



Analysis of Antihypertensive Drugs by HPLC

Udo Huber

Pharmaceutical

Antihypertensive drugs are given to patients to lower the blood pressure. The compounds captopril and enalapril inhibit the enzyme, which converts angiotensin I into angiotensin II. Angiotensin II is one of the strongest blood pressure decreasing substances.

Figure 1 shows the separation of the two antihypertensive drugs captopril and enalapril 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.

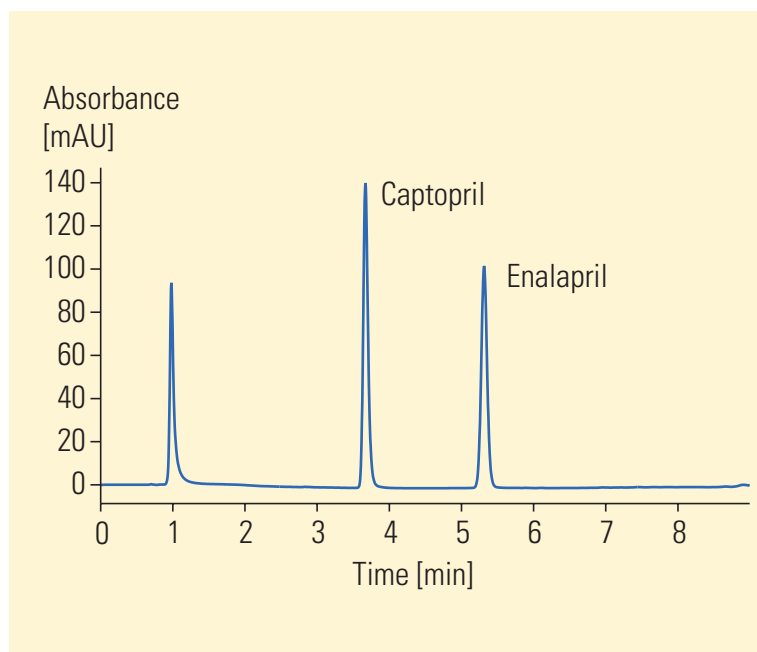


Figure 1
Analysis of two antihypertensive drugs

Conditions

Column

4.6 x 75 mm Zorbax SB-C18, 3.5 µm

Mobile phase

A = 0.025 M KH_2PO_4 in water (pH = 2), B = acetonitrile

Flow rate

1.0 ml/min

Gradient

at 0 min 10 % B

at 8 min 55 % B

Column wash

at 9 min 10 % B

UV detector

variable wavelength detector, 204 nm, standard cell

Column compartment temperature

60 °C

Stop time

9 min

Post time

5 min

Injection volume

5 µl



Agilent Technologies

Innovating the HP Way

HPLC Performance

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 Correlation factor- (0.1-1000 mg/l)*
Captopril	0.5	0.05	0.12	1.00000
Enalapril	0.5	0.03	0.34	1.00000

* Injection volume: 5 μ l

The performance of the HPLC method is shown in the table above.

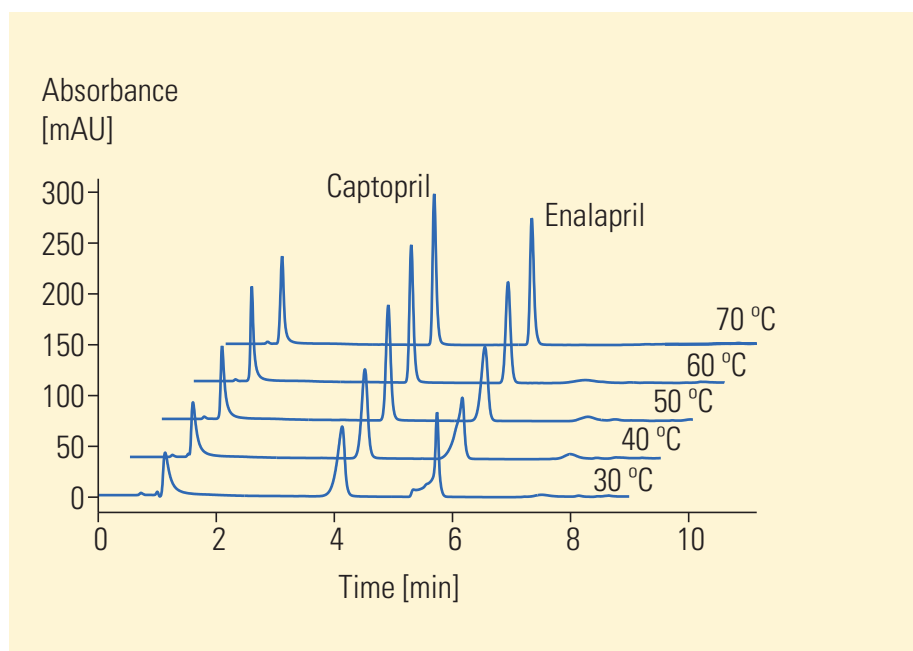


Figure 2
Increasing temperature leads to improved peak shape

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

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- μ l cell volume

Alternative:

- Binary pump
- Vacuum degasser
- Diode array detector standard flow cell 10-mm path length, 13- μ l cell volume
- Agilent ChemStation + 3D software

Columns

- Zorbax SB-C18, 3.5 μ m, 4.6 x 75 mm (Agilent part number 866953-902)
- *Recommended:* Guard cartridges Zorbax SB-C18, 5 μ m, 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.

© Copyright 1998 Agilent Technologies
Released 12/98
Publication Number 5968-2887E



Agilent Technologies

Innovating the HP Way