REVIEWED
By Anne Nord at 3:42 pm, Sep 09, 2020

SJ

9/8/2020

Worklist: 4498

LAB_CASE	ITEM	ITEM_TYPE	DESCRIPTION
M2020-2310	3	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
M2020-2828	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
M2020-3044	3	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
M2020-3248	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
P2020-2316	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
P2020-2471	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
P2020-2488	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
P2020-2534	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
P2020-2626	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: 09/03/20
Plate lot#: IDP-108-2-200723
Mobile phase A: 0.1% Formic Acid in LCMS Water
Blank Blood Lot: Hemostat 445283-4
Blank Urine Lot: POCO31319
LCMS-QQQ ID: 069901

Analyst: Sarah Pickle
Plate Expiration: 01/23/2021
Mobile phase B: 0.1% Formic acid in Acetonitrile
Column: UCT Selectra DA 100 x 2.1mm 3um

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:** 3382167
☒ 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 uL
☒ 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 sample response for THC and OH-THC 3ng/mL (quantitative), Carboxy-THC: 5ng/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: *Hands of the analyst Sophie Jackson*
Did not evaluate THC-OH

SJ

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.

Component	*Source*	*Source Lot Number*	*Expiration Date*
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		

090120 9/22/20

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

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

Approximately 20ng/mL each

Component	*Source*	*Source Lot Number*
Negative Urine	Pocatello Lab	POC031319
Methanol External Control Solution	-	WS011620
Prepared:	09/01/2020	
Prepared by:	Sarah Pickle	

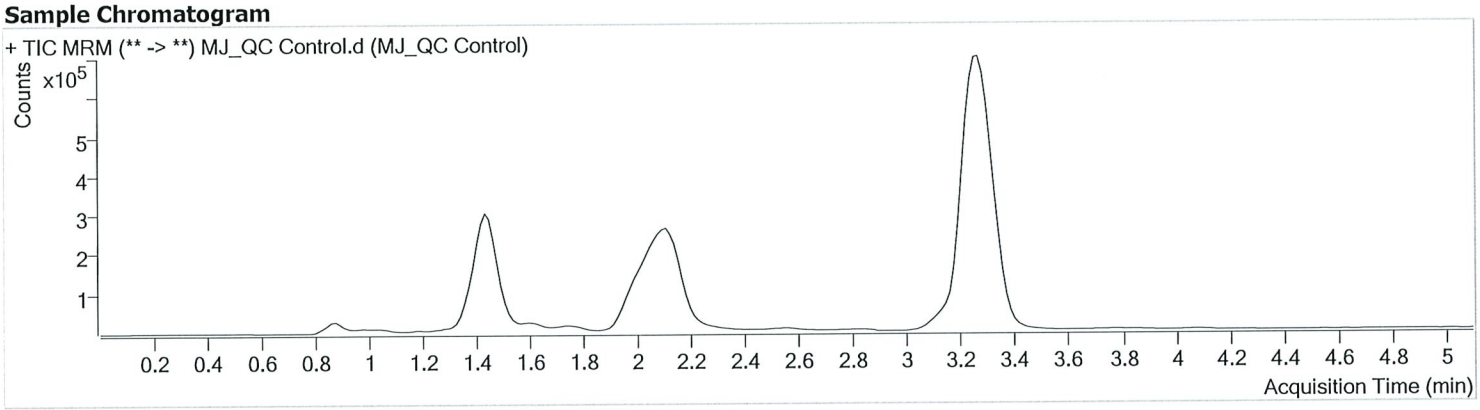
SJ SP

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

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	9/3/2020 1:02:33 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.		
~~THC-OH~~	~~1.453~~	~~195422~~	~~76.68~~	~~7.8 Low~~	~~∞~~	~~1159355~~	~~4.2724~~	~~ng/ml~~	*
THC-COOH	1.459	129186	338.27	57.4	∞	299340	17.0419	ng/ml	
THC	3.270	225967	1130.28	26.5	113.98	5524881	4.5427	ng/ml	

