

**REVIEWED**

By Celena Shrum at 3:19 pm, Jul 13, 2020

7/9/2020 \$

**Worklist: 4350**

<u>LAB CASE</u>	<u>ITEM</u>	<u>ITEM TYPE</u>	<u>DESCRIPTION</u>	
M2020-1467	3	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2020-1865	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2020-1944	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2020-2191	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2020-2345	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1562	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1570	3	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1584	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1779	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1791	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1812	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1932	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2020-1934	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	

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

Extraction Date: 7/7/20

Analyst: Sarah Pickle

Plate item/lot#: IDP-108-2-200303

Plate Expiration: 9/3/20

**Mobile phase A:** 0.1% Formic Acid in LCMS Water

**Mobile phase B:** 0.1% Formic acid in Acetonitrile

**Blank Blood Lot:** 445283-4

**Column:** UCT Selectra DA 100 x 2.1mm 3um

**Blank Urine Lot:** POC031319

**LCMS-QQQ ID:** 069901

### 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: #27**
- 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: 800 µL
- 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<sup>2</sup> 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: THC 1-100, THC-COOH 5-250, THC-OH 3-100*



# 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		
Expires:	09/30/2020		

**Urine External Control Solution (Lot: 042220)**

*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:	07/07/2020	
Prepared by:	Sophie Jackson	
Expires:	09/30/2020	

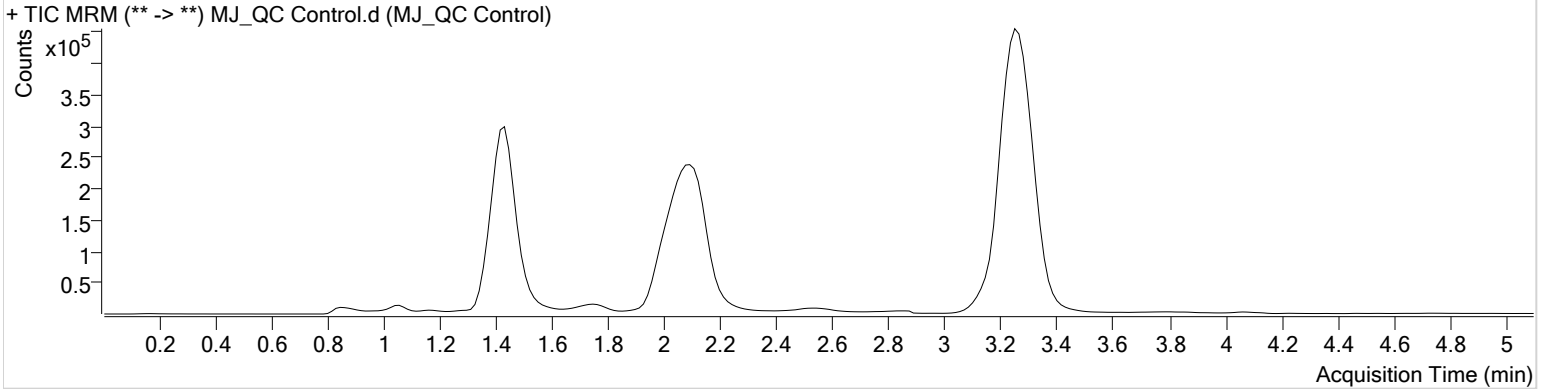


# AM #27 Cannabinoid Quant. Results

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

**Instrument** Falco **Data File** MJ\_QC Control.d  
**Type** Sample **Sample** MJ\_QC Control  
**Acq. Method** AM 27 THC quant.m **Operator** Sarah Pickle  
**Sample Position** P3-H1 **Comment**  
**Injection Volume** 10  
**Acq. Date-Time** 7/7/2020 3:00:08 PM  
**Sample Info.**

## Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.453	174336	∞	8.9	167.71	1169174	4.6135 ng/ml
THC-COOH	1.459	118057	∞	55.3	∞	342679	16.4498 ng/ml
THC	3.270	142363	118.56	28.9	∞	3664543	4.2924 ng/ml

