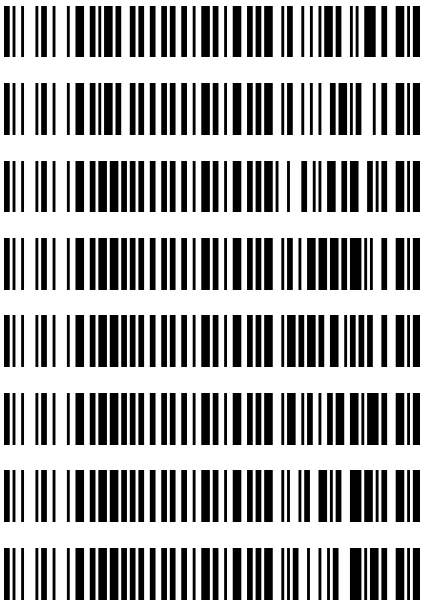
REVIEWED
By Tamara Salazar at 10:58 am, Jan 22, 2020

1/21/2020

Worklist: 3954

LAB_CASE	ITEM	ITEM_TYPE	DESCRIPTION
M2019-5642	2	BCK	AM 27 Blood THC Quant by LC-QQQ
M2020-0040	2	BCK	AM 27 Blood THC Quant by LC-QQQ
P2019-3736	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2020-0003	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2020-0046	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2020-0068	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2020-0086	1	BCK	AM 27 Blood THC Quant by LC-QQQ
P2020-0102	1	BCK	AM 27 Blood THC Quant by LC-QQQ



Worklist: 3956

LAB_CASE	ITEM	ITEM_TYPE	DESCRIPTION
P2019-3618	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ

Sample was ran with worklist 3954

SP

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

01/21/20 SP

Extraction Date: 01/16/20
Plate lot#: 190716
Mobile phase A: 0.1% Formic Acid in LCMS Water
Blank Blood Lot: 445283-3
LCMS-QQQ ID: 069901

Analyst: ~~Celena Shrum~~ Sarah Pickle
Plate Expiration: 01/16/2020
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: #3382167**
☒ 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 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: 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

SP

Idaho State Police
Forensic Services

AM #26 Urine THC and Metabolites Screen by LCMS-QQQ
and
AM #27 Quantitative Analysis of THC and Metabolites in Urine by LCMS-QQQ

Urine External Control Solution (Lot: 011620)
8 µL of 100 µg/mL C-THC in 9.992 mL urine
Approximate concentration ~80 ng/mL C-THC

Component	***Source***	***Source Lot Number***	***Expiration Date***
Methanol (LCMS)	Fisher	193941	-
Negative Urine	Pocatello Lab	POC031319	-
C-THC	Cerilliant	FE07171501	09/30/2020
Prepared:	01/16/2020		
Prepared By:	Sarah Pickle		
Expires:	09/30/2020		

Idaho State Police Forensic Services

AM #26 Blood THC and Metabolites Screen by LCMS-QQQ and AM #27 Quantitative Analysis of THC and Metabolites in Blood by LCMS-QQQ

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 1µg/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		

Blood External Control Solution (Lot: 011620)

100 µL of methanol external control solution was added to 9900 µL of blood.
Approximately 10 ng/mL of each compound.

Component	***Source***	***Source Lot Number***
Negative Blood	Hemostat	445283-3
Methanol External Control Solution	-	WS011620
Prepared:	01/16/2020	
Prepared by:	Tamara Salazar	
Expires:	09/30/2020	

Idaho State Police
Forensic Services
Toxicology Discipline

Request for Departure from an Analytical Method

Date of Request
01/13/2020

Forensic Scientist
Celena Shrum

Analytical Methods
Toxicology AM #25, Toxicology AM #26/27, and AM #28

Deviation

The expiration dates listed for the current batch of PinPoint ToxBox extraction plates are as follows:
*MDS (batch IDP-107-190725)- Expiration is 1/25/2020
*THC (batch IDP-108-190716)- Expiration is 1/16/2020
*MDQ P1 (batch IDP-111-190729)- Expiration is 1/29/2020
*MDQ P2 (batch IDP-112-190730)- Expiration is 1/30/2020

I am issuing a deviation to allow for the use of the remaining plates of these batches. The controls will be used to evaluate if the plate is working as intended. In addition, at least one external control must be included for each run.

Celena Shrum

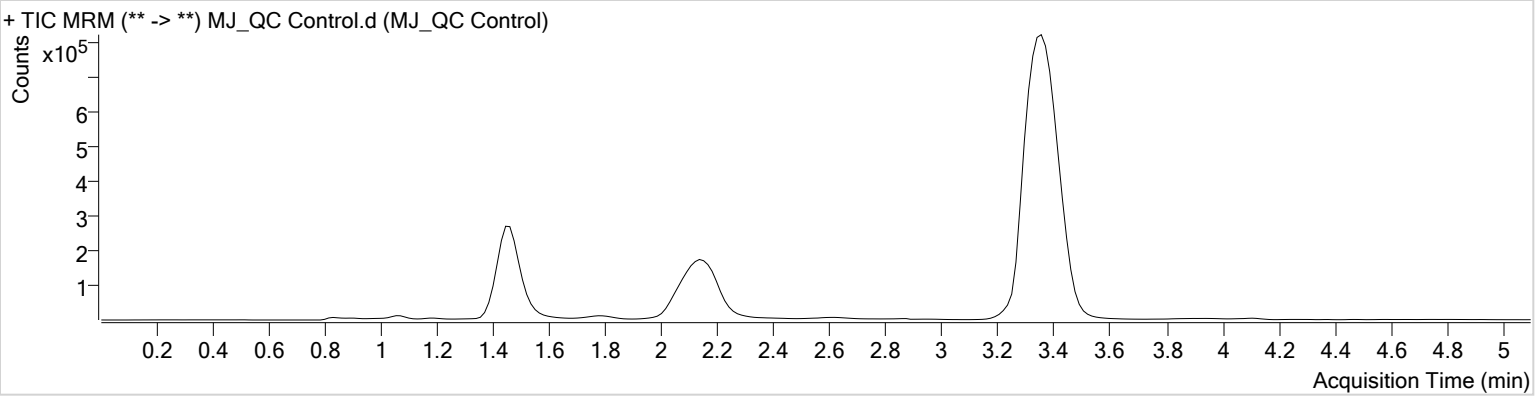
Date: 01/13/2020
Celena Shrum
Toxicology Discipline Lead

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-A6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 3:51:34 PM		
Sample Info.			