9/8/2020 SJ SP 9/15/20

*Did not evaluate

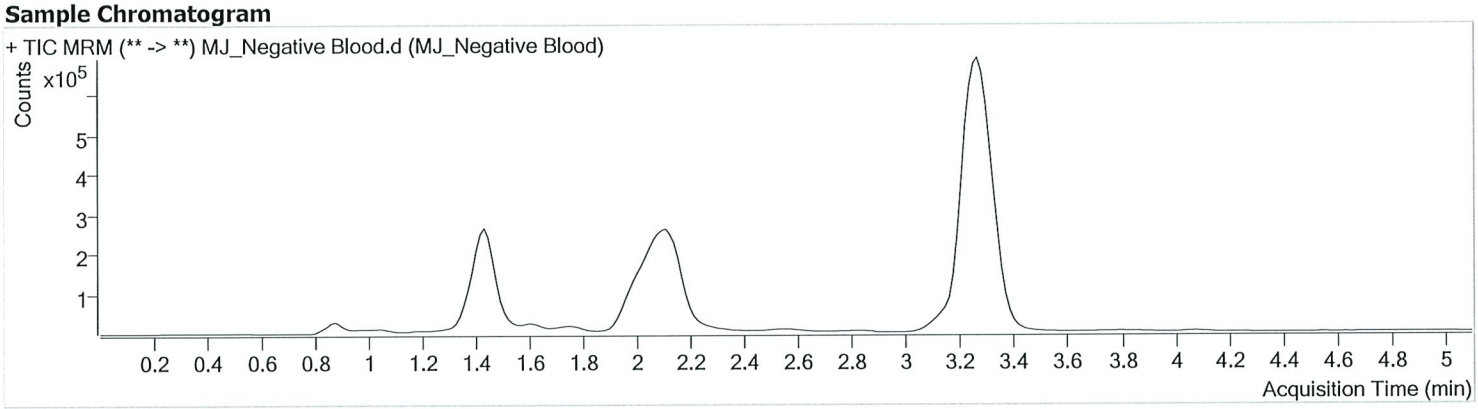
SJ R

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Negative Blood.d
Type	Sample	**Sample**	MJ_Negative Blood
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-A2	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 1:17:45 PM		
Sample Info.			

Sample Chromatogram



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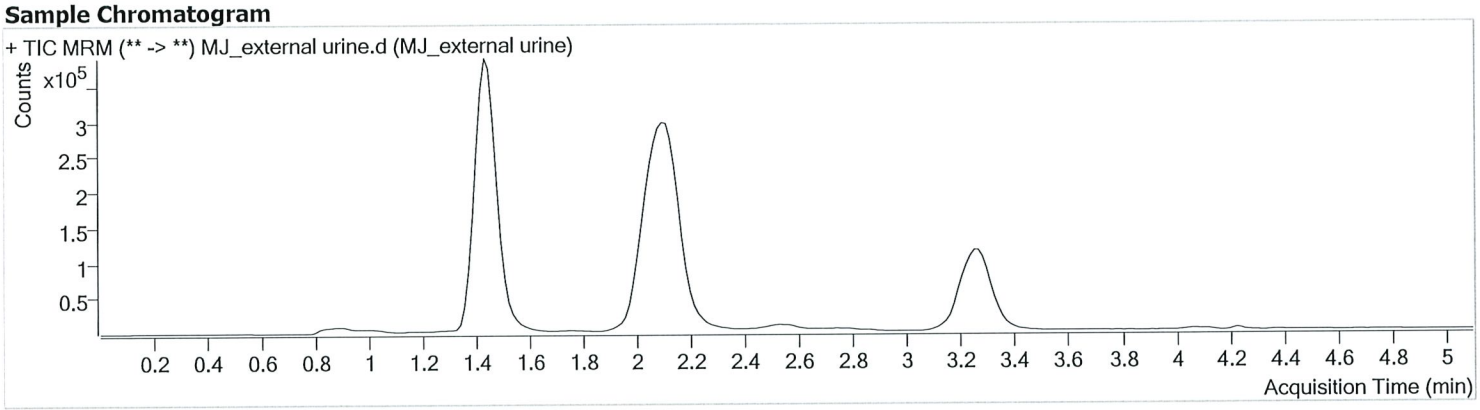
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_external urine.d
Type	Sample	**Sample**	MJ_external urine
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-C2	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 1:48:07 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
~~THC-OH~~	~~1.438~~	~~279014~~	~~∞~~	~~13.6 High~~	~~∞~~	~~1278776~~	~~7.1003~~	~~ng/ml~~ *
THC-COOH	1.474	128636	∞	60.8	∞	375031	13.5145	ng/ml
THC	3.270	87171	510.63	29.1	33.68	860533	10.9221	ng/ml

