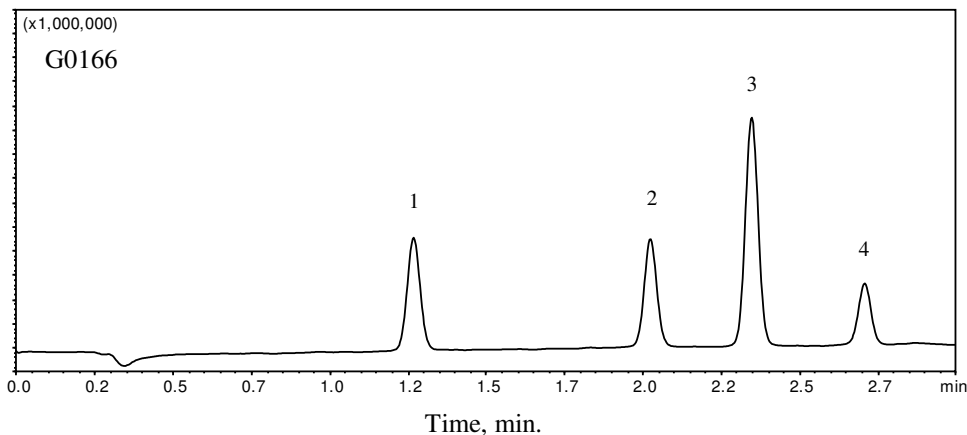


LC-MS Separation of Fentanyl and Analogues in Synthetic Urine



PEAK IDENTITIES:

- | | |
|--------------------|----------|
| 1. Norfentanyl | TIC/ 233 |
| 2. Acetyl Fentanyl | TIC/ 323 |
| 3. Fentanyl | TIC/ 337 |
| 4. Sufentanil | TIC/ 387 |

TEST CONDITIONS:

Column: HALO 90Å Biphenyl, 2.7 μm, 2.1 x 50mm

Part Number: 92812-411

Mobile Phase A: Water/ 0.1% Formic acid/ 10mM Ammonium formate

Mobile Phase B: Methanol/ 0.1% Formic acid/ 10mM Ammonium formate

Gradient: 40-90% B in 3 minutes

Flow Rate: 0.8 mL/min

Initial Pressure: 380 bar

Temperature: 30°C

Injection Volume: 0.5 μL

Sample Solvent: Surine Negative Urine

LC System: Shimadzu Nexera

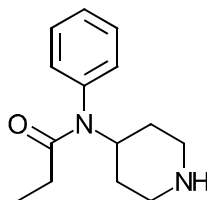
MS: Shimadzu LCMS 2020 (single quadrupole)

ESI: 4.5 kV

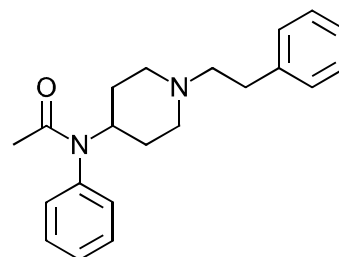
Heat Block: 300°C

Nebulizing Gas Flow: 1.3 L/min

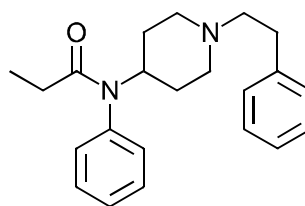
STRUCTURES:



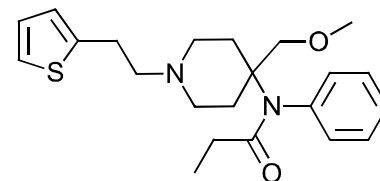
Norfentanyl



Acetyl Fentanyl



Fentanyl



Sufentanil

A mixture of fentanyl and some of its analogues spiked into synthetic urine are separated on a HALO Biphenyl column using LC-MS detection. These opioids are known to be much more potent than heroin and have become a significant contributor towards the opiate crisis in America.