

# Determination of 11 cannabinoids in Tinctures & Oils using \$14,990 HPLC from CTInstruments

Accurate determination of cannabinoids in tinctures and oils is important from pricing, quality assurance, and regulatory compliance point of view. We present an easy-to-use, accurate, reliable, and affordable HPLC for measuring 11 cannabinoids in a variety of samples. This application note describes analysis of cannabis edibles.

## HPLC Features

- Reciprocating Pump
- Rheodyne 7725i Injector
- CTI HPLC Software
- UV/VIS Detector
- Temperature-controlled Column Compartment

## HPLC Specifications

<b>Flow Rate</b>	0.001 - 5mL/min
<b>Max Pressure</b>	6,300 psi
<b>Flow Accuracy</b>	≤±1%
<b>Flow Precision</b>	RSD <0.1%
<b>Qualitative Repeatability</b>	RSD ≤0.2% (Naphthalene/ Methanol standards)
<b>Quantitative Repeatability</b>	RSD ≤0.5% (Naphthalene/ Methanol standards)
<b>Wavelength Range</b>	180 - 680nm
<b>Spectrum Bandwidth</b>	8nm
<b>Wavelength Accuracy</b>	±1nm
<b>Wavelength Precision</b>	Below 0.1nm
<b>Noise</b>	≤0.25X10 <sup>-5</sup> AU

## HPLC Column Specifications

<b>Column Type</b>	C18, SS body
<b>Dimensions</b>	150x4.6mm
<b>Packing</b>	5µm particles
<b>Guard Column</b>	C18



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**[cannabishplcanalyzer.com](http://cannabishplcanalyzer.com)**

## Sample Information

Sample Type	Oil
Brand	Solei Balance Harmoniser 30 mL
Total THC per Unit	4.93 mg/mL
Total CBD per Unit	4.98 mg/mL



## PROCESS

### 1. Extraction

Extraction of cannabinoids from oils is not needed. The sample is diluted prior to injection.

### Extraction Parameters

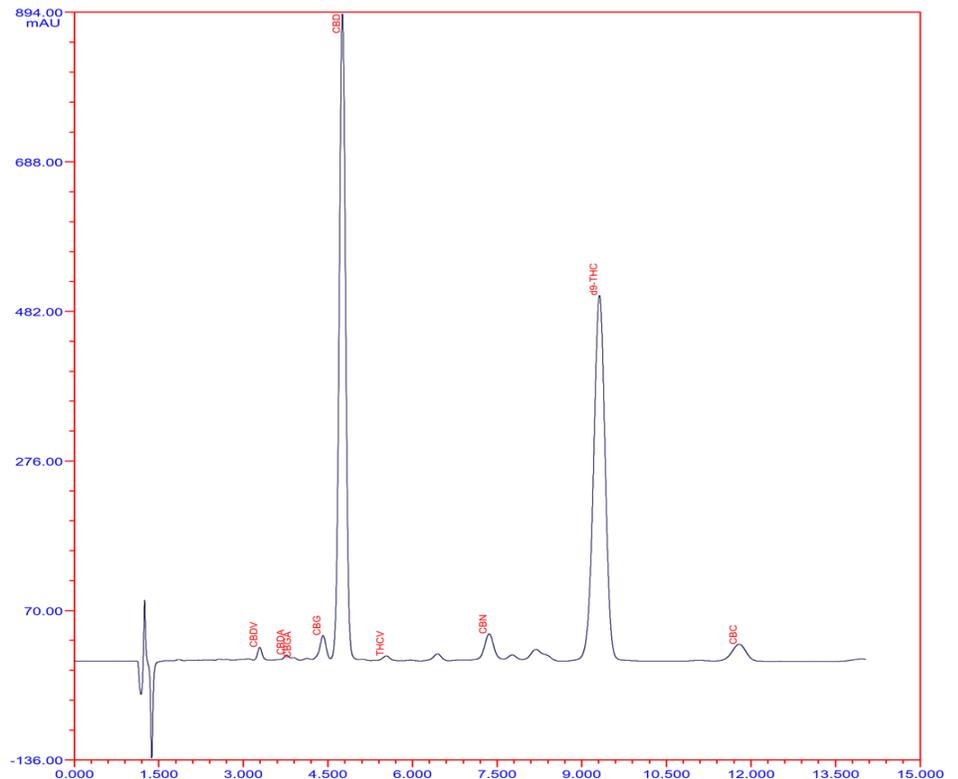
Sample Weight	30 mg
Sample Preparation	none
Extraction Solvent	none
Extraction Conditions	none
Dilution	in acetonitrile

### 2. Injection and HPLC Analysis

After the extraction is completed, diluted extract is injected into HPLC for analysis.

