




REVIEWED
By Tamara Salazar at 12:30 pm, Jan 10, 2020

Worklist: 3926

<u>LAB CASE</u>	<u>ITEM</u>	<u>ITEM TYPE</u>	<u>DESCRIPTION</u>	
M2019-5376	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2019-5600	1	BCK	AM 27 Blood THC Quant by LC-QQQ	
M2019-5753	3	BCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3643	2	BCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3704	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2019-3838	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2019-3884	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2019-3890	2	BCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3893	1	BCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3928	1	BCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3943	1	BCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3944	1	BCK	AM 27 Blood THC Quant by LC-QQQ	

AM# 27: Quantitation of THC and Metabolites in Blood and Urine by LC-MS/MS

Extraction Date: 01/07/2020

Analyst: Celena Shrum

Plate lot#: 190716

Plate Expiration: 01/16/2020

Mobile phase A: 0.1% Formic Acid in LCMS Water

Mobile phase B: 0.1% Formic acid in Acetonitrile

Blank Blood Lot: 445283-3

Column: UCT Selectra DA 100 x 2.1mm 3um

LCMS-QQQ ID: 069901

Blank Urine Lot: POC031319

Pre-Analytic:

- 1. Check levels of mobile phases and needle wash refill as needed. Ensure waste is not full.
- 2. Ensure correct column is installed and begin mobile phase flow allow to equilibrate ~ 30 minutes.

Analytic:

- 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- 2. Urine hydrolysis: add 1.5mL urine to blank plate, add 250µl 1N KOH. Shake and incubate at 40 degrees for 15 minutes. Using a calibrated pipette, add **1000µl blood and urine (if applicable) (calibrated pipette)** into the appropriate wells of analytical (standards) plate. **Pipette ID: #42**
- 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes. *Shaker ID: 067105*
- 4. Pipette **500µL 0.1% formic acid in water blood sample, 500 µL saturated phosphate buffer in urine** in wells of analytical plate.
- 5. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
- 6. Transfer **800µL of blood+acid or urine+acid** mixture to corresponding wells of SLE+ plate.
- 7. Apply positive pressure for approx. 10-15 seconds (or until no liquid remains on top of sorbent). **(Load at 85-100 PSI- Selector to the right)** Manifold ID: 067104
- 8. Wait 5 minutes.
- 9. Add **2.25mL MTBE. (Add in 3 increments of 750uL)**
- 10. Wait 5 minutes.
- 11. Apply positive pressure for approx. 15 seconds. **(10-15 PSI- Selector to the left).**
- 12. Add **2.25mL Hexane. (Add in 3 increments of 750uL)**
- 13. Wait 5 minutes.
- 14. Apply positive pressure for approx. 15 seconds. **(10-15 PSI- Selector to the left).**
- 15. Remove plate containing eluate. Place on SPE Dry and evaporate to dryness at approx. 35°C. *SPE Dry ID: 067103*
- 16. Reconstitute in **100µL 100% MeOH** and heat seal plate with foil. Place in autosampler and run worklist.

Post-Analytic

- 1. Create batch and process data.
- 2. Make any necessary integration changes, Curve weighting of Linear 1/x with r² values ≥0.98 for each analyte
- 3. RT +/- 3% or 0.100 min, whichever is greater, +/- 20% Accuracy for greater than (+/- 30% for 10ng/ml or less). Ion ratios must be within +/- 20% of the averaged calibrators
- 4. Case sample response for THC and OH-THC 3ng/mL (quantitative), Carboxy-THC: 10ng/mL (qualitative only) will be reported. Samples with a THC or OH-THC response over 50 ng/mL will be reported out as greater than 50 ng/mL.
- 5. Did all QCs pass for each analyte? (if not, describe in comments section)
- 6. Enter QCs into control charting.
- 7. Central File Packet to include: LIMS Worklist, Method Checklist, Calibration and Control Reports

COMMENTS: Curve ranges are THC: 1-100, THC-COOH: 5-250, THC-OH: 3-100. ~~THC-OH can only be reported qualitatively for this run.~~ ^{1/10/2020} CS



Idaho State Police Forensic Services

AM #27 Quantitative Analysis of THC and Metabolites in Blood and Urine by LCMS-QQQ

Methanol External Control Solution (Lot: WS041619)

10 ul of 1mg/mL THC, 100 ul of 100 ug/mL THC-OH, C-THC in 9790 ul MeOH
Approximate concentration 1ug/mL.

Component	Source	Source Lot Number	Expiration Date
Methanol (LCMS)	Fisher	184782	
THC	Cerilliant	FE09101501	11/30/2020
C-THC	Cerilliant	FE07171501	09/30/2020
THC-OH	Cerilliant	FE01121503	01/31/2020
Prepared:	04/16/2019		
Prepared By:	Tamara Salazar		
Expires:	01/31/2020		

Urine External Control Solution (Lot: 111519)

200 ul of methanol external control solution was added to 9800 ul of urine.
Approximately 20ng/mL of each compound.

