/6/19

Quant Time: Sep 06 08:53:57 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) TRIBENZYLAMINE	2.102	TIC	10761493	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.509	TIC	9137	46.28	UG/mL	100

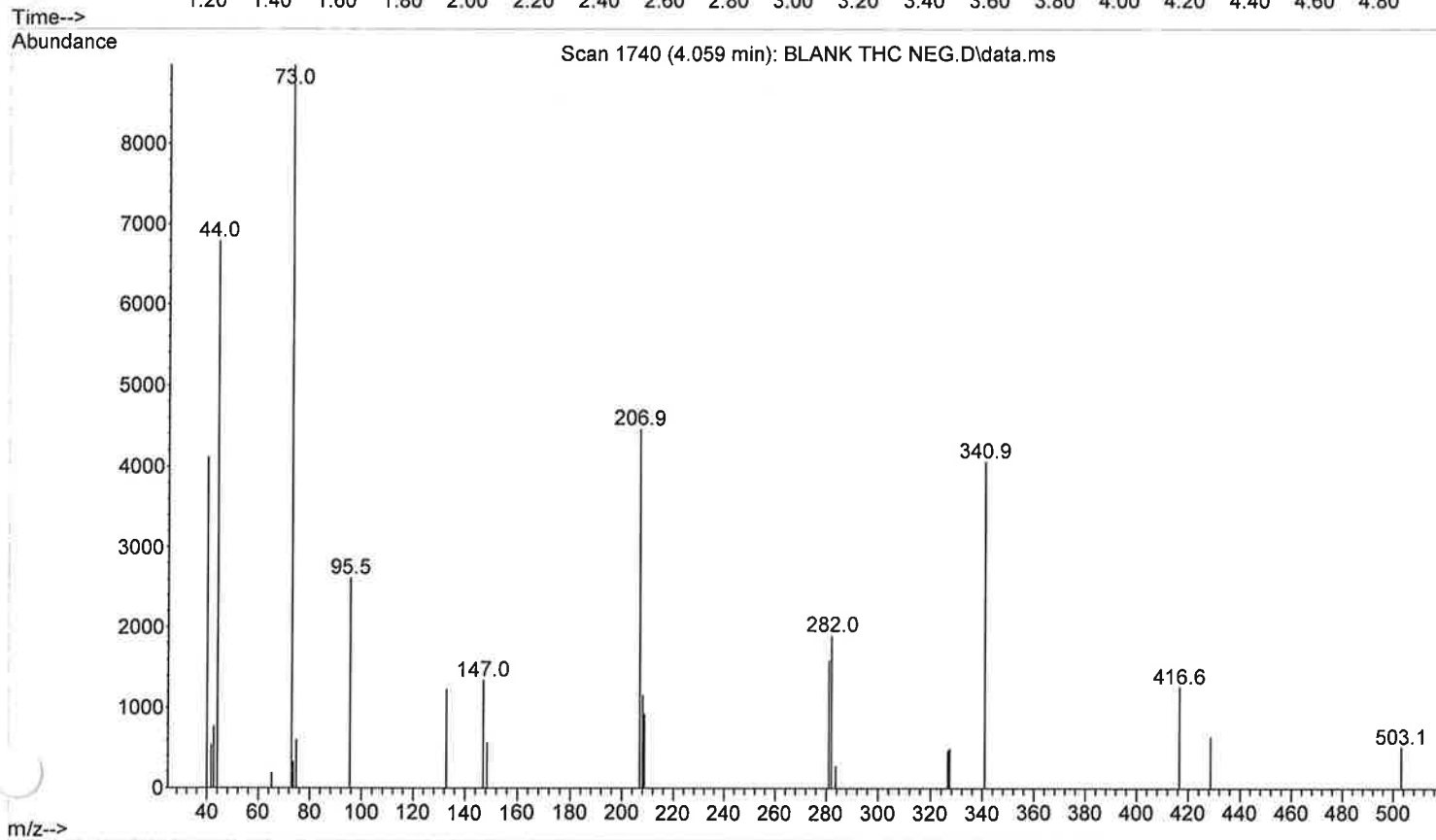
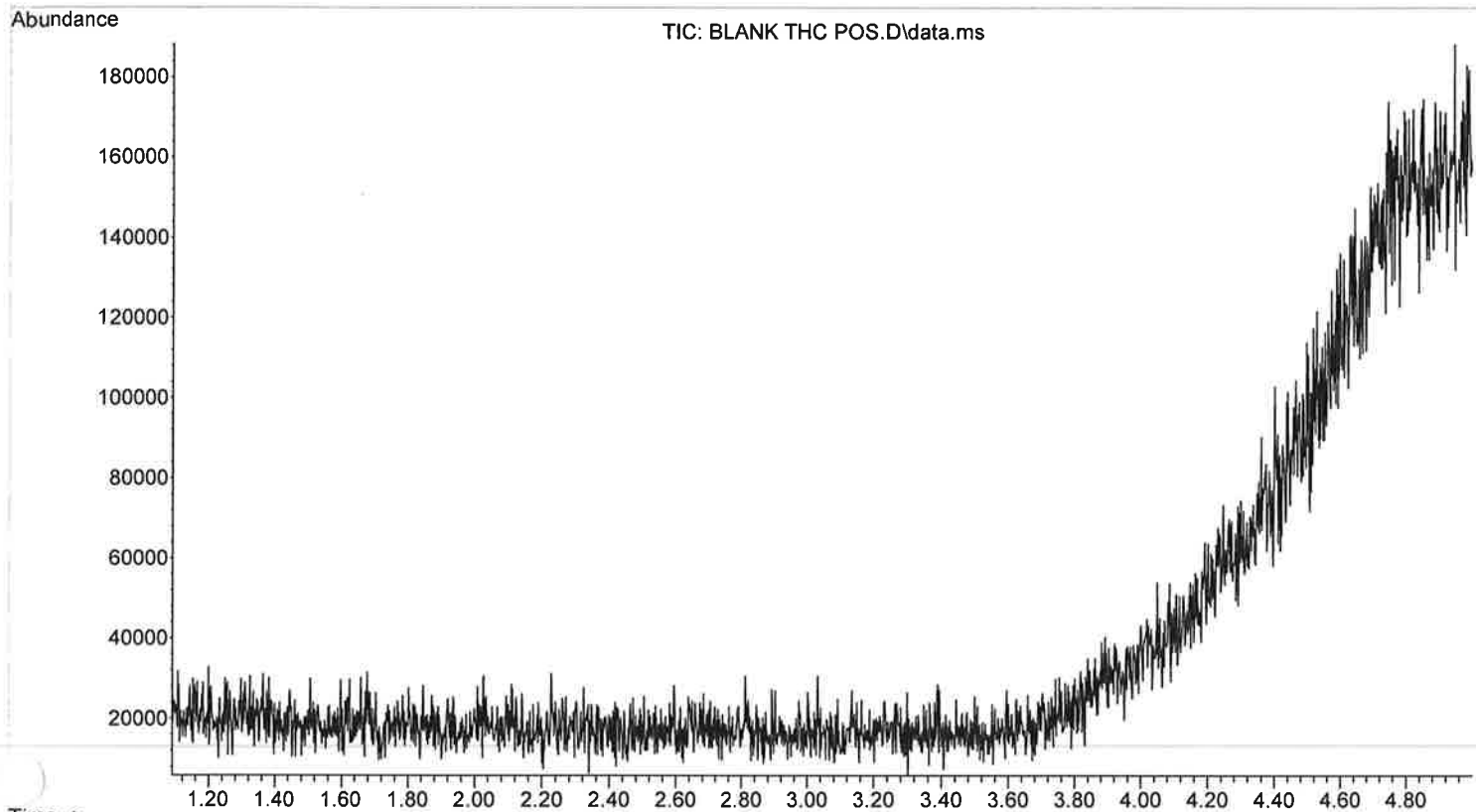
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:53:57 2019

