

Gradient Separation of Morphine and Metabolites on ACQUITY UPLC BEH HILIC

Waters Corporation



For forensic toxicology use only.

This is an Application Brief and does not contain a detailed Experimental section.

Abstract

This application brief demonstrates the gradient separation of morphine and metabolites on ACQUITY UPLC BEH HILIC Columns.

Introduction

The compounds used in this study are:

1. 10-Hydroxymorphine
 2. Morphine-3 β -D-glucuronide
 3. Morphine-6 β -D-glucuronide
 4. Morphine
 5. Morphine N-oxide
 6. 6-Acetylmorphine
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Experimental

Test Conditions

Column:	ACQUITY UPLC BEH HILIC, 2.1 x 100 mm, 1.7 μ m
Part Number:	186003461
Mobile Phase A:	10 mM NH ₄ COOH in H ₂ O, 0.125% HCOOH in 50:50 ACN:H ₂ O

Mobile Phase B: 10 mM NH₄COOH in H₂O, 0.125% HCOOH
in 90:10 ACN:H₂O

Flow Rate: 0.5 mL/min

Injection Volume: 15 µL

Sample Concentration: 50 ng/mL each

Sample Diluent: 75:25 ACN:MeOH

Column Temperature: 30 °C

Instrument: Waters ACQUITY UPLC with TQD

MRM:

- Morphine 286 > 201
- Morphine-3β-D-glucuronide 462 > 286
- Morphine-6β-D-glucuronide 462 > 286
- Morphine N-oxide 302 > 162
- 6-acetylmorphine 328 > 165
- 10-hydroxymorphine 302 > 58

Dwell Time: 25 ms

ISD: 10 ms

ICD: 10 ms

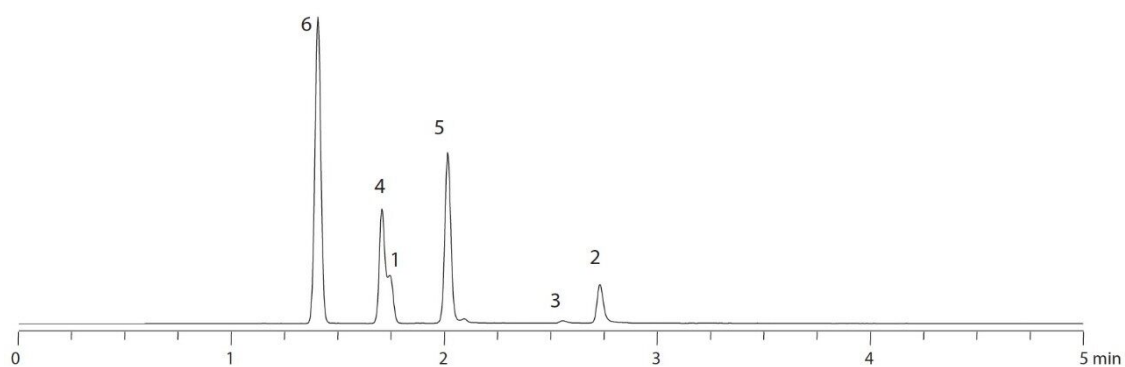
Gradient

Time (min) Profile

%A

Time (min)	Profile
0.00	0.1
5.00	99.9
7.00	99.9
7.10	0.1
10.00	0.1

Results and Discussion



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