*Did not evaluate

9/14/2020 SJ R 9/15/20

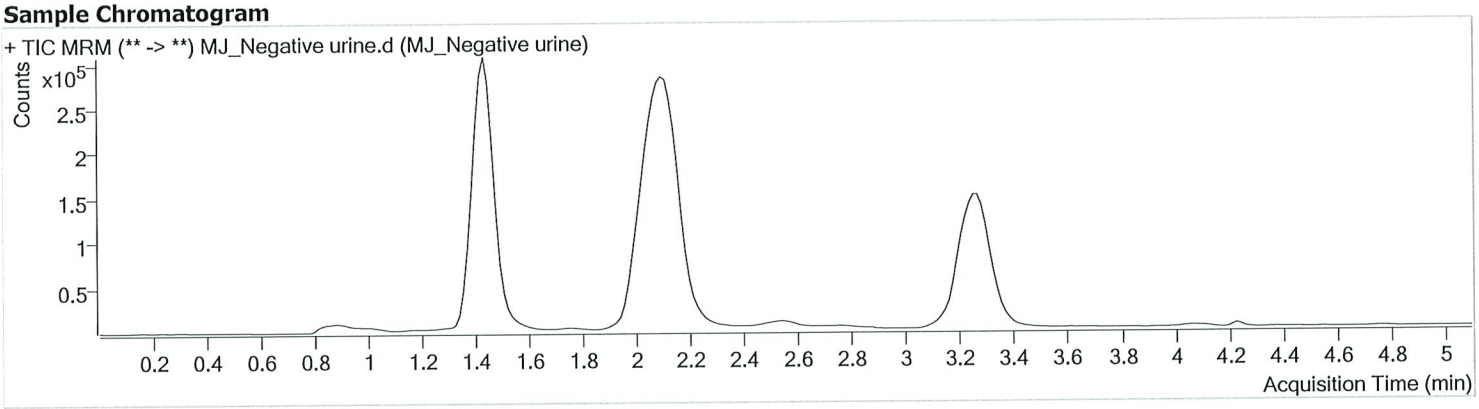
SJ SP

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Negative urine.d
Type	Sample	**Sample**	MJ_Negative urine
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-B2	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 1:32:56 PM		
Sample Info.			

Sample Chromatogram



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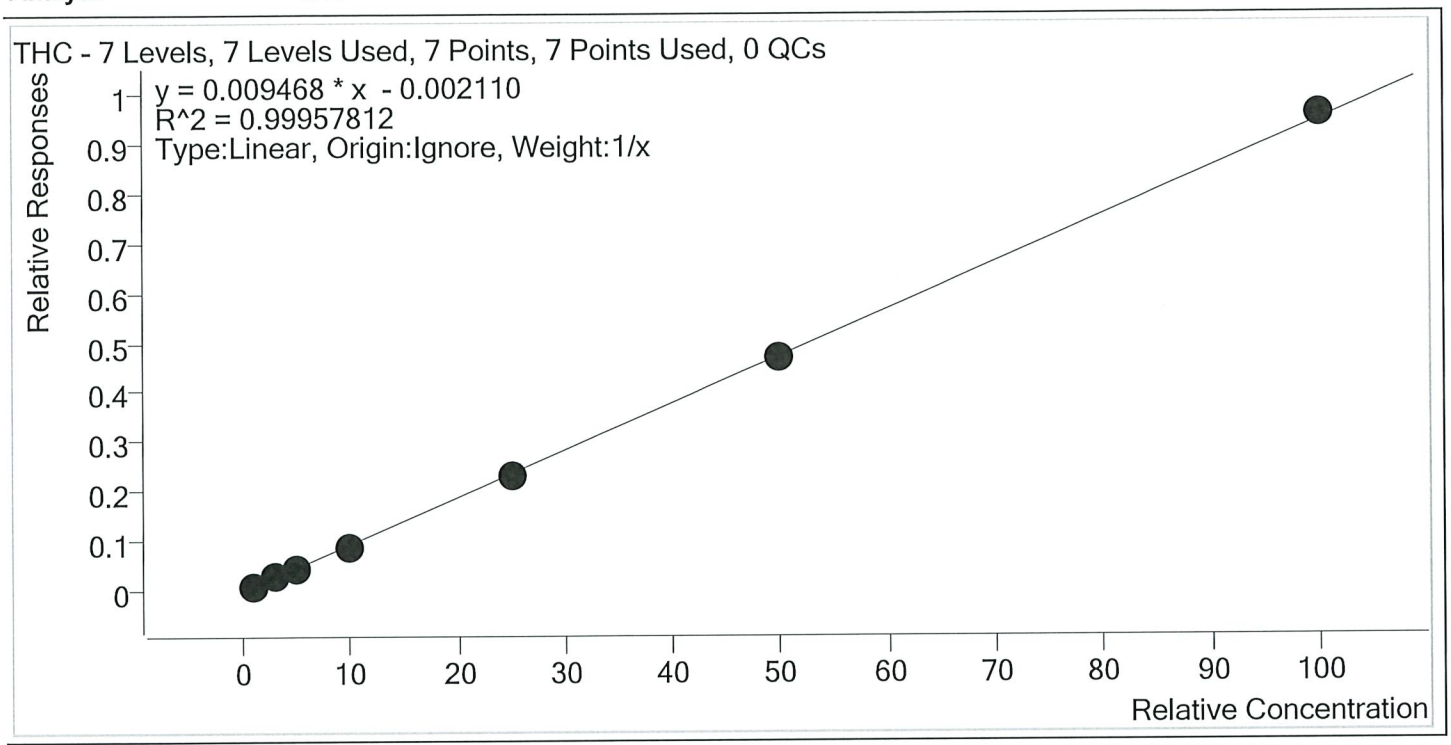
AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Last Cal. Update 9/8/2020 11:18 AM
Analyst Name ISP\datastor
Analyte THC **Internal Standard** THC-D3



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✓	1.0	1.1	109.6
MJ_Cal 2	2	✓	3.0	2.9	97.5
MJ_Cal 3	3	✓	5.0	5.0	99.8
MJ_Cal 4	4	✓	10.0	9.4	94.1
MJ_Cal 5	5	✓	25.0	24.5	98.1
MJ_Cal 6	6	✓	50.0	49.9	99.7
MJ_Cal 7	7	✓	100.0	101.2	101.2