Component	Source	Source Lot Number
Negative Urine	Pocatello Lab	POC031319
Methanol External Control Solution	-	WS041619
Prepared:	11/15/19	
Prepared by:	Celena Shrum	
Expires:	01/31/2020	

AM #27 Cannabinoid Quant. Results

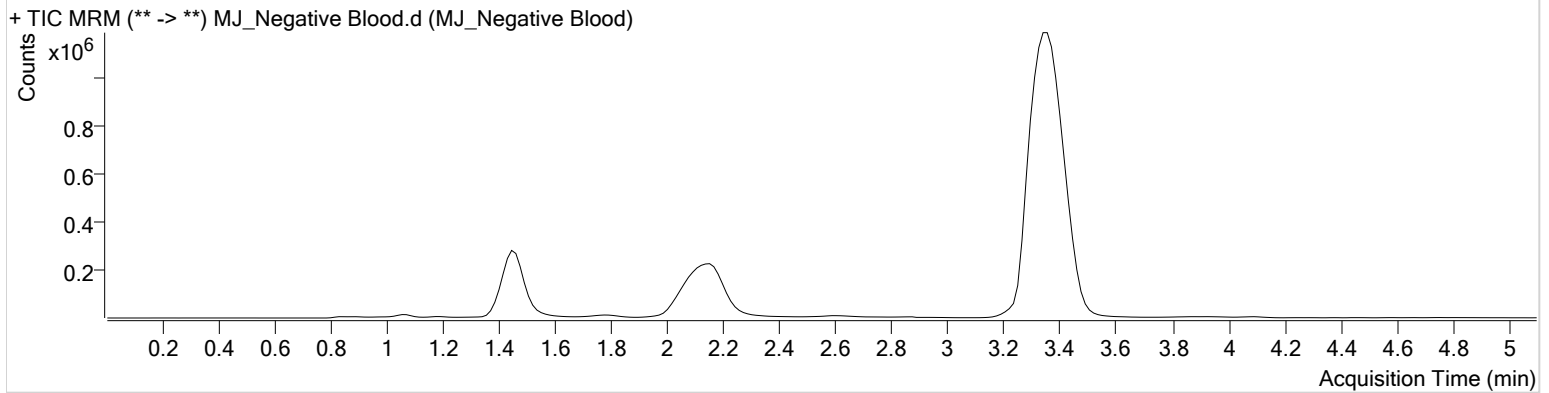


Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Negative Blood.d
Type	Sample	Sample	MJ_Negative Blood
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-A2	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 5:10:34 PM		

Sample Info.

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.384 Low	13973	101.27			345610	1.7395 ng/ml Low

AM #27 Cannabinoid Quant. Results

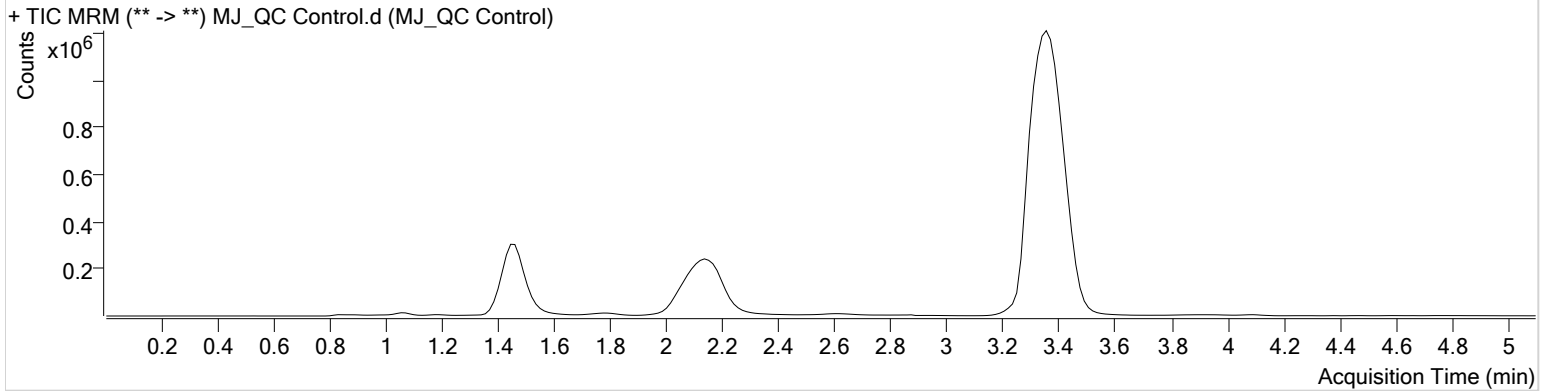


Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_QC Control.d
Type	Sample	Sample	MJ_QC Control
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-H1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:55:22 PM		

Sample Info.

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.468	119125	∞	9.6	86.10	1163497	4.6446 ng/ml
THC-COOH	1.489	114126	1030.53	59.2	994.78	329762	14.2171 ng/ml
THC	3.360	346896	1065.71	26.4	53.91	9884013	4.2901 ng/ml