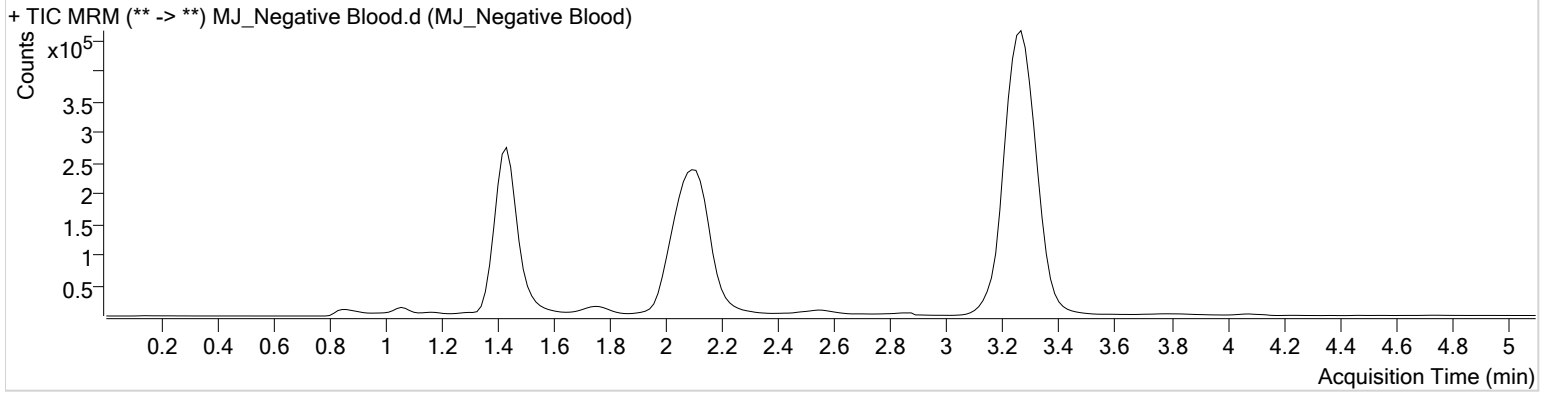


# AM #27 Cannabinoid Quant. Results

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Negative Blood.d
<b>Type</b>	Sample	<b>Sample</b>	MJ_Negative Blood
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-A2	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 3:15:20 PM		
<b>Sample Info.</b>			

## Sample Chromatogram





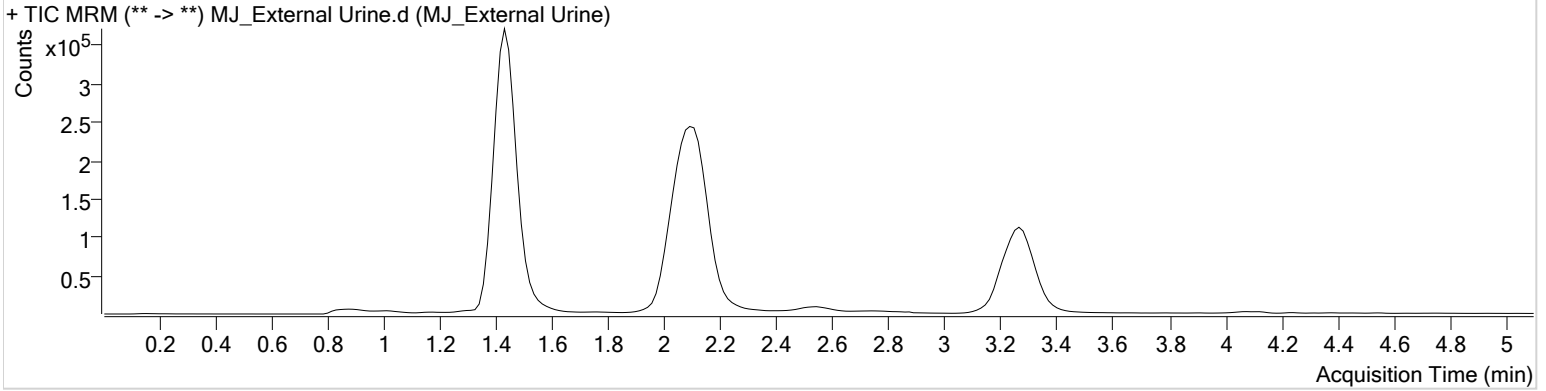
# AM #27 Cannabinoid Quant. Results

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

**Instrument** Falco  
**Type** Sample  
**Acq. Method** AM 27 THC quant.m  
**Sample Position** P3-C2  
**Injection Volume** 10  
**Acq. Date-Time** 7/7/2020 3:45:43 PM  
**Sample Info.**

**Data File** MJ\_External Urine.d  
**Sample** MJ\_External Urine  
**Operator** Sarah Pickle  
**Comment**

## Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	251832	788.38	12.7	235.71	1332571	6.9017 ng/ml
THC-COOH	1.474	98917	∞	58.0	93.80	335973	14.0218 ng/ml
THC	3.285	89385	186.00	28.5	249.50	823396	11.5975 ng/ml

