



Gradient Separation of Morphine and Metabolites on Atlantis HILIC Silica

Waters Corporation

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

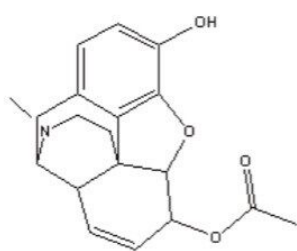
Abstract

This application brief demonstrates the gradient separation of morphine and its metabolites on Atlantis HILIC Silica column.

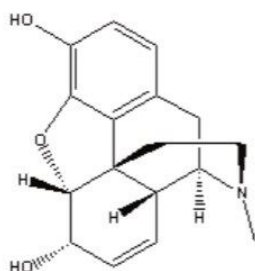
Introduction

The compounds used in this study are-

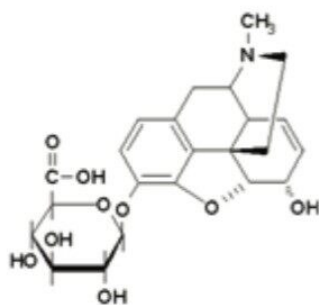
1. 6-Acetylmorphine
2. Morphine
3. Morphine-3 β -D-glucuronide



6-Acetylmorphine



Morphine



Morphine-3β-D-glucuronide

Figure 1. Structures of the compounds used in this study.

Experimental

Test Conditions

Column:	Atlantis HILIC Silica, 2.1 x 50 mm, 3 μm
Part Number:	186002011
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 NH ₄ COOH in H ₂ O, 0.125% HCOOH in 90:10 ACN:H ₂ O
Flow Rate:	0.6 mL/min
Injection Volume:	5 µL
Sample Concentration:	25 µg/mL each
Sample Diluent:	75:25 ACN:MeOH with 0.2% HCOOH
Column Temperature:	30 °C
Detection:	UV @ 280 nm
Sampling Rate:	20 points/sec
Time Constant:	0.1
Instrument:	Waters ACQUITY UPLC with ACQUITY PDA

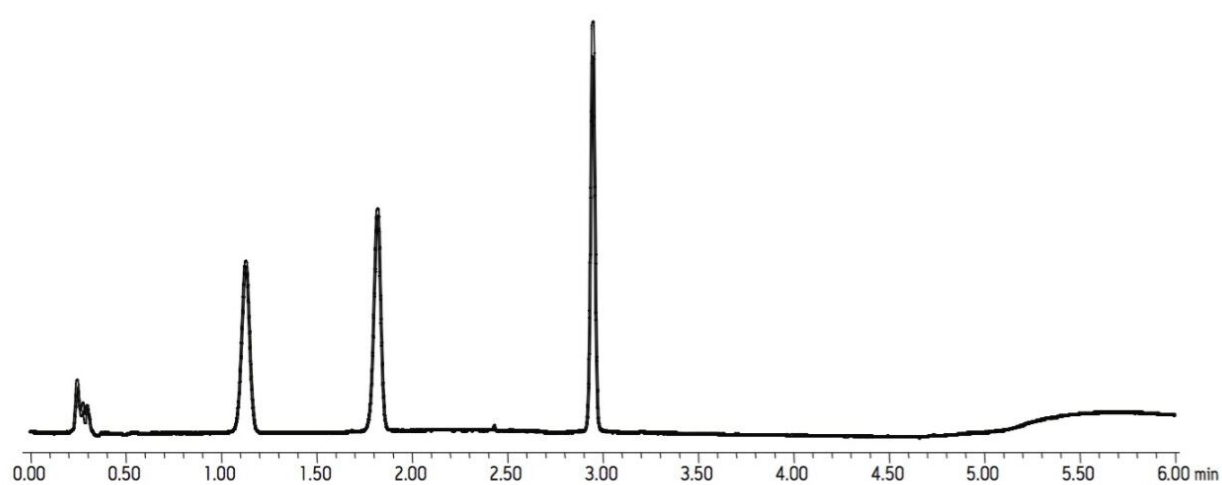
Gradient:

Time(min)	Profile
	%A
0.00	0.1
1.05	0.1
4.35	99.9
4.50	0.1

Time(min) Profile

6.00 0.1

Results and Discussion



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ACQUITY UPLC PDA Detector <<https://www.waters.com/514225>>

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