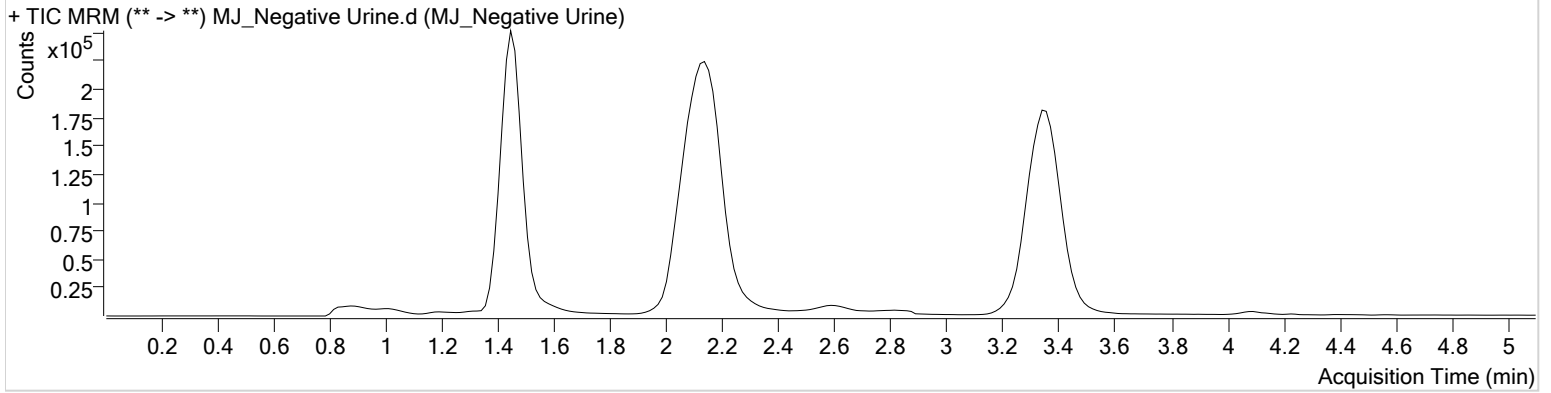
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Negative Urine.d
Type	Sample	Sample	MJ_Negative Urine
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-B2	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 5:25:44 PM		
Sample Info.			

Sample Chromatogram



AM #27 Cannabinoid Quant. Results

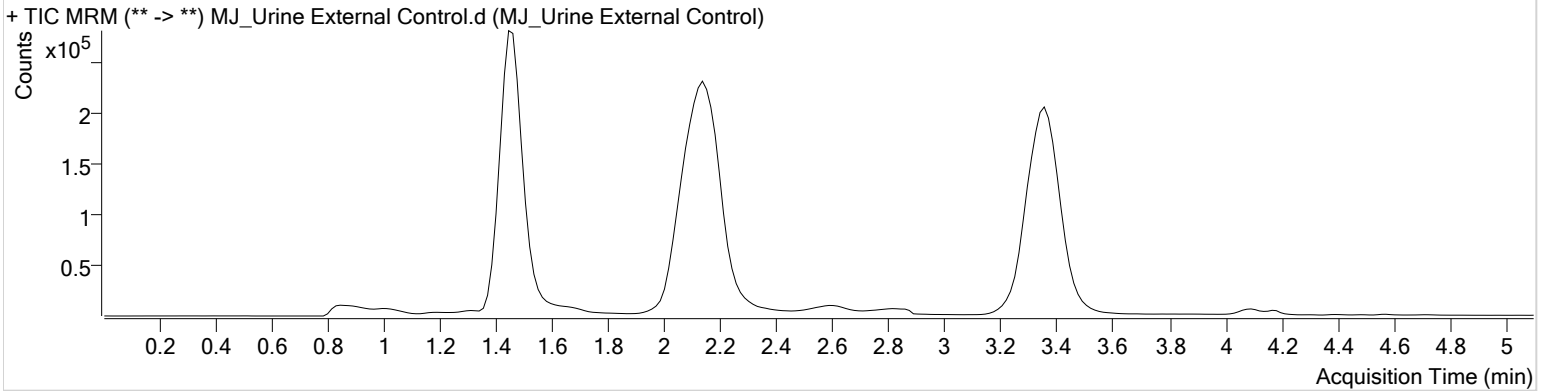


Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Urine External Control.d
Type	Sample	Sample	MJ_Urine External Control
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-C2	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 5:40:56 PM		

Sample Info.

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.453	125370	1674.85	13.3	246.43	1004704	6.4714 ng/ml
THC-COOH	1.489	98481	∞	58.1	232.09	295272	13.7043 ng/ml
THC	3.375	128955	∞	27.2	182.63	1574991	9.7860 ng/ml