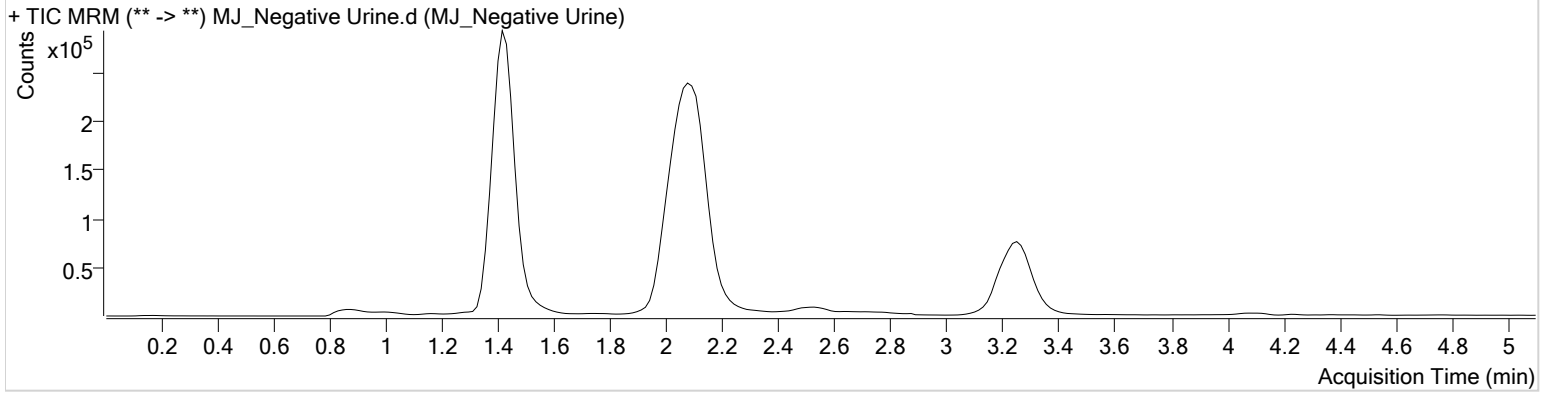


# AM #27 Cannabinoid Quant. Results

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Negative Urine.d
<b>Type</b>	Sample	<b>Sample</b>	MJ_Negative Urine
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-B2	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 3:30:33 PM		
<b>Sample Info.</b>			

## Sample Chromatogram

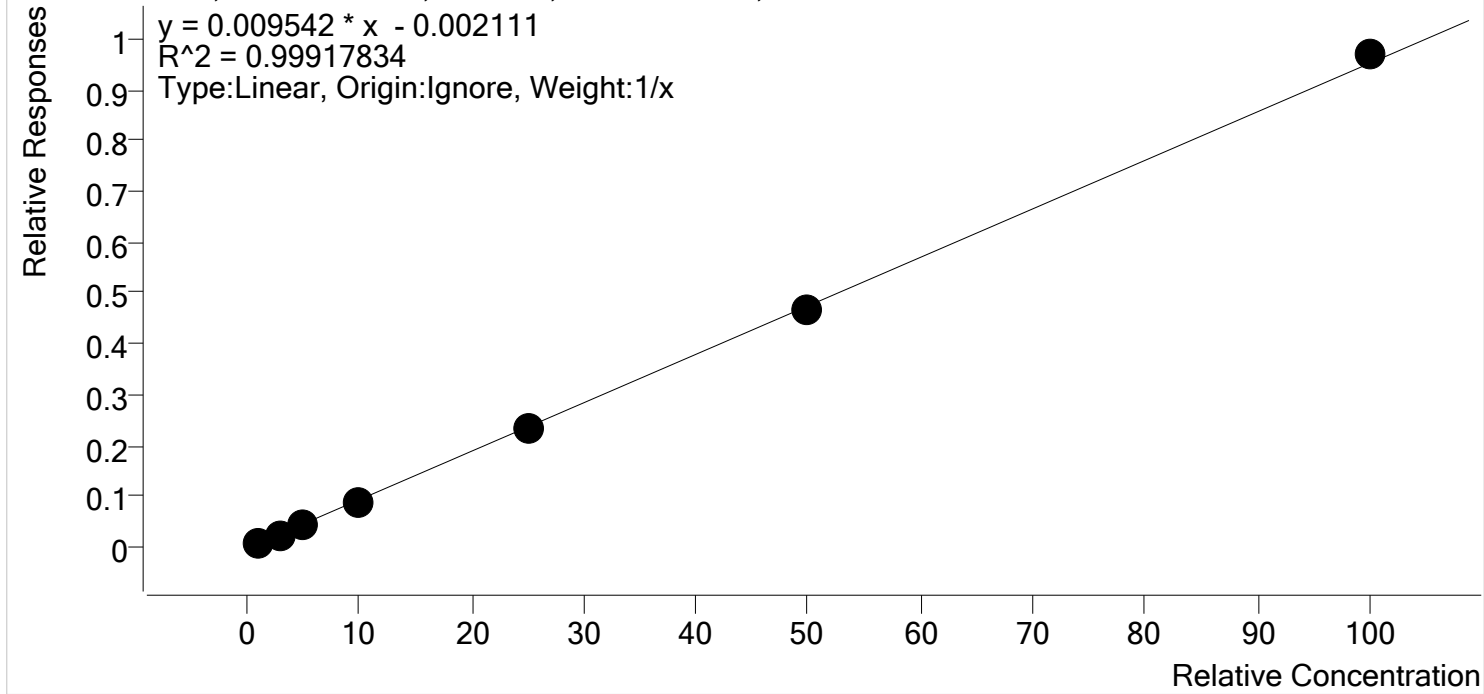




# AM #27 Cannabinoids Quant. Calibration Curve Report

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Last Cal. Update** 7/8/2020 1:15 PM  
**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	1.2	115.3
MJ_Cal 2	2	✓	3.0	2.9	96.1
MJ_Cal 3	3	✓	5.0	4.9	97.2
MJ_Cal 4	4	✓	10.0	9.2	92.1
MJ_Cal 5	5	✓	25.0	24.6	98.5
MJ_Cal 6	6	✓	50.0	49.5	99.0
MJ_Cal 7	7	✓	100.0	101.8	101.8