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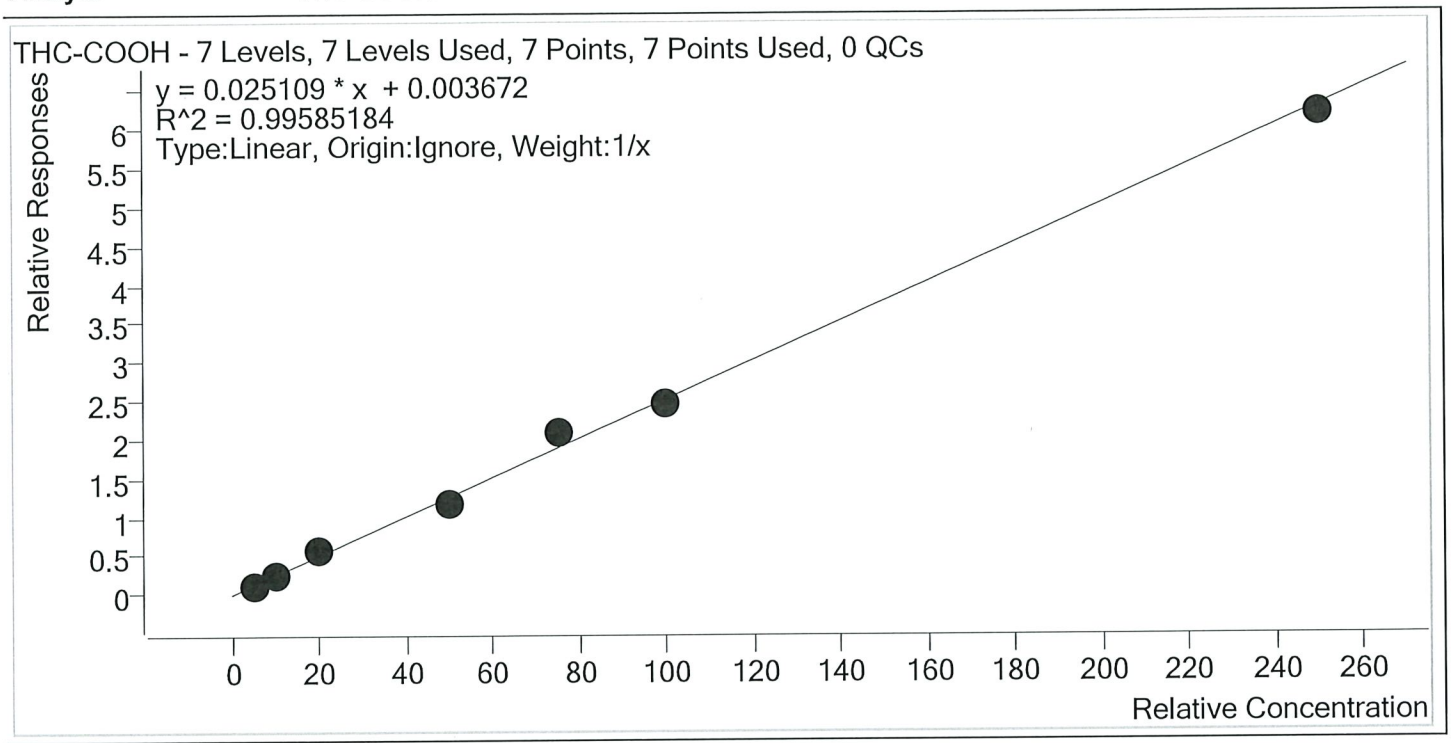
P

AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Last Cal. Update 9/8/2020 11:18 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	4.4	88.6
MJ_Cal 2	2	✓	10.0	10.2	101.8
MJ_Cal 3	3	✓	20.0	21.8	108.8
MJ_Cal 4	4	✓	50.0	46.9	93.7
MJ_Cal 5	5	✓	75.0	83.8	111.7
MJ_Cal 6	6	✓	100.0	96.9	96.9
MJ_Cal 7	7	✓	250.0	246.1	98.4

