reviewed 11/22/17

11/22/2017

**Worklist: 2041**

| LAB_CASE | ITEM | TASK_ID | DESCRIPTION |
|---|---|---|---|
| C2017-2148 | 1 | 100789 | AM 27 Blood THC Quant by LC |
| C2017-2174 | 1 | 100788 | AM 27 Blood THC Quant by LC |
| C2017-2242 | 1 | 100790 | AM 27 Blood THC Quant by LC |
| C2017-2255 | 1 | 100791 | AM 27 Blood THC Quant by LC |
| C2017-2308 | 1 | 100787 | AM 27 Blood THC Quant by LC |
| M2017-4559 | 1 | 100792 | AM 27 Blood THC Quant by LC |
| M2017-4595 | 1 | 100793 | AM 27 Blood THC Quant by LC |
| M2017-4757 | 1 | 100794 | AM 27 Blood THC Quant by LC |

# Quantitation of THC and Metabolites in Blood by LC-MS/MS

Extraction Date: 11-21-17 Analyst: Anne Nora

Plate lot#: 0515037 Plate Expiration: 9/28/18

**Mobile phase A**: 0.1% Formic Acid in LCMS Water **Mobile phase B:** 0.1% Formic acid in Acetonitrile
MTBE LCMS Methanol Hexane
**Blank Blood Lot**: 17J20718 **Column**: UCT Selectra DA 100 x 2.1mm 3um
**LCMS-QQQ ID**: 62340

## Pre-Analytic:

- [x] 1. Check levels of mobile phases and needle wash refill as needed. Ensure waste is not full.
- [x] 2. Ensure correct column is installed and begin mobile phase flow allow to equilibrate ~ 30 minutes.
- [x] 3. Create worklist:

## Analytic:

- [x] 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- [x] 2. Pipette **1000µL blood (calibrated pipette) Pipette ID: 2609543** in wells of analytical (standards) plate.
- [x] 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes. *Shaker ID: 66759*
- [x] 4. Pipette **500µL 0.1% formic acid in water** in wells of analytical plate.
- [x] 5. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
- [x] 6. Transfer **800µL of blood+acid** mixture to corresponding wells of SLE+ plate.
- [x] 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: 66792
- [x] 8. Wait 5 minutes.
- [x] 9. Add **2.25mL MTBE. (*Add in 3 increments of 750uL)***
- [x] 10. Wait 5 minutes.
- [x] 11. Apply positive pressure for approx. 15 seconds. ***(10-15 PSI- Selector to the left).***
- [x] 12. Add **2.25mL Hexane. (*Add in 3 increments of 750uL)***
- [x] 13. Wait 5 minutes.
- [x] 14. Apply positive pressure for approx. 15 seconds. ***(10-15 PSI- Selector to the left).***
- [x] 15. Remove plate containing eluate. Place on SPE Dry and evaporate to dryness at approx. 35°C. *SPE Dry ID: 66819*
- [x] 16. Reconstitute in **100µL 100% MeOH** and heat seal plate with foil. Place in autosampler and run worklist.

## Post-Analytic

- [x] 1. Create batch and process data.
  Worklist path: 2017 Data\ 112117 cann quant Batch Name: 112117 cann quant
- [x] 2. Make any necessary integration changes, $r^2$ values $\geq 0.98$ for each analyte.
- [x] 3. Did all QCs pass for each analyte? Y / N Enter QCs into control charting?
- [x] 4. Central File Packet to include: LIMS Worklist, Method Checklist, Calibration and Control Reports

COMMENTS: _

Toxicology AM method 27 external prep information
working solution 1 ug/ml in meoh C-THC, THC-OH, THC
Stock solution 1mg/ml 10 ul each THC, THC-OH 100 ug/ml 100 ul C-THC in 9880 ul meOH lot (Fisher 168427)
Ppd 8/17/17 Exp: 2/17/18 lot 21718 by AMN

| Drug | lot (cerilliant) | expiration |
|---|---|---|
| C-THC | FE03121501 | 3/1/2020 |
| THC-OH | FE01141502 | 1/1/2020 |
| THC | FE04231406 | 4/1/2019 |

AM 27 control 100 ul working solution lot (21717) in 9990 ul blood lot (321632)
ppd 8/17/17 Exp 2/17/18 by AMN Concentration 10 ng/ml each