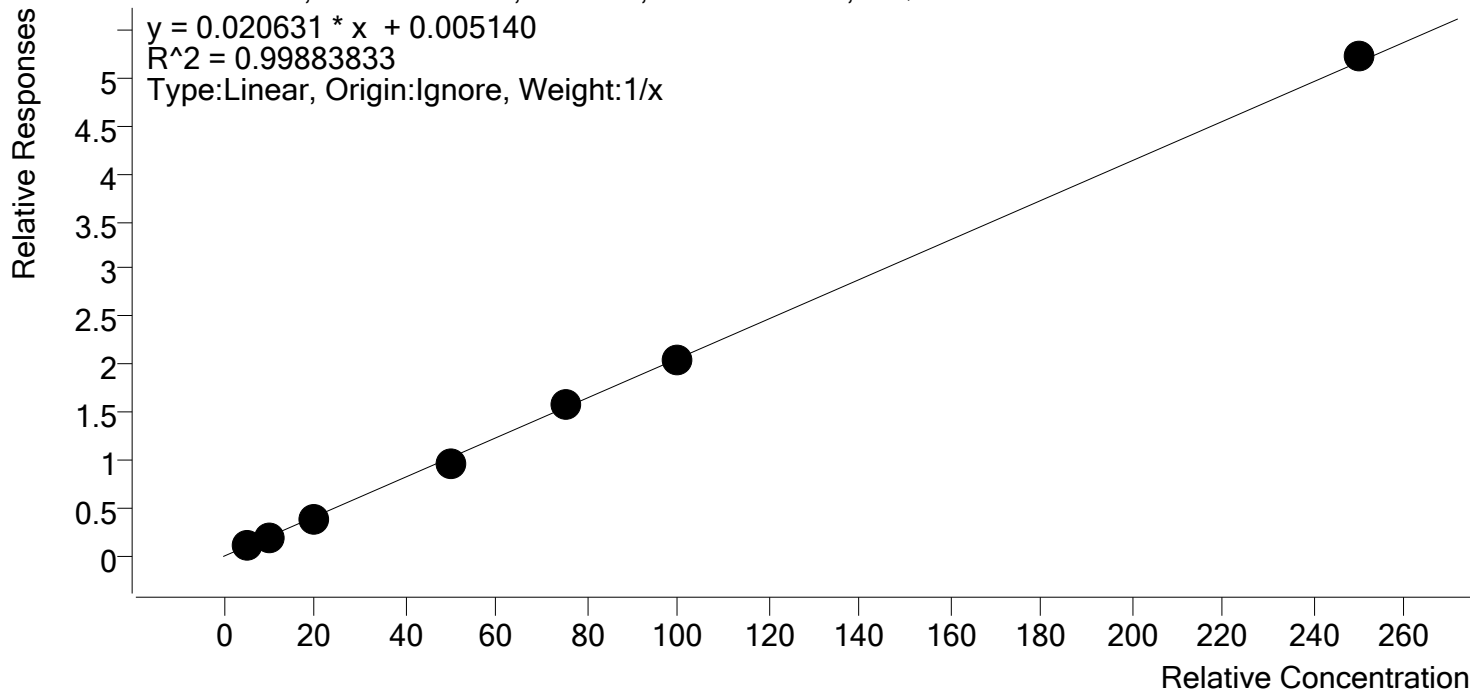
\$



# AM #27 Cannabinoids Quant. Calibration Curve Report

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Last Cal. Update** 7/8/2020 1:15 PM  
**Analyst Name** ISP\datastor  
**Analyte** THC-COOH **Internal Standard** THC-COOH-D9