THC NOT present
Confirmed by GCMS

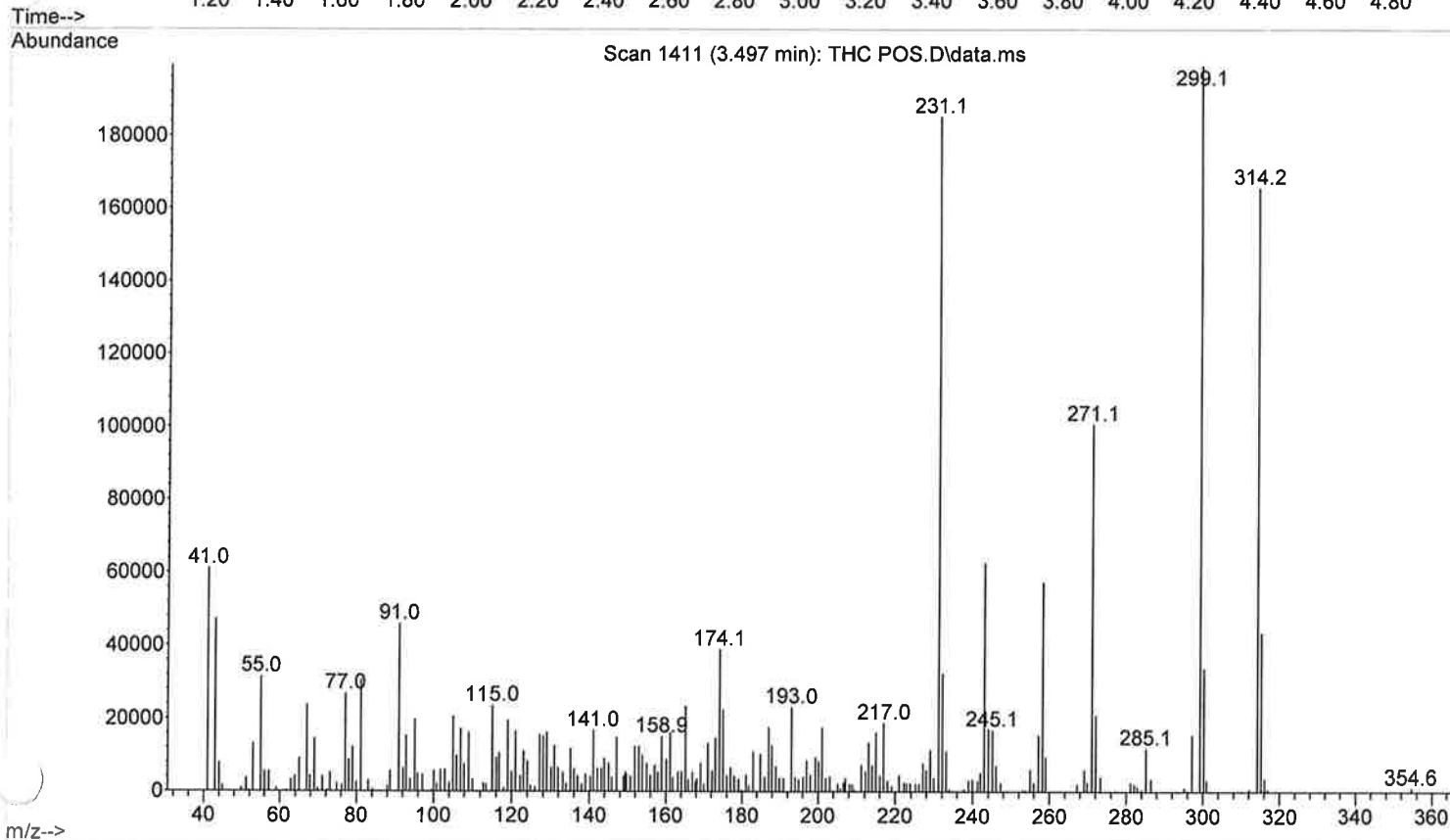
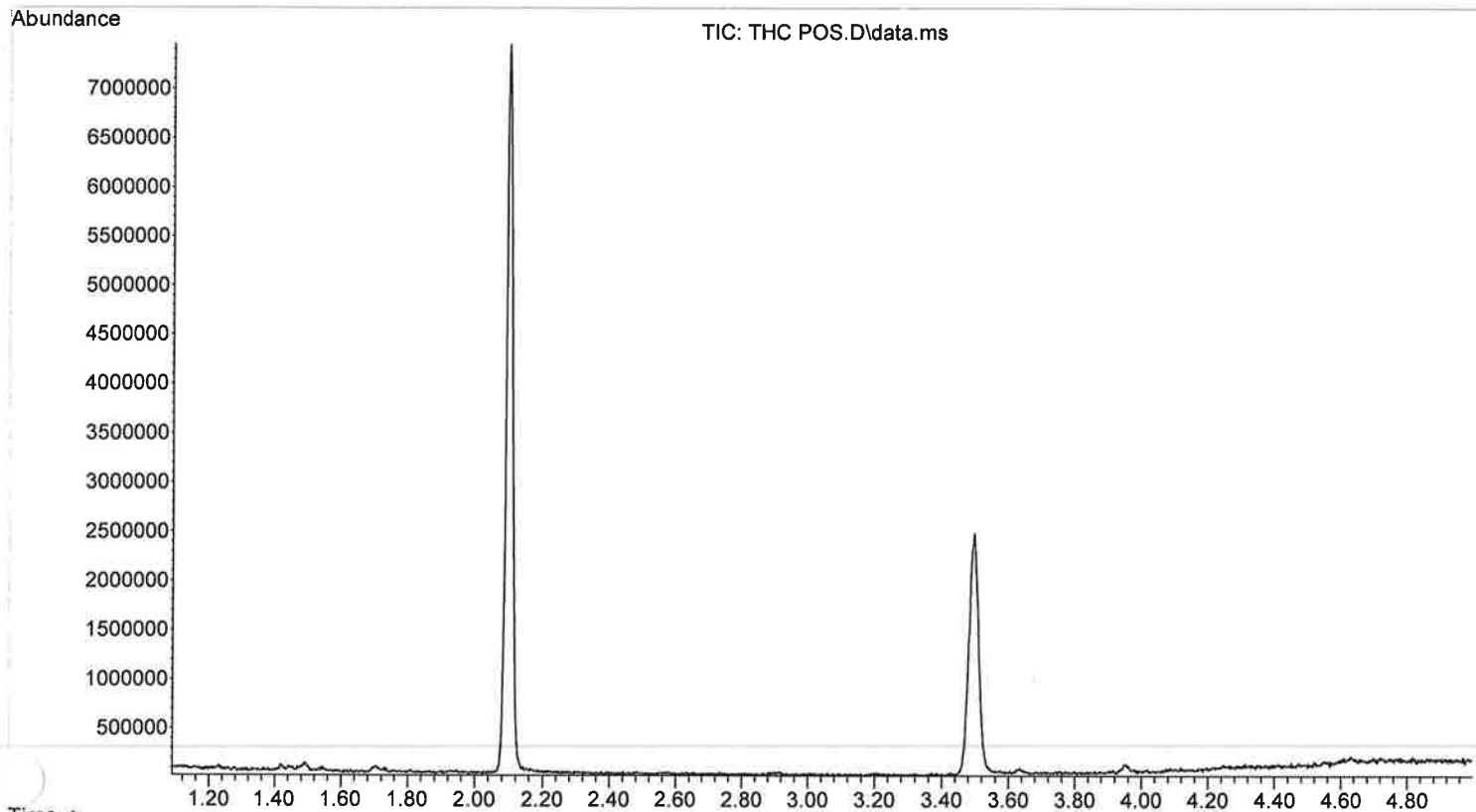
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK THC POS.D
Operator : SJ
Acquired : 05 Sep 2019 15:26 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK THC POS
Misc Info :
Vi umber: 64

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SJ
9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\THC POS.D
Operator : SJ
Acquired : 05 Sep 2019 15:34 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: THC POS
Misc Info :
Vial Number: 59

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SJ
9/6/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : THC POS.D
Acq On : 05 Sep 2019 15:34
Operator : SJ
Sample : THC POS
ALS Vial : 59 Sample Multiplier: 1

SJ
9/6/19

Quant Time: Sep 06 08:51:52 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