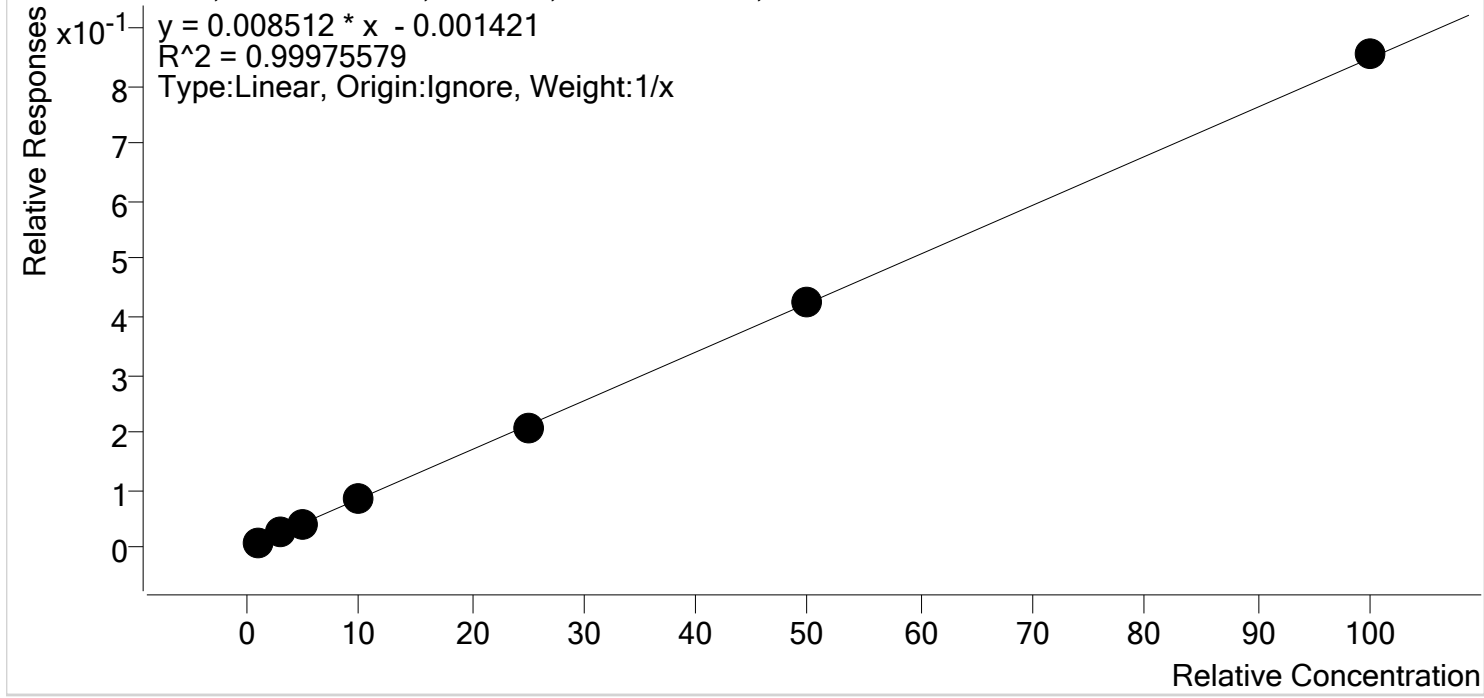


AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run
 CS\QuantResults\THCQ.batch.bin
Last Cal. Update 1/9/2020 9:33 AM
Analyst Name ISP\Datastor
Analyte THC

Internal Standard THC-D3

THC - 7 Levels, 7 Levels Used, 7 Points, 7 Points Used, 0 QCs



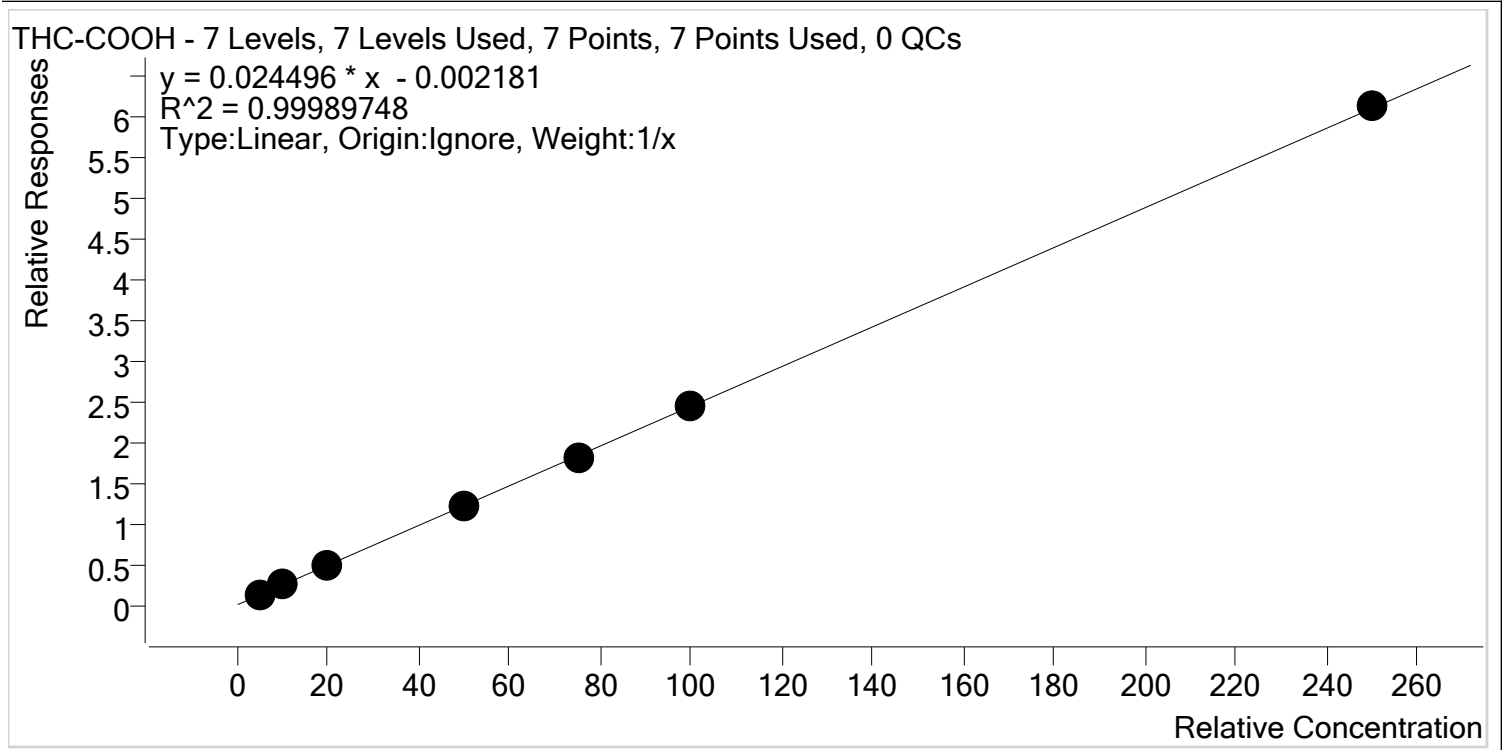
Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✓	1.0	1.1	109.3
MJ_Cal 2	2	✓	3.0	2.9	97.9
MJ_Cal 3	3	✓	5.0	4.8	96.3
MJ_Cal 4	4	✓	10.0	9.7	97.4
MJ_Cal 5	5	✓	25.0	24.5	98.0
MJ_Cal 6	6	✓	50.0	50.1	100.2
MJ_Cal 7	7	✓	100.0	100.8	100.8



AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run
 CS\QuantResults\THCQ.batch.bin
Last Cal. Update 1/9/2020 9:33 AM
Analyst Name ISP\Datastor
Analyte THC-COOH

Internal Standard THC-COOH-D9



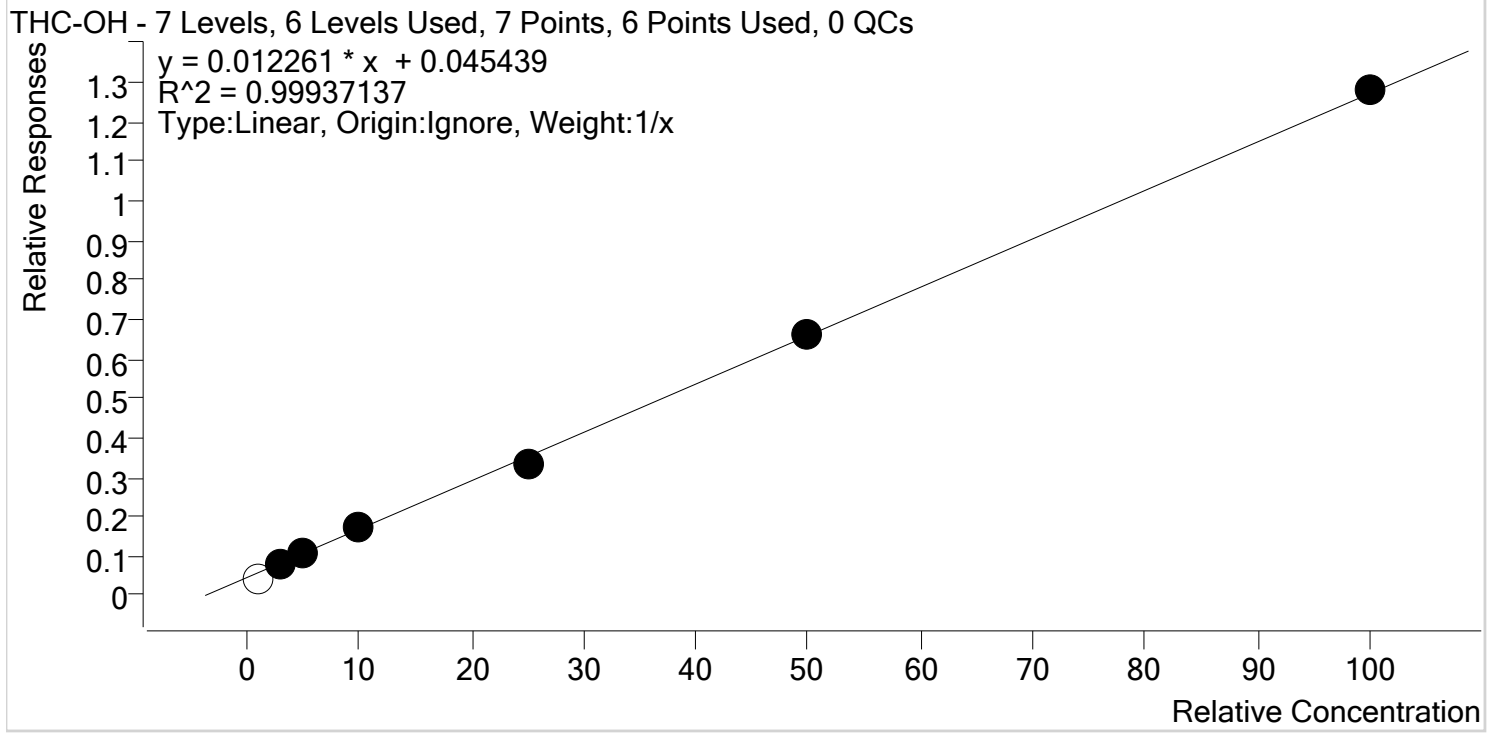
Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✓	5.0	5.2	104.8
MJ_Cal 2	2	✓	10.0	9.6	96.4
MJ_Cal 3	3	✓	20.0	19.8	99.1
MJ_Cal 4	4	✓	50.0	50.3	100.6
MJ_Cal 5	5	✓	75.0	74.4	99.1
MJ_Cal 6	6	✓	100.0	99.6	99.6
MJ_Cal 7	7	✓	250.0	251.1	100.4



AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run
 CS\QuantResults\THCQ.batch.bin
Last Cal. Update 1/9/2020 9:33 AM
Analyst Name ISP\Datastor
Analyte THC-OH

Internal Standard THC-OH-D3



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	x	1.0	0.0	0.0
MJ_Cal 2	2	✓	3.0	3.0	99.0
MJ_Cal 3	3	✓	5.0	5.0	100.1
MJ_Cal 4	4	✓	10.0	10.5	105.0
MJ_Cal 5	5	✓	25.0	23.8	95.1
MJ_Cal 6	6	✓	50.0	50.1	100.2
MJ_Cal 7	7	✓	100.0	100.6	100.6