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

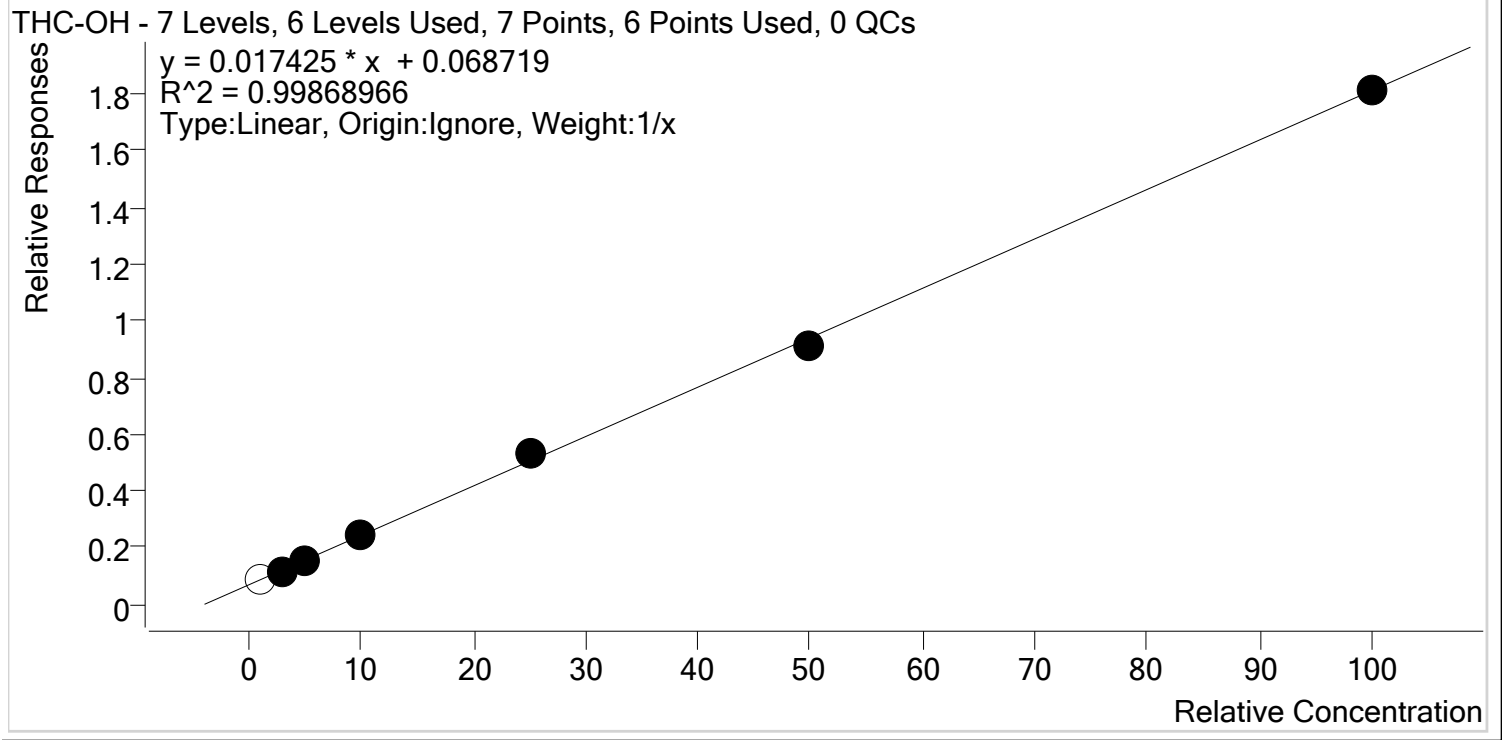


Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✓	5.0	5.7	114.7
MJ_Cal 2	2	✓	10.0	9.2	92.2
MJ_Cal 3	3	✓	20.0	19.1	95.4
MJ_Cal 4	4	✓	50.0	47.5	95.1
MJ_Cal 5	5	✓	75.0	77.2	103.0
MJ_Cal 6	6	✓	100.0	98.5	98.5
MJ_Cal 7	7	✓	250.0	252.7	101.1



# AM #27 Cannabinoids Quant. Calibration Curve Report

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Last Cal. Update** 7/8/2020 1:15 PM  
**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	1.2	123.8
MJ_Cal 2	2	✓	3.0	2.8	91.7
MJ_Cal 3	3	✓	5.0	5.1	101.3
MJ_Cal 4	4	✓	10.0	10.5	104.6
MJ_Cal 5	5	✓	25.0	26.5	105.9
MJ_Cal 6	6	✓	50.0	48.3	96.6
MJ_Cal 7	7	✓	100.0	100.0	100.0



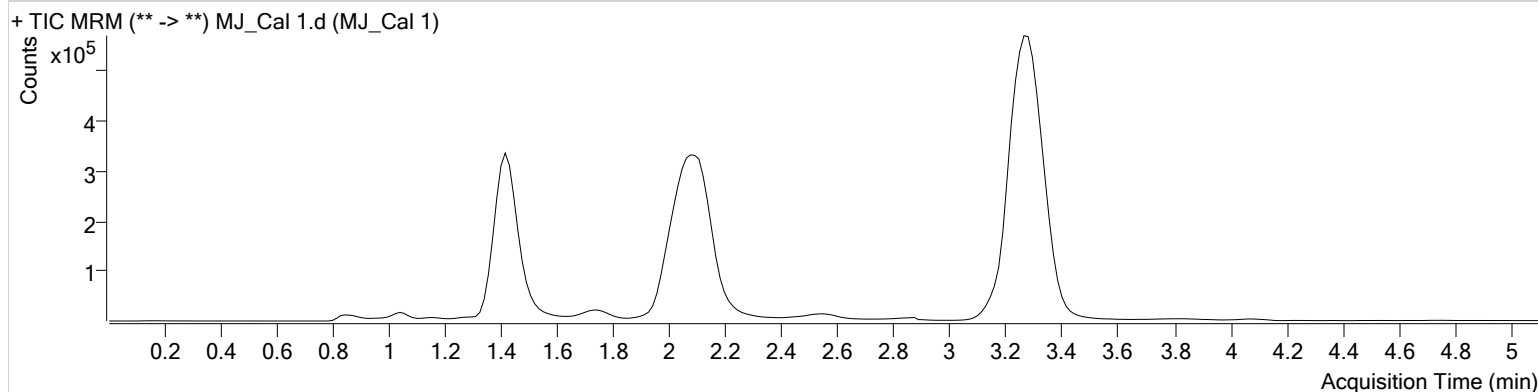
# AM #27 Cannabinoid Quant. Results

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 1.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 1
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-A1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 1:59:17 PM		

