

REVIEWED

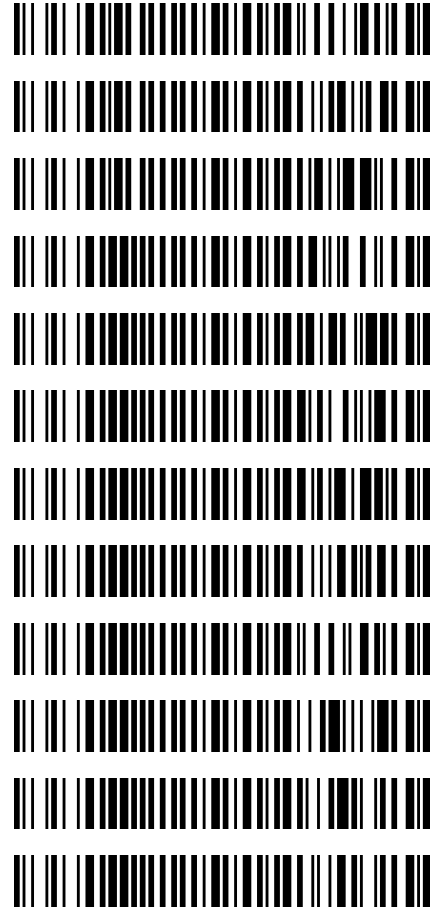
By Sarah Collins at 8:55 am, Jan 27, 2021

CS TS

1/22/2021

Worklist: 4750

<u>LAB CASE</u>	<u>ITEM</u>	<u>ITEM TYPE</u>	<u>DESCRIPTION</u>
M2020-4600	2	BCK	AM 27 Blood THC Quant by LC-QQQ
M2020-5211	2	BCK	AM 27 Blood THC Quant by LC-QQQ
M2020-5292	2	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0009	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0034	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0052	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0054	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0055	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0070	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0073	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0112	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2021-0113	1	BCK	AM 27 Blood THC Quant by LC-QQQ



Worklist: 4761

<u>LAB CASE</u>	<u>ITEM</u>	<u>ITEM TYPE</u>	<u>DESCRIPTION</u>
P2021-0004	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ



CS TS

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

Extraction Date: 01/22/2021

Plate lot#: IDP-108-200723

Mobile phase A: 0.1% Formic Acid in LCMS Water

Blank Blood Lot: Lampire 20L20725

LCMS-QQQ ID: 069901

Analyst: Tamara Salazar

Plate Expiration: 01/23/21

Mobile phase B: 0.1% Formic acid in Acetonitrile

Column: UCT Selectra DA 100 x 2.1mm 3um

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.
- 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 **700-800µL of blood+acid or urine+acid** mixture to corresponding wells of SLE+ plate. Amount transferred: 800uL
- 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)**
- 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.
- 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 r^2 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 samples with calculated concentrations for THC at 1ng/mL or greater and OH-THC at 3ng/mL or greater may be reported quantitatively (blood only). Calculated concentrations for carboxy-THC of 5ng/mL may be reported qualitatively. 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: *Curves Limited: THC 3-100—reported qualitatively*

CS TS

Celena Shrum added the sample from worklist 4761 to this run. Tamara Salazar acted as the primary analyst and completed steps 3-16.

I, Celena Shrum, approve of the methods utilized in this extraction.

Only carboxy-THC evaluated for urine sample.

CS

CS TS

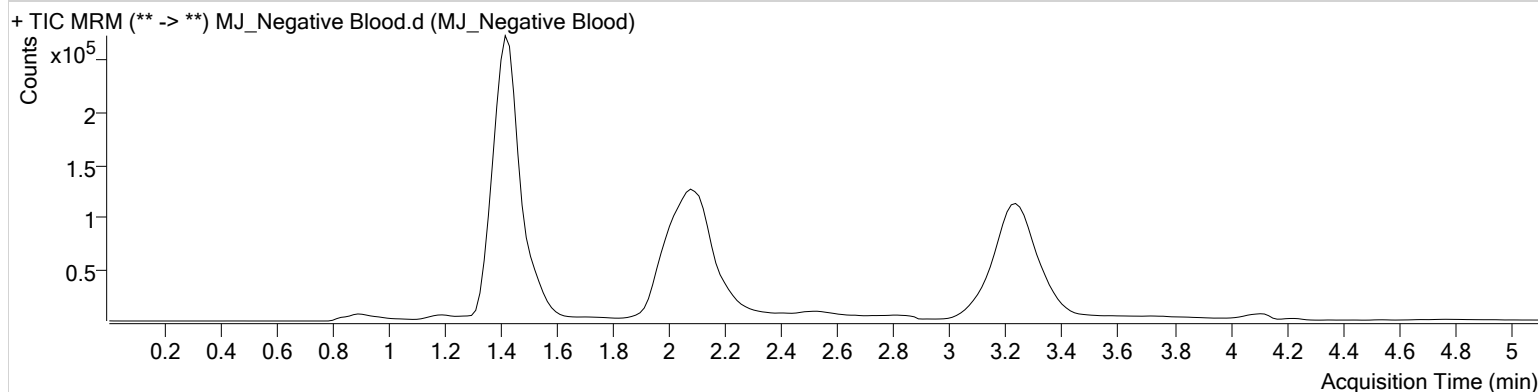


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument Type	Instrument 1 Sample	Data File	MJ_Negative Blood.d
Acq. Method	AM 27 THCQ.m	Sample	MJ_Negative Blood
Sample Position	P1-A2	Operator	Tamara Salazar
Injection Volume	10	Comment	
Acq. Date-Time	1/22/2021 5:16:54 PM		
Sample Info.			