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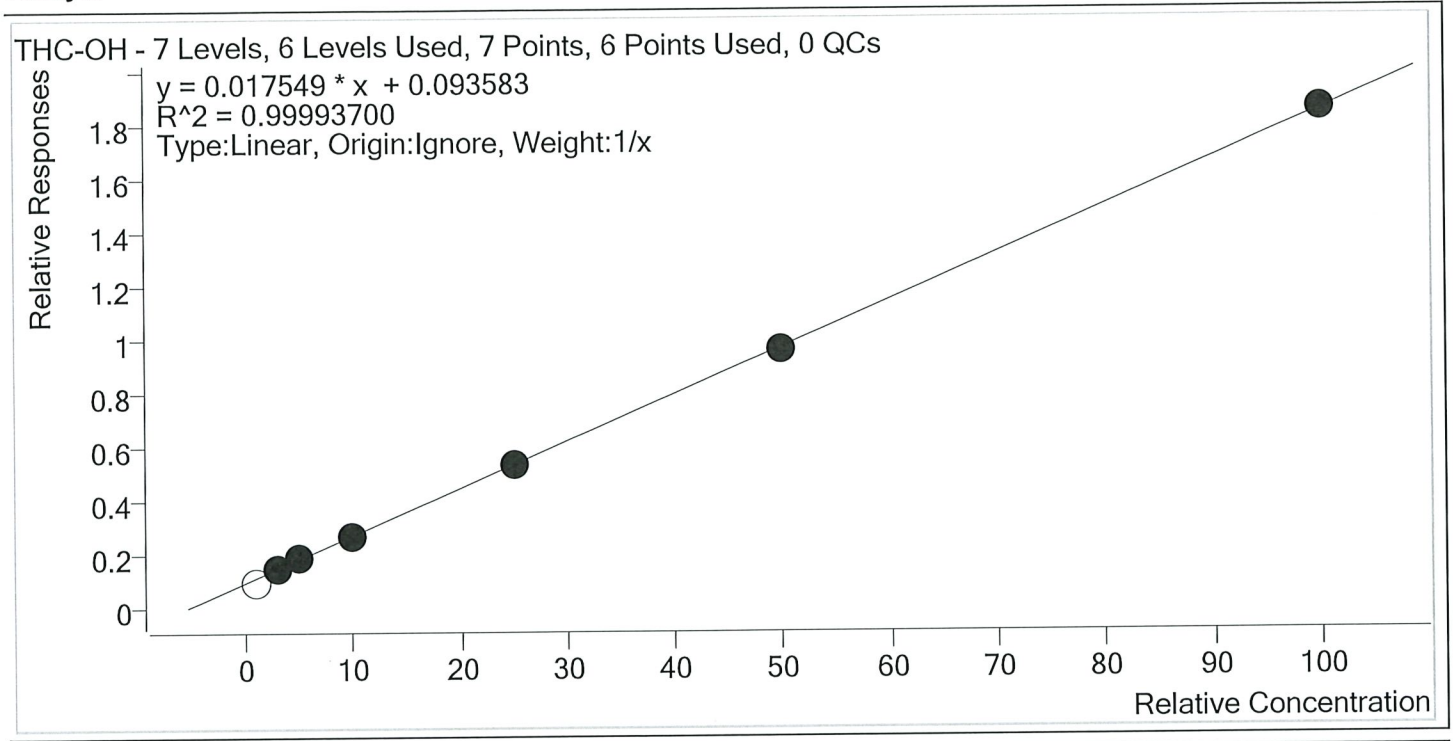
AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Last Cal. Update 9/8/2020 11:18 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	0.0	4.1
MJ_Cal 2	2	✓	3.0	3.0	98.3
MJ_Cal 3	3	✓	5.0	5.1	101.1
MJ_Cal 4	4	✓	10.0	10.2	101.7
MJ_Cal 5	5	✓	25.0	24.7	99.0
MJ_Cal 6	6	✓	50.0	49.8	99.5
MJ_Cal 7	7	✓	100.0	100.3	100.3

Did not evaluate THC-OH P

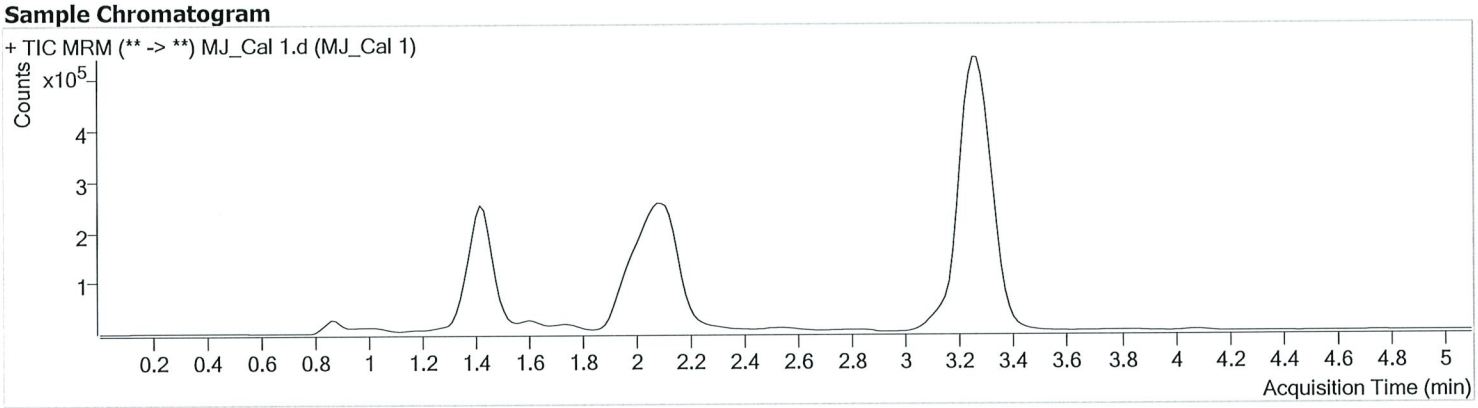
SJ SP

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 1.d
Type	Cal	**Sample**	MJ_Cal 1
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-A1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:01:38 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.459	38759	∞	56.6	216.97	337207	4.4315	ng/ml **Low**
THC	3.270	39135	57.12	29.1	18.40	4733953	1.0960	ng/ml **Low**