Sample Chromatogram



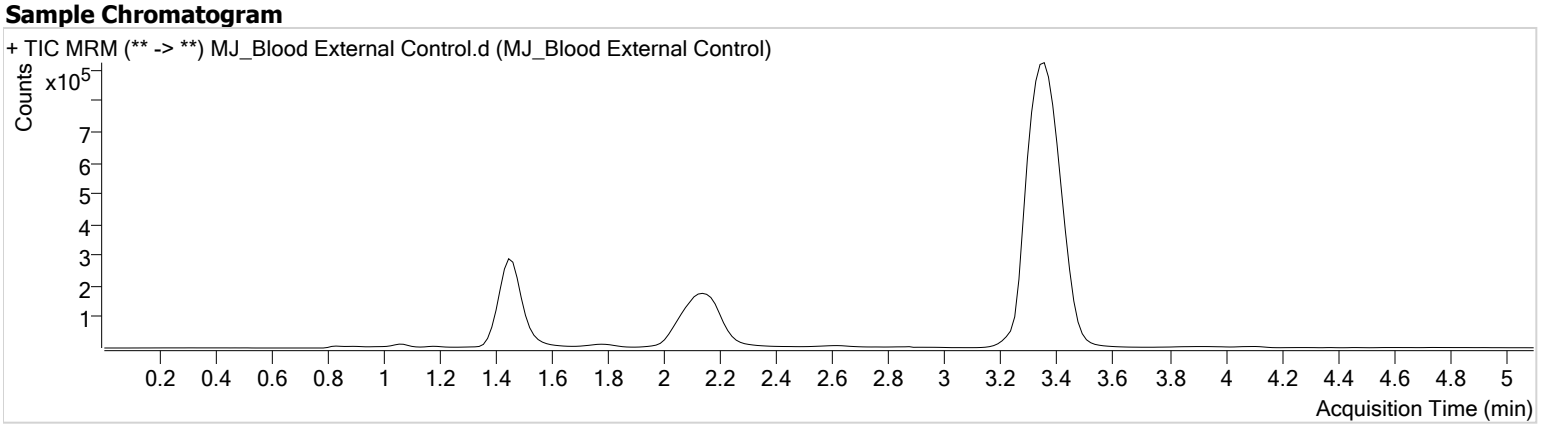
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	113340	∞	8.9	253.53	1045811	4.2230	ng/ml
THC-COOH	1.489	97038	273.86	59.7	515.85	278760	13.6263	ng/ml
THC	3.360	230414	1713.31	28.4	154.69	6693184	4.2268	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 AM

Instrument	Falco	**Data File**	MJ_Blood External Control.d
Type	Sample	**Sample**	MJ_Blood External Control
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-G5	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 4:21:56 PM		
Sample Info.			

Sample Chromatogram



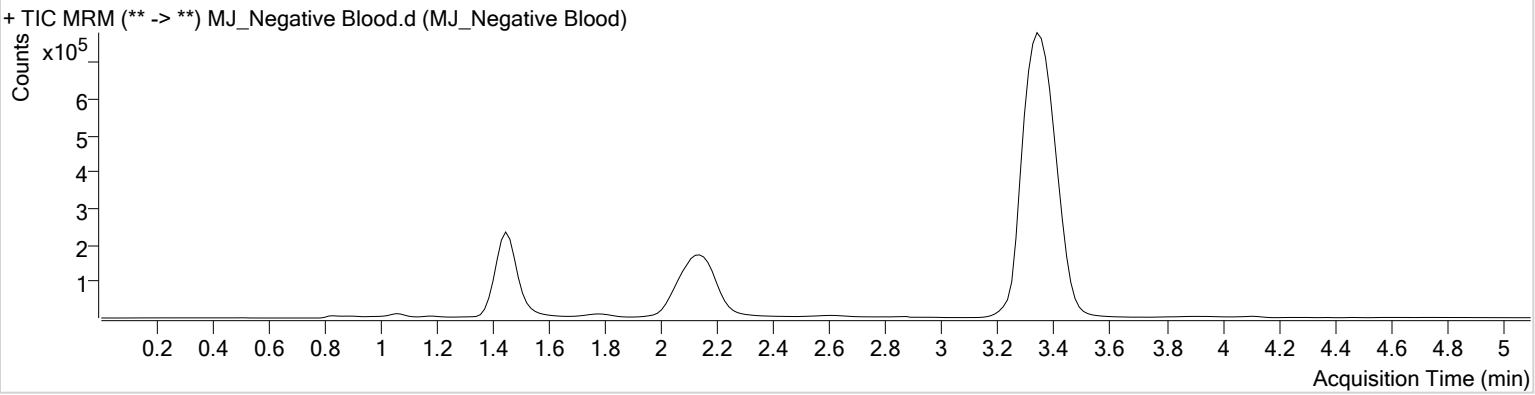
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.		
THC-OH	1.453	201833	∞	9.9	∞	1090042	10.3907	ng/ml	
THC-COOH	1.489	67413	∞	59.4	212.03	286102	9.1696	ng/ml	Low
THC	3.375	589520	3621.07	26.8	∞	7182306	9.8698	ng/ml	

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-H5	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 4:06:45 PM		
Sample Info.			