Sample Chromatogram



CS TS

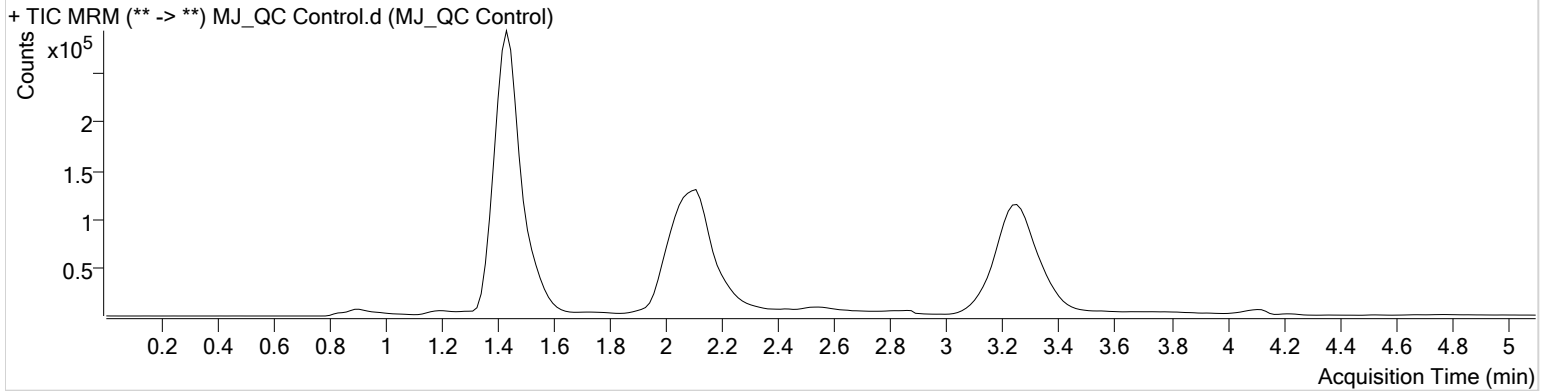


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_QC Control.d
Type	Sample	Sample	MJ_QC Control
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-H1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 5:01:41 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	101592	∞	11.9	64.49	1325984	4.3909 ng/ml
THC-COOH	1.459	115221	∞	56.4	∞	304209	15.6500 ng/ml
THC	3.270	52729	104.81	27.9	13.75	1190564	4.8047 ng/ml

CS TS



Idaho State Police Forensic Services

AM #26 Screening of THC and Metabolites and AM #27 Confirmation of THC and Metabolites Urine External Control Prep Sheet

Methanol External Control Solution (Lot: WS011620)

10 µL of 1mg/mL THC, 100 µL of 100 µg/mL THC-OH, C-THC in 9790 µL MeOH

Approximate concentration 1ug/mL.

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>	<i>Expiration Date</i>
Methanol (LCMS)	Fisher	193941	
THC	Cerilliant	FE09101501	11/30/2020
C-THC	Cerilliant	FE07171501	09/30/2020
THC-OH	Cerilliant	FE07221601	07/31/2021
Prepared:	01/16/2020		
Prepared By:	Tamara Salazar		

Urine External Control Solution (Lot: 110220)

200 ul of methanol external control solution was added to 9800 ul of urine.

Approximately 20ng/mL each

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>
Negative Urine	Pocatello Lab	POC031319
Methanol External Control Solution	-	WS011620
Prepared:	11/02/2020	
Prepared by:	Celena Shrum	

CS TS

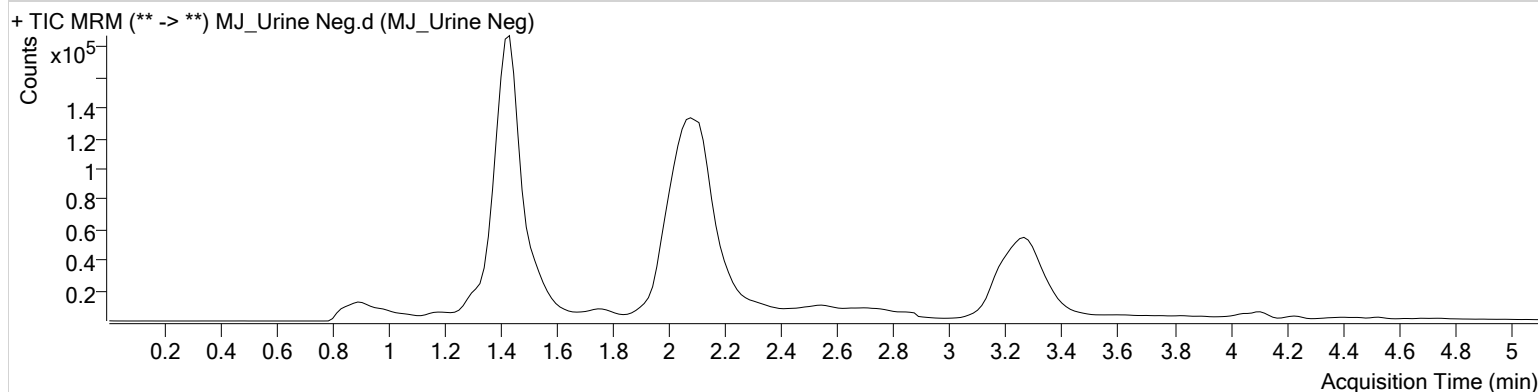


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Urine Neg.d
Type	Sample	Sample	MJ_Urine Neg
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-B2	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 5:32:05 PM		
Sample Info.			

