



Analysis of Antiprotozoal Drugs by HPLC

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Abstract

Metronidazole is an antiprotozoal drug, which is especially active against amoeba and trichomonades. Side effects in treatment are incompatibility with alcohol and sensitivity to ionizing radiation. Metronidazole is also suspected to be carcinogenic.

Figure 1 shows the HPLC chromatogram of the analyzed metronidazole using gradient analysis on a reversed phase column and UV detection.

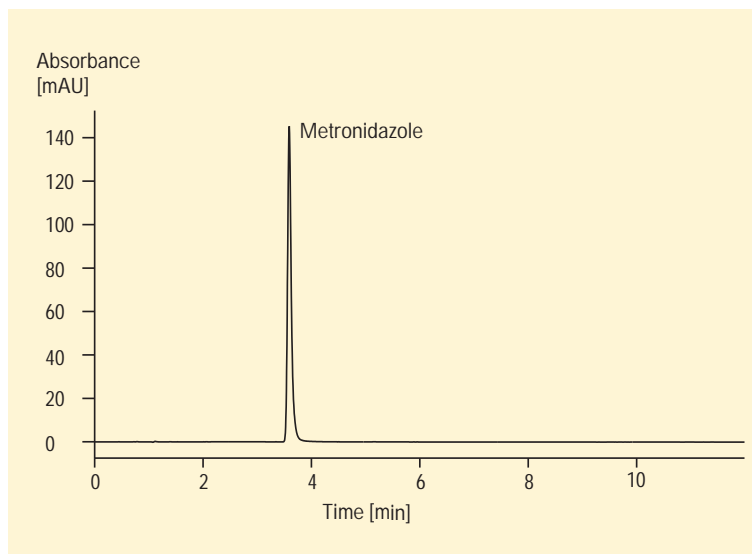


Figure 1
Analysis of metronidazole

Conditions

Column

4.6 x 75 mm Zorbax SB-C18, 3.5 μ m

Mobile phase

A = 0.025 M KH_2PO_4 in water
(pH = 3 with H_2SO_4)

B = acetonitrile

Flow rate

1.0 ml/min

Gradient

5 % B to 30 % B in 10 min

Column wash

30 % B to 5 % B in 2 min

UV detector

variable wavelength detector

320 nm, standard cell

Column compartment temperature

25 $^{\circ}\text{C}$

Stop time

12 min

Post time

5 min

Injection volume

5 μ l



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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)*	Linearity (Cor. factor) (0.1-100 mg/l)*
Metronidazole	0.1	0.06	0.15	0.99996
* Injection volume: 5 µl				

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

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Equipment

Agilent 1100 Series

- Quaternary pump (includes vacuum degasser)
- Autosampler
- Thermostatted column compartment
- Variable wavelength detector, standard flow cell, 10-mm path length, 13-µl cell volume

Alternative:

- Vacuum degasser
- Binary pump
- Thermostatted autosampler
- 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.

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