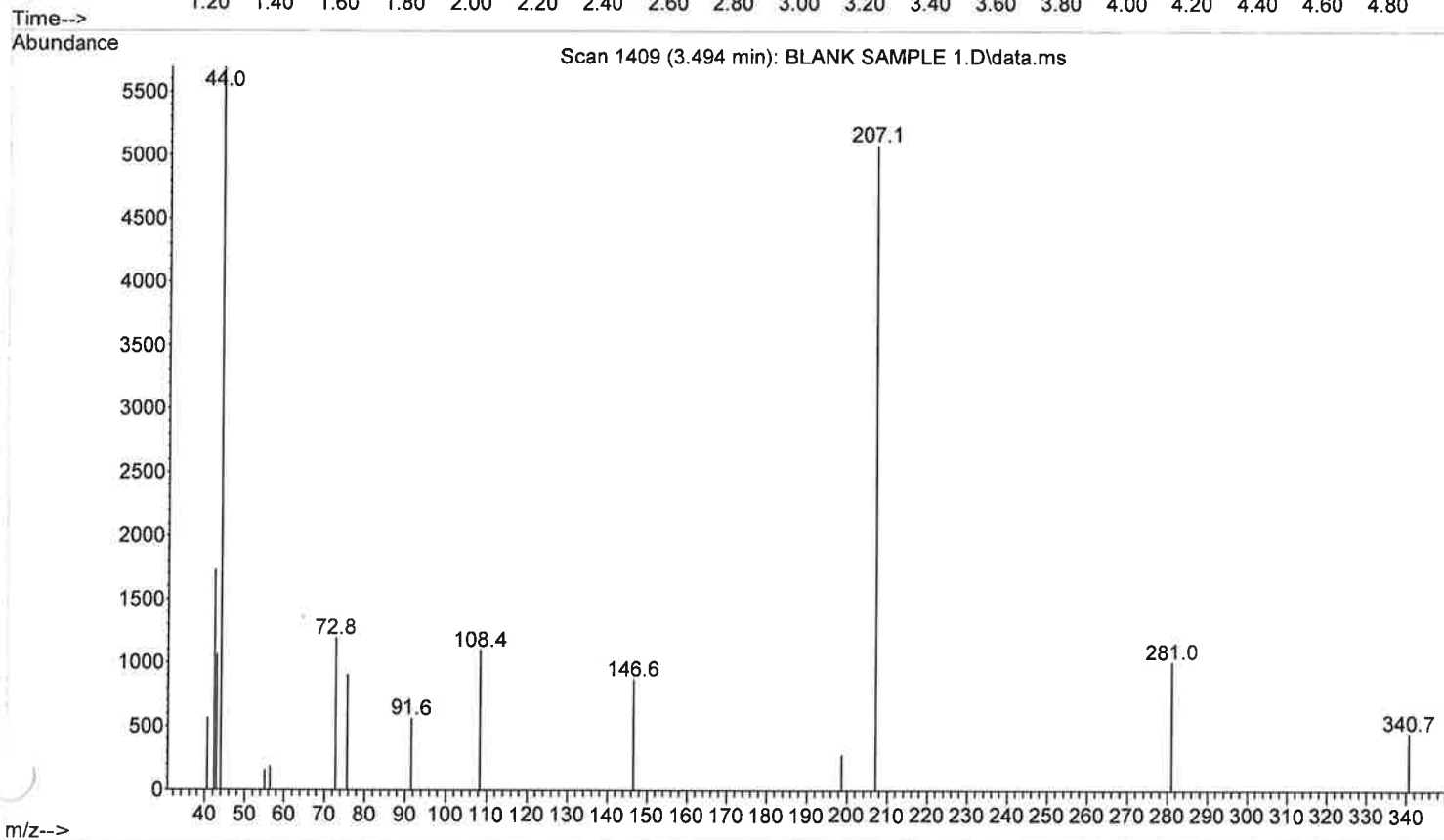
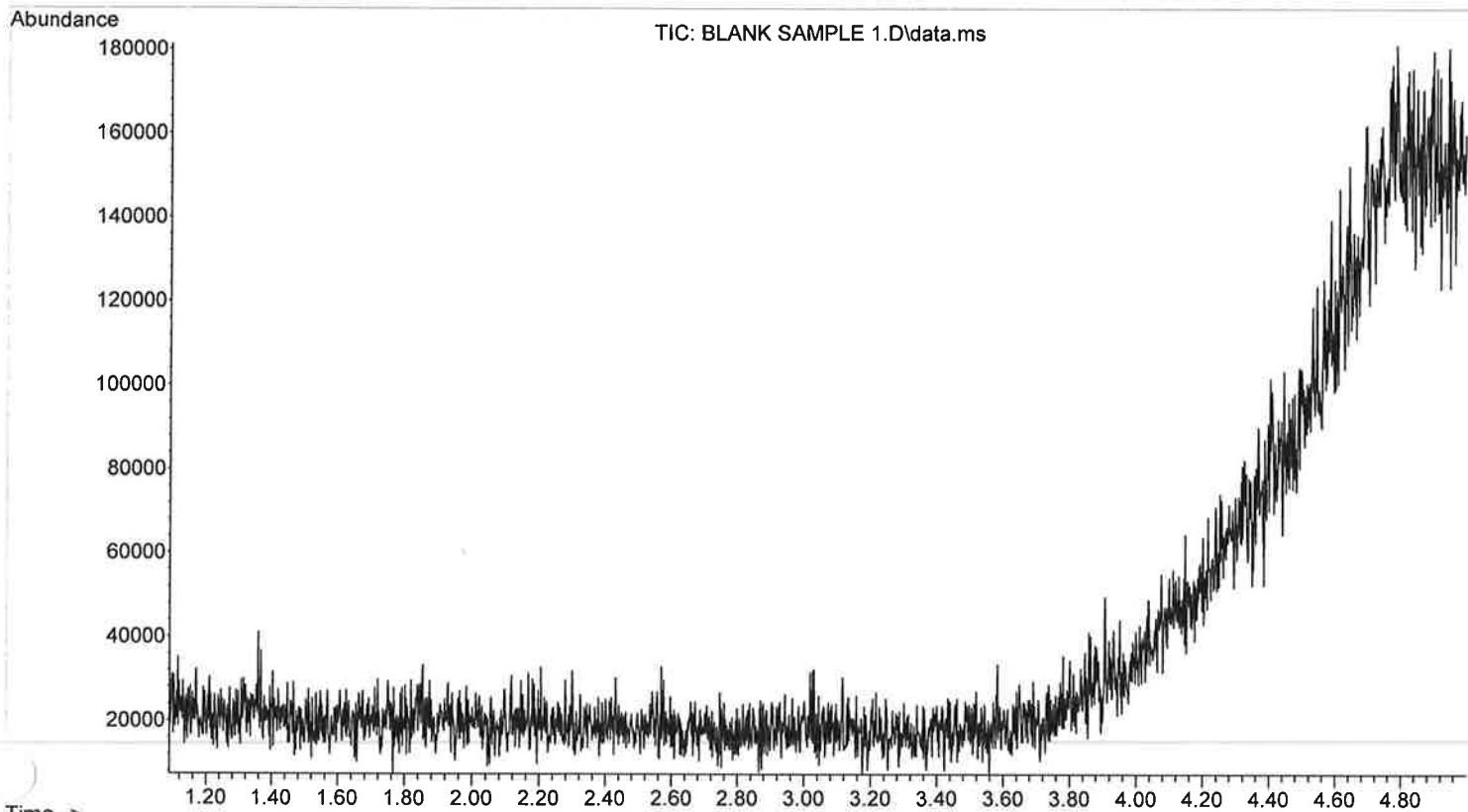
Internal Standards						
1) TRIBENZYLAMINE	2.100	TIC	9847389	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.497	TIC	4794275	151.17	UG/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 08:51:52 2019

