APPLICATION BRIEF 22003

Fast THC and CBD potency analysis by HPLC-UV

Complete CANNABIS TESTING SOLUTIONS for the Canadian market from one trusted source

Authors: CCS Center of Excellence (CoE) Application Scientists, Thermo Fisher Scientific

Keywords: CBD, hemp, THC

Introduction

There is a need for robust analytical methods for performing research on THC, CBD and metabolites in products that are newly available to consumers. Methods for the analysis of multiple cannabinoids require long run times, large amounts of solvent, and detection by mass spectrometry. This short protocol describes a fast and easy separation for THC, THC-A, CBD and CBD-A using UV detection.

Important notes

- This method was optimized for the compounds critical to CBD potency determination for hemp and hemp products, and for confirmation that the THC content of hemp products is within acceptable limits.
- A simple acetonitrile extraction is recommended for dried, ground plant material. For example: shake 0.5 g of material with 5 mL acetonitrile for 15 minutes then dilute prior to analysis. Alternate matrices like oils, waxes and edibles may require additional sample preparation.

Materials required

- HPLC-UV instrument such as Thermo Scientific™ Vanquish™ Horizon UHPLC system
- Thermo Scientific™ Accucore™ RP-MS HPLC column, 50 x 2.1 mm, 2.6 µm (P/N 17626-052130)
- Water, UHPLC-MS grade
- Acetonitrile, UHPLC-MS grade
- Formic acid, analytical grade

ThermoFisher SCIENTIFIC

Protocol

1. Dilute sample extracts with 80:20 0.1% formic acid in acetonitrile:0.1% formic acid in water. The target concentration of the final solution should be 1–50 µg/mL.

2. Analyze samples using the following HPLC conditions:

Mobile phase A	0.1% formic acid in water		
Mobile phase B	0.1% formic acid in acetonitrile		
Flow rate	0.75 mL/min		
Gradient program	**Time (min)**	**%A**	**%B**
	0.0	40	60
	1.0	40	60
	3.5	25	75
	3.6	40	60
	5.0	40	60
Column temperature	40 ˚C, with active pre-heating and forced air		
Injection volume	2 µL		
Detection	UV, 230 nm		

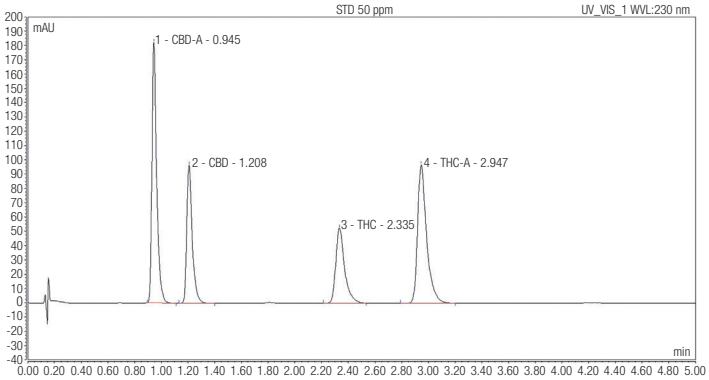

Figure 1. Example chromatogram

Related products

Description	Part number
Accucore RP-MS HPLC column, 50 x 2.1 mm, 2.6 µm	17626-052130

Offering one of the broadest portfolios of cannabis testing equipment for the Canadian cannabis market, Thermo Fisher Scientific is your one-stop resource for customized solutions, proven workflows and support. Whether setting up your first laboratory or scaling existing operations, we offer a complete range of instrument workflows to help you comply with Canadian cannabis testing regulations.

Find out more at **thermofisher.com/cannabistesting**

Current versions of product instructions are available at **thermofisher.com/chromexpert**

Find more information about LC columns at **thermofisher.com/lccolumns**

ThermoFisher SCIENTIFIC