**Sample Info.**

## Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.483	125968	∞	5.1 <b>Low</b>	31.55	1395038	1.2383 ng/ml <b>Low</b>
THC-COOH	1.459	51194	∞	46.5	79.24	414660	5.7351 ng/ml <b>Low</b>
THC	3.285	43537	283.54	33.4	∞	4896914	1.1529 ng/ml <b>Low</b>

\$

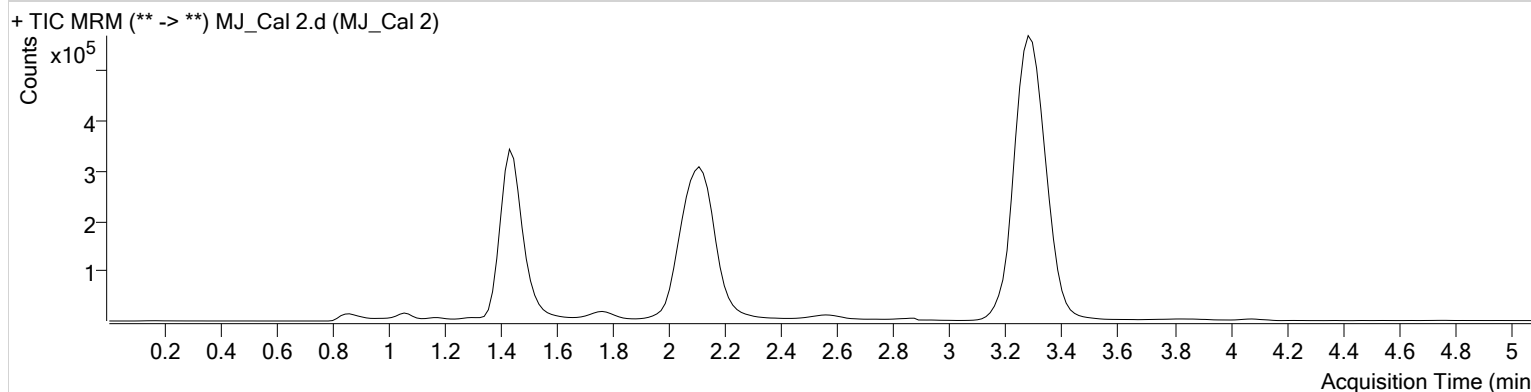


# AM #27 Cannabinoid Quant. Results

**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 2.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 2
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-B1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 2:07:03 PM		

**Sample Chromatogram**



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.498	146654	∞	8.6	∞	1257075	2.7514 ng/ml <b>Low</b>
THC-COOH	1.474	72584	49.99	59.3	1126.15	371360	9.2248 ng/ml <b>Low</b>
THC	3.300	111200	296.57	31.4	∞	4376072	2.8841 ng/ml <b>Low</b>

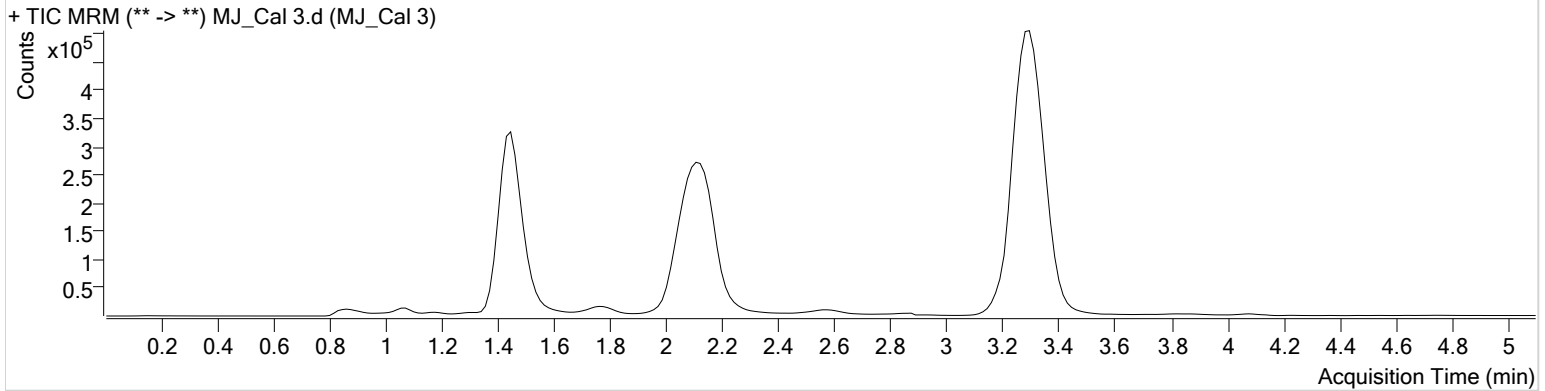
# AM #27 Cannabinoid Quant. Results



**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 3.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 3
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-C1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 2:14:38 PM		

**Sample Chromatogram**



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.453	178472	∞	9.0	∞	1137154	5.0632 ng/ml
THC-COOH	1.474	134406	∞	59.2	∞	337010	19.0821 ng/ml
THC	3.300	169623	975.24	27.0	∞	3830613	4.8617 ng/ml