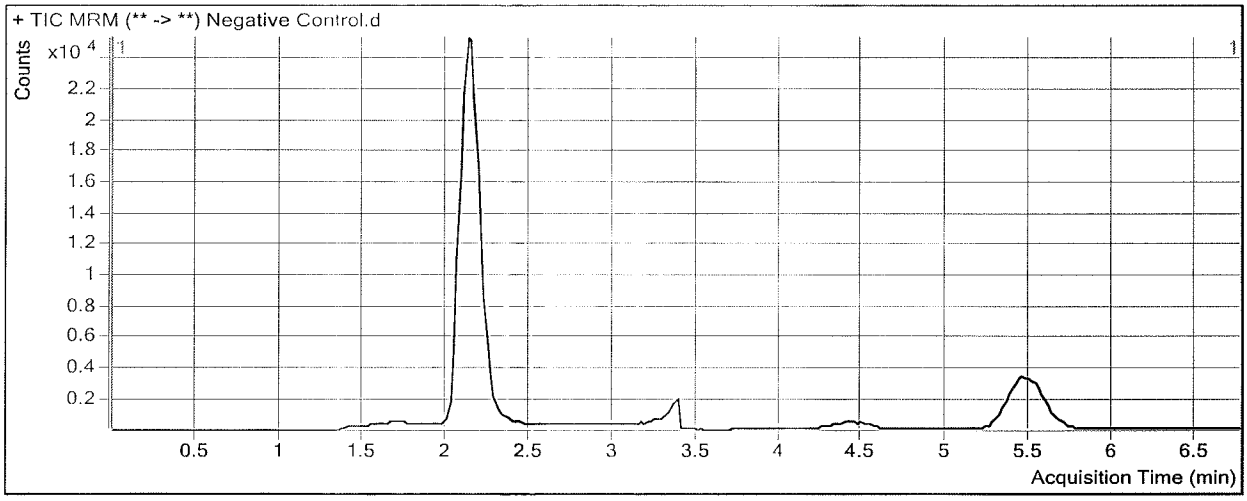
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 16:39 | **Data File** | Negative Control.d |
| **Sample Type** | Sample | **Sample Name** | Negative Control |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-A2 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram



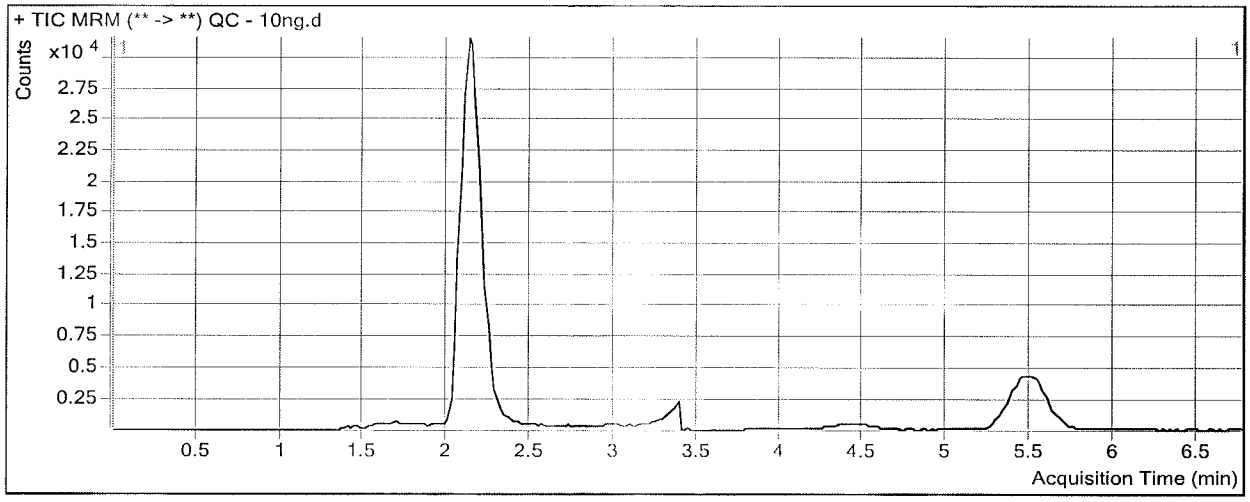
# ISP FORENSICS - Cd'A Instrument # 62340
## Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

### Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 16:51 | **Data File** | QC - 10ng.d |
| **Sample Type** | QC | **Sample Name** | QC - 10ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-H1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

### Sample Chromatogram




### Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 15024 | 172584 | 0.0871 | 9.3605 |
| THC-COOH | THC-COOH-d9 | 2.225 | 10227 | 64719 | 0.1580 | 9.0742 |
| THC | THC-d3 | 5.532 | 6765 | 61761 | 0.1095 | 9.9518 |