Sample Chromatogram

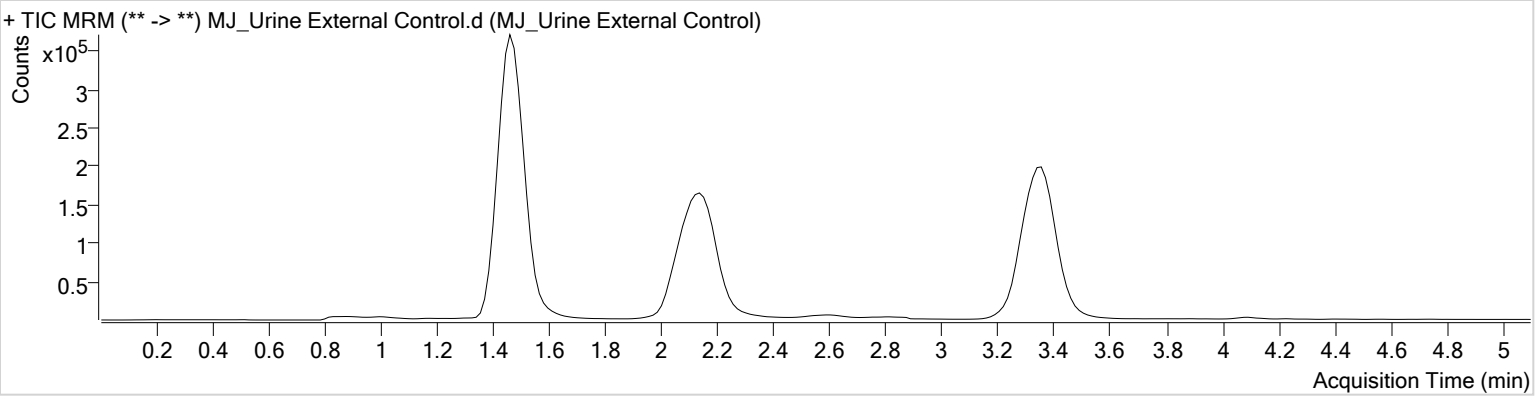


AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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**	Sarah Pickle
Sample Position	P3-E4	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 4:52:19 PM		
Sample Info.			

Sample Chromatogram



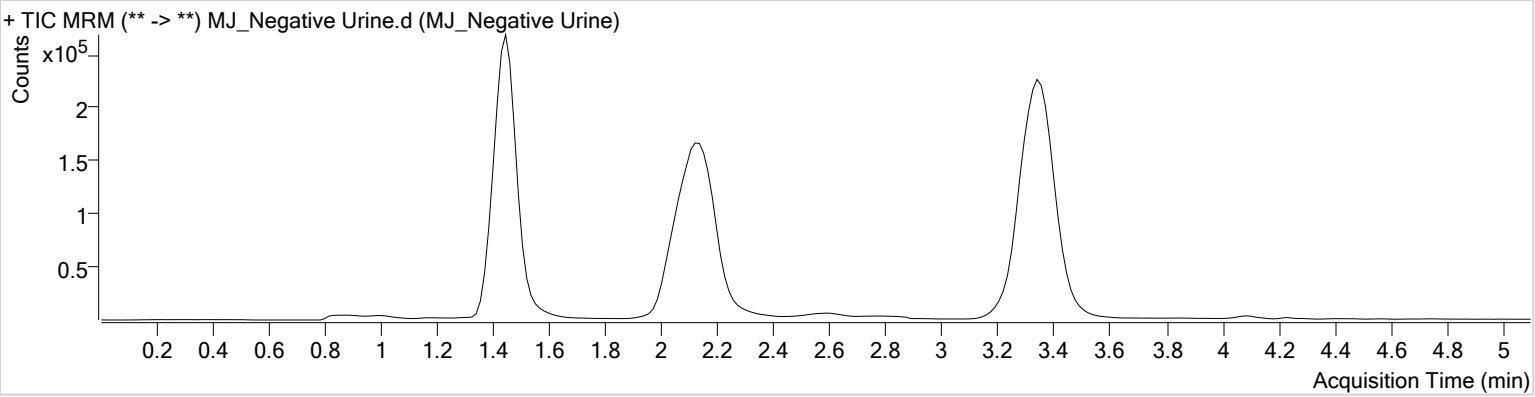
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.489	480898	2248.15	60.3	∞	323575	58.7191	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update	1/17/2020 7:52:16 AM