### Chromatographic Conditions

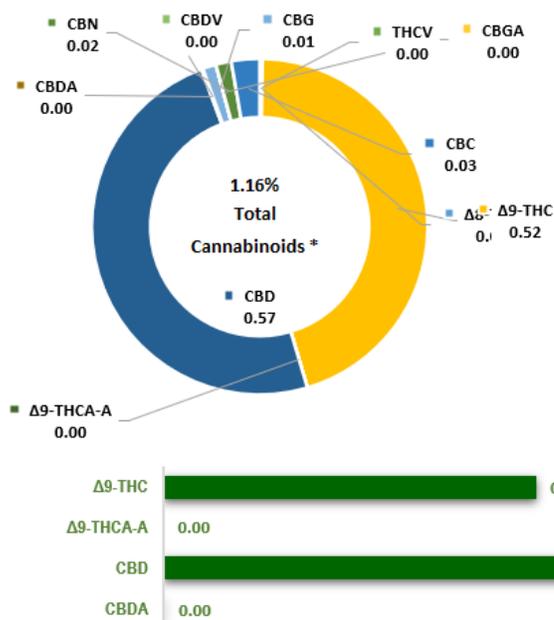
Mode	Isocratic
Temperature	30°C
Detection	UV at 220nm
Mobile Phase	Buffer:Acetonitrile
Flow Rate	1.2mL/min



### 3. Report Generation

After the analysis is completed, CTI HPLC software auto-processes the chromatogram, followed by export to custom lab report generation program in MS Excel (highly customizable and automated report generation for ease of use).

#### CANNABINOID PROFILE



Compound	Result (% w/w)	mg/mL of sample
THCV	0.00	0.03
Δ <sup>8</sup> -THC	NR	NR
Δ <sup>9</sup> -THC	0.52	4.97
Δ <sup>9</sup> -THCA-A	NR	NR
CBD	0.57	5.38
CBDA	0.00	0.02
CBDV	<0	<0
CBG	0.01	0.14
CBGA	<0	<0
CBN	0.02	0.16
CBC	0.03	0.30
<b>Total Cannabinoids *</b>	<b>1.16</b>	<b>11.00</b>
Total Potential THC	0.52	4.97
Total Potential CBD	0.57	5.40
Total Potential CBG	0.01	0.14

#### Results

	Manufacturer's Values	Measured Values
<b>Total THC per Unit</b>	4.93 mg/mL	4.97 mg/mL
<b>Total CBD per Unit</b>	4.98 mg/mL	5.40 mg/mL

#### Lower Limit of Quantification (LLOQ)

The lower limit of quantification (LLOQ) is the lowest amount of a cannabinoid in a sample that can be quantitatively determined with suitable precision and accuracy using the corresponding method and dilution rates. All values below this threshold are reported as NR - None Reported.

Compound	LLOQ (% w/w)
THCV	0.01
Δ <sup>8</sup> -THC	0.01
Δ <sup>9</sup> -THC	0.01
Δ <sup>9</sup> -THCA-A	0.01
CBD	0.01
CBDA	0.01
CBDV	0.01
CBG	0.01
CBGA	0.01
CBN	0.01
CBC	0.01

#### Instrument Calibration & Quality Control

Date of Quality Control	Standard	Standard Concentration (ug/mL)	Measured Concentration (ug/mL)	Delta (%)	PASS/FAIL	Notes
11-Apr-21	Benzoic acid	1002.9	1013.0	1.0%	PASS	
11-Apr-21	CBD	100.5	100.7	0.2%	PASS	