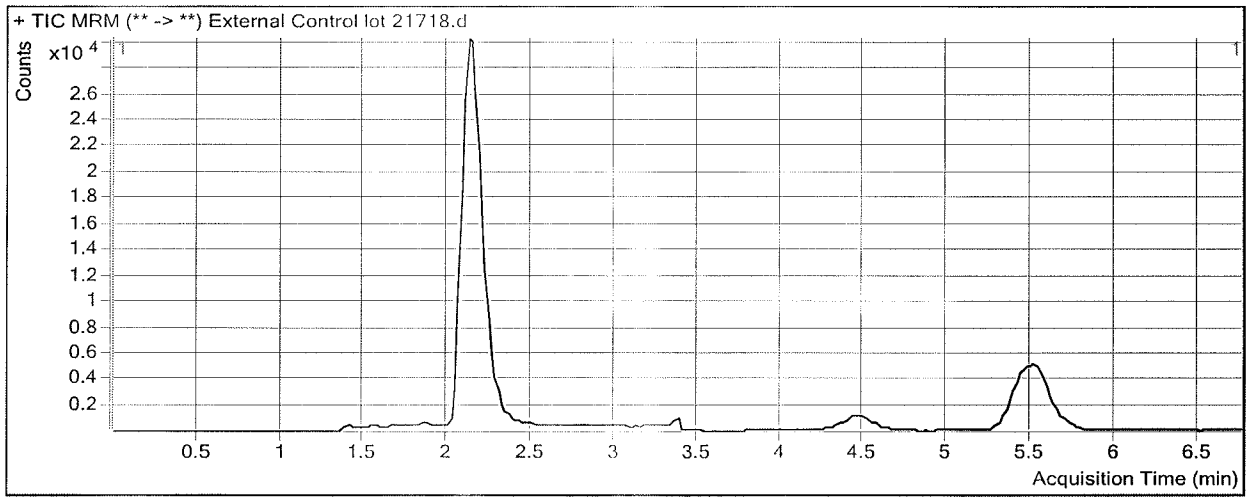
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 17:03 | **Data File** | External Control lot 21718.d |
| **Sample Type** | Sample | **Sample Name** | External Control lot 21718 |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-B2 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

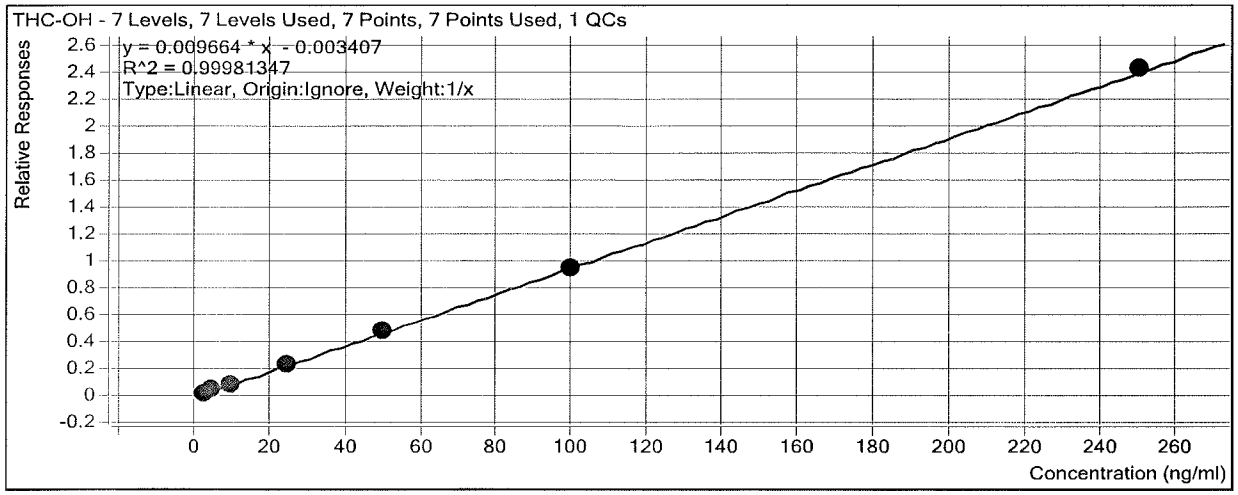
| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 12475 | 161353 | 0.0773 | 8.3530 |
| THC-COOH | THC-COOH-d9 | 2.225 | 14286 | 60040 | 0.2379 | 13.4338 |
| THC | THC-d3 | 5.552 | 7334 | 66231 | 0.1107 | 10.0598 |