Sample Chromatogram



CS TS



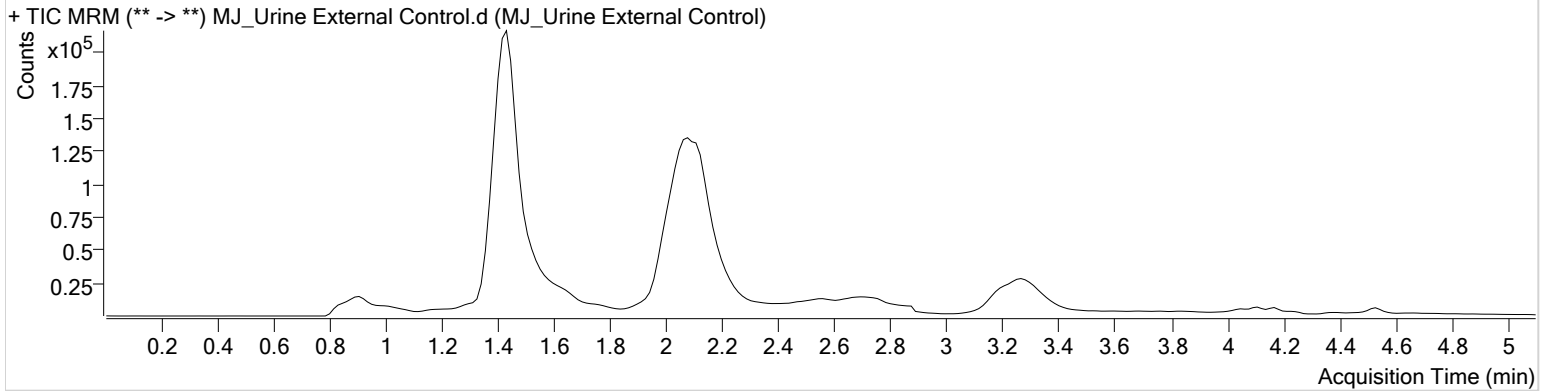
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument Instrument 1
Type Sample
Acq. Method AM 27 THCQ.m
Sample Position P1-C2
Injection Volume 10
Acq. Date-Time 1/22/2021 5:47:17 PM
Sample Info.

Data File MJ_Urine External Control.d
Sample MJ_Urine External Control
Operator Tamara Salazar
Comment

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	25904	∞	14.6 High	33.28	1206252	1.0879 ng/ml Low
THC-COOH	1.459	40389	∞	64.0	∞	206680	7.9707 ng/ml