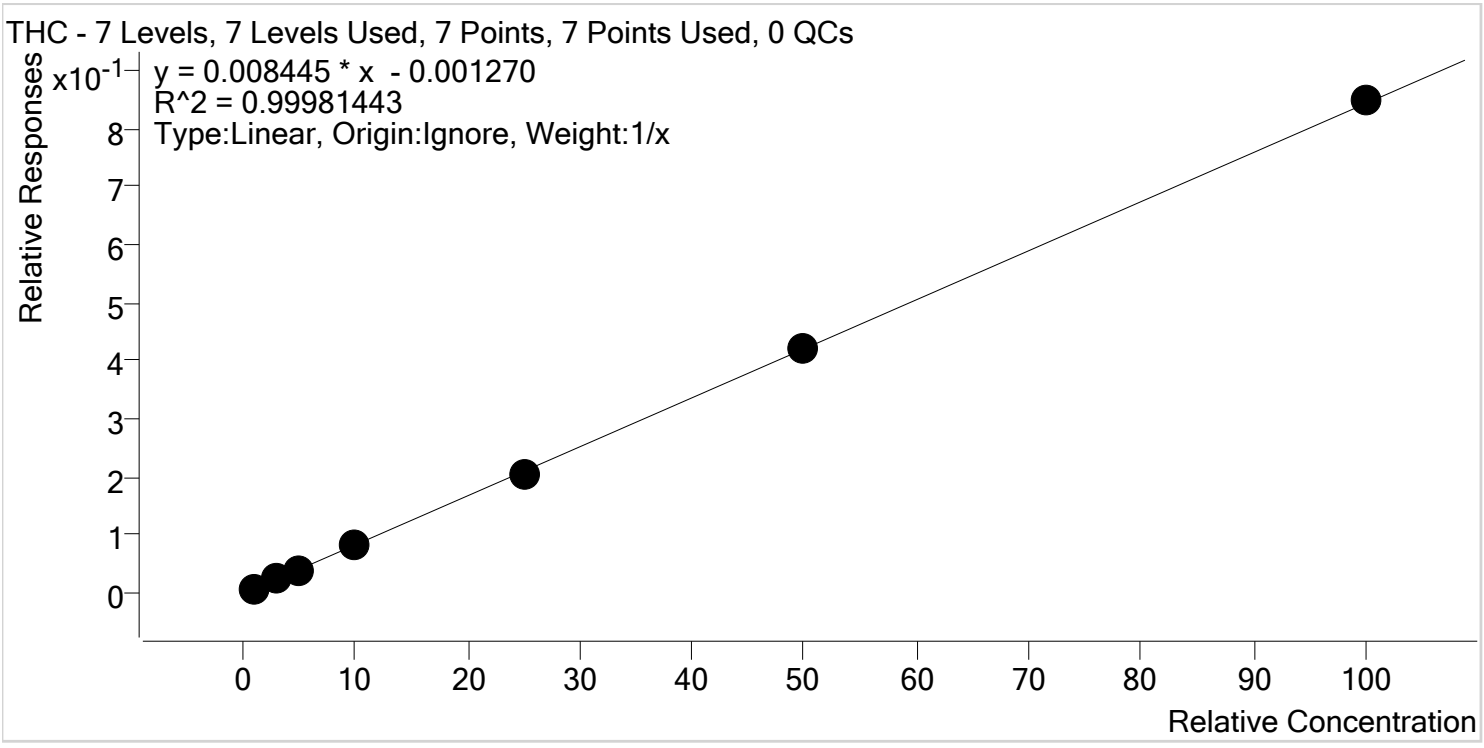
Instrument	Falco	**Data File**	MJ_Negative Urine.d
Type	Sample	**Sample**	MJ_Negative Urine
Acq. Method	AM 27 THC quant.m	**Operator**	Sarah Pickle
Sample Position	P3-F4	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 4:37:08 PM		
Sample Info.			

Sample Chromatogram



AM #27 Cannabinoids Quant. Calibration Curve Report

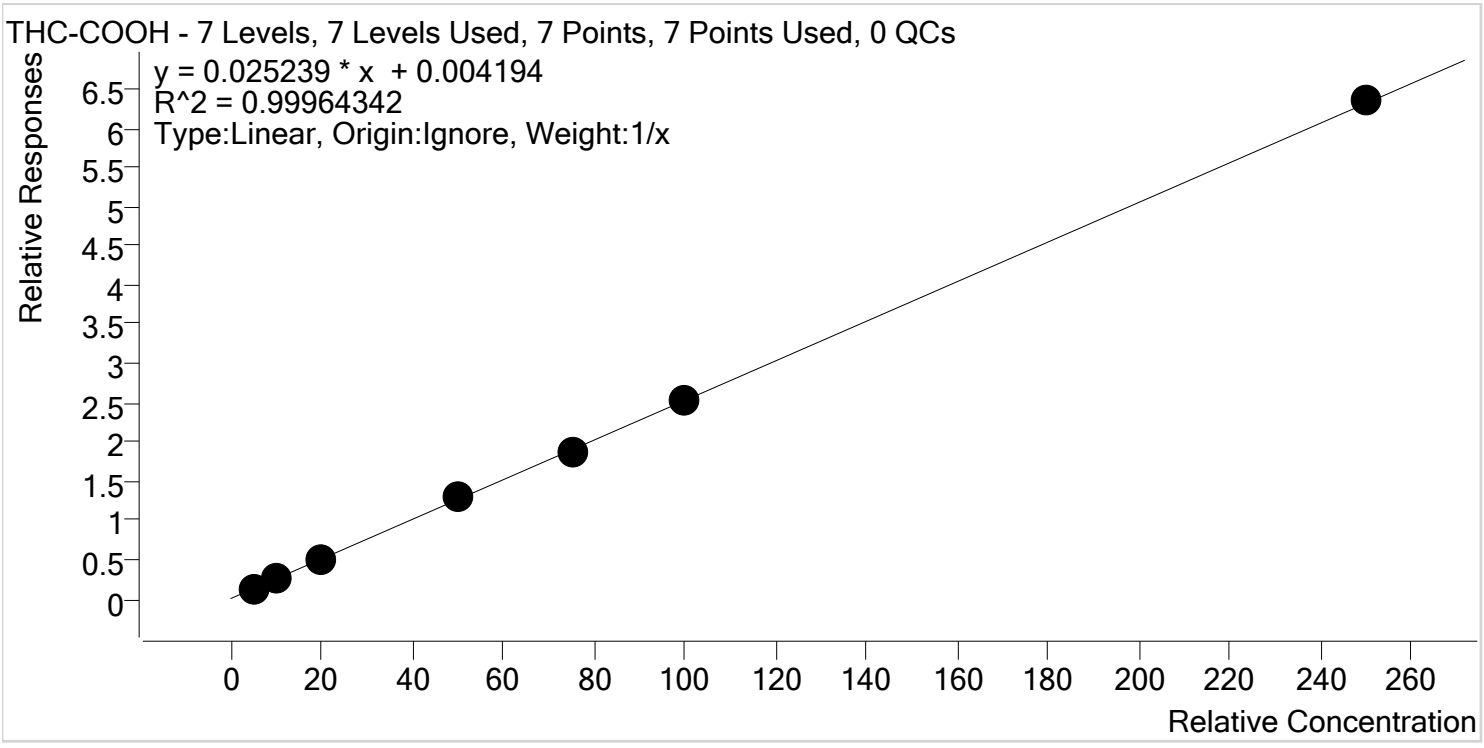
Batch results	D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Last Cal. Update	1/17/2020 7:52 AM
Analyst Name	ISP\Datastor
Analyte	THC
Internal Standard	THC-D3