# ISP Forensics
# Calibration Curve Report

**Batch Data Path** D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin

**Last Calib Update** 11/22/2017 9:31 AM **Analyst Name** ISP TOX

***Target Compound*** *THC-OH*
*Internal Standard* *THC-OH-d3*



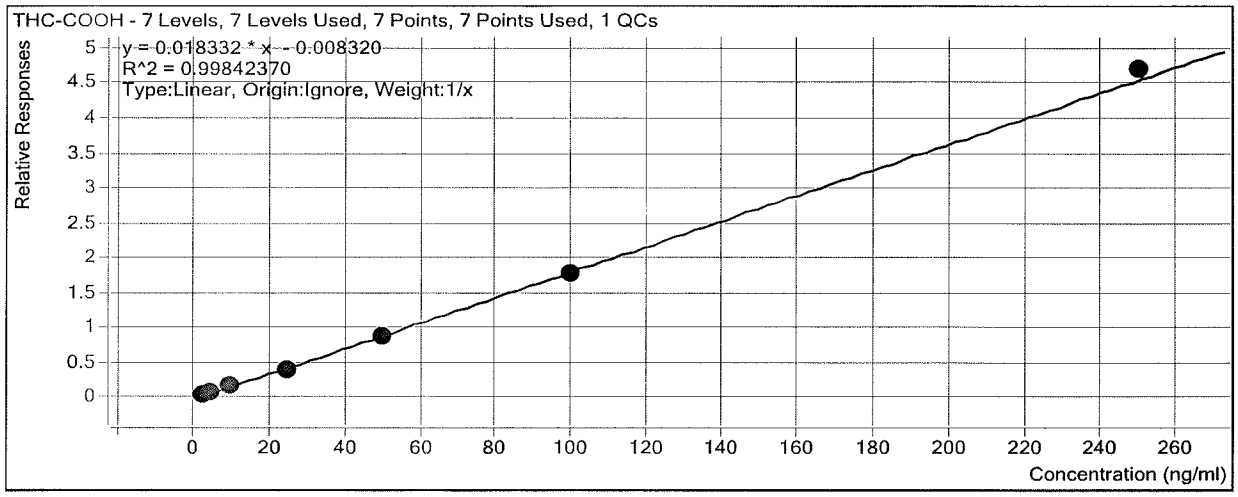

| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|---|---|---|---|---|---|
| Cal 1 - 3ng | 1 | ☑ | 3 | 3.1 | 102.1 |
| Cal 2 - 5ng | 2 | ☑ | 5 | 5.1 | 101.7 |
| Cal 3 - 10ng | 3 | ☑ | 10 | 10.0 | 100.1 |
| QC - 10ng | 3 | ☑ | 10 | 9.4 | 93.6 |
| Cal 4 - 25ng | 4 | ☑ | 25 | 23.9 | 95.8 |
| Cal 5 - 50ng | 5 | ☑ | 50 | 50.3 | 100.7 |
| Cal 6 - 100ng | 6 | ☑ | 100 | 99.0 | 99.0 |
| Cal 7 - 250ng | 7 | ☑ | 250 | 251.6 | 100.6 |

# ISP Forensics
# Calibration Curve Report

**Batch Data Path** D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin

**Last Calib Update** 11/22/2017 9:31 AM **Analyst Name** ISP TOX

***Target Compound*** *THC-COOH*
*Internal Standard* *THC-COOH-d9*



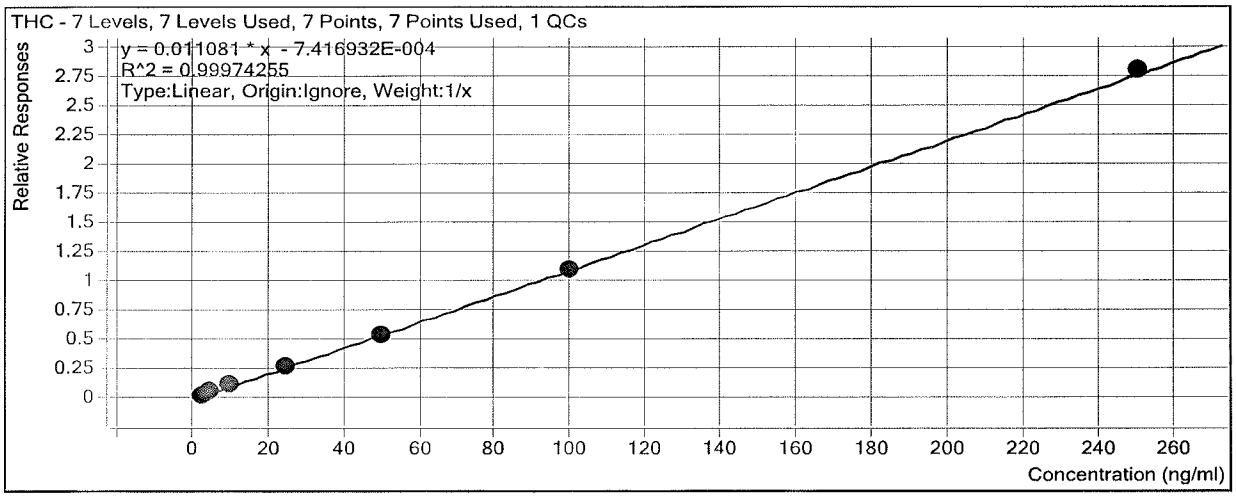

| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|---|---|---|---|---|---|
| Cal 1 - 3ng | 1 | ☑ | 3 | 3.5 | 115.8 |
| Cal 2 - 5ng | 2 | ☑ | 5 | 5.0 | 100.2 |
| Cal 3 - 10ng | 3 | ☑ | 10 | 9.6 | 95.9 |
| QC - 10ng | 3 | ☑ | 10 | 9.1 | 90.7 |
| Cal 4 - 25ng | 4 | ☑ | 25 | 22.7 | 90.9 |
| Cal 5 - 50ng | 5 | ☑ | 50 | 49.0 | 97.9 |
| Cal 6 - 100ng | 6 | ☑ | 100 | 96.8 | 96.8 |
| Cal 7 - 250ng | 7 | ☑ | 250 | 256.5 | 102.6 |