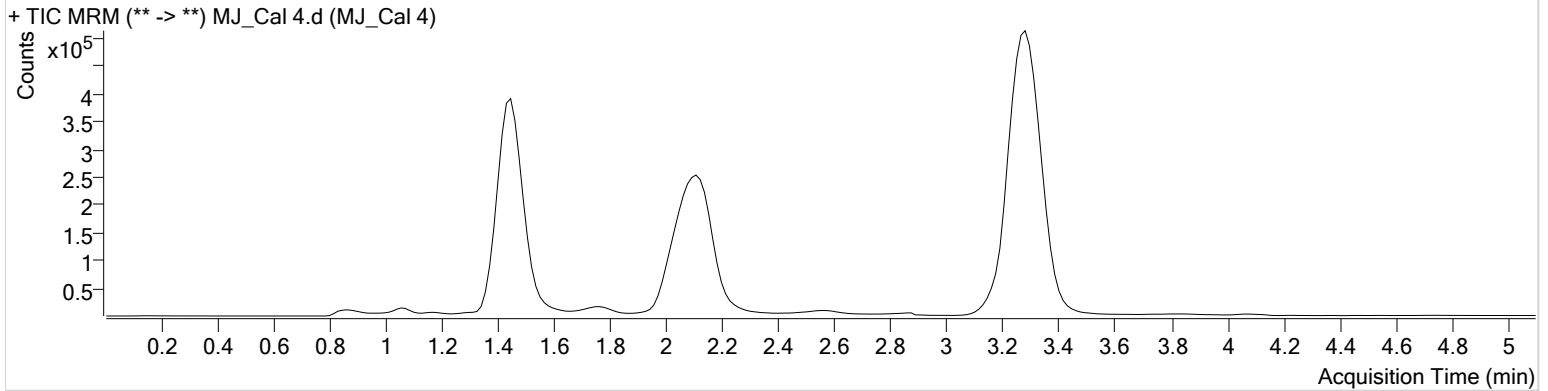
# AM #27 Cannabinoid Quant. Results



**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 4.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 4
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-D1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 2:22:12 PM		
<b>Sample Info.</b>			

## Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.453	301287	∞	10.0	∞	1200327	10.4610 ng/ml
THC-COOH	1.474	342420	∞	60.3	∞	347355	47.5335 ng/ml
THC	3.285	330939	1788.35	27.2	272.08	3859467	9.2072 ng/ml

# AM #27 Cannabinoid Quant. Results

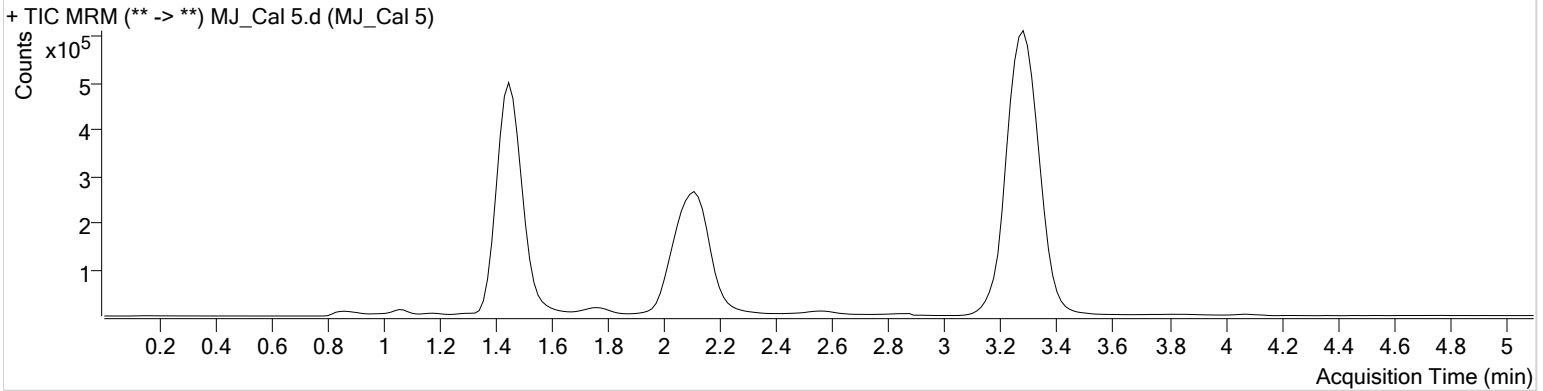


**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 5.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 5
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-E1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 2:29:47 PM		

**Sample Info.**

## Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	611708	∞	11.2	387.23	1154519	26.4627 ng/ml
THC-COOH	1.474	537608	∞	58.1	1959.63	336267	77.2445 ng/ml
THC	3.285	905042	∞	24.9	668.80	3887710	24.6173 ng/ml