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✔	1.0	1.1	108.2
MJ_Cal 2	2	✔	3.0	2.9	97.8
MJ_Cal 3	3	✔	5.0	4.8	95.3
MJ_Cal 4	4	✔	10.0	10.0	99.6
MJ_Cal 5	5	✔	25.0	24.6	98.3
MJ_Cal 6	6	✔	50.0	50.1	100.3
MJ_Cal 7	7	✔	100.0	100.6	100.6

AM #27 Cannabinoids Quant. Calibration Curve Report

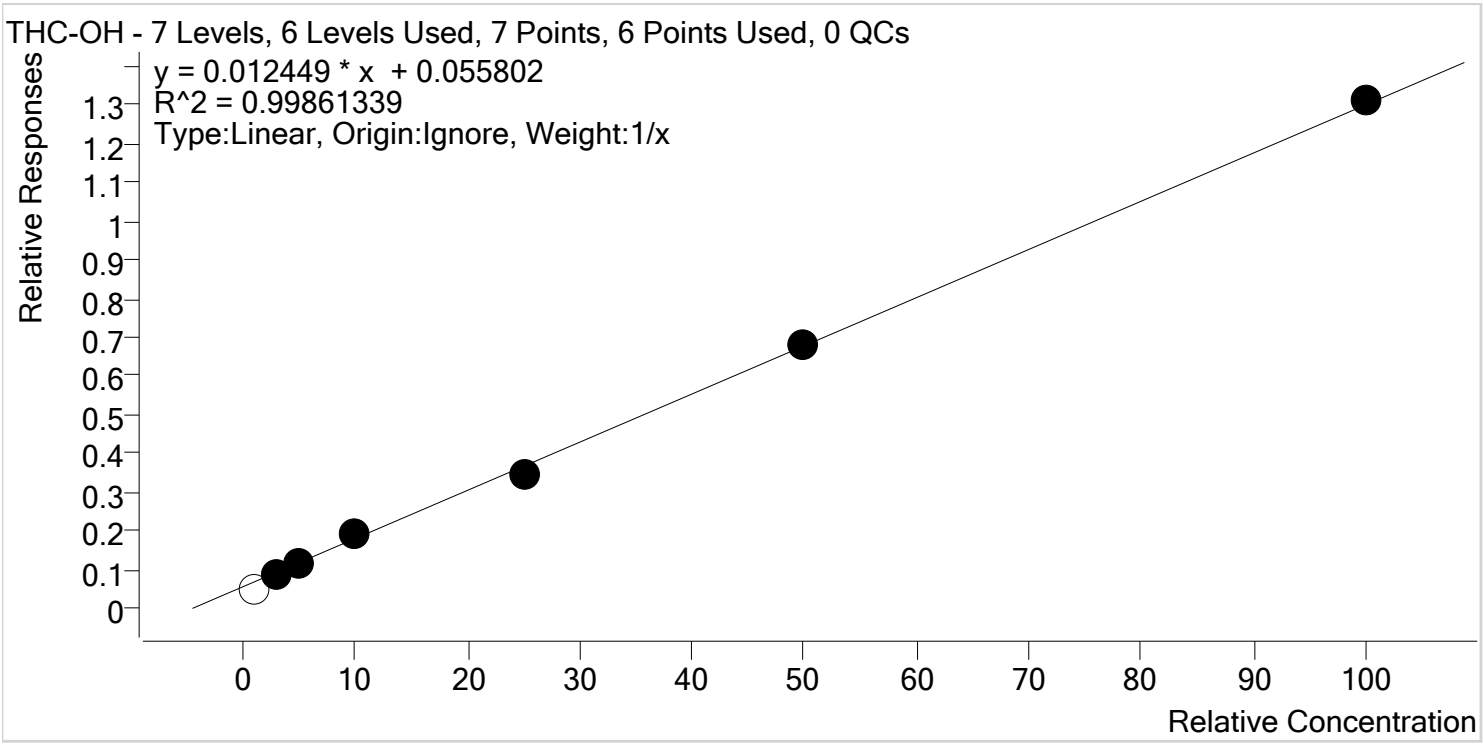
Batch results	D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Last Cal. Update	1/17/2020 7:52 AM
Analyst Name	ISP\Datastor
Analyte	THC-COOH
Internal Standard	THC-COOH-D9



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✔	5.0	4.9	97.1
MJ_Cal 2	2	✔	10.0	10.7	107.0
MJ_Cal 3	3	✔	20.0	19.2	95.9
MJ_Cal 4	4	✔	50.0	50.9	101.9
MJ_Cal 5	5	✔	75.0	73.8	98.4
MJ_Cal 6	6	✔	100.0	99.2	99.2
MJ_Cal 7	7	✔	250.0	251.3	100.5

AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results	D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Last Cal. Update	1/17/2020 7:52 AM
Analyst Name	ISP\Datastor
Analyte	THC-OH
Internal Standard	THC-OH-D3