# ISP Forensics
# Calibration Curve Report

**Batch Data Path** D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin

**Last Calib Update** 11/22/2017 9:31 AM **Analyst Name** ISP TOX

***Target Compound*** *THC*
*Internal Standard* *THC-d3*




| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|---|---|---|---|---|---|
| Cal 1 - 3ng | 1 | ☑ | 3 | 3.0 | 99.9 |
| Cal 2 - 5ng | 2 | ☑ | 5 | 5.2 | 103.1 |
| Cal 3 - 10ng | 3 | ☑ | 10 | 10.2 | 102.5 |
| QC - 10ng | 3 | ☑ | 10 | 10.0 | 99.5 |
| Cal 4 - 25ng | 4 | ☑ | 25 | 24.0 | 95.9 |
| Cal 5 - 50ng | 5 | ☑ | 50 | 49.4 | 98.9 |
| Cal 6 - 100ng | 6 | ☑ | 100 | 98.8 | 98.8 |
| Cal 7 - 250ng | 7 | ☑ | 250 | 252.4 | 100.9 |

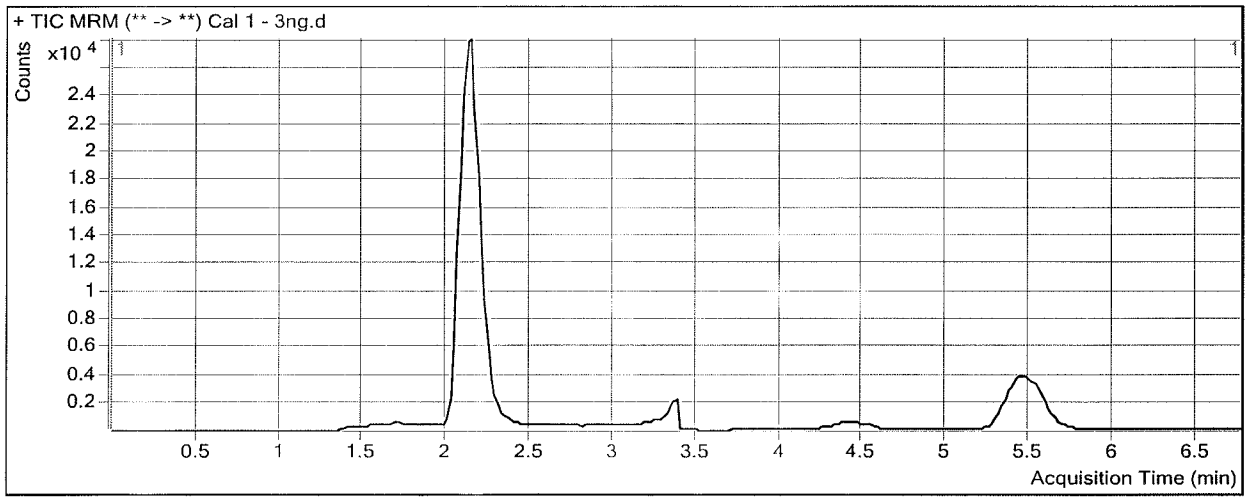
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 15:04 | **Data File** | Cal 1 - 3ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 1 - 3ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-A1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 4323 | 165019 | 0.0262 | 3.0635 |
| THC-COOH | THC-COOH-d9 | 2.225 | 3242 | 58572 | 0.0554 | 3.4737 |
| THC | THC-d3 | 5.532 | 1933 | 59565 | 0.0325 | 2.9958 |

