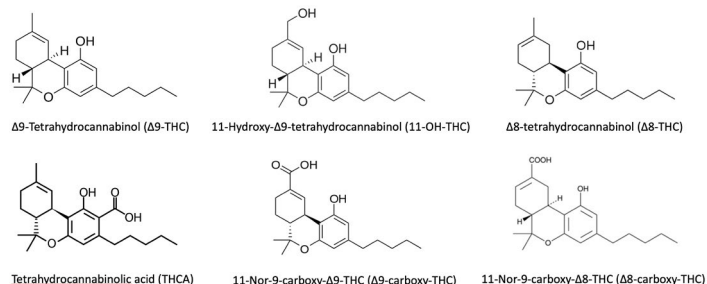
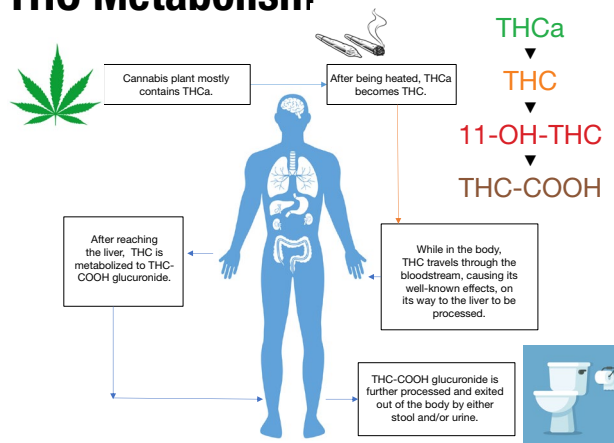


# Chromatographic Analysis of THC Metabolites

## Chemical Structures



## THC Metabolism



## $\Delta^9$ -THC vs. $\Delta^8$ -THC

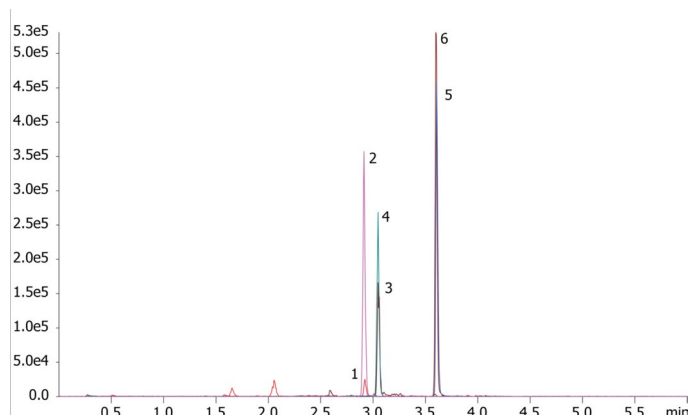
$\Delta^9$ -THC	$\Delta^8$ -THC
Chemical Formula: $C_{21}H_{30}O_2$	
Molecular Weight: 314.46 g/mol	
Detectable in plasma following inhalation	More present in synthetic preparations
Peak concentration in 3-5 minutes, much less after 3-4 hours	More chemically stable
Rapidly metabolized to the inactive metabolite $\Delta^9$ -carboxy-THC	Potentially better medicinal properties than $\Delta^9$ -THC
Conjugated with glucuronic acid	Excreted in urine
Excreted in urine	Believed to have similar mentalism and excretion than $\Delta^9$ -THC

## THC LC-MS/MS Analysis

- [Application 17901 THC and Metabolites in Urine](#)
- [Application 19947 THC and Metabolites in Whole Blood](#)
- [Application 1088 Increased Sensitivity of THC and Metabolites using  \$\beta\$ -Gone™ Clean-up and Kinetex™ LC Columns](#)