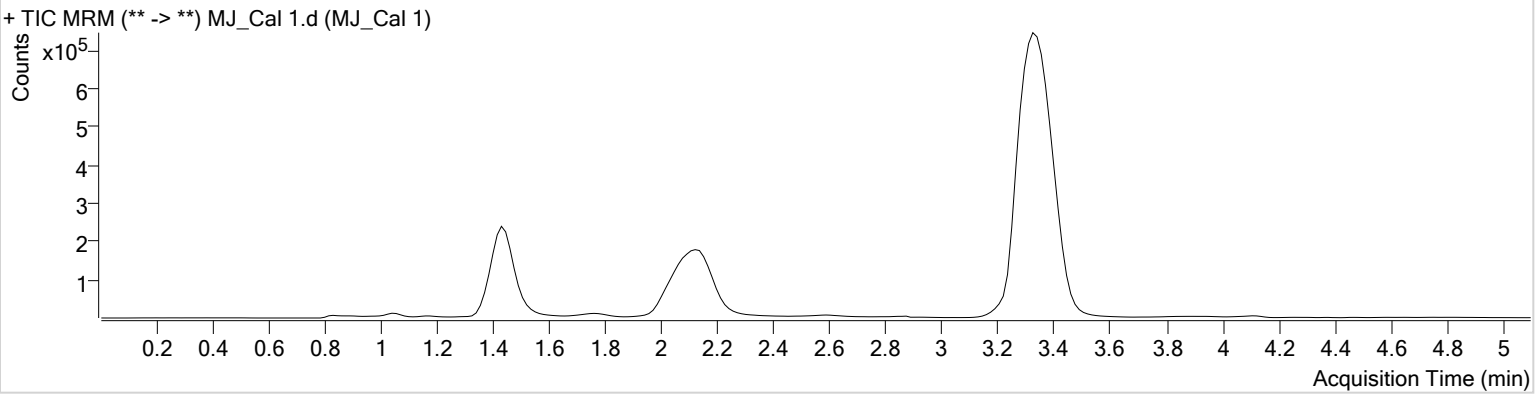
Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✗	1.0	0.0	0.0
MJ_Cal 2	2	✔	3.0	2.9	97.6
MJ_Cal 3	3	✔	5.0	5.0	99.1
MJ_Cal 4	4	✔	10.0	10.9	109.0
MJ_Cal 5	5	✔	25.0	23.4	93.5
MJ_Cal 6	6	✔	50.0	50.0	100.0
MJ_Cal 7	7	✔	100.0	100.8	100.8

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-B6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 2:50:46 PM		
Sample Info.			

Sample Chromatogram



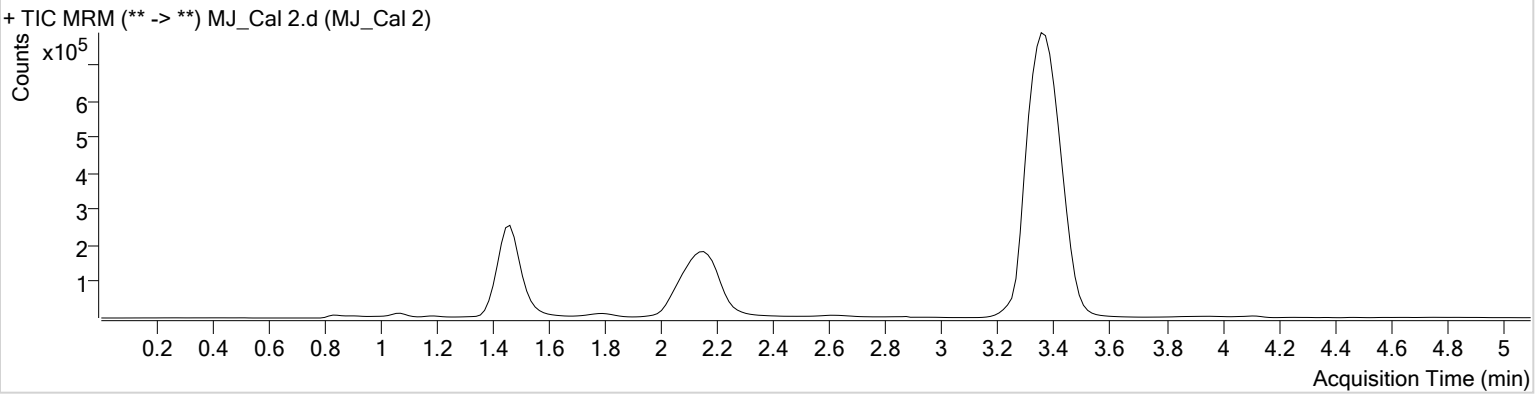
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.		
THC-COOH	1.474	35031	181.43	55.4	103.85	276532	4.8531	ng/ml	Low
THC	3.345	50808	446.88	31.8	45.82	6455047	1.0824	ng/ml	Low

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-C6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 2:58:31 PM		
Sample Info.			

Sample Chromatogram



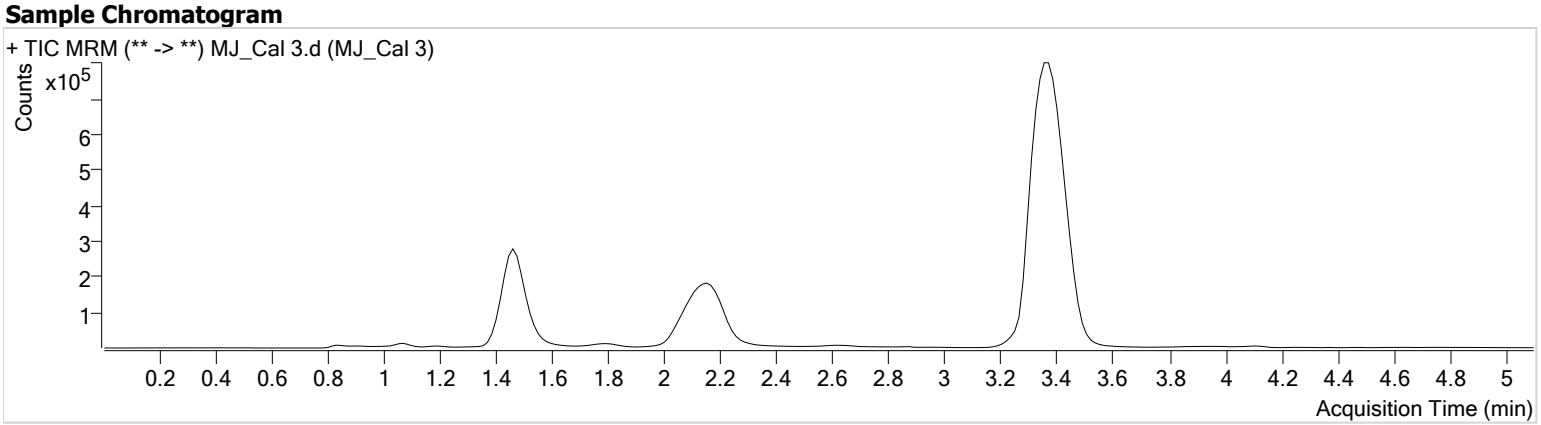
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.		
THC-OH	1.483	96192	∞	8.9	88.73	1042685	2.9280	ng/ml	Low
THC-COOH	1.504	75444	137.10	53.2	683.30	275024	10.7026	ng/ml	
THC	3.375	153570	788.22	27.5	226.09	6531156	2.9347	ng/ml	Low