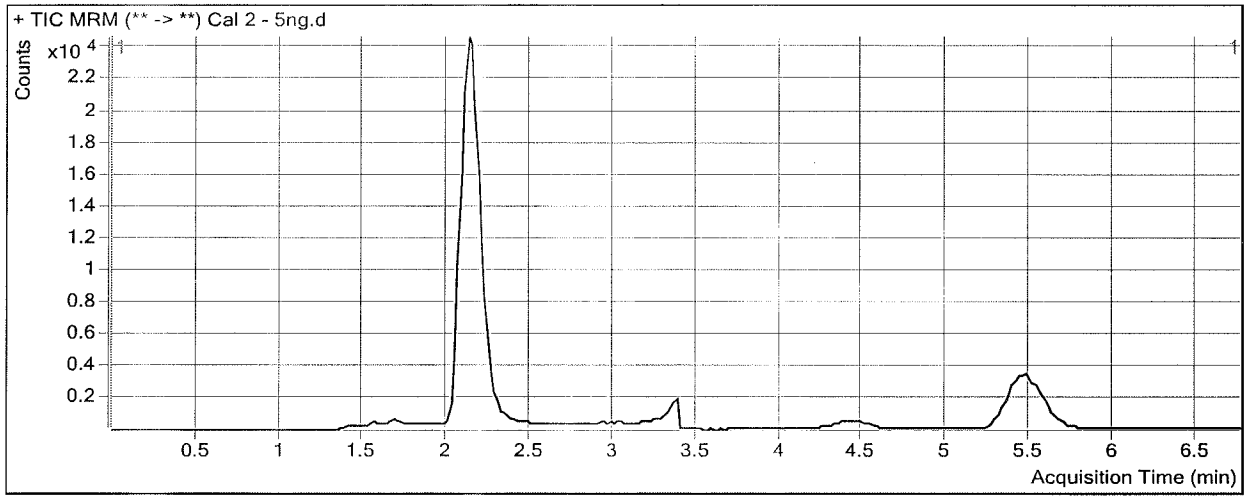
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 15:16 | **Data File** | Cal 2 - 5ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 2 - 5ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-B1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.155 | 6272 | 137070 | 0.0458 | 5.0871 |
| THC-COOH | THC-COOH-d9 | 2.225 | 4212 | 50451 | 0.0835 | 5.0079 |
| THC | THC-d3 | 5.552 | 2746 | 48681 | 0.0564 | 5.1569 |

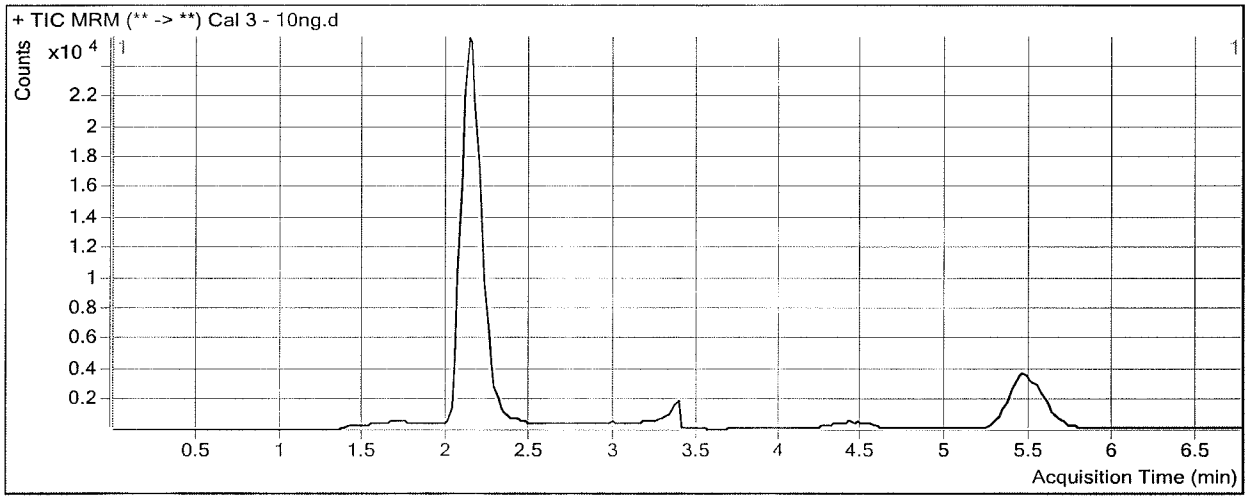
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 15:28 | **Data File** | Cal 3 - 10ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 3 - 10ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-C1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 12802 | 137209 | 0.0933 | 10.0071 |
| THC-COOH | THC-COOH-d9 | 2.225 | 8587 | 51297 | 0.1674 | 9.5851 |
| THC | THC-d3 | 5.532 | 5320 | 47147 | 0.1128 | 10.2493 |