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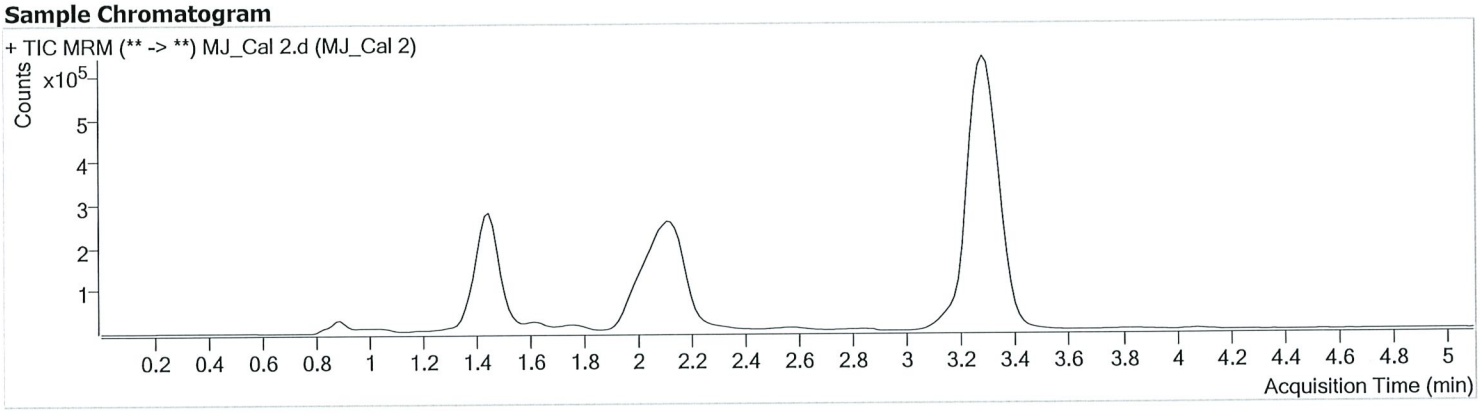
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 2.d
Type	Cal	**Sample**	MJ_Cal 2
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-B1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:09:23 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.498 **High**	165707	∞	6.8 **Low**	∞	1139980	2.9504	ng/ml **Low**
THC-COOH	1.474	77186	∞	57.8	∞	297744	10.1784	ng/ml
THC	3.285	133099	∞	27.9	47.46	5201150	2.9257	ng/ml **Low**

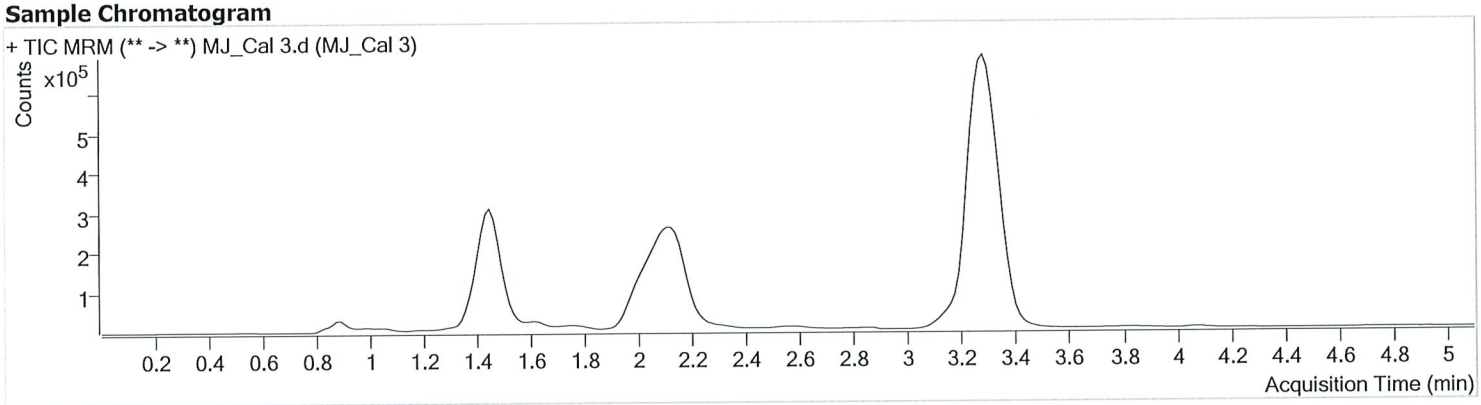
SJ S

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 3.d
Type	Cal	**Sample**	MJ_Cal 3
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-C1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:16:57 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	209132	∞	8.1	∞	1147305	5.0542	ng/ml
THC-COOH	1.474	164985	198.32	57.0	∞	299928	21.7619	ng/ml
THC	3.285	245213	751.69	27.8	∞	5435114	4.9881	ng/ml