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-D6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 3:06:05 PM		
Sample Info.			

Sample Chromatogram



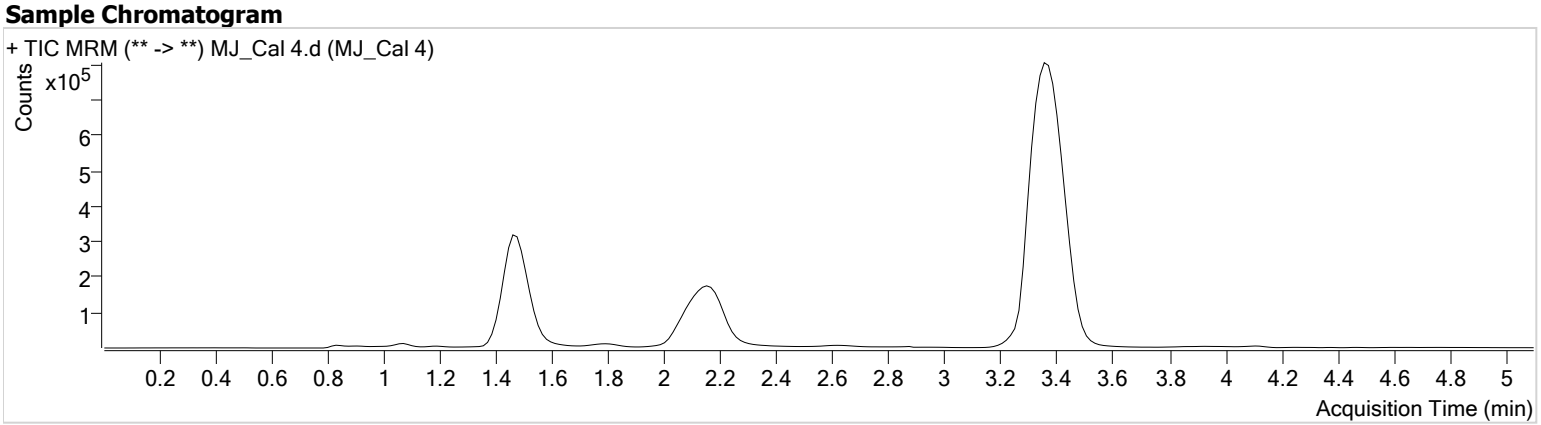
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	121925	∞	8.7	∞	1037848	4.9542	ng/ml
THC-COOH	1.504	135095	239.28	59.5	651.96	276643	19.1824	ng/ml
THC	3.375	253883	2798.12	27.0	133.18	6516409	4.7639	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-E6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 3:13:40 PM		
Sample Info.			

Sample Chromatogram



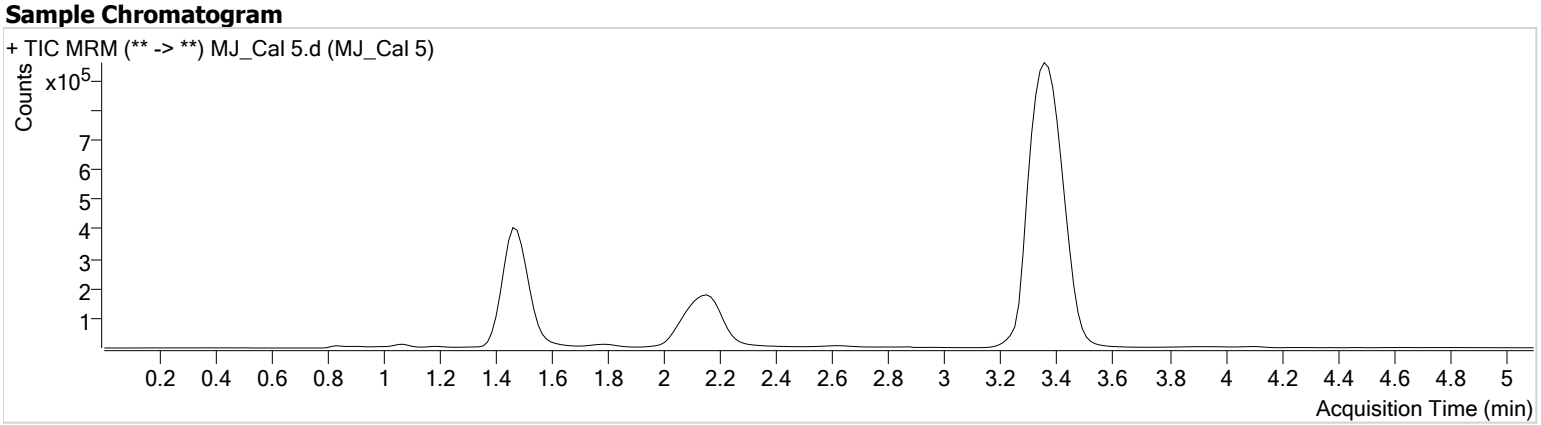
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	189550	∞	9.7	119.43	989909	10.8985	ng/ml
THC-COOH	1.504	333237	∞	59.7	2123.42	258342	50.9417	ng/ml
THC	3.375	512182	2510.44	27.4	358.76	6185497	9.9555	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-F6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 3:21:14 PM		
Sample Info.			