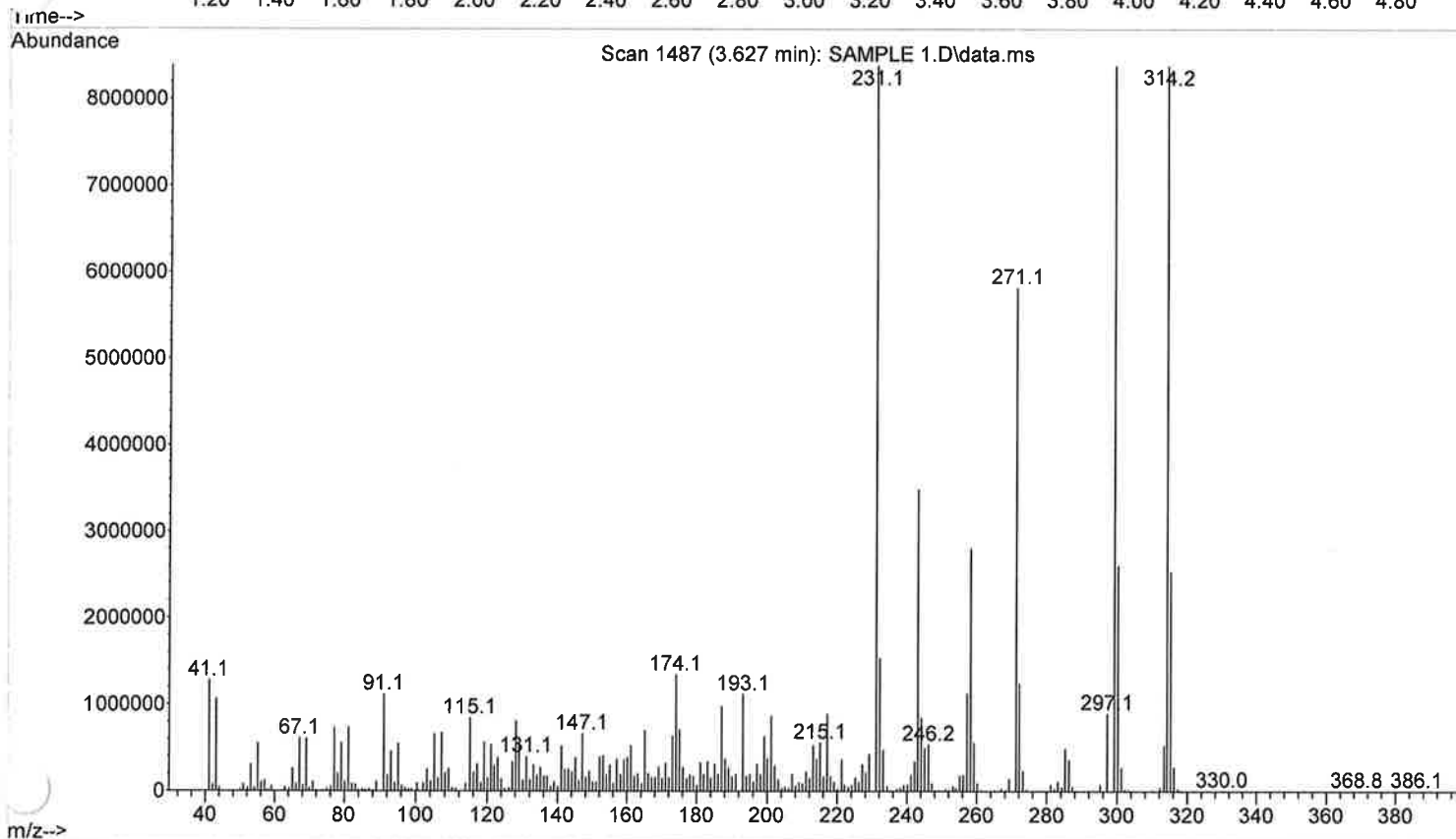
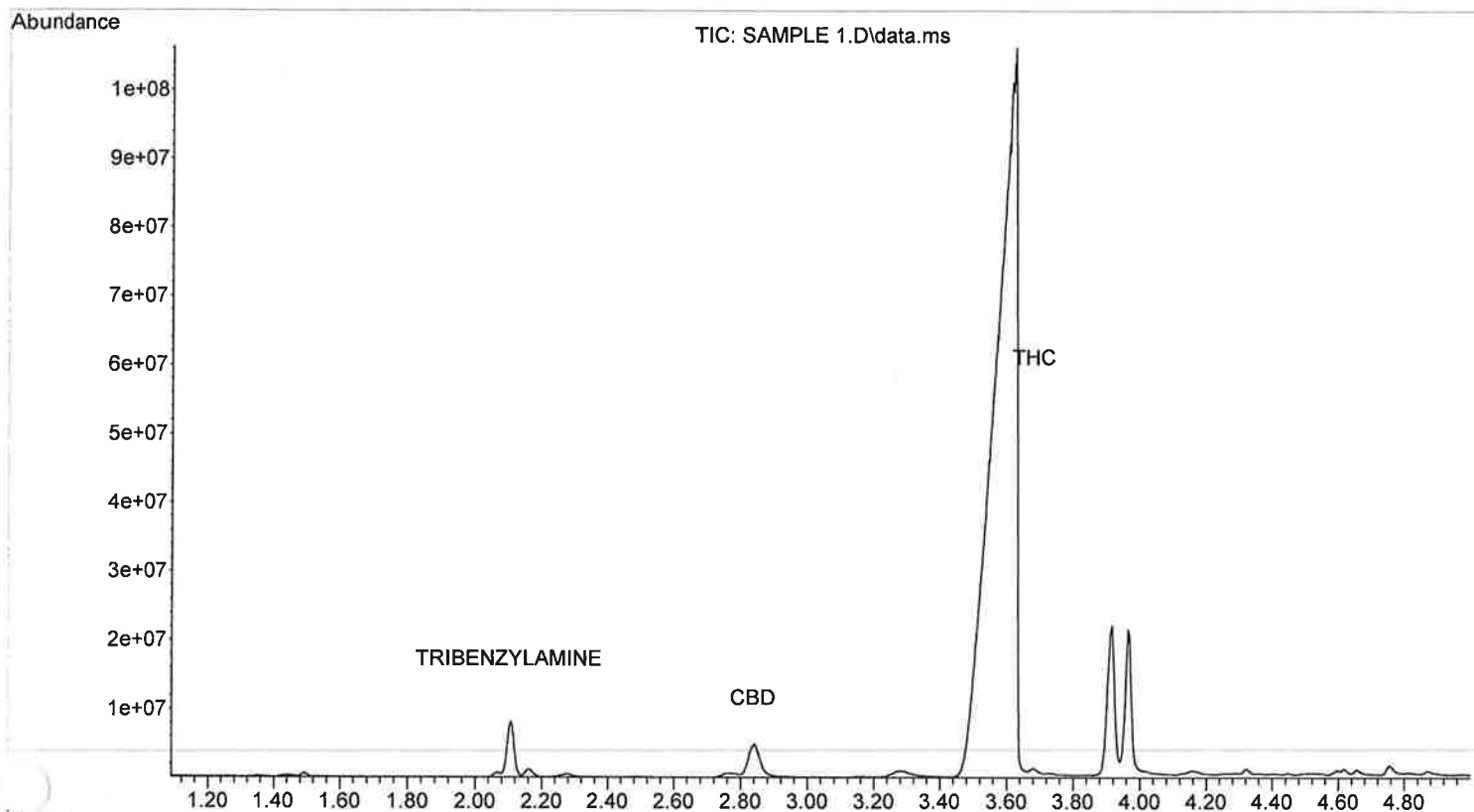
File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK SAMPLE 1.D
Operator : SJ
Acquired : 05 Sep 2019 15:50 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK SAMPLE 1
Misc Info :
Vial Number: 64

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9/6/19



File :D:\MassHunter\GCMS\1\sequence\SJ\SAMPLE 1.D
Operator : SJ
Acquired : 05 Sep 2019 15:58 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: SAMPLE 1
Misc Info :
Vial Number: 60

25
50
9/4/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : SAMPLE 1.D
Acq On : 05 Sep 2019 15:58
Operator : SJ
Sample : SAMPLE 1
ALS Vial : 60 Sample Multiplier: 1

26
SJ
9/6/19

Quant Time: Sep 06 09:03:06 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) TRIBENZYLAMINE	2.109	TIC	11340830	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.608	TIC	360761647	6911.10	UG/mL	100