## THC in Blood Using LC-MS/MS



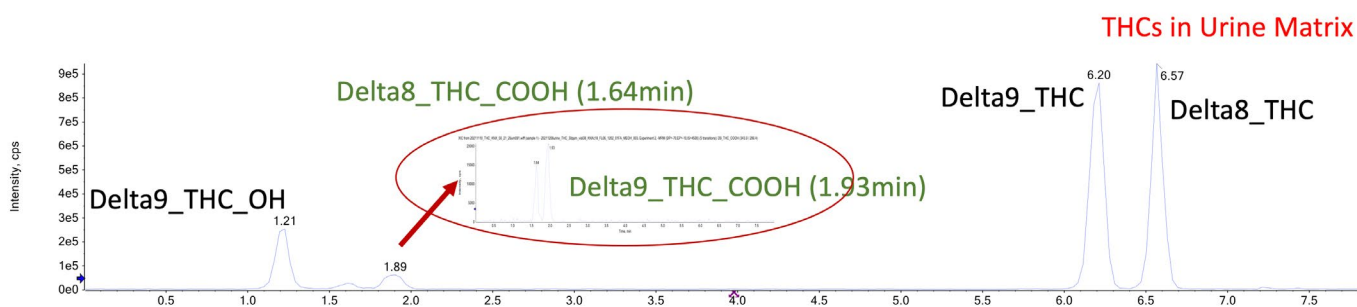
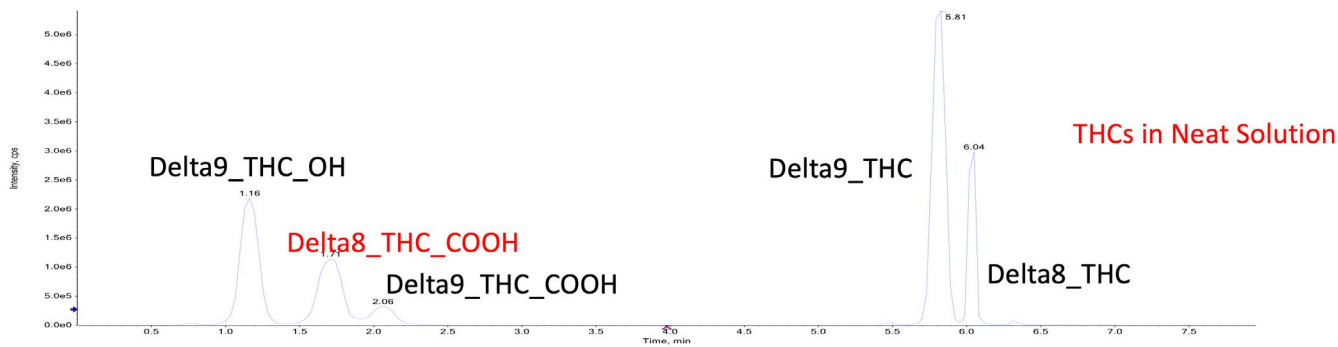
**Column:** Kinetex 2.6  $\mu$ m C18 100 Å, LC Column  
**Dimensions:** 50 x 2.1 mm  
**Part No.:** 00B-4462-AN  
**Guard Cartridge:** AJ0-7556  
**Mobile Phase:** A: 1 mM ammonium formate with 0.1% FA  
 B: 0.1% FA/methanol:acetonitrile(1:1)  
**Gradient:**

Time (min)	% B
0	50
3	95
4.5	95
6	50

**Flow Rate:** 0.4 mL/min  
**Temperature:** 22°C  
**Detection:** Mass Spectrometer (MS) (22°C)

Peak	Analyte	MRM
1	11-Hydroxy- $\Delta^9$ -tetrahydrocannabinol (11-OH-THC)	331.0>193.3
2	11-Hydroxy- $\Delta^9$ -tetrahydrocannabinol-D3 (11-OH-THC-D3)	334.0>196.3
3	11-Nor-9-carboxy- $\Delta^9$ -THC ( $\Delta^9$ -carboxy-THC)	348.0>327.0
4	11-Nor-9-carboxy- $\Delta^9$ -THC-D3 ( $\Delta^9$ -carboxy-THC-D3)	348.0>330.1
5	$\Delta^9$ -Tetrahydrocannabinol ( $\Delta^9$ -THC)	315.2>193.1
6	$\Delta^9$ -Tetrahydrocannabinol-D3 ( $\Delta^9$ -THC-D3)	218.2>196.1

# Δ 8-THC vs Δ 9-THC, Δ 8-THC-COOH vs. Δ 9-THC-COOH



# β-Gone vs. Dilute-and-Shoot