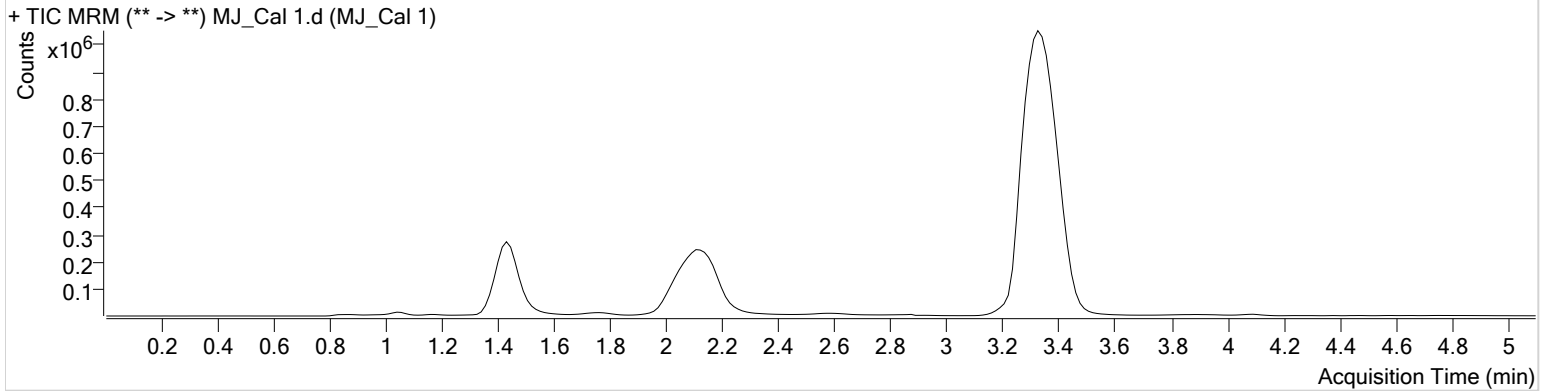
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 1.d
Type	Cal	Sample	MJ_Cal 1
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-A1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 3:54:35 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.474	41611	236.74	55.0	303.49	329779	5.2399 ng/ml Low
THC	3.345	71990	386.35	28.7	32.33	9129170	1.0933 ng/ml Low

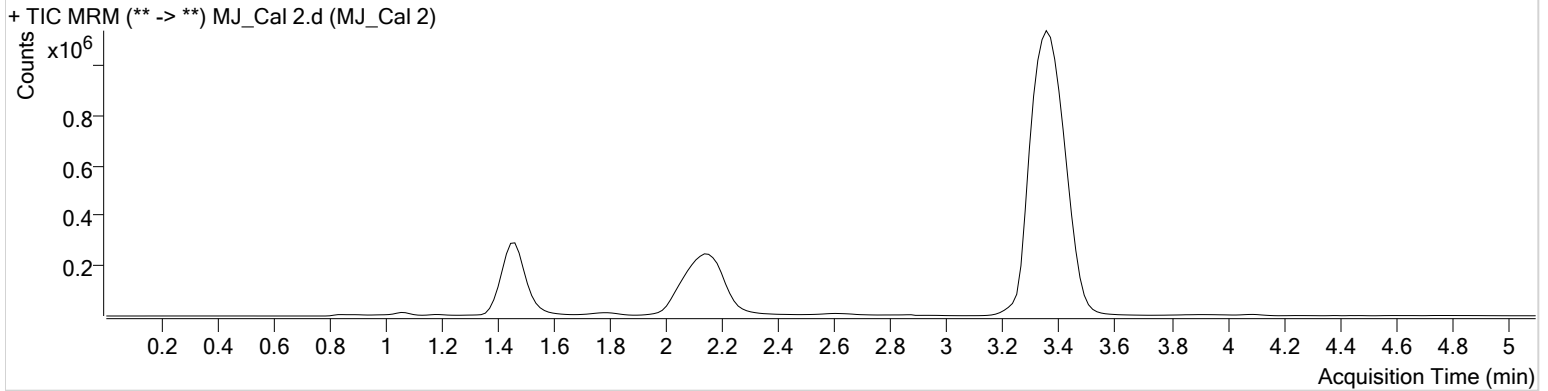
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 2.d
Type	Cal	Sample	MJ_Cal 2
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-B1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:02:19 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.483	98542	∞	9.4	134.03	1204101	2.9688 ng/ml Low
THC-COOH	1.489	80230	∞	59.1	∞	343087	9.6353 ng/ml Low
THC	3.375	226962	860.95	26.6	201.09	9620784	2.9384 ng/ml Low

