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Application Note

ACQUITY UPLC Analysis of Morphine

Waters Corporation

Abstract

This application brief highlights the analysis of morphine on ACQUITY UPLC BEH Amide Columns.

Introduction

The compounds analysed in this study are:

- 1. 6-acetylmorphine (100 ng/mL)
- 2. Morphine (100 ng/mL)
- 3. Morphine-3 ß-D-glucuronide (5 g/mL)

6-acetylmorphine

Experimental

Chromatographic Conditions

Column: ACQUITY UPLC BEH Amide, 2.1 x 50 mm, 1.7 µm

Part Number: 186004800

Mobile Phase A: 50/50 MeCN/H₂O with 10 mM NH₄COOH and

0.125% HCOOH, pH 3

Mobile Phase B: 90/10 MeCN/H₂O with 10 mM NH₄COOH and

0.125% HCOOH, pH 3

Flow Rate: 0.6 mL/min

Injection Volume: $5 \mu L (PLNO)$

Sample Diluent: 75/25 MeCN/MeOH with 0.2% HCOOH

Column Temperature: 30 °C

Weak Needle Wash: 95/5 MeCN/H₂O

Instrument: Waters ACQUITY UPLC with ACQUITY SQD

Gradient

Time (min)	Profile		
	%A	%B	
Initial	0.1	99.9	
1.05	0.1	99.9	
4.35	99.9	0.1	
4.50	0.1	99.9	
6.00	0.1	99.9	

Mass Spectrometer Conditions

Ionization Mode: ES+

Capillary: 3.0 KV

Cone: 30 V (6-Acetyl morphine and Morphine),

40 V (Morphine-3β-D-glucuronide)

Source Temperature: 120 °C

Desolvation Temperature: 350 °C

Desolvation Gas Flow (L/Hr): 800

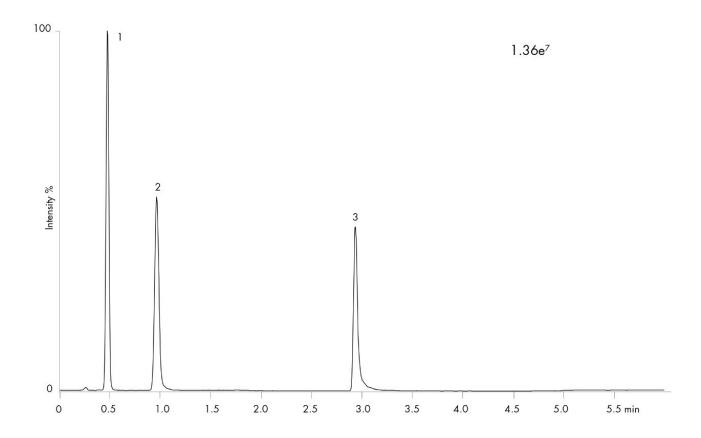
SIR *m/z*: 329.5 (6-Acetyl morphine);

287.5 (Morphine)

463.6 (Morphine-3β-D-glucuronide)

Dwell Time: 0.1 s

Results and Discussion



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