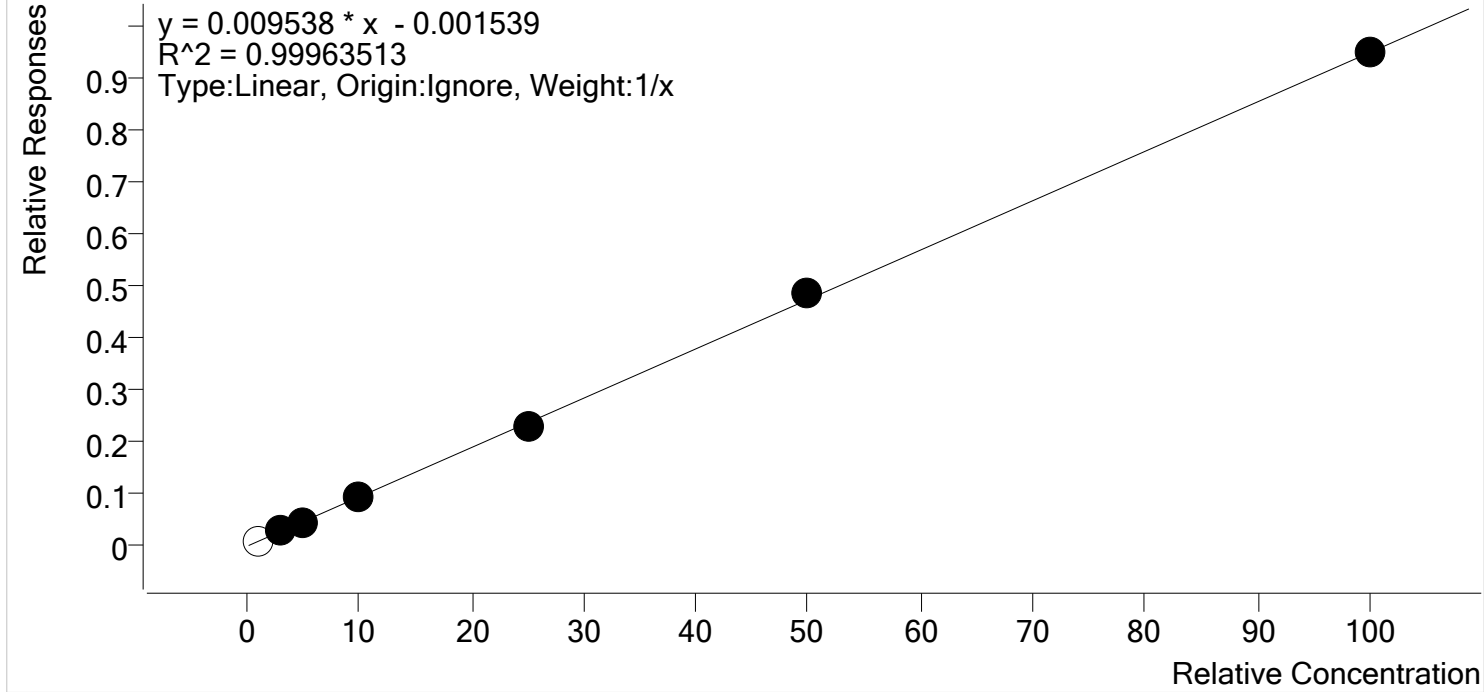
CS TS



AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Last Cal. Update 1/26/2021 8:29 AM
Analyst Name ISP\Datastor
Analyte THC **Internal Standard** THC-D3

THC - 7 Levels, 6 Levels Used, 7 Points, 6 Points Used, 0 QCs



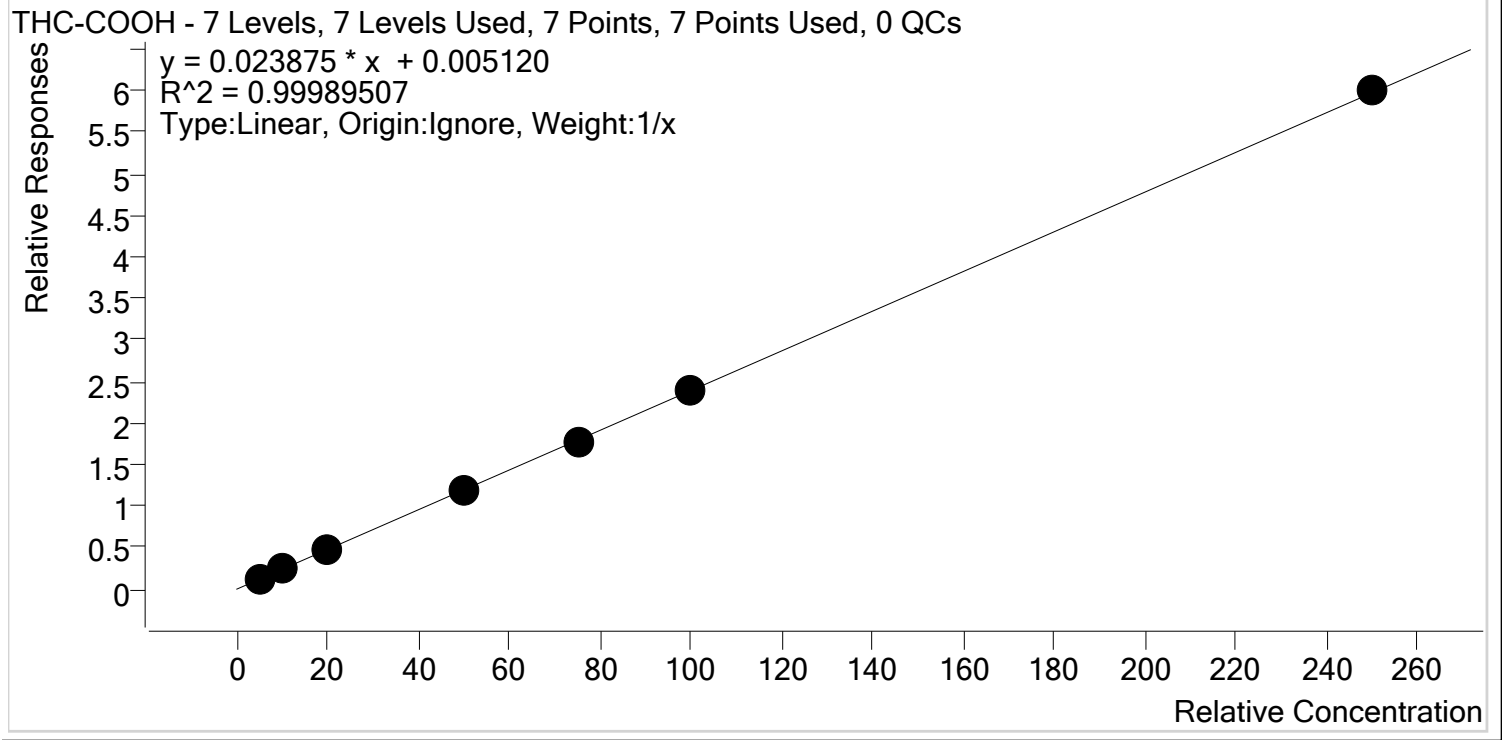
Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	x	1.0	1.1	114.2
MJ_Cal 2	2	✓	3.0	3.1	102.5
MJ_Cal 3	3	✓	5.0	5.0	100.6
MJ_Cal 4	4	✓	10.0	9.8	98.4
MJ_Cal 5	5	✓	25.0	24.1	96.6
MJ_Cal 6	6	✓	50.0	51.0	101.9
MJ_Cal 7	7	✓	100.0	99.9	99.9

CS TS



AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Last Cal. Update 1/26/2021 8:29 AM
Analyst Name ISP\Datastor
Analyte THC-COOH **Internal Standard** THC-COOH-D9



