

series	cap color	membrane	pore size	part #
eXtremelFV®	●	PVDF	0.2µm	85531

## eXtremelFV® for sample prep prior to the analysis of cannabinoids by HPLC-UV

### Introduction

Analysis of cannabinoids in marijuana flower, hemp and finished goods is becoming increasingly important as many states are legalizing it for medicinal and recreational purposes. Dosing methods include smoking/vaporizing and edibles but cannabis is still a Schedule 1 illegal drug and therefore have no FDA testing guidelines. This study evaluates streamlining the sample preparation aspect for HPLC-UV analysis of a panel of cannabinoids. The following analytes were used:

Cannabinol (CBN)  
 Cannabidivarinic acid (CBDVA)  
 Cannabinolic acid (CBNA)  
 Cannabidivarin (CBDV)  
 Δ9-Tetrahydrocannabinol (Δ9-THC)  
 Cannabidiolic acid (CBDA)  
 Δ8-Tetrahydrocannabinol (Δ8-THC)  
 Cannabigerolic acid (CBGA)  
 Cannabicyclol (CBL)  
 Cannabigerol (CBG)  
 Cannabichromene (CBC)  
 Cannabidiol (CBD)  
 Tetrahydrocannabinolic acid A (THCA-A)  
 Tetrahydrocannabivarin (THCV)  
 Cannabichromenic acid (CBCA)  
 Tetrahydrocannabivarinic acid (THCVA)

### Equipment

**HPLC:** Shimadzu Prominance  
**UV/VIS:** 228nm  
**Column:** Raptor ARC, 150 mm x 4.6 mm ID  
**Column Temperature:** 30 °C  
**Flow Rate:** 1.5mL/min

### Mobile Phase:

**A:** 25%: Water, 5 mM ammonium formate, 0.1% Formic Acid  
**B:** 75%: Acetonitrile, 0.1% Formic Acid

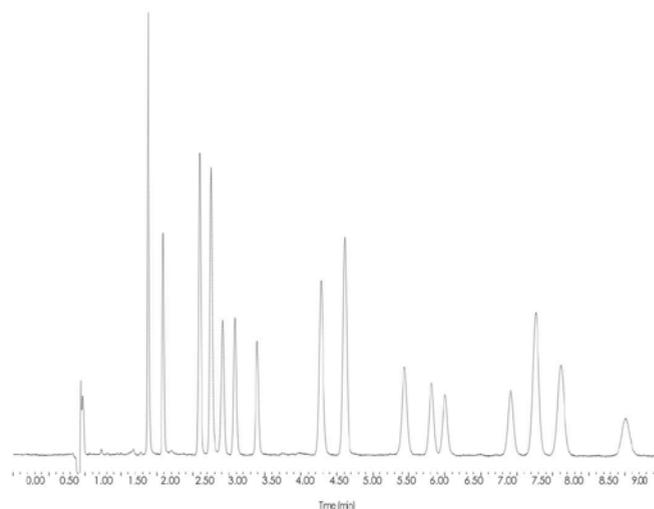
### Sample Preparation

- Place 200µL of sample into the outer shell of the eXtremelFV®, 0.2µm PVDF
- Add 200µL of 25:75 (Water:Methanol)
- Partially depress the plunger
- Vortex the sample
- Depress the plunger completely

### Results

16 cannabinoids are baseline resolved using the eXtremelFV® for sample prep and a isocratic HPLC method.

Peaks #	Analyte	Time (min)
1	Cannabidivarinic acid (CBDVA)	1.877
2	Cannabidivarin (CBDV)	2.86
3	Cannabidiolic acid (CBDA)	2.592
4	Cannabigerolic acid (CBGA)	2.75
5	Cannabigerol (CBG)	2.912
6	Cannabidiol (CBD)	3.48
7	Tetrahydrocannabivarin (THCV)	3.391
8	Tetrahydrocannabivarinic acid (THCVA)	4.279
9	Cannabinol (CBN)	4.609
10	Cannabinolic acid (CBNA)	5.437
11	Δ9-Tetrahydrocannabinol (Δ9-THC)	5.815
12	Δ8-Tetrahydrocannabinol (Δ8-THC)	6.2
13	Cannabicyclol (CBL)	6.916
14	Cannabichromene (CBC)	7.263
15	Tetrahydrocannabinolic acid A (THCA-A)	7.612
16	Cannabichromenic acid (CBCA)	8.51



### Conclusion

The HPLC method fully resolves 16 major and minor cannabinoids. Simple quick sample prep using the eXtremelFV® allows for the baseline separation of the analytes ensuring positive identification and accurate quantitation of the cannabinoids. With <10 seconds per sample and a fast 9-minute analysis, all compounds were resolved making this method suitable for high-throughput cannabis testing labs. 🔄