



Analysis of Quinine and Quinidine in Cinchona Bark Extract (*Cortex Cinchonae*) by HPLC

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Dried bark of the cinchona tree (*Cortex cinchonae*) contains 4 - 12 % alkaloids, mainly the diastereomers quinine/quinidine and cinchonine/cinchonidine. Quinine is the major compound which accounts for 80 % of the total cinchona bark alkaloids. It is a strong protoplasmic poison, which has effects on almost any cell. It is used as an anti-malaria medicine. Some soft drinks, for example, tonic water contains up to 80 mg/l quinine, which is responsible for the bitter taste.

Figure 1 shows the separation of quinine and quinidine in the extract of *Cortex cinchonae* using gradient analysis on a reversed phase column and UV detection.

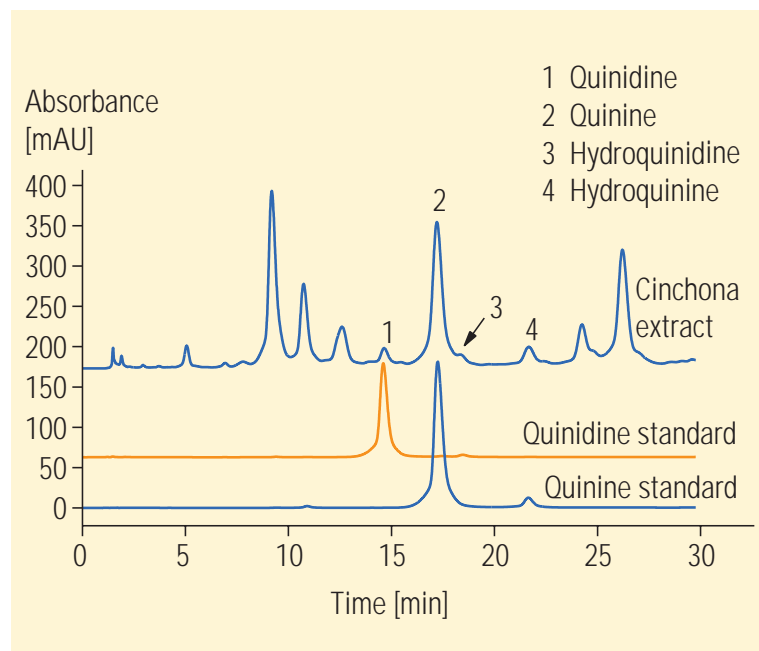


Figure 1
Analysis of quinine and quinidine

Conditions

Column

4 x 125 mm Purospher, RP-18, 5 μ m

Mobile phase

A = 0.05M KH_2PO_4 in water (pH = 3)

B = acetonitrile

Flow rate

0.8 ml/min

Gradient

at 0 min 4 % B

at 25 min 10 % B

at 45 min 30 % B

Column wash

at 46 min 60 % B

at 49 min 60 % B

at 50 min 4 % B

UV detector

variable wavelength detector

210 nm, standard cell

Column compartment temperature

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

Stop time 50 min

Post time 5 min

Injection volume 5 μ l



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Extraction

The extract was bought from 'Caesar & Loretz GmbH'. It was diluted (1:10) and 5 µl were applied to HPLC.

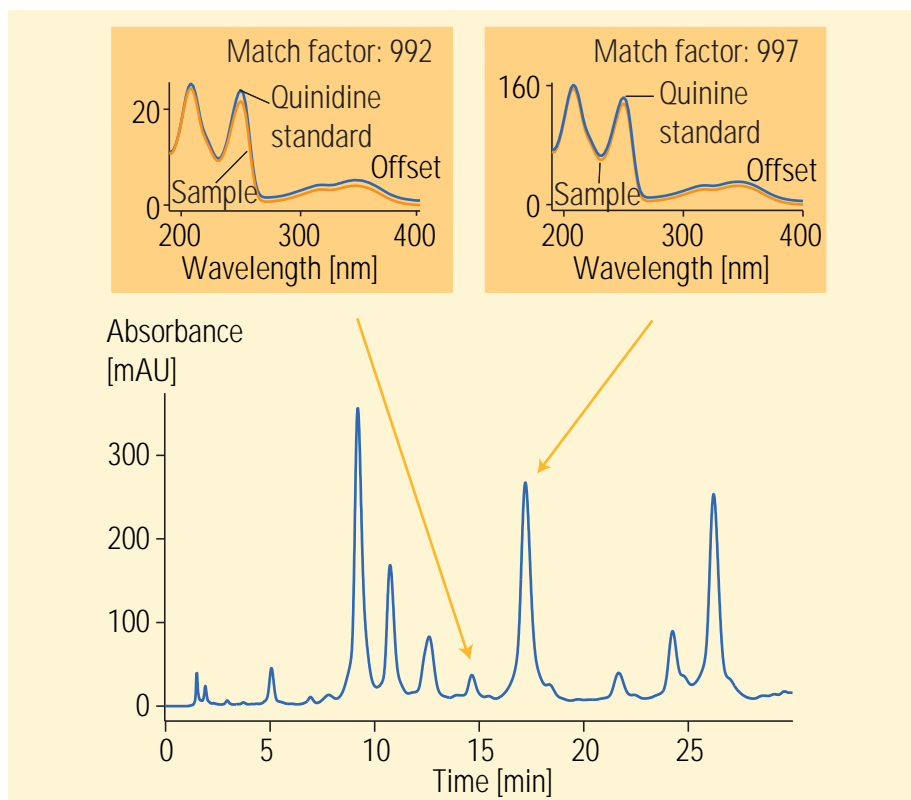


Figure 2
Comparison of sample and standard spectra

The HPLC method described here shows the separation of quinine and quinidine in the extract of *Cortex cinchonae* using gradient analysis on a reversed phase column and UV detection.

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:

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

Columns

- Purospher RP-18, 5 µm, 4 x 125 mm (Agilent part number 79925PU-564)
- *Recommended:* Guard cartridges Purospher RP-18, 5 µm, 4 x 4 mm (Agilent part number 79925PU-504)

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 HP 1100 Series thermostatted autosampler.

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