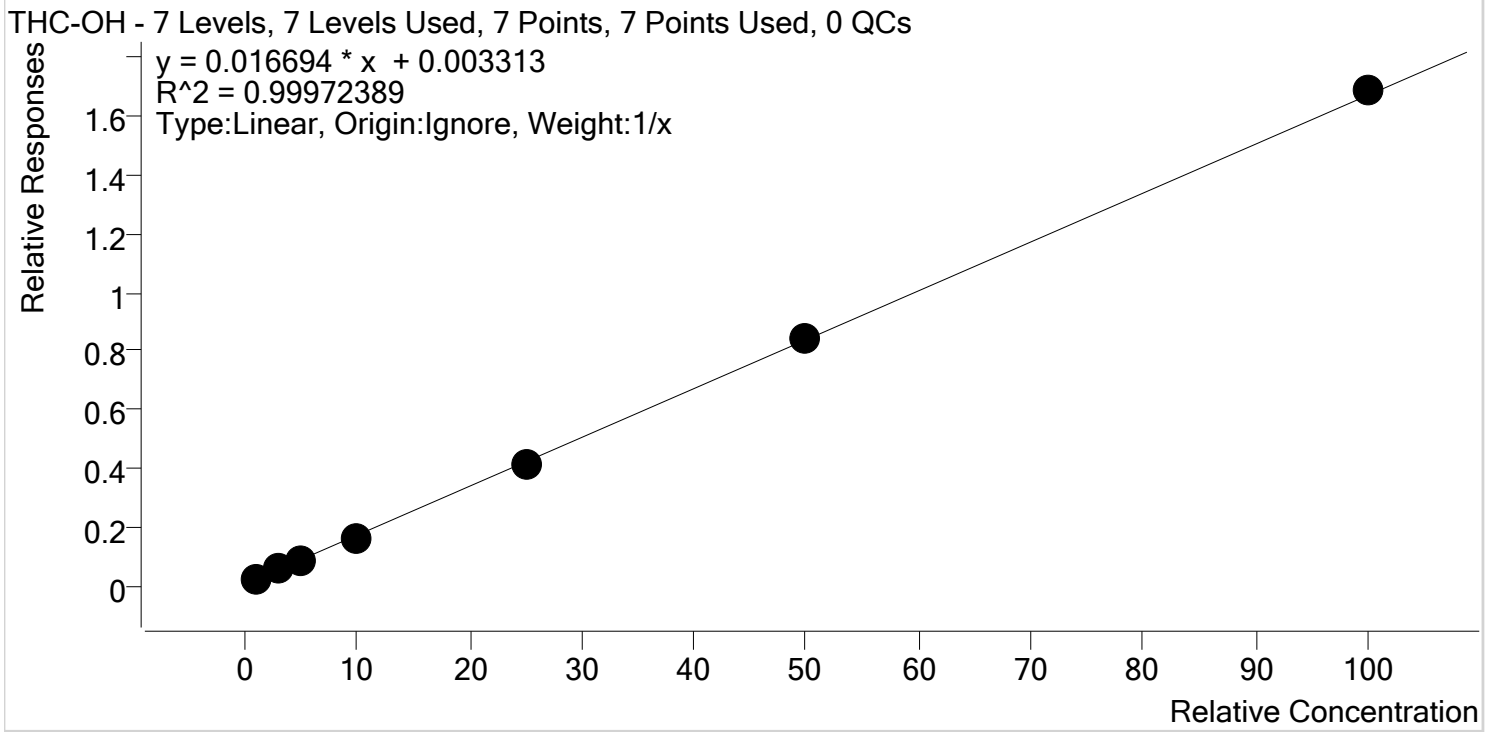
Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✓	5.0	5.1	102.6
MJ_Cal 2	2	✓	10.0	9.8	98.4
MJ_Cal 3	3	✓	20.0	20.2	101.1
MJ_Cal 4	4	✓	50.0	48.9	97.8
MJ_Cal 5	5	✓	75.0	74.6	99.5
MJ_Cal 6	6	✓	100.0	100.2	100.2
MJ_Cal 7	7	✓	250.0	251.1	100.4

CS TS



AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Last Cal. Update 1/26/2021 8:29 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	✓	1.0	1.1	109.5
MJ_Cal 2	2	✓	3.0	2.9	96.6
MJ_Cal 3	3	✓	5.0	4.9	98.6
MJ_Cal 4	4	✓	10.0	9.6	96.5
MJ_Cal 5	5	✓	25.0	24.5	97.9
MJ_Cal 6	6	✓	50.0	50.0	100.0
MJ_Cal 7	7	✓	100.0	100.9	100.9