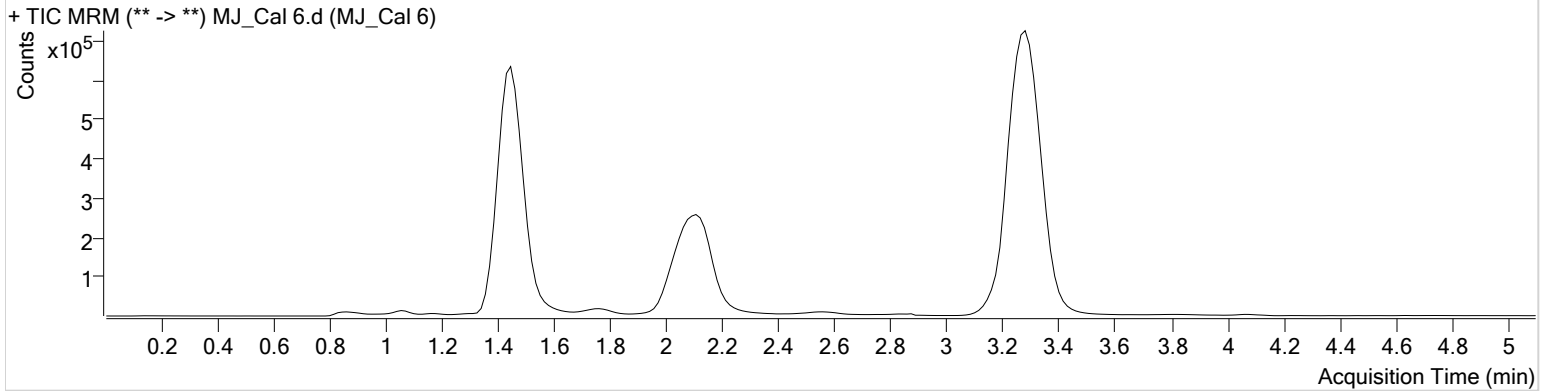
# AM #27 Cannabinoid Quant. Results



**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 6.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 6
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-F1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 2:37:22 PM		

## Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	1061616	∞	12.5	705.78	1166163	48.2996 ng/ml
THC-COOH	1.474	679164	∞	60.0	∞	333326	98.5127 ng/ml
THC	3.285	1796903	3204.08	25.4	2123.28	3819759	49.5198 ng/ml



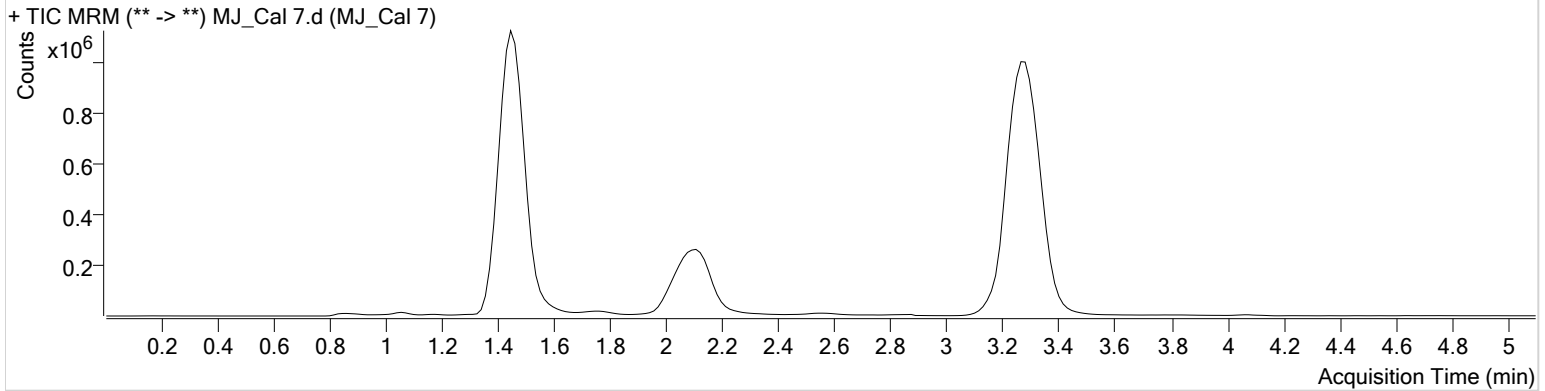
# AM #27 Cannabinoid Quant. Results



**Batch results** D:\MassHunter\Data\2020\AM 27-28\070720 AM 27 28 SP\QuantResults\AM 27.batch.bin  
**Calibration Last Update** 7/8/2020 1:15:51 PM

<b>Instrument</b>	Falco	<b>Data File</b>	MJ_Cal 7.d
<b>Type</b>	Cal	<b>Sample</b>	MJ_Cal 7
<b>Acq. Method</b>	AM 27 THC quant.m	<b>Operator</b>	Sarah Pickle
<b>Sample Position</b>	P3-G1	<b>Comment</b>	
<b>Injection Volume</b>	10		
<b>Acq. Date-Time</b>	7/7/2020 2:44:56 PM		

**Sample Chromatogram**



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.438	2098020	∞	12.6	∞	1158756	99.9621 ng/ml
THC-COOH	1.474	1666830	∞	60.6	∞	319447	252.6673 ng/ml
THC	3.285	3684843	4325.21	25.6	∞	3803169	101.7570 ng/ml