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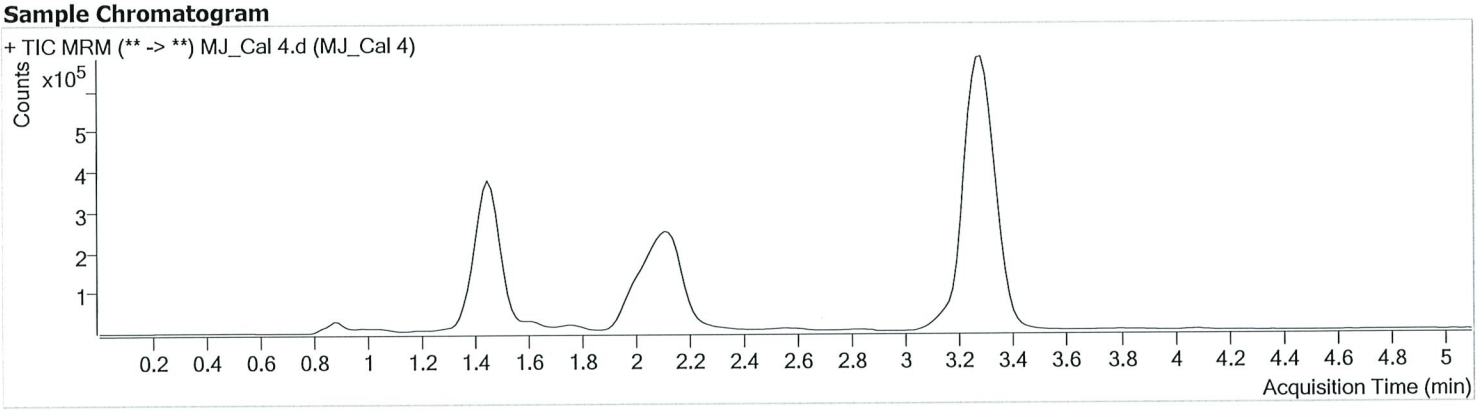
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 4.d
Type	Cal	**Sample**	MJ_Cal 4
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-D1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:24:31 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.453	304748	∞	9.4	∞	1119917	10.1732	ng/ml
THC-COOH	1.474	402542	∞	59.0	∞	341052	46.8614	ng/ml
THC	3.285	446326	1059.91	25.6	150.18	5129378	9.4133	ng/ml

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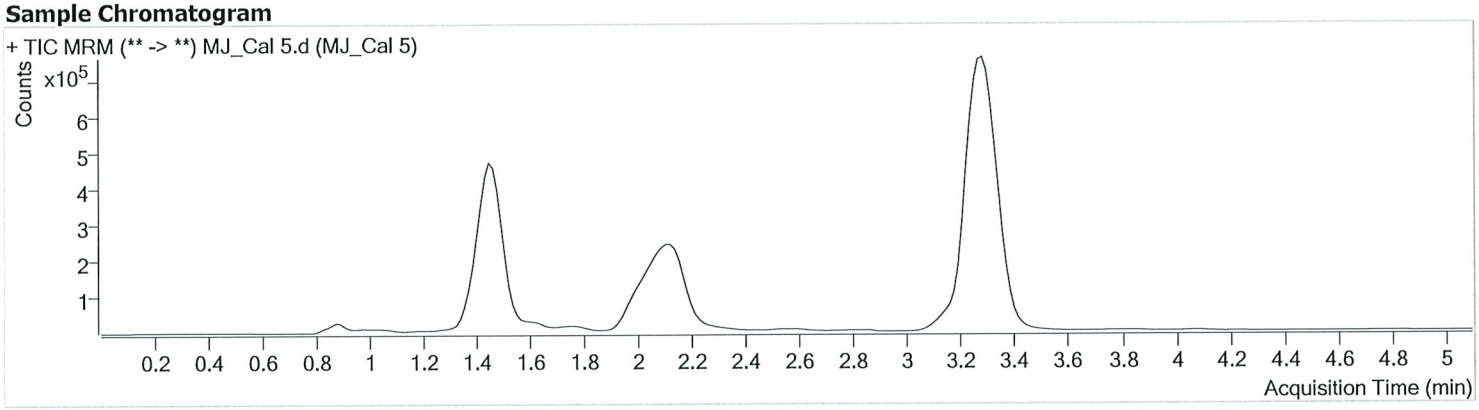
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 5.d
Type	Cal	**Sample**	MJ_Cal 5
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-E1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:32:05 PM		
Sample Info.			