CS TS

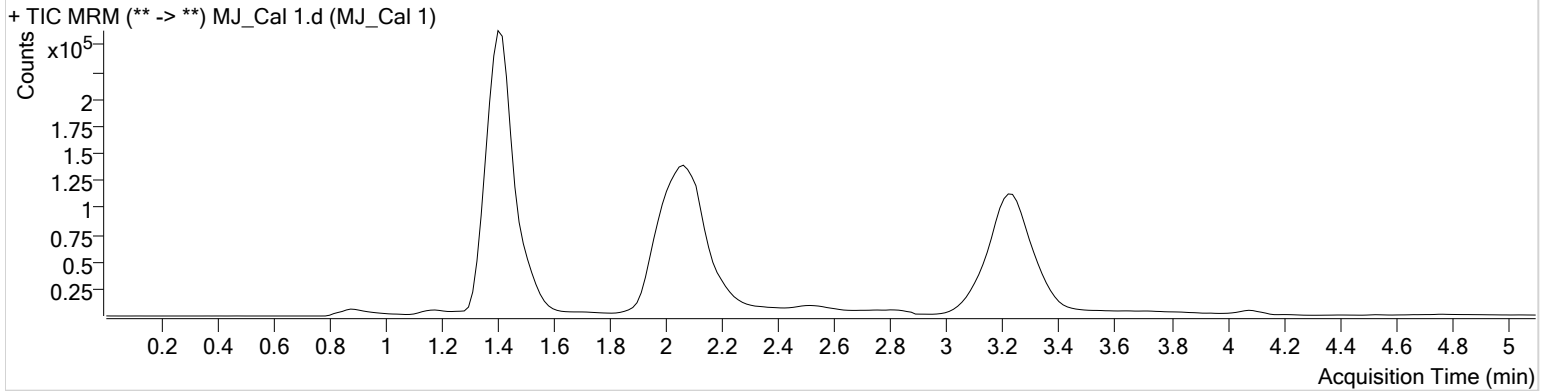


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Cal 1.d
Type	Cal	Sample	MJ_Cal 1
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-A1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 4:00:48 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.423	30169	∞	12.0	∞	1397063	1.0951 ng/ml Low
THC-COOH	1.444	43280	∞	52.5	∞	339036	5.1325 ng/ml
THC	3.254	11774	12.59	47.8 High	9.50 Low	1259238	1.1417 ng/ml

CS TS

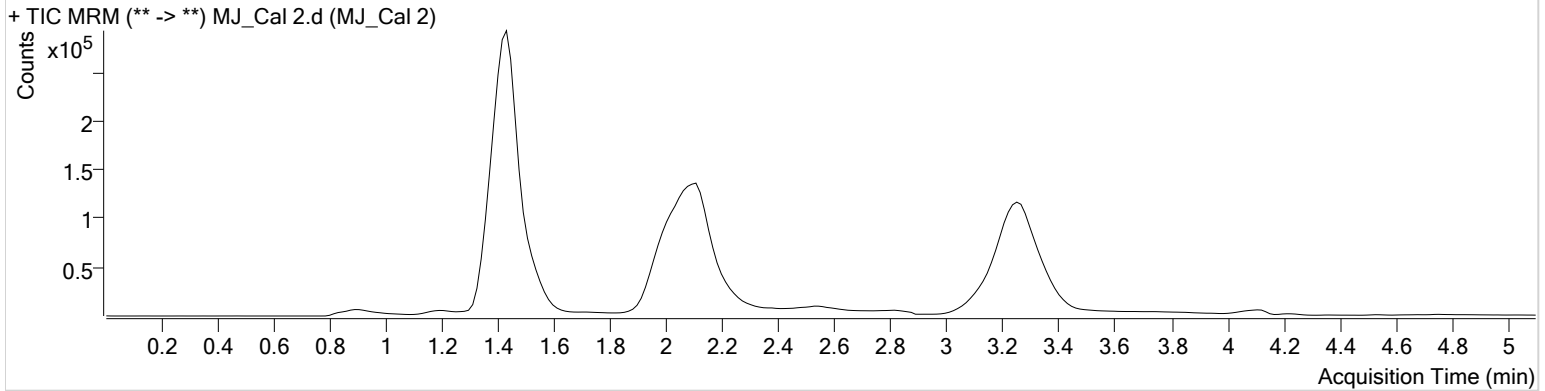


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Cal 2.d
Type	Cal	Sample	MJ_Cal 2
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-B1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 4:08:33 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	76813	∞	11.8	∞	1486498	2.8968 ng/ml Low
THC-COOH	1.459	83259	∞	55.0	∞	346985	9.8360 ng/ml
THC	3.285	35843	289.90	22.4	27.07	1290113	3.0741 ng/ml