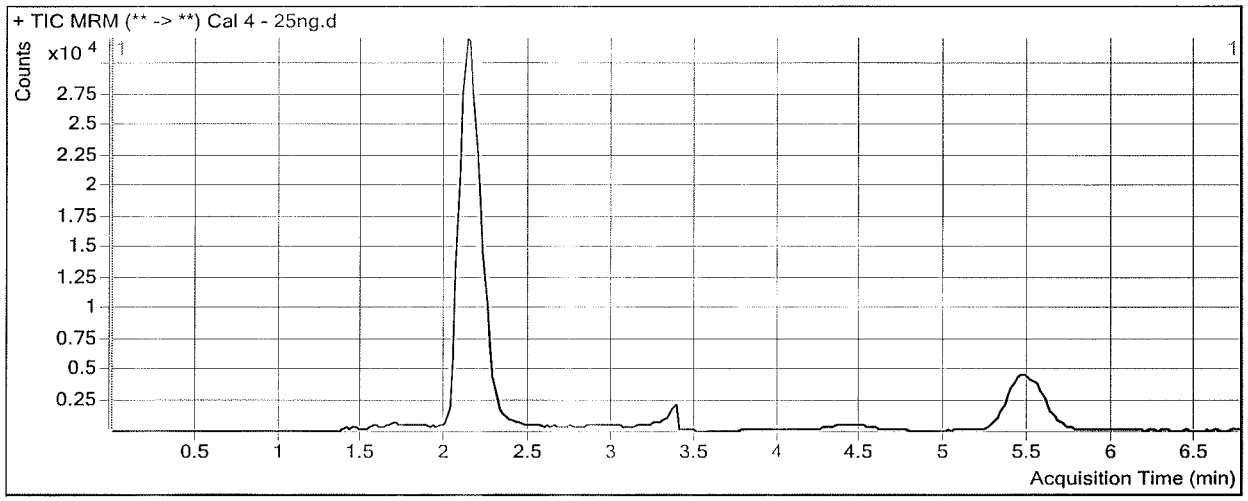
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 15:40 | **Data File** | Cal 4 - 25ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 4 - 25ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-D1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 35040 | 153664 | 0.2280 | 23.9483 |
| THC-COOH | THC-COOH-d9 | 2.225 | 23405 | 57313 | 0.4084 | 22.7303 |
| THC | THC-d3 | 5.552 | 14253 | 53825 | 0.2648 | 23.9639 |

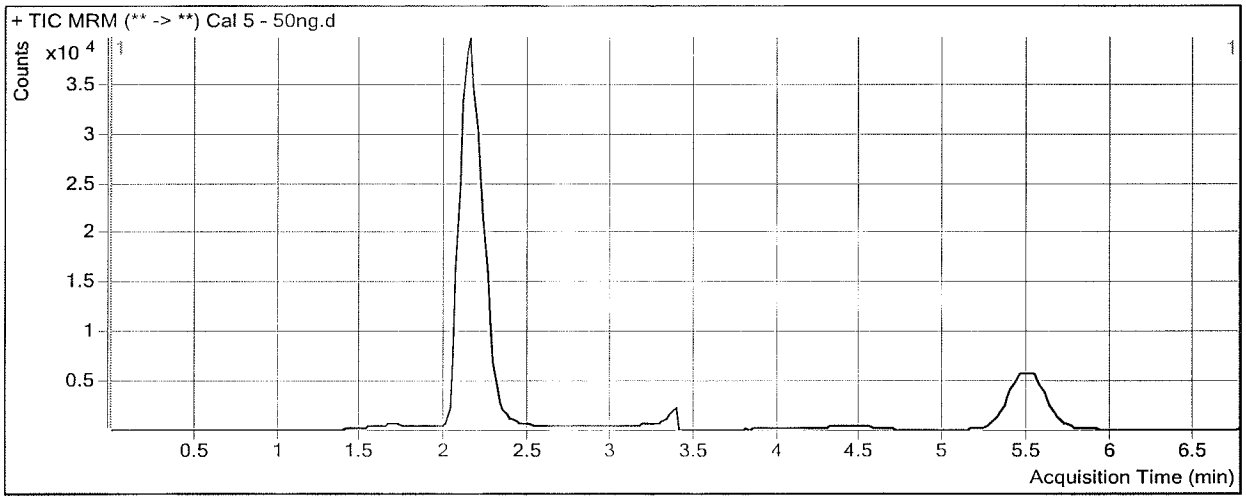
# ISP FORENSICS - Cd'A Instrument # 62340
## Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

### Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 15:52 | **Data File** | Cal 5 - 50ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 5 - 50ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-E1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

### Sample Chromatogram




### Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 75524 | 156359 | 0.4830 | 50.3331 |
| THC-COOH | THC-COOH-d9 | 2.225 | 51042 | 57410 | 0.8891 | 48.9533 |
| THC | THC-d3 | 5.532 | 29172 | 53324 | 0.5471 | 49.4372 |

