

Analysis of Muscle-relaxing Drugs by HPLC

Udo Huber

Pharmaceutical

Abstract

The muscle-relaxing drug papaverin can be isolated from poppy (*Papaver somniferum*) or from the *Rauwolfia* species (for example, *R. serpentina*). It can also be synthesized from vanilline or veratrol. Although it belongs to the opium alkaloids it has almost no analgetic or hypnotic effects.

Figure 1 shows the HPLC chromatogram of papaverin using gradient analysis on a reversed phase column and UV detection. The autosampler temperature was set to 4 °C to avoid decomposition of the samples.





Conditions

Column 4.6 x 75 mm Zorbax SB-C18 3.5 µm Mobile phase $A = 0.025 \text{ M KH}_2\text{PO}_4$ in water $(pH = 3 \text{ with } H_2 \hat{S} O_4)$ B = acetonitrileFlow rate 1.0 ml/min Gradient 10 % B to 80 % B in 8 min **Column** wash 80 % B to 10 % B in 2 min **UV** detector variable wavelength detector 254 nm, standard cell **Column compartment temperature** 60 °C Stop time 10 min Post time 5 min **Injection volume** 5 µl



Agilent Technologies Innovating the HP Way The performance of the HPLC method is shown in the table below.

Compound	LOD for S/N=2 (mg/l)*	Precision of RT (RSD of 10 runs) (100 mg/l)*	Precision of Area (RSD of 10 runs) (100 mg/l)*
Paverin	0.1	0.03	0.10

* Injection volume: 5 µl

The HPLC method presented here shows an easy but reliable and precise analysis of papaverin. The values for LOD, precision of RT, and precision of area show the good performance of the analysis.

Udo Huber is application chemist at Agilent Technologies, Waldbronn, Germany.

For more information on our products and services, visit our worldwide website at http://www.agilent.com/chem

© Copyright 1998 Agilent Technologies Released 08/98 Publication Number 5968-1112E



Agilent Technologies

Equipment

Agilent 1100 Series

- Quaternary pump (includes vacuum degasser)
- Thermostatted autosampler
- Thermostatted column compartment
- Variable wavelength detector, standard flow cell, 10-mm path length, 13-µl cell volume
 Alternative:
- Vacuum degasser
- Binary pump
- Diode-array detector, standard flow cell 10-mm path length, 13-µl cell volume
- Agilent ChemStation
 + 3D software

Columns

- Zorbax SB-C18, 3.5 μm,
 4.6 x 75 mm (Agilent part number 866953-902)
- Recommended: Guard cartridges Zorbax SB-C18, 5 μm, 4.6 x 12.5 mm (Agilent part number 820950-920, 4/pk)

Note:

Since the method was specifically developed on the Agilent 1100 Series system you might not be able to reproduce this analysis on an older system or even on a new system with lower performance. To avoid sample decomposition it is necessary to use a cooled autosampler, for example, the Agilent 1100 Series thermostatted autosampler.