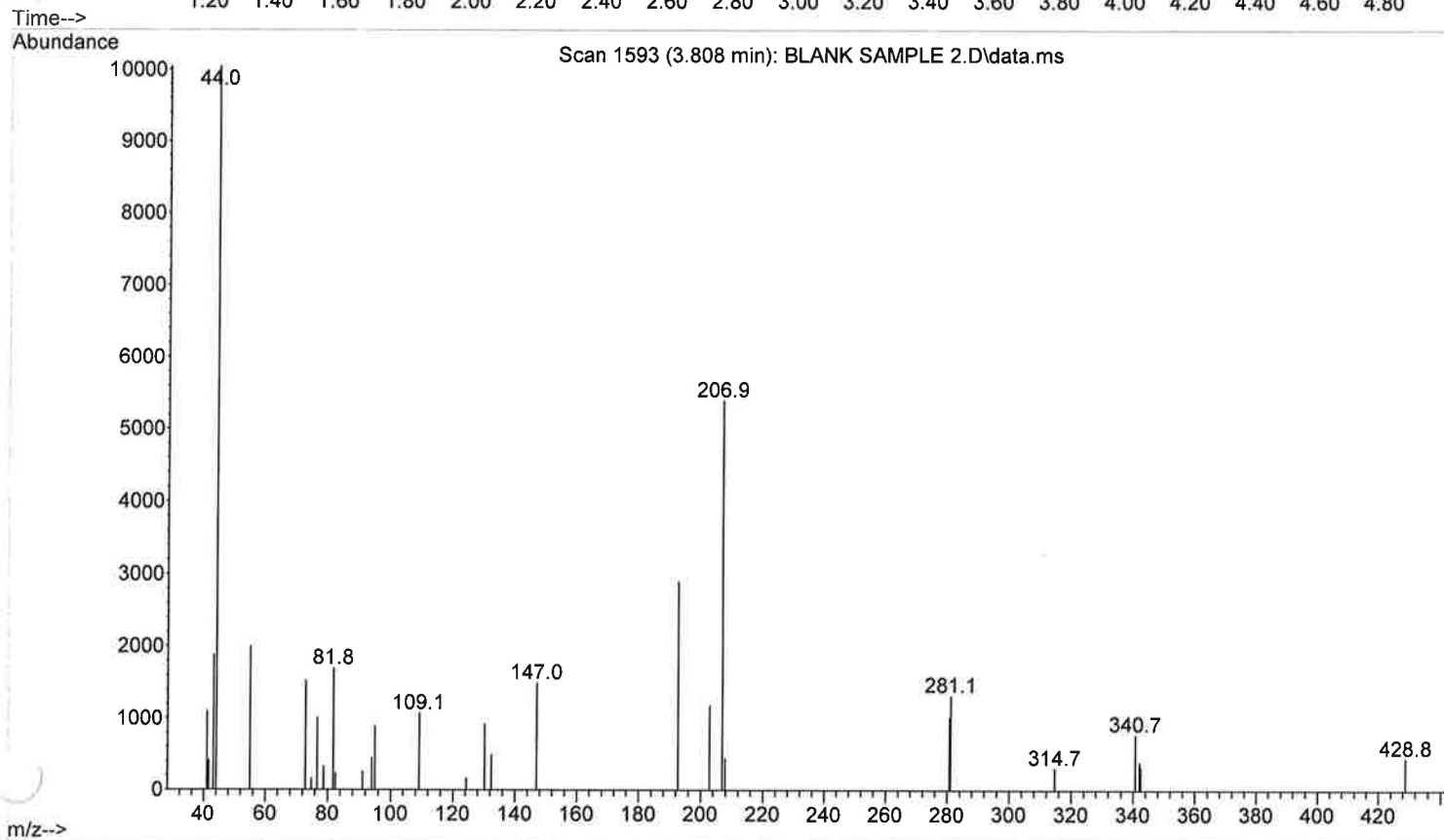
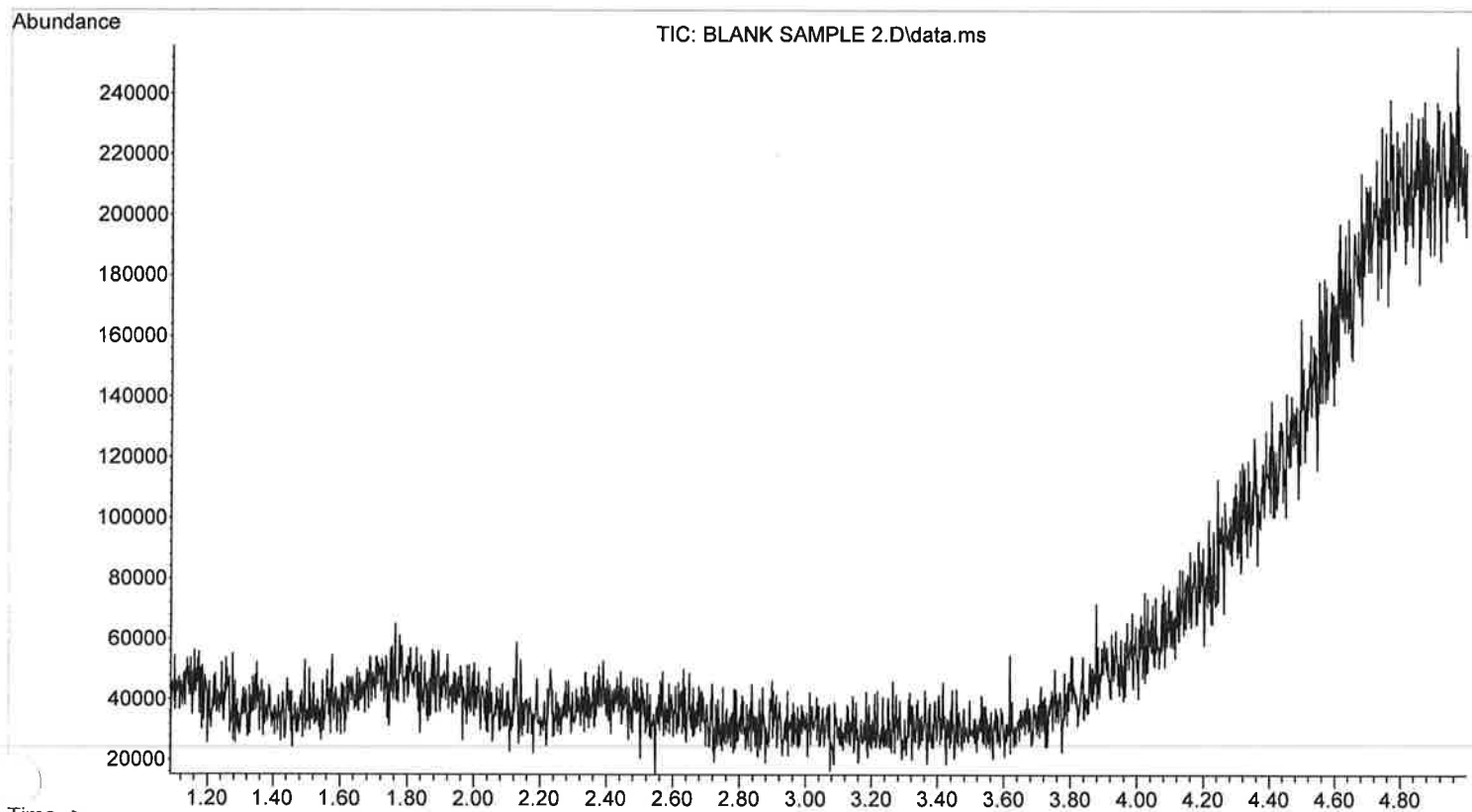
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 09:03:06 2019

$$\frac{6911.10}{102380/2} \times 100 = 13.50\%$$

File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK SAMPLE 2.D
Operator : SJ
Acquired : 05 Sep 2019 16:15 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK SAMPLE 2
Misc Info :
Vial Number: 64