CS TS

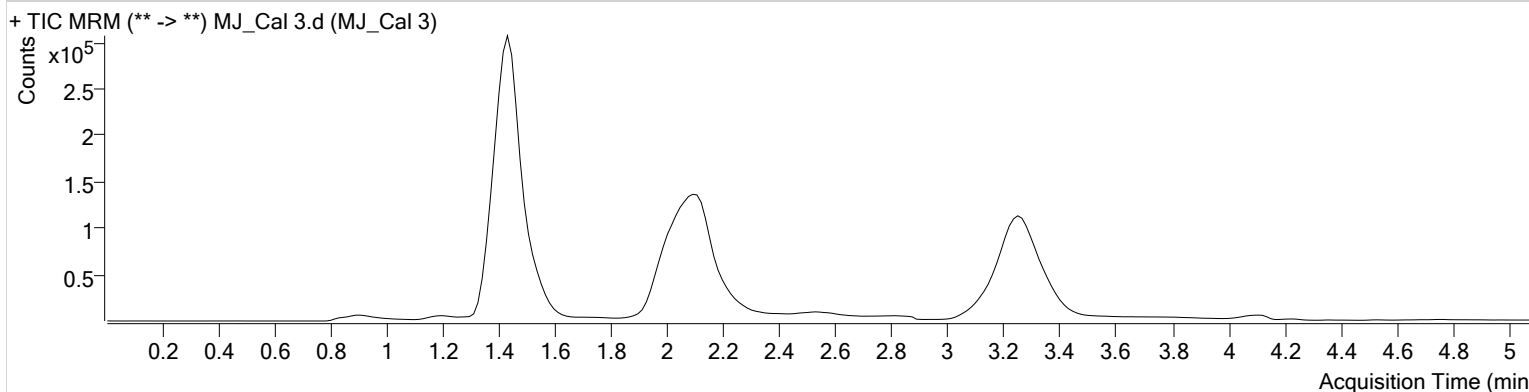


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Cal 3.d
Type	Cal	Sample	MJ_Cal 3
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-C1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 4:16:09 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	120333	∞	12.1	∞	1406089	4.9278 ng/ml
THC-COOH	1.459	161102	191.53	55.7	∞	330329	20.2132 ng/ml
THC	3.254	56033	80.45	22.4	56.27	1206031	5.0323 ng/ml

CS TS

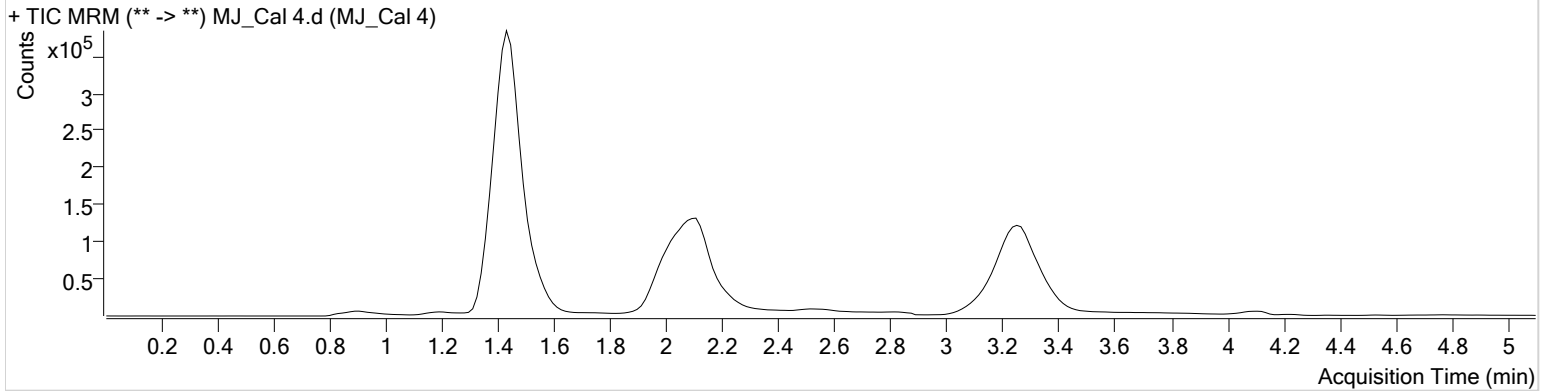


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Cal 4.d
Type	Cal	Sample	MJ_Cal 4
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-D1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 4:23:44 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	239220	∞	11.8	∞	1455001	9.6499 ng/ml
THC-COOH	1.459	399584	∞	57.7	∞	340945	48.8750 ng/ml
THC	3.254	114859	324.81	27.7	∞	1243681	9.8439 ng/ml

CS TS

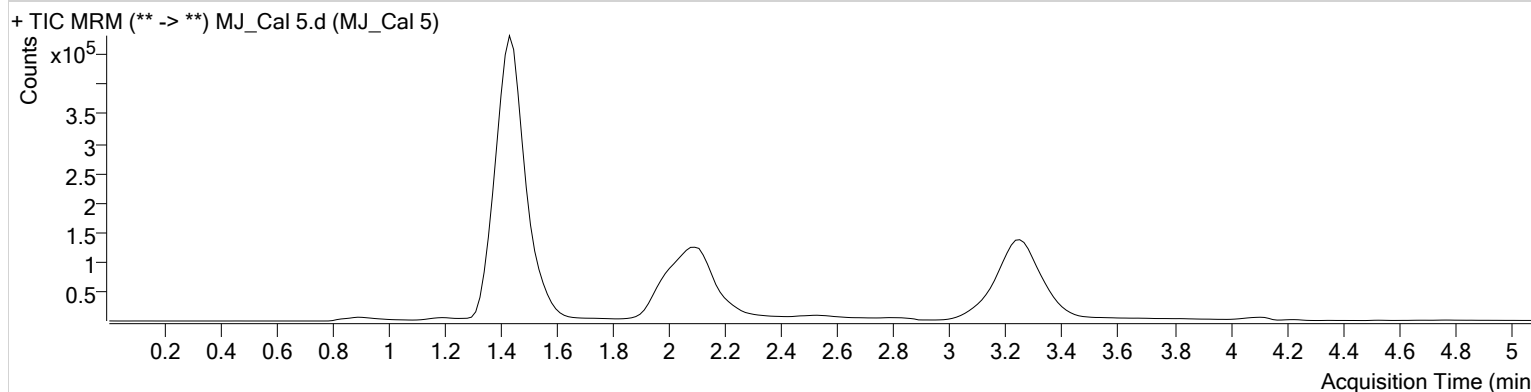


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Cal 5.d
Type	Cal	Sample	MJ_Cal 5
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-E1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 4:31:19 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	600431	∞	11.7	∞	1457714	24.4746 ng/ml
THC-COOH	1.459	599363	∞	58.2	∞	335339	74.6490 ng/ml
THC	3.270	280581	332.62	25.6	299.43	1226419	24.1470 ng/ml

