

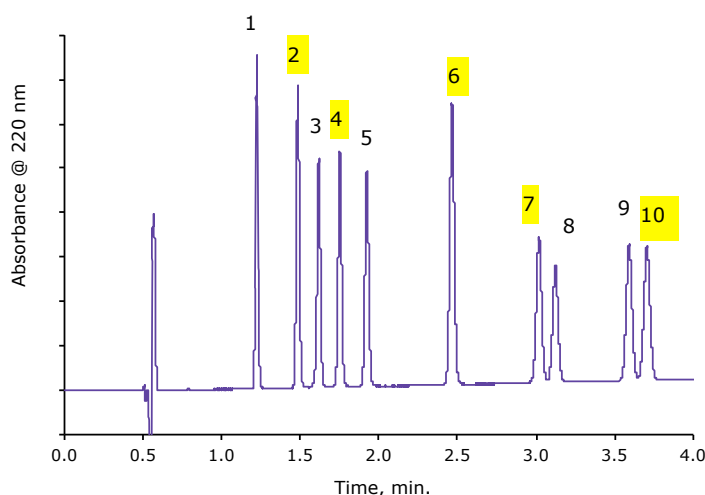


Rapid and Comprehensive Analysis of Cannabinoid Potency by HPLC/UV using the Ascentis[®] Express C18 Column

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).

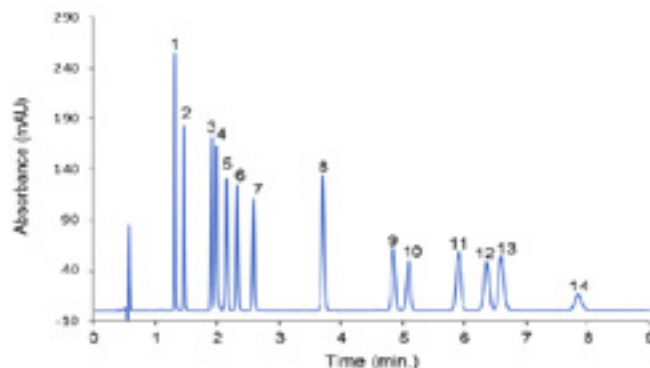
Method 1: 10 cannabinoids in under 4 minutes



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

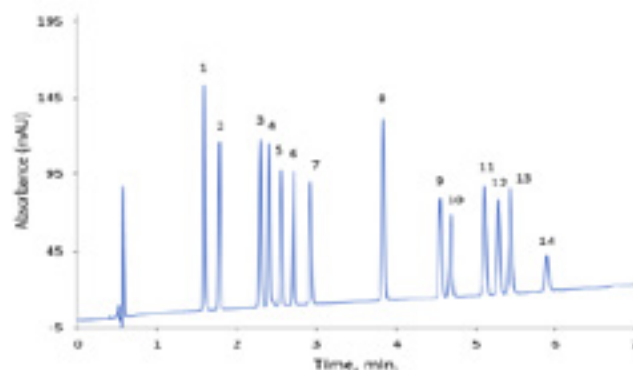
Column: Ascentis® Express C18,
15 cm x 3.0 mm I.D., 2.7 µm (53816-U)
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.085% formic acid in acetonitrile
Mixing Ratio: 25:75, A:B
Flow Rate: 1 mL/min
Pressure: 5100 psi
Column Temp: 30 °C
Detector: UV, 220 nm
Injection: 0.6 µL
Sample: 0.04 g/L 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.
HPLC Columns	
Ascentis® Express C18 Column 2.7 µm particle size, L × I.D. 10 cm × 4.6 mm	53827-U
Ascentis® Express C18 Column, 2.7 µm particle size, L × I.D. 15 cm × 3.0 mm	53816-U
Certified Reference Materials	
(-)-Δ ⁹ -THC, 1.0 mg/mL	T-005
Cannabidiol (CBD), 1.0 mg/mL	C-045
Cannabinol (CBN), 1.0 mg/mL	C-046
THC Cannabinoids Mixture (THC, CBD, CBN) -3, 1.0 mg/mL of each component	T-108
Cannabigerol (CBG), 1.0 mg/mL	C-141
Cannabichromene (CBC), 1.0 mg/mL	C-143
(±)-Cannabicyclol (CBL), 1.0 mg/mL	C-154
Cannabidivarin (CBDV), 1.0 mg/mL	C-140
Tetrahydrocannabivarin (THCV), 1.0 mg/mL	T-094
Δ ⁹ -Tetrahydrocannabinolic acid A (THCA-A), 1.0 mg/mL	T-093
Cannabidiolic acid (CBDA), 1.0 mg/mL	C-144
Cannabinolic Acid (CBNA) 1.0 mg/mL	C-153
Cannabigerolic acid (CBGA), 1.0 mg/mL	C-142
Cannabichromenic Acid (CBCA), 1.0 mg/mL	C-150
Cannabicyclolic Acid (CBLA) , 0.5 mg/mL	C-171
Cannabidivarinic Acid (CBDVA), 1.0 mg/mL	C-152
(-)-Δ ⁸ -THC, 1.0 mg/mL	T-032
exo-THC, 1.0 mg/mL	T-033



For more information on HPLC solvents and accessories, visit SigmaAldrich.com/HPLC

Visit our cannabis testing resources at SigmaAldrich.com/cannabis



Distributed By:

Greyhound Chromatography & Allied Chemicals
6 Kelvin Park, Birkenhead, Merseyside, CH41 1LT, UK

Tel: +44(0)151 649 4000 Fax: +44(0) 151 649 4001
Email: sales@greyhoundchrom.com

WWW.GREYHOUNDCHROM.COM

