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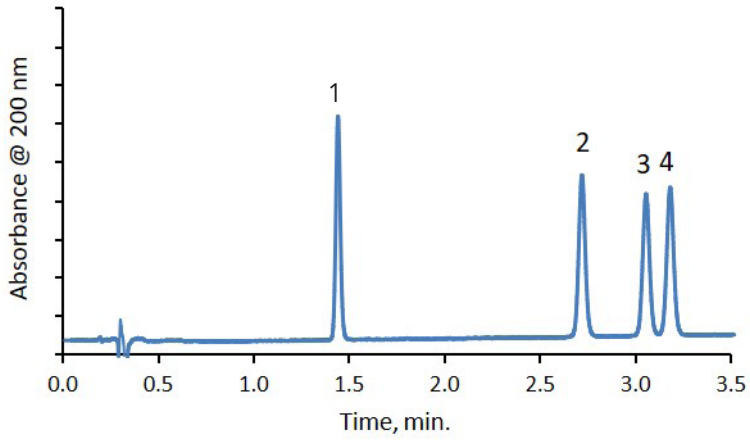
Isocratic Separation of Synthetic Cannabinoids Using MS Confirmation

Application Note 153-SC



PEAK IDENTITIES:

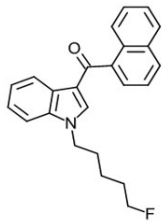
1. AM2201 (359.44 g/mol)
2. JWH-081 (371.47 g/mol)
3. JWH-122 (355.47 g/mol)
4. JWH-019 (355.47 g/mol)

The four compounds in this mixture are separated using a HALO® 90 Å C18 column. This column gives a fast, efficient separation of these cannabinoids with ample resolution.

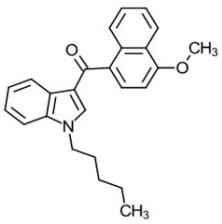
TEST CONDITIONS:

Column: HALO 90 Å C18, 2.7 µm, 2.1 x 100 mm
Part Number: 92812-602
Mobile Phase: 25/75 - A/B
A: 5 mM ammonium formate
B: 95/5 acetonitrile/water with 5 mM ammonium formate
Flow Rate: 0.6 mL/min
Pressure: 279 bar
Temperature: 30 °C
Detection: UV 200 nm, VWD
Injection Volume: 0.5 µL
Sample Solvent: 50/50 water/acetonitrile
Data Rate: 100 Hz
Flow Cell: 1.0 µL
LC System: Shimadzu Nexera X2

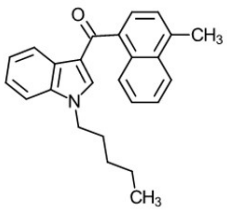
STRUCTURES:



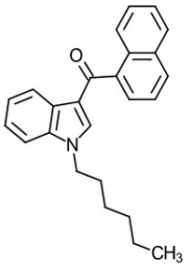
AM2201



JWH-081



JWH-122



JWH-019

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MS TEST CONDITIONS:

MS System: Thermo Fisher Orbitrap VelosPro ETD
Scan Time: 6 µscans/250 ms max inject time
Scan Range: 50-2000 m/z
MS Parameters: Positive ion mode, ESI at +4.0 kV, 225 °C capillary

Synthetic cannabinoids can be very similar in their chemical structure. In fact, many of these cannabinoids are analogs or isomers of each other and can be difficult to distinguish. Two homologues in this particular sample were fraction collected and then identified using an orbital ion trap MS system. The Orbitrap allows us to see signature fragmentations of a particular compound, allowing positive identification of each isomer.