CS TS



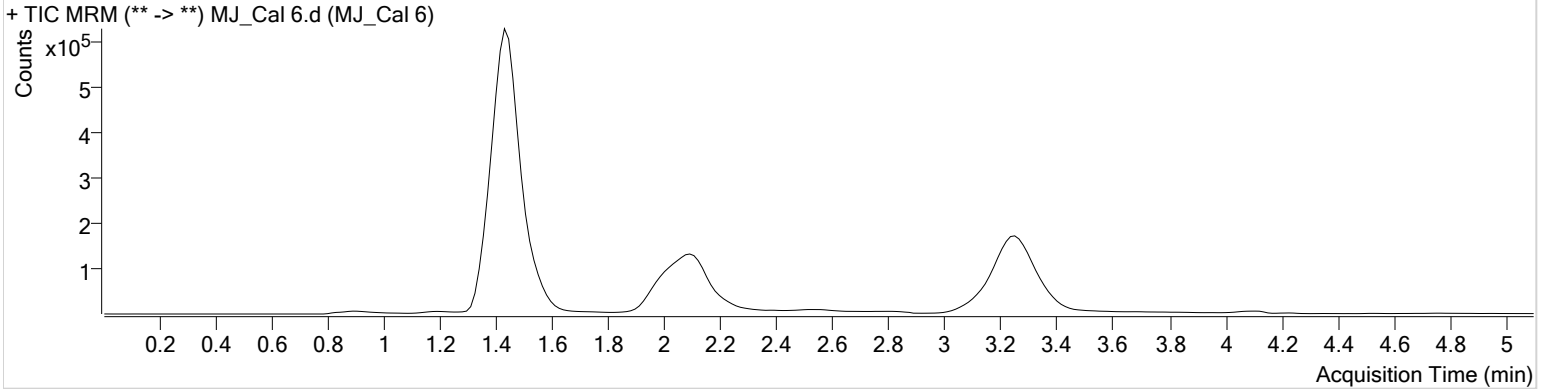
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument Instrument 1
Type Cal
Acq. Method AM 27 THCQ.m
Sample Position P1-F1
Injection Volume 10
Acq. Date-Time 1/22/2021 4:38:55 PM
Sample Info.

Data File MJ_Cal 6.d
Sample MJ_Cal 6
Operator Tamara Salazar
Comment

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	1228254	∞	11.9	∞	1464982	50.0229 ng/ml
THC-COOH	1.459	802271	∞	58.3	∞	334622	100.2081 ng/ml
THC	3.254	571875	∞	24.7	97.54	1180436	50.9528 ng/ml

CS TS



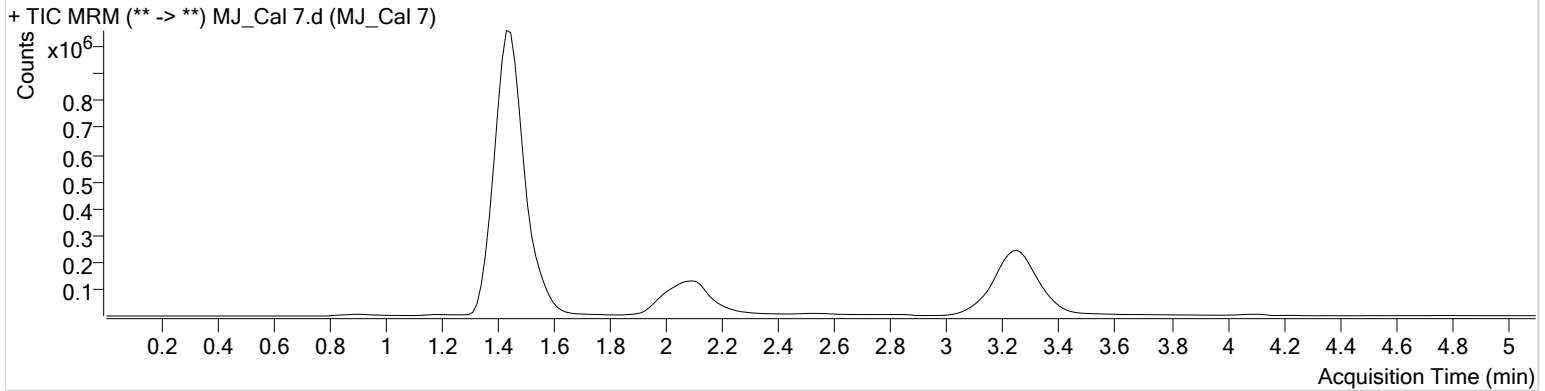
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\0122221 AM 27 28 TS CS\QuantResults\AM 27.batch.bin
Calibration Last Update 1/26/2021 8:29:37 AM

Instrument	Instrument 1	Data File	MJ_Cal 7.d
Type	Cal	Sample	MJ_Cal 7
Acq. Method	AM 27 THCQ.m	Operator	Tamara Salazar
Sample Position	P1-G1	Comment	
Injection Volume	10		
Acq. Date-Time	1/22/2021 4:46:30 PM		

Sample Info.

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.423	2416214	∞	12.1	∞	1431142	100.9328 ng/ml
THC-COOH	1.459	1912064	∞	58.8	∞	318693	251.0862 ng/ml
THC	3.254	1184419	3577.99	25.2	314.14	1244392	99.9498 ng/ml