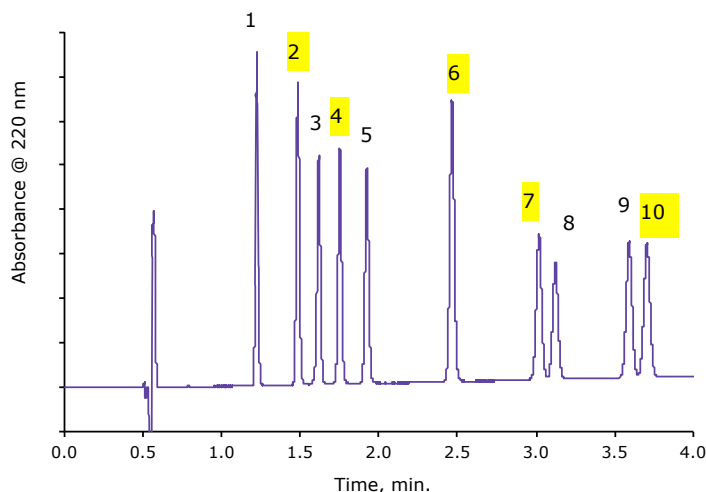


Rapid and Comprehensive Analysis of Cannabinoid Potency by HPLC/UV using the Ascentis[®] Express C18 Column

Cannabinoids are a class of psychoactive and non-psychoactive compounds produced in the Cannabis (marijuana) plant. In recent years, these compounds have shown potential therapeutic efficacy in the treatment of pain, mood disorders, and inflammatory diseases. Since the concentration-to-potency of cannabinoids in Cannabis can fluctuate through various stages of plant growth and in different plant strains, it is imperative for patients that Cannabis cultivators

ensure cannabinoid identity as well as consistent purity and concentration. Cannabinoids can be analyzed using multiple methods, with HPLC being the most common technique. Analysis was performed using UV detection though it can be transferred to other detectors such as LC/MS. We offer the complete line of relevant products for cannabinoid potency testing including HPLC columns, solvents, and certified reference materials (CRMs).

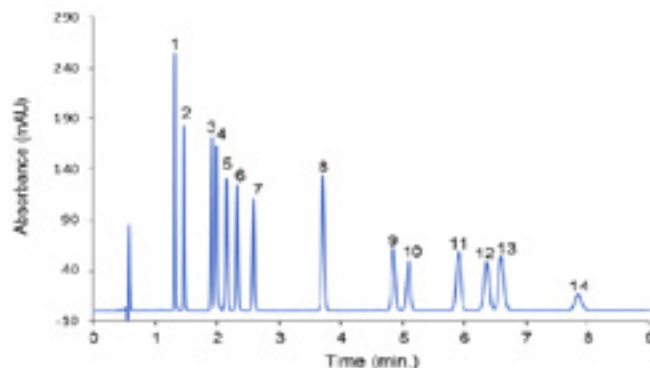
Method 1: 10 cannabinoids in under 4 minutes



Column:	Ascentis [®] Express C18, 10 cm x 4.6 mm I.D., 2.7 μm (53827-U)	1. Cannabidiol (CBD)
Mobile Phase A:	0.1% formic acid in water	2. Cannabidiolic acid (CBDA)
Mobile Phase B:	0.085% formic acid in acetonitrile	3. Cannabigerol (CBG)
Gradient:	77 to 85% B in 4 min	4. Cannabidiol (CBD)
Flow Rate:	1.5 mL/min	5. Tetrahydrocannabivarin (THCV)
Initial Pressure:	2860 psi	6. Cannabinol (CBN)
Column Temp.:	38 °C	7. Δ ⁹ -tetrahydrocannabinol (Δ ⁹ -THC)
Detector:	UV at 220nm	8. Δ ⁸ -tetrahydrocannabinol (Δ ⁸ -THC)
Injection:	1.3 μL	9. Cannabichromene (CBC)
Sample:	0.5 μg/μL each	10. Δ ⁹ -tetrahydrocannabinolic acid A (THCA)

Method 2: 14 cannabinoids in 8 minutes using isocratic conditions

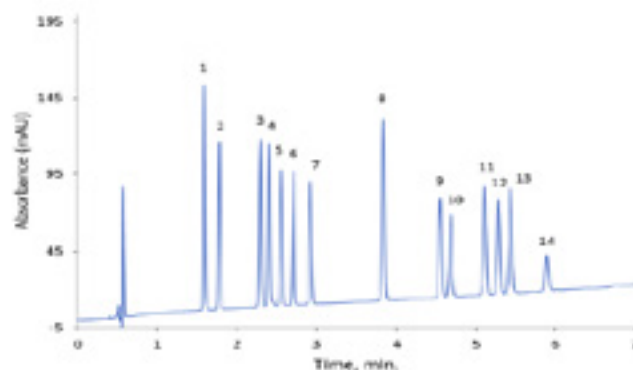
Column: Ascentis® Express C18,
15 cm x 3.0 mm I.D., 2.7 µm (53816-U)
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.085% formic acid in acetonitrile
Mixing Ratio: 25:75, A:B
Flow Rate: 1 mL/min
Pressure: 5100 psi
Column Temp: 30 °C
Detector: UV, 220 nm
Injection: 0.6 µL
Sample: 0.04 g/L ea in 50:50,
water:acetonitrile



