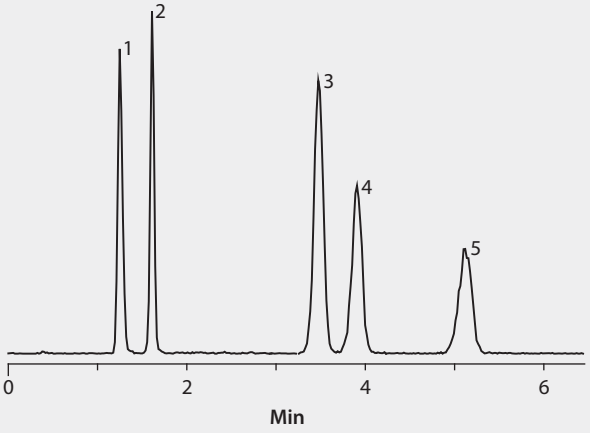
Email: techserv@sial.com

LC/MS/MS Analysis of Spice Cannabinoids in Plasma on Ascentis® Express 2.7 µm F5 after Solid Phase Extraction (SPE) using HybridSPE®-Phospholipid

Synthetic cannabinoids (Spice) are a relatively new type of designer drug used as a pseudo-legal means to get a cannabis-type high. New synthetic cannabinoids are continually being introduced as suppliers tweak the molecular structures. The ability to rapidly and reliably identify the continually changing population of these compounds in the blood or urine suspected users is a significant analytical challenge facing forensic chemists. A four prong approach using column selectivity, high purity solvents, effective sample prep, and reference standards, was used to develop a method to rapidly isolate and identify Spice cannabinoids from plasma. The Ascentis Express F5 column gave the necessary resolution, and the LC-MS CHROMASOLV solvents and additives gave adduct-free response for maximum sensitivity. Sample prep employing the HybridSPE-Phospholipid was rapid and effective and the Cerilliant reference standards enabled confident identification.

market focus . . . . . Forensics and Toxicology
sample/matrix . . . . . rabbit plasma, unfiltered K2-EDTA spiked with Spice cannabinoids (5 ng/mL each)
SPE well plate . . . . . HybridSPE-Phospholipid, 96-well plate, 50 mg bed wt., 2 mL well vol (575656-U)
sample addition . . . . . to each well add 100 µL plasma, followed by a 300 µL of 1% formic acid in acetonitrile, agitate on orbital shaker for 2 minutes
elution . . . . . attach collection plate and apply vacuum at 10" Hg for 4 minutes
column . . . . . Ascentis Express F5, 5 cm x 2.1 mm I.D., 2.7 µm particles (53567-U)
mobile phase . . . . . [A] 10 mM ammonium formate in water, pH 6.8 (unadjusted); [B] acetonitrile; (50:50; A:B)
flow rate . . . . . 0.3 mL/min
pressure . . . . . 1296 psi (89 bar)
column temp. . . . . 35 °C
detector . . . . . MS, ESI(+), MRM, m/z 344/155 (JWH-073 metabolite), 385/155 (JWH-200), 336/121 (JWH-250), 328/155 (JWH-073), and 342/155 (JWH-018)
injection . . . . . 2 µL
Application No. G005786

1. JWH-073 3-hydroxybutyl metabolite
2. JWH-200
   ((1-(2-Morpholin-4-ylethyl)indol-3-yl)-naphthalen-1-ylmethanone)
3. JWH-250
   (2-(2-Methoxyphenyl)-1-(1-penylindol-3-yl)ethanone)
4. JWH-073
   (Naphthalen-1-yl-(1-butylindol-3-yl)methanone)
5. JWH-018
   (Naphthalen-1-yl-(1-pentylindol-3-3yl)methanone)



Components	Related Products	Related Products
JWH-073 3-Hydroxybutyl metabolite solution (Cerilliant S-037)	analytical column	standard
JWH-073 solution (Cerilliant S-027)	Ascentis® Express F5, 2.7 Micron HPLC Column (Supelco 53567-U)	JWH-018 solution (Cerilliant S-025)
JWH-018 solution (Cerilliant S-025)	eluent	JWH-073 solution (Cerilliant S-027)
	Acetonitrile (Fluka 14261)	JWH-073 3-Hydroxybutyl metabolite solution (Cerilliant S-037)
	Ammonium formate (Fluka 14266)	Spice Cannabinoid Mix solution (Cerilliant S-038)
	Water (Fluka 14263)	
	SPE tube or plate	
	HybridSPE®-Phospholipid (Supelco 575656-U)	