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SJ
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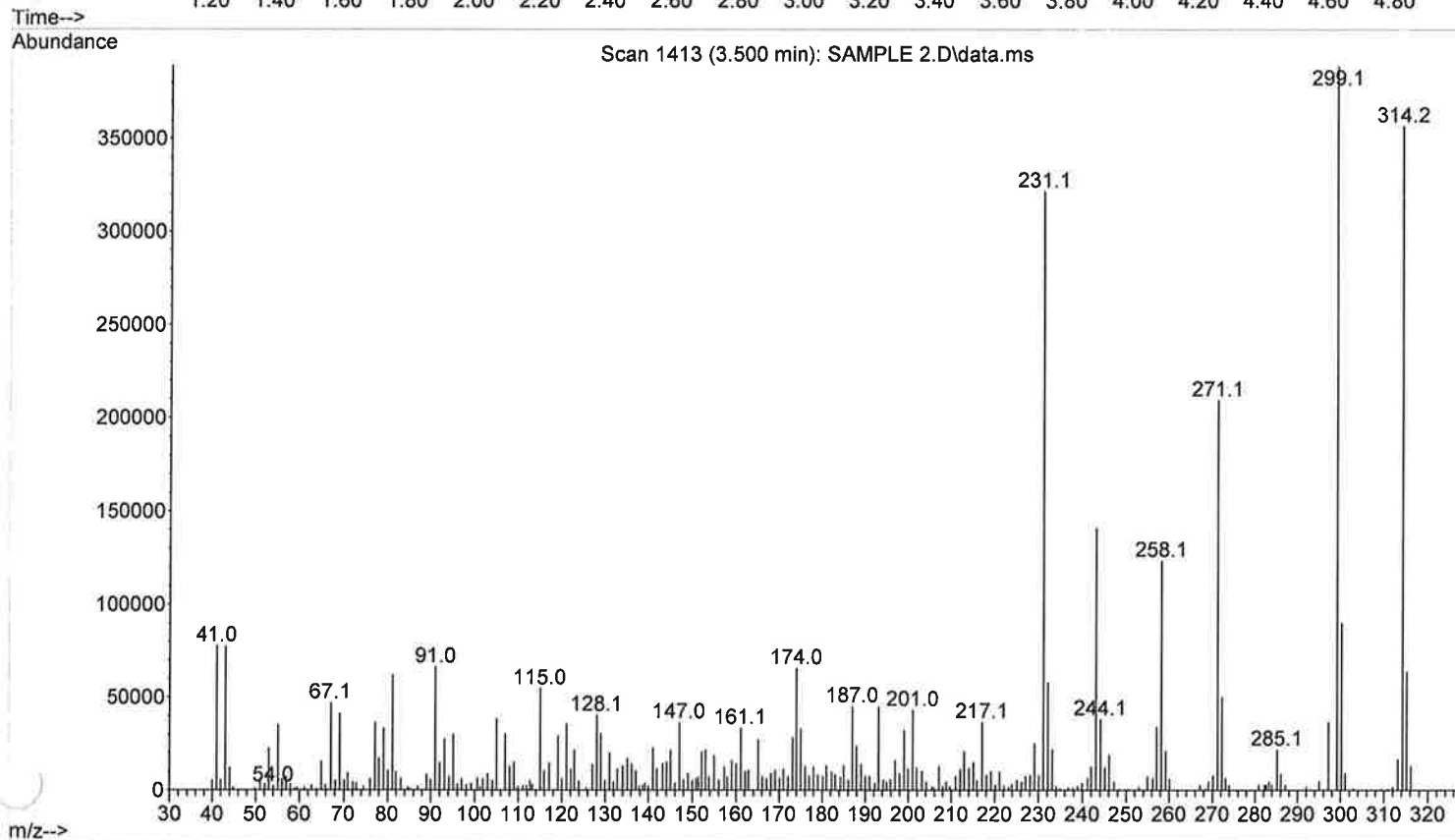
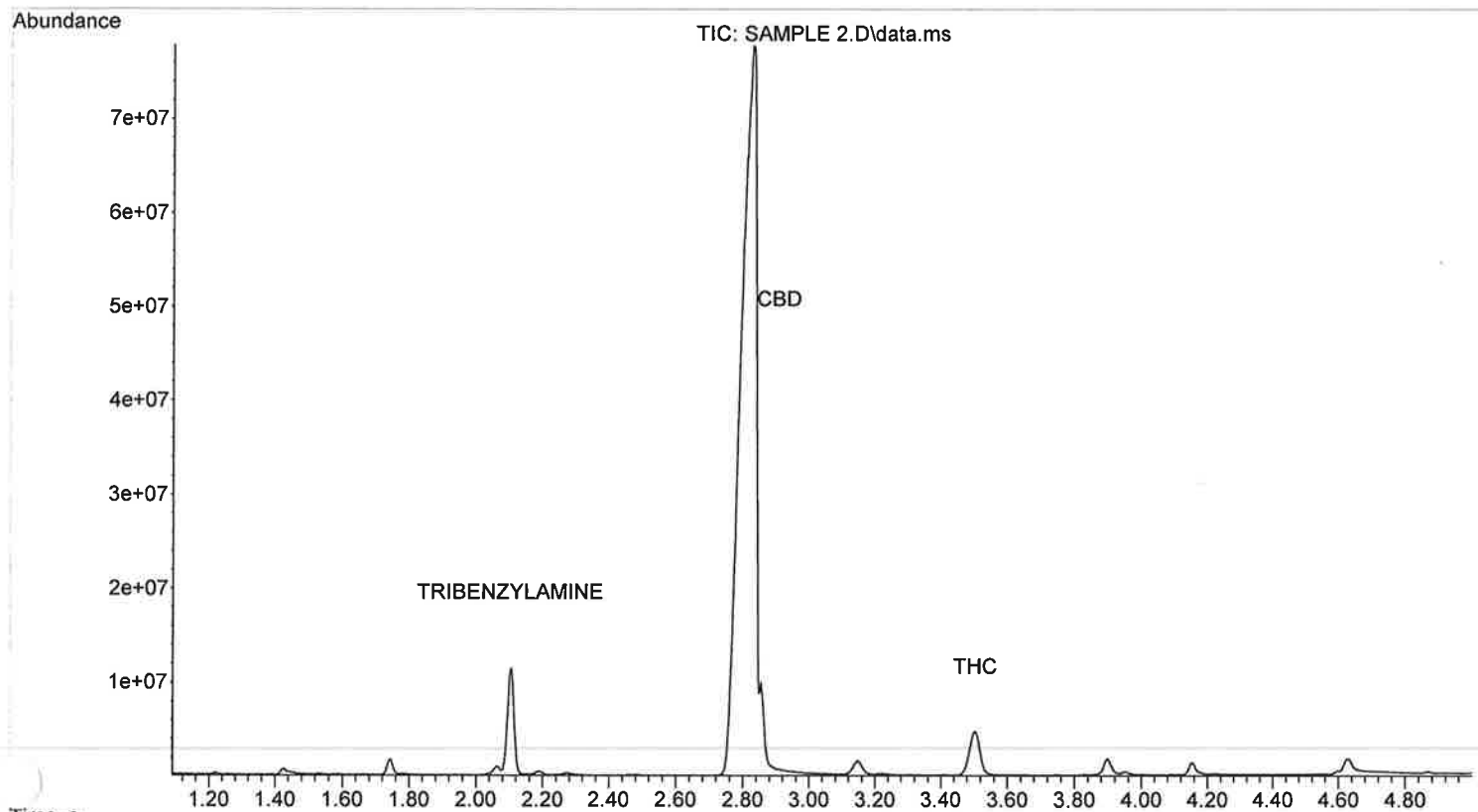


File :D:\MassHunter\GCMS\1\sequence\SJ\SAMPLE 2.D
Operator : SJ
Acquired : 05 Sep 2019 16:23 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: SAMPLE 2
Misc Info :
Vj Number: 61

28

SJ

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Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : SAMPLE 2.D
Acq On : 05 Sep 2019 16:23
Operator : SJ
Sample : SAMPLE 2
ALS Vial : 61 Sample Multiplier: 1

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SJ
9/6/19

Quant Time: Sep 06 09:03:53 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) TRIBENZYLAMINE	2.105	TIC	15341092	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.504	TIC	10097587	188.14	UG/mL	100