AM #27 Cannabinoid Quant. Results

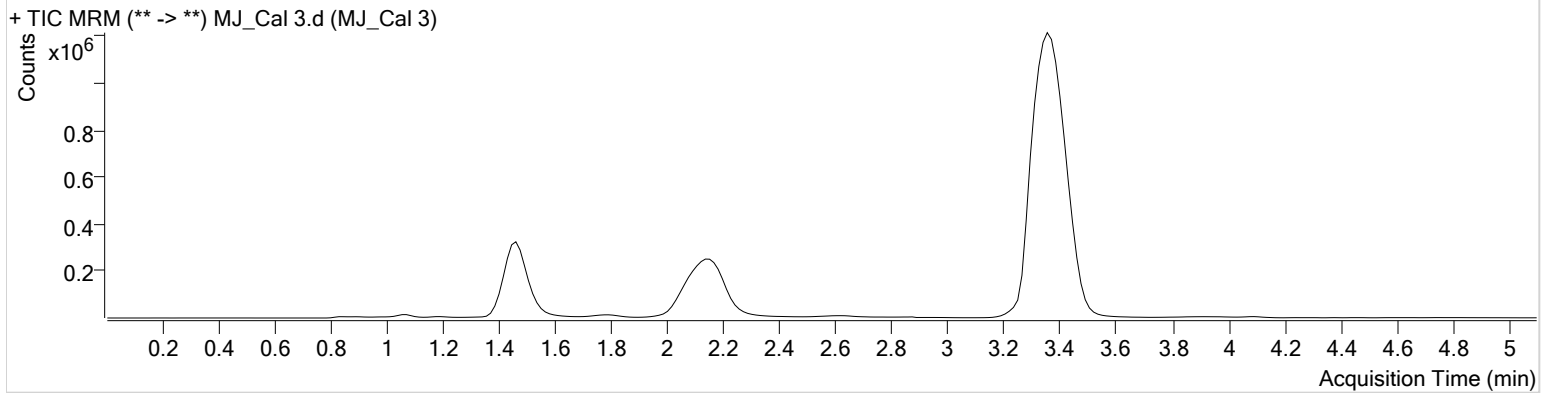


Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 3.d
Type	Cal	Sample	MJ_Cal 3
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-C1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:09:54 PM		

Sample Info.

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.468	125732	∞	9.4	170.54	1177348	5.0041 ng/ml
THC-COOH	1.489	160685	451.22	59.9	860.69	332377	19.8242 ng/ml
THC	3.375	386843	1797.53	27.3	410.92	9780682	4.8135 ng/ml

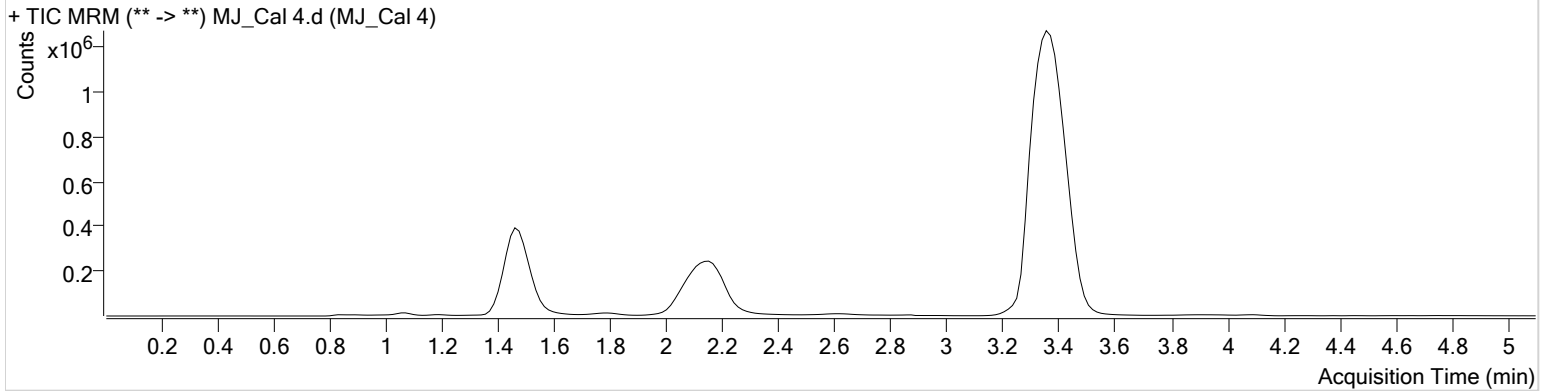
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 4.d
Type	Cal	Sample	MJ_Cal 4
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-D1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:17:28 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.468	207491	∞	10.0	925.94	1191330	10.4993 ng/ml
THC-COOH	1.489	405502	461.20	61.2	4974.63	329803	50.2814 ng/ml
THC	3.375	807504	∞	27.0	∞	9905050	9.7446 ng/ml

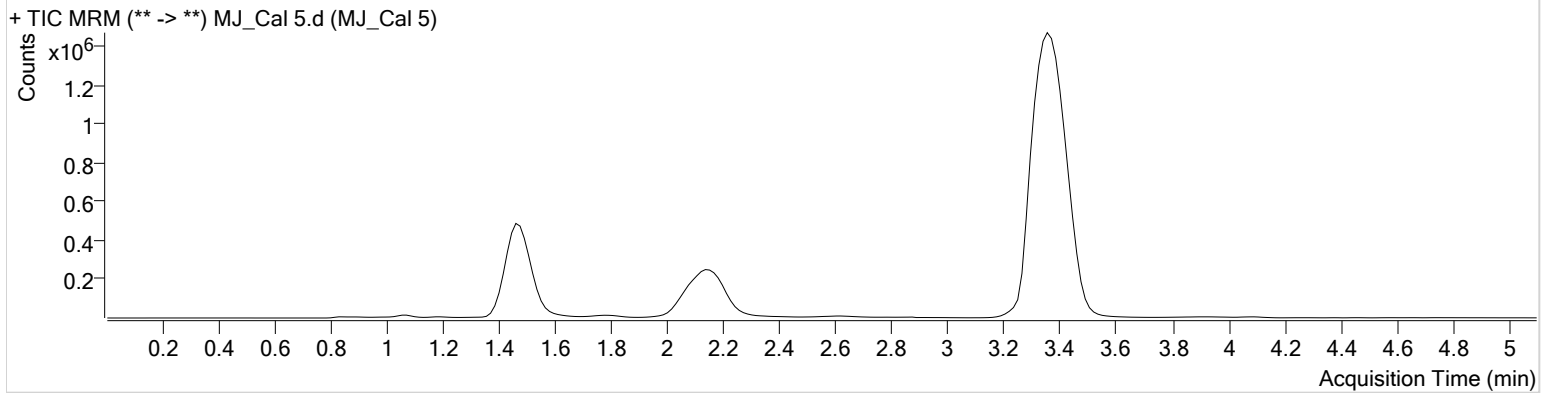
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 5.d
Type	Cal	Sample	MJ_Cal 5
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-E1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:25:02 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.468	403095	∞	13.7	∞	1196134	23.7800 ng/ml
THC-COOH	1.489	597334	2399.89	61.0	∞	328342	74.3550 ng/ml
THC	3.375	2077739	17761.27	26.5	∞	10032919	24.4965 ng/ml