Sample Chromatogram



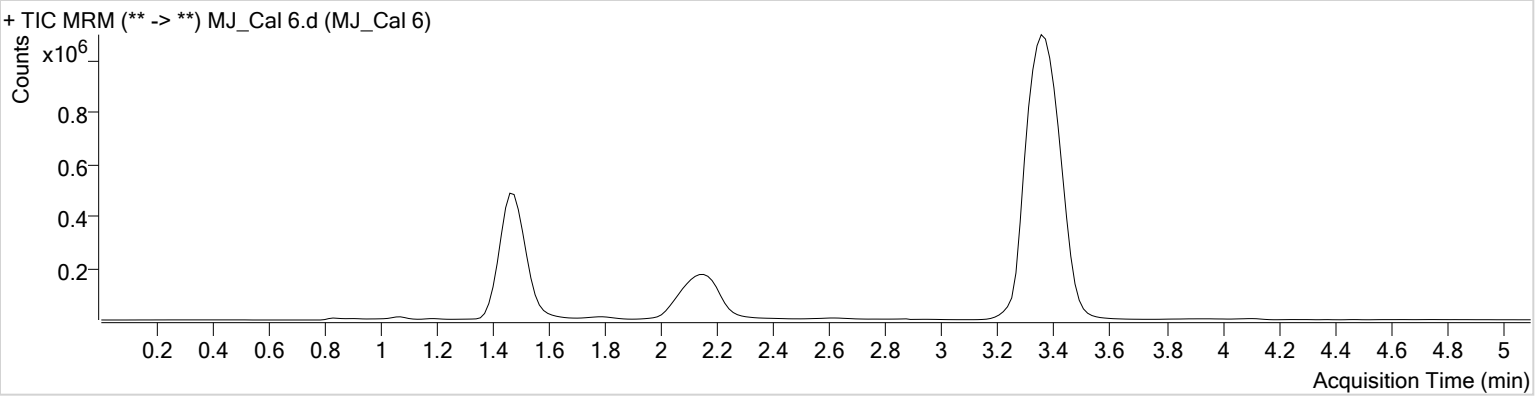
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	356203	∞	12.7	1098.78	1027484	23.3645	ng/ml
THC-COOH	1.489	494876	2909.54	60.5	3930.50	265083	73.8016	ng/ml
THC	3.375	1350880	7206.95	26.1	888.16	6552198	24.5641	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-G6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 3:28:48 PM		
Sample Info.			

Sample Chromatogram



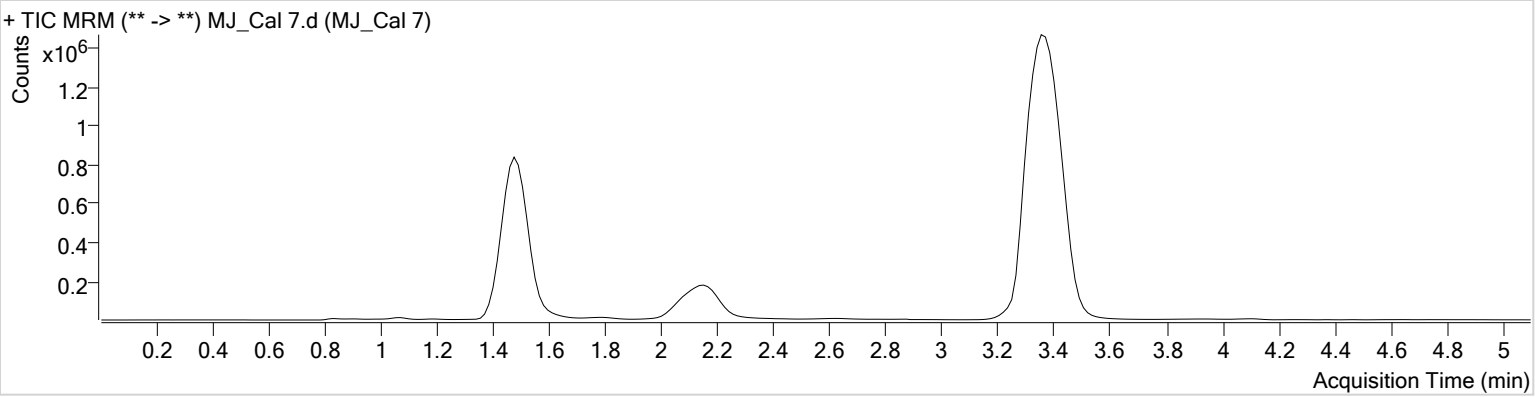
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	667898	∞	12.3	2292.38	984406	50.0165	ng/ml
THC-COOH	1.489	635819	∞	60.1	8092.94	253582	99.1781	ng/ml
THC	3.375	2627958	14125.50	26.5	3628.38	6224605	50.1436	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2020\AM 27-28\011620 AM 27 28 SP\QuantResults\AM 27.batch.bin
Calibration Last Update 1/17/2020 7:52:16 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-H6	**Comment**	
Injection Volume	10		
Acq. Date-Time	1/16/2020 3:36:23 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.468	1281837	∞	12.3	3249.69	977623	100.8382	ng/ml
THC-COOH	1.504	1538510	∞	60.1	7571.08	242370	251.3405	ng/ml
THC	3.375	5285605	33005.20	26.8	∞	6233643	100.5558	ng/ml