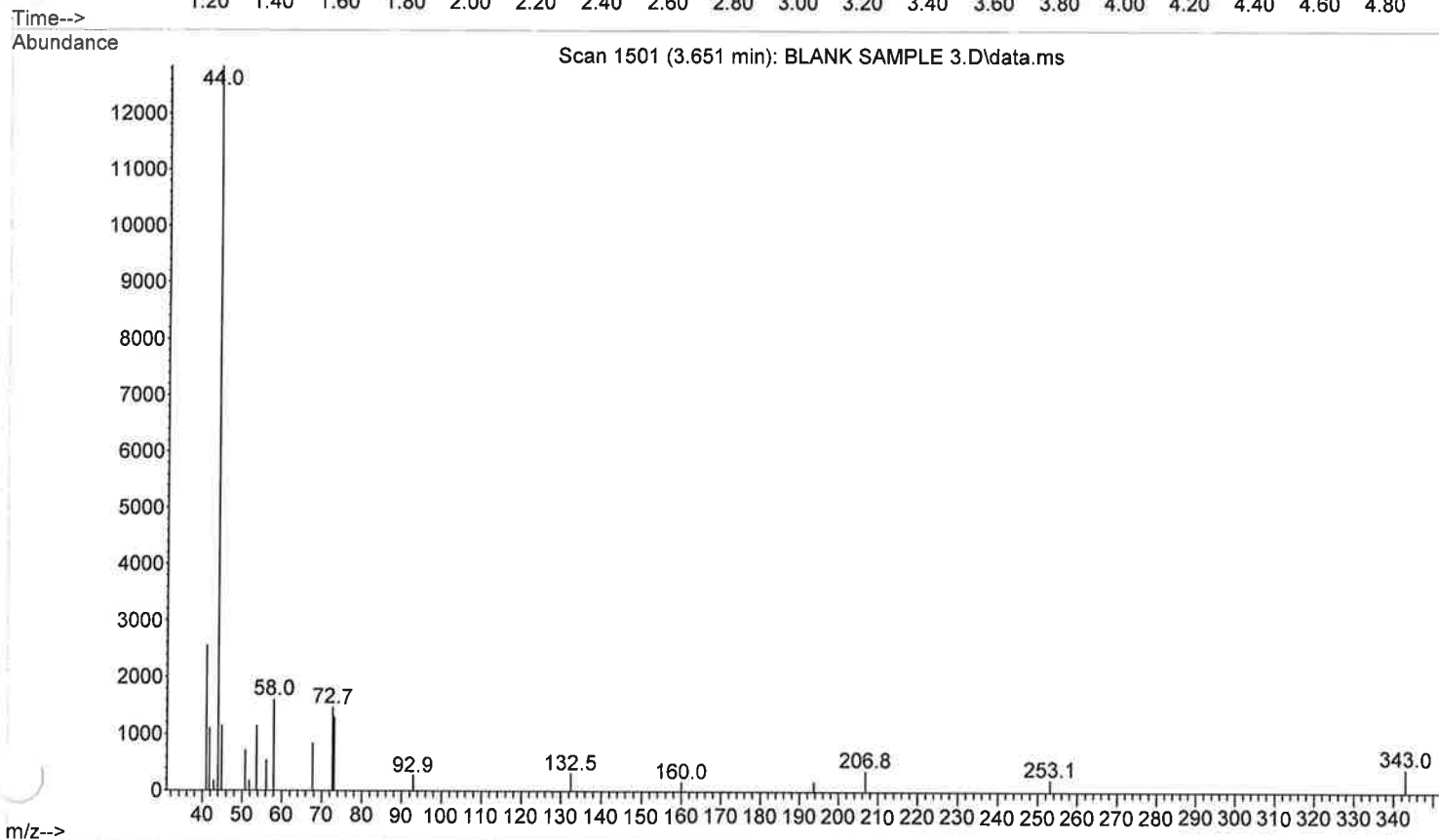
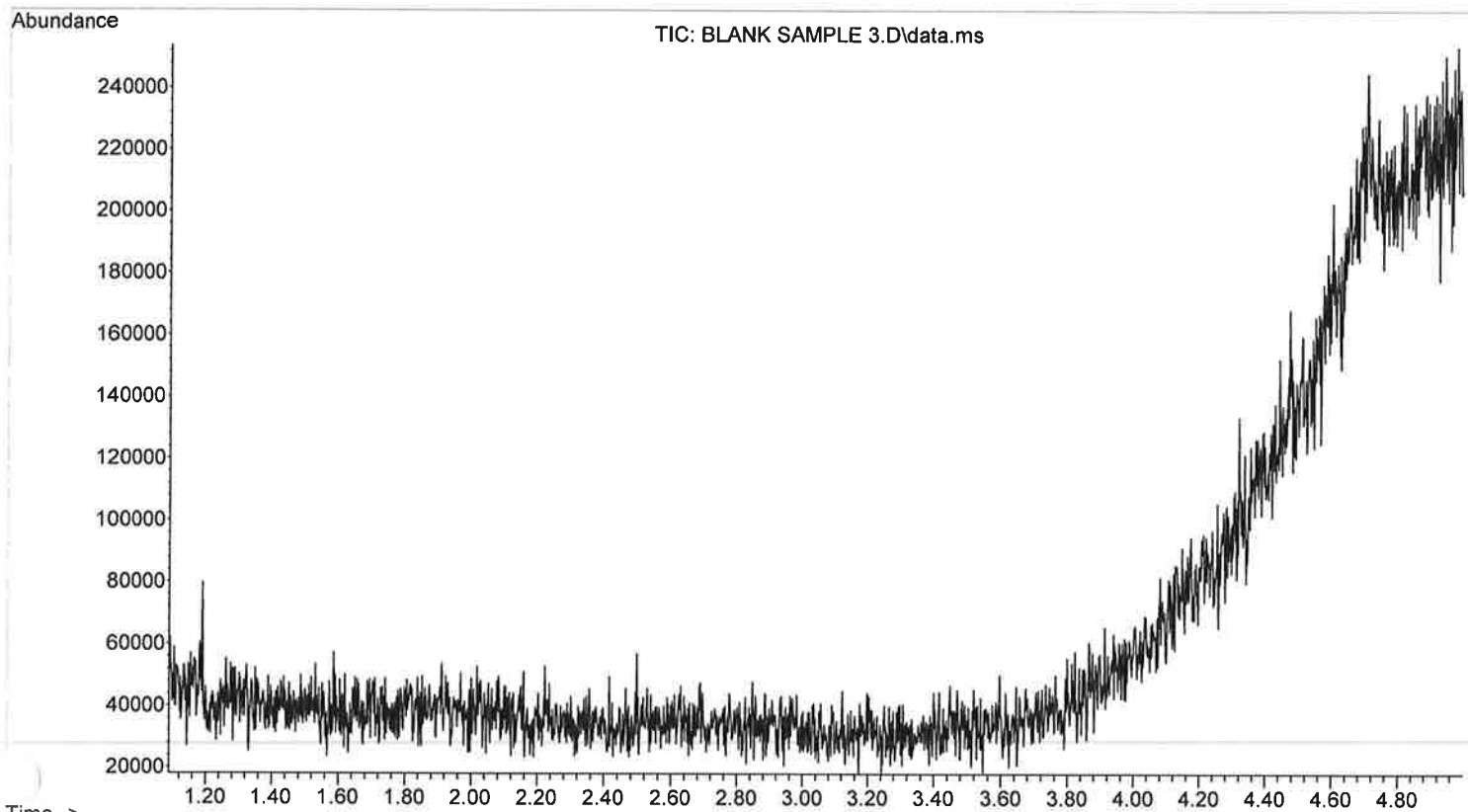
(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 09:03:53 2019