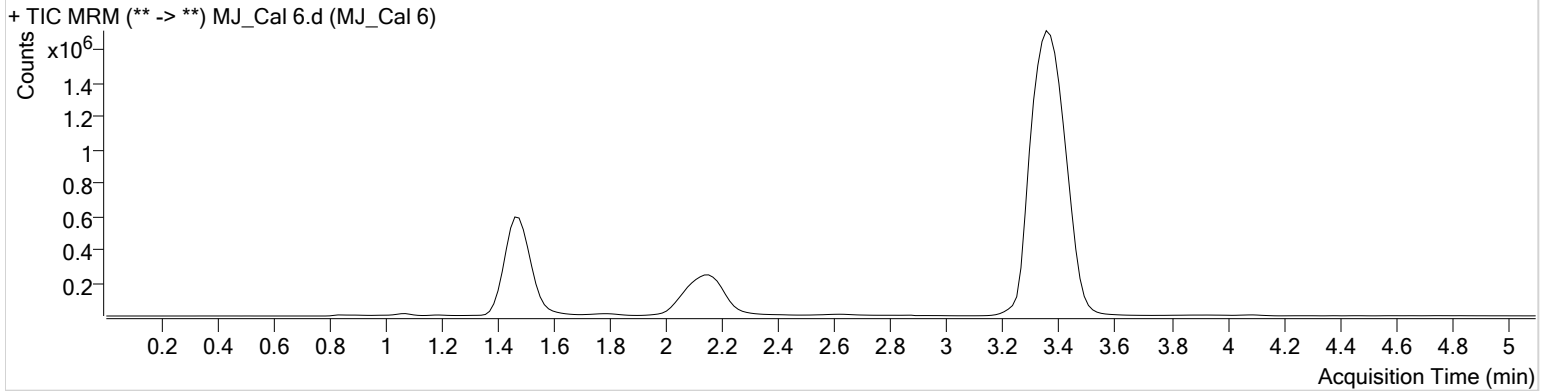
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 6.d
Type	Cal	Sample	MJ_Cal 6
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-F1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:32:37 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.468	770281	∞	13.5	∞	1167660	50.0983 ng/ml
THC-COOH	1.489	779109	2596.00	61.4	∞	319620	99.5982 ng/ml
THC	3.375	4122912	11384.17	27.0	∞	9699465	50.1045 ng/ml

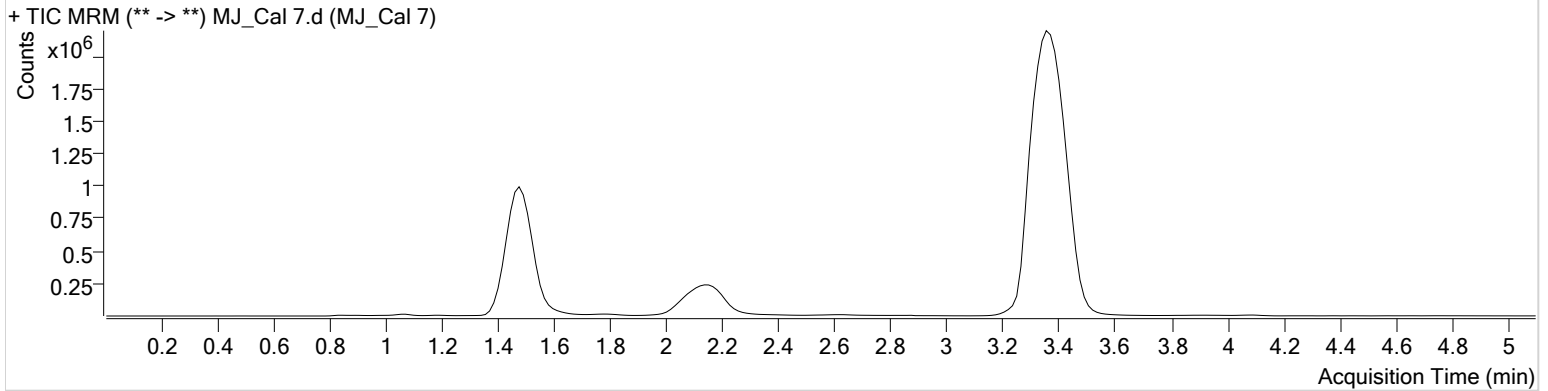
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2020\AM 27-28\AM 27-28 010720 Combo Run CS\QuantResults\THCQ.batch.bin
Calibration Last Update 1/9/2020 9:33:05 AM

Instrument	Falco	Data File	MJ_Cal 7.d
Type	Cal	Sample	MJ_Cal 7
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-G1	Comment	
Injection Volume	10		
Acq. Date-Time	1/7/2020 4:40:11 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.453	1444694	∞	13.8	∞	1129130	100.6496 ng/ml
THC-COOH	1.489	1821524	∞	61.7	∞	296278	251.0660 ng/ml
THC	3.375	7895201	9942.23	26.8	∞	9216252	100.8091 ng/ml