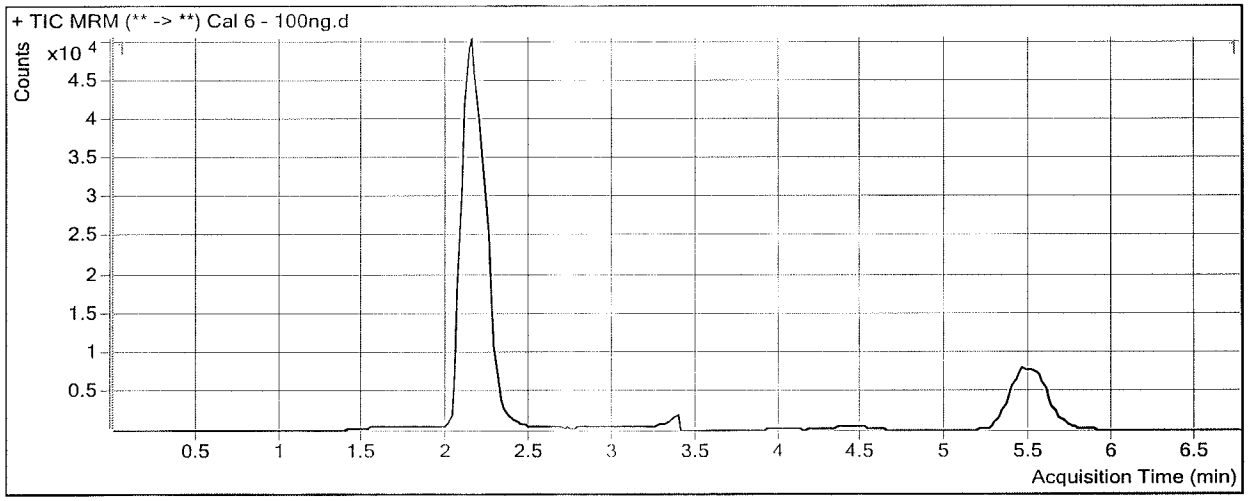
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 16:04 | **Data File** | Cal 6 - 100ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 6 - 100ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-F1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 141550 | 148509 | 0.9531 | 98.9802 |
| THC-COOH | THC-COOH-d9 | 2.225 | 94378 | 53442 | 1.7660 | 96.7893 |
| THC | THC-d3 | 5.532 | 57659 | 52682 | 1.0945 | 98.8366 |

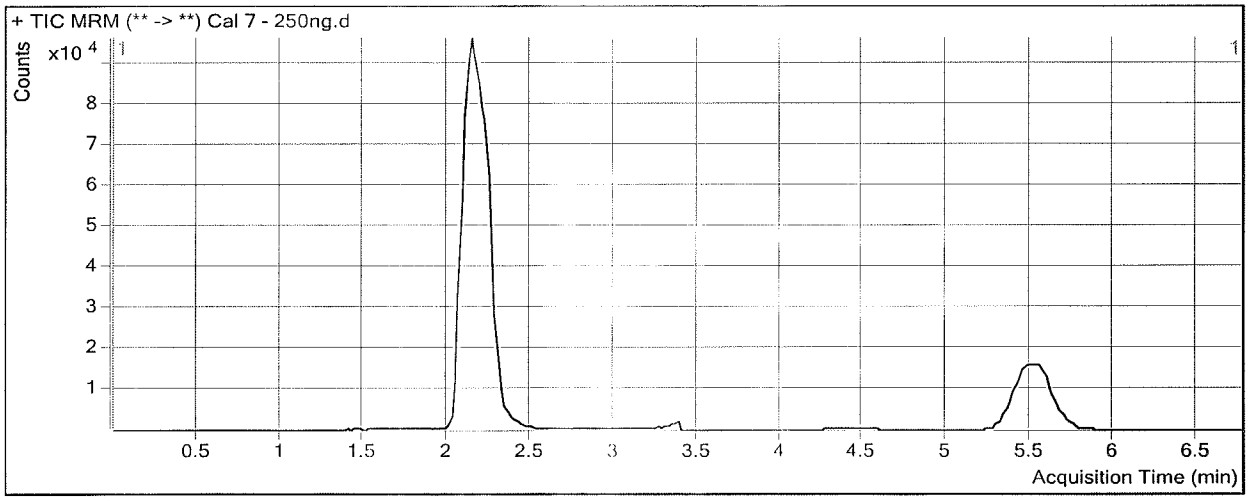
# ISP FORENSICS - Cd'A Instrument # 62340
# Cannabinoids Analysis Report

| | | | |
|---|---|---|---|
| **Batch Data Path** | D:\2017 Data\112117 cann quant\QuantResults\112117 cann quant.batch.bin | | |
| **Analysis Time** | 11/22/2017 9:31 AM | **Analyst Name** | ISP Tox |
| **Report Time** | 11/22/2017 9:32 AM | **Reporter Name** | ISP Tox |
| **Last Calib Update** | 11/22/2017 9:31 AM | **Batch State** | Processed |

## Analysis Info

| | | | |
|---|---|---|---|
| **Acq Time** | 2017-11-21 16:16 | **Data File** | Cal 7 - 250ng.d |
| **Sample Type** | Calibration | **Sample Name** | Cal 7 - 250ng |
| **Dilution** | 1 | **Acq Method** | AM 27 Quant THC 7-2017.m |
| **Position** | P1-G1 | **Sample Info** | |
| **Inj Vol** | -1 | **Comment** | AM 27 Cannabinoid Confirmation |

## Sample Chromatogram




## Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|---|---|---|---|---|---|---|
| THC-OH | THC-OH-d3 | 2.135 | 395539 | 162915 | 2.4279 | 251.5808 |
| THC-COOH | THC-COOH-d9 | 2.225 | 255878 | 54523 | 4.6930 | 256.4604 |
| THC | THC-d3 | 5.532 | 156749 | 56068 | 2.7957 | 252.3604 |