$$\frac{188.14}{99660/2} \times 100 = 0.38\%$$

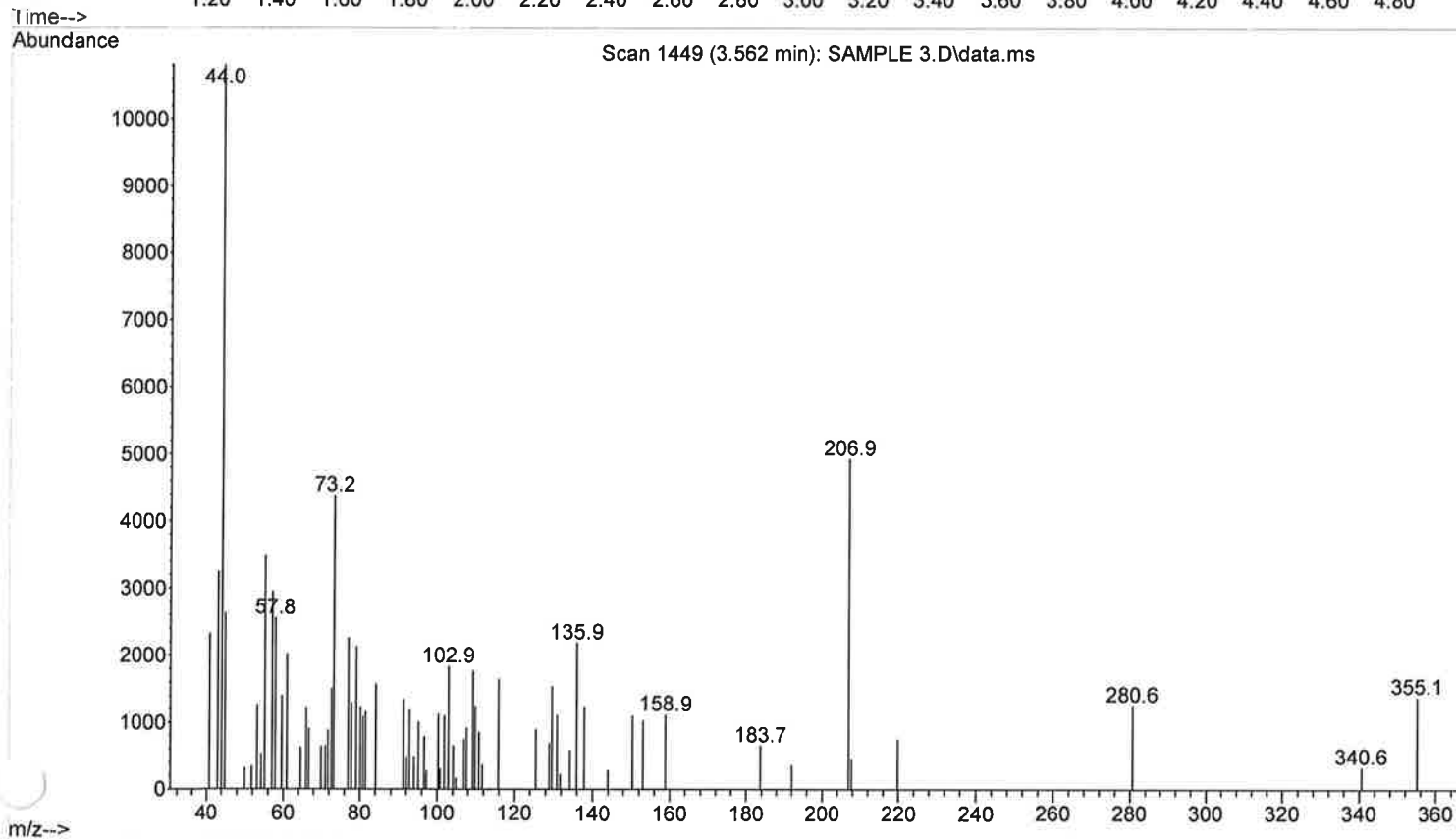
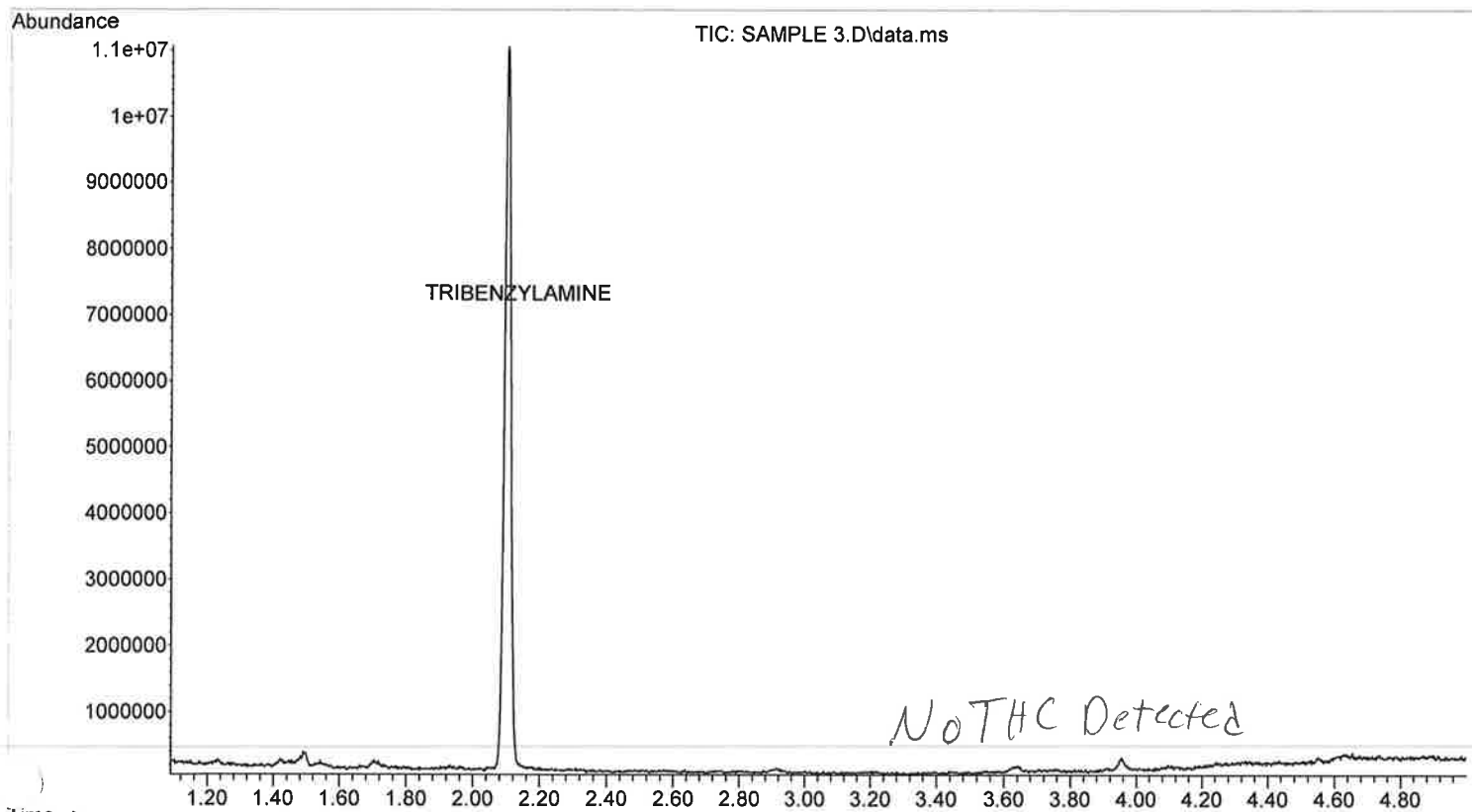
30
63
9/4/19

File :D:\MassHunter\GCMS\1\sequence\SJ\BLANK SAMPLE 3.D
Operator : SJ
Acquired : 05 Sep 2019 16:39 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: BLANK SAMPLE 3
Misc Info :
Vial Number: 64



File :D:\MassHunter\GCMS\1\sequence\SJ\SAMPLE 3.D
Operator : SJ
Acquired , : 05 Sep 2019 16:47 using AcqMethod THC-MS.M
Instrument : Heisenberg
Sample Name: SAMPLE 3
Misc Info :
Vj Number: 62

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SJ
9/4/19



Data Path : D:\MassHunter\GCMS\1\sequence\SJ\
Data File : SAMPLE 3.D
Acq On : 05 Sep 2019 16:47
Operator : SJ
Sample : SAMPLE 3
ALS Vial : 62 Sample Multiplier: 1

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S
9/6/19

Quant Time: Sep 06 09:04:37 2019
Quant Method : D:\MassHunter\GCMS\1\methods\THC-MS-MJL.M
Quant Title : SCOTT THC QUANT 1
QLast Update : Fri Sep 06 08:44:36 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) TRIBENZYLAMINE	2.102	TIC	14753140	155.40	UG/mL	0.00
Target Compounds						Qvalue
2) THC	3.401	TIC	13597	46.30	UG/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

THC-MS-MJL.M Fri Sep 06 09:04:37 2019

Negative control -101.80mg

Sample 1-102.38mg

Sample 2- 99.66mg

Sample 3- 99.90mg

Positive control- 100.80 mg