APPLICATION NOTE

Fast separation of 11 common cannabinoids with YMC-Triart C18 ExRS

The demand for faster and more reliable cannabinoid analysis is growing with the expanding use of medicinal cannabis. Traditional HPLC methods often fall short in resolution due to the similar structures of cannabinoids.

This application note presents a rapid UHPLC method using the YMC-Triart C18 ExRS column, delivering high-resolution separation of 11 cannabinoids in less than 6 minutes. Optimised for challenging separations, this column ensures efficiency without compromising accuracy.

Key compounds analysed:

- Cannabivarin (CBV)
- Cannabidiolic acid (CBDA)
- Cannabigerol (CBG)
- Cannabidiol (CBD)
- Tetrahydrocannabivarin (THCV)
- Cannabinol (CBN)
- Delta-9-tetrahydrocannabinol (Δ9-THC)
- Delta-8-tetrahydrocannabinol (Δ8-THC)
- Cannabicyclol (CBL)
- Cannabichromene (CBC)
- Tetrahydrocannabinolic acid (THCA)

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Why choose the YMC-Triart C18 ExRS column?

The YMC-Triart C18 ExRS column ensures reliable, high-resolution separation, even for structurally similar cannabinoids. Its enhanced design allows faster analyses without compromising accuracy, making it the ideal solution for laboratories facing tight deadlines and demanding throughput requirements. Whether you need precise results for complex samples or want to save valuable time, this column delivers performance you can trust.

Table 1: Chromatographic conditions.

Column:	YMC-Triart C18 ExRS (8 nm, 1.9 µm) 100 x 2.0 mm ID
Part No:	TAR08SP9-1002PT
Eluent:	A) 0.1 % formic acid in water
	B) 0.1 % formic acid in acetonitrile
Gradients:	75 %B (0–2 min), 75–80 %B (2–6 min)
Flow rate:	0.6 mL/min
Temperature:	40 °C
Injection:	2 µL
Sample:	11 cannabinoids each 0.05 mg/mL diluted with acetonitrile/water (75/25)
Detection:	UV at 220 nm

Optimised gradient for resolution

A shallow gradient from 75% to 80% acetonitrile (B) is critical to achieve optimal separation. While early eluting peaks coelute at 80%B, reducing the gradient start to 75%B resolves this issue, delivering high resolution across all analytes.

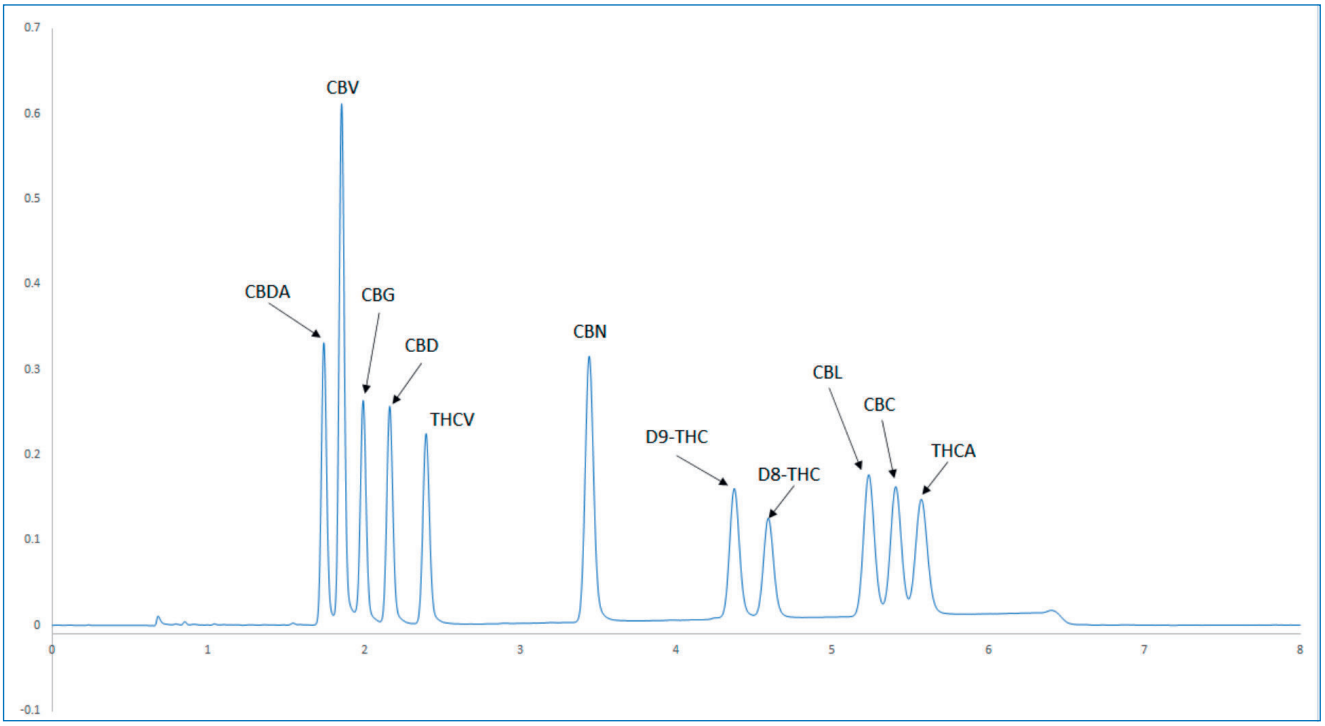

Figure 1: UHPLC separation of 11 common cannabinoids using a YMC-Triart C18 ExRS column and a shallow gradient.

Highlights

- **Run Time:** <6 minutes
- **Column:** YMC-Triart C18 ExRS with unique selectivity
- **Application:** High-resolution separation of 11 cannabinoids

*Application data by courtesy of YMC America, Inc.