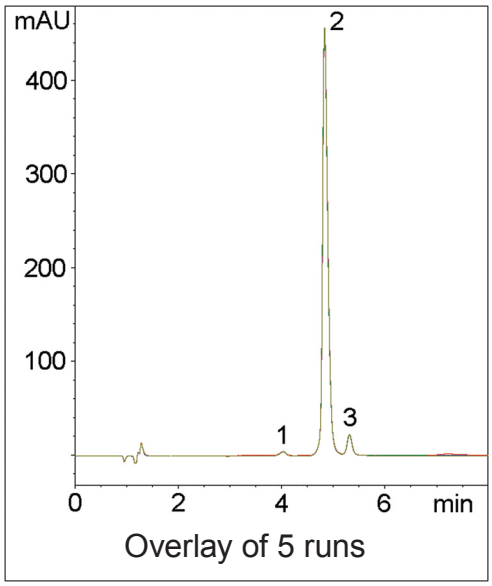
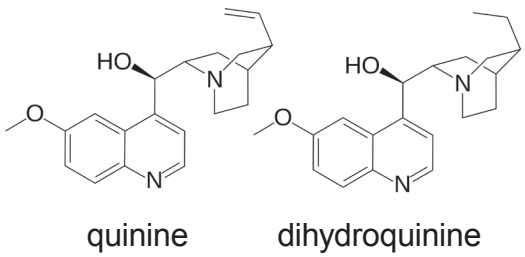
Improved Quinine Impurity Method

Separation from dihydroquinine without ion-pair agents





Note: Quinine is an alkaloid found naturally in the bark of cinchona trees. It has been known for hundreds of years as an antimalarial agent and a muscle relaxant. The Quechua inhabitants of Peru would grind the bark of cinchona trees and mix it with sweetened water to reduce shivering in cold temperatures. Jesuits in Peru brought the bark to Europe where it was widely used to treat malaria and became known as "Jesuit's bark."

Method Conditions

Column: **Cogent Phenyl Hydride™**, 4µm, 100Å

Catalog No.: 69020-7.5P

Dimensions: 4.6 x 75 mm

Mobile Phase: A: DI H_2O / 0.1% TFA
B: Acetonitrile / 0.1% TFA

Gradient:

time (min.)	%B
0	10
6	30
7	10

Temperature: 40˚C

Post Time: 1 min

Injection vol.: 10µL

Flow rate: 1.0 mL/min

Detection: UV 235 nm

Sample: **Stock Solution:** 1.0 mg quinine (90% by label claim) was dissolved in 1 mL 50% solvent A / 50% solvent B mixture.
Working Solution: A 100µL aliquot of the stock was diluted with 900µL of 50% solvent A / 50% solvent B mixture.

Peaks: 1. Minor impurity
2. Quinine (API)
3. Dihydroquinine (main impurity)

t_0: 0.9 min

Discussion

The USP method for quinine sulfate requires a resolution of not less than 1.2 from its main impurity, dihydroquinine. In the USP method, the ion pair agents methanesulfonic acid and diethylamine are used in the mobile phase. Ion pair agents are often needed to reduce peak tailing of basic analytes such as quinine when conventional type B silica-based HPLC columns are used. In this method, quinine is separated from its main impurity with a resolution of 2.6 using only 0.1% TFA in the mobile phase. Using the Cogent Phenyl Hydride column, excellent peak shapes were obtained for both analytes. In addition, the method equilibrates rapidly with only 1 minute post time after the gradient and the column shows extended lifetimes.

MANUFACTURED BY:
MICROSOLV TECHNOLOGY CORPORATION
9158 Industrial Blvd NE
Leland, NC 28451
p: 1.732.380.8900
f: 1.910.769.9435
customers@mtc-usa.com
www.Cogent-HPLC.com