Sample Chromatogram



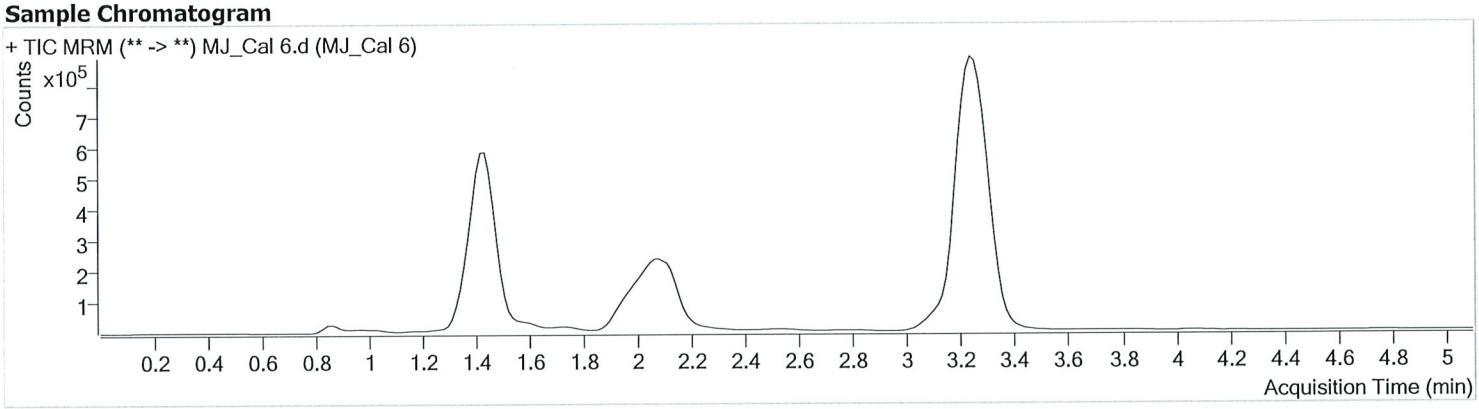
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.453	586400	∞	10.9	552.44	1110761	24.7499	ng/ml
THC-COOH	1.474	603961	1683.74	59.3	4879.82	286543	83.7991	ng/ml
THC	3.285	1160080	∞	25.2	51.45	5042966	24.5198	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 6.d
Type	Cal	**Sample**	MJ_Cal 6
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-F1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:39:48 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.423	1073529	∞	12.4 **High**	835.67	1110220	49.7666	ng/ml
THC-COOH	1.444	805938	∞	63.2	∞	330789	96.8886	ng/ml
THC	3.254	2306097	17783.20	24.8	2531.55	4908031	49.8502	ng/ml

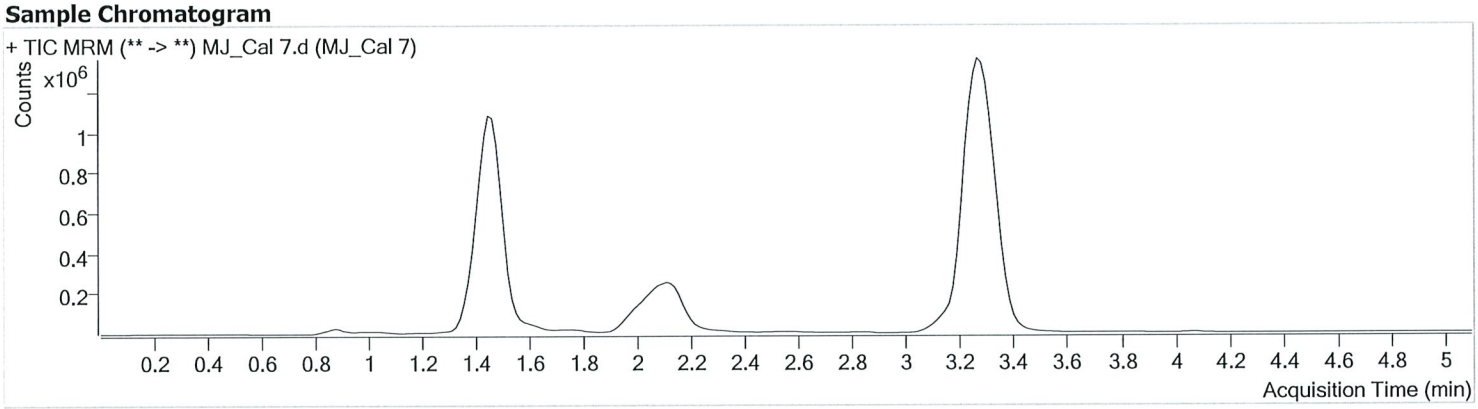
SJ

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\090320 AM 27 28 SJ SP\QuantResults\AM 27.batch.bin
Calibration Last Update 9/8/2020 11:18:40 AM

Instrument	Falco	**Data File**	MJ_Cal 7.d
Type	Cal	**Sample**	MJ_Cal 7
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-G1	**Comment**	
Injection Volume	10		
Acq. Date-Time	9/3/2020 12:47:22 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.438	2060246	∞	12.6 **High**	4840.23	1111319	100.3057	ng/ml
THC-COOH	1.474	1963553	∞	62.1	∞	317606	246.0789	ng/ml
THC	3.285	5010464	15127.61	25.7	∞	5240538	101.2069	ng/ml