- | | |
|----------------------------------|---|
| 1. Cannabidivarinic acid (CBDVA) | 8. Cannabinol (CBN) |
| 2. Cannabidvarin (CBDV) | 9. Δ^9 -Tetrahydrocannabinol (Δ^9 -THC) |
| 3. Cannabidiolic acid (CBDA) | 10. Δ^8 -Tetrahydrocannabinol (Δ^8 -THC) |
| 4. Cannabigerolic acid (CBGA) | 11. Cannabicyclol (CBL) |
| 5. Cannabigerol (CBG) | 12. Cannabichromene (CBC) |
| 6. Cannabidiol (CBD) | 13. Δ^9 -Tetrahydrocannabinolic acid A (THCA) |
| 7. Tetrahydrocannabivarin (THCV) | 14. Cannabichromenic acid (CBCA) |

Method 3: 14 cannabinoids in 6 minutes using gradient conditions

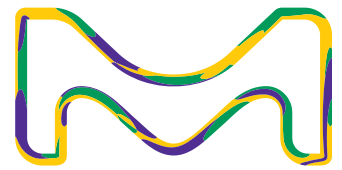
Column: Ascentis® Express C18,
15 cm x 3.0 mm I.D., 2.7 µm (53816-U)
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.085% formic acid in acetonitrile
Gradient: 70 to 88 %B in 6 min
Flow Rate: 1 mL/min
Pressure: 5100 psi (initial)
Column Temp: 30 °C
Detector: UV, 220 nm
Injection: 0.6 µL
Sample: 0.04 g/L ea in 50:50,
water:acetonitrile



- | | |
|----------------------------------|---|
| 1. Cannabidivarinic acid (CBDVA) | 8. Cannabinol (CBN) |
| 2. Cannabidvarin (CBDV) | 9. Δ^9 -Tetrahydrocannabinol (Δ^9 -THC) |
| 3. Cannabidiolic acid (CBDA) | 10. Δ^8 -Tetrahydrocannabinol (Δ^8 -THC) |
| 4. Cannabigerolic acid (CBGA) | 11. Cannabicyclol (CBL) |
| 5. Cannabigerol (CBG) | 12. Cannabichromene (CBC) |
| 6. Cannabidiol (CBD) | 13. Δ^9 -Tetrahydrocannabinolic acid A (THCA) |
| 7. Tetrahydrocannabivarin (THCV) | 14. Cannabichromenic acid (CBCA) |

Description	Cat. No.	Thomas No.
HPLC Columns		
Ascentis® Express C18 Column 2.7 µm particle size, L × I.D. 10 cm × 4.6 mm	53827-U	21A00L992
Ascentis® Express C18 Column, 2.7 µm particle size, L × I.D. 15 cm × 3.0 mm	53816-U	21A00L989
Certified Reference Materials		
(-)-Δ ⁹ -THC, 1.0 mg/mL	T-005	C940Y88
Cannabidiol (CBD), 1.0 mg/mL	C-045	C915P98
Cannabinol (CBN), 1.0 mg/mL	C-046	C915Q01
THC Cannabinoids Mixture (THC, CBD, CBN) -3, 1.0 mg/mL of each component	T-108	CHM01S970
Cannabigerol (CBG), 1.0 mg/mL	C-141	C753Q12
Cannabichromene (CBC), 1.0 mg/mL	C-143	C753Q14
(±)-Cannabicyclol (CBL), 1.0 mg/mL	C-154	C745K49
Cannabidivarin (CBDV), 1.0 mg/mL	C-140	C753Q11
Tetrahydrocannabivarin (THCV), 1.0 mg/mL	T-094	C753Q39
Δ ⁹ -Tetrahydrocannabinolic acid A (THCA-A), 1.0 mg/mL	T-093	C753Q38
Cannabidiolic acid (CBDA), 1.0 mg/mL	C-144	C753Q15
Cannabinolic Acid (CBNA) 1.0 mg/mL	C-153	---
Cannabigerolic acid (CBGA), 1.0 mg/mL	C-142	C753Q13
Cannabichromenic Acid (CBCA), 1.0 mg/mL	C-150	---
Cannabicyclolic Acid (CBLA) , 0.5 mg/mL	C-171	C745K50
Cannabidivarinic Acid (CBDVA), 1.0 mg/mL	C-152	C753Q16
(-)-Δ ⁸ -THC, 1.0 mg/mL	T-032	C940Z47
exo-THC, 1.0 mg/mL	T-033	C940Z55





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ThomasSci.com
833.544.SHIP (7447)
CustomerService@thomassci.com

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