CAPSULES
preliminary notes and applications from Bioanalytical Systems, Inc.

Determination Of Codeine

Purpose

Determination of codeine. Codeine (F1) is a narcotic analgesic and antitussive. It is used to treat mild to moderate pain, diarrhea, and coughing. Side effects include nausea, drowsiness, and allergic reactions. High doses depress the central nervous system and can be addictive. A simple LCUV method for measuring codeine is presented below.

Conditions

System: BAS 400 Liquid Chromatograph
Detector: BAS UV-8 fixed wavelength (254 nm)
Column: BAS 3 µm Phase II ODS (100 x 3.2 mm) (PN MF-6213)
Mobile Phase: 90% (v:v) 0.01 M KH_2PO_4 (pH 2.3), 10% CH_3CN. Flow rate was 0.9 mL/min.
Detection Limit: 2 ng injected standard (S/N = 5)
Linear Range: 2- 500 ng injected

Sample Preparation

Standard codeine was dissolved in 50% methanol. The standard was diluted appropriately in water and injected in 20 µL volumes to construct the calibration curve.

Notes

A typical chromatogram (F2) and the calibration curve (F3) are presented.

UV absorption by codeine increases from 254 nm to a maximum at 211 nm. Additional sensitivity might be achieved at wavelengths below 254 nm.

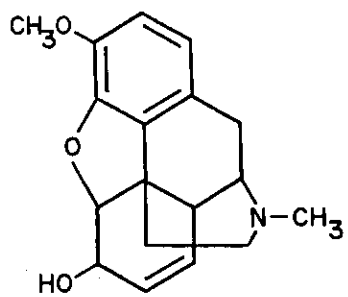

Figure 1. Structure of codeine.

The determination of codeine also can be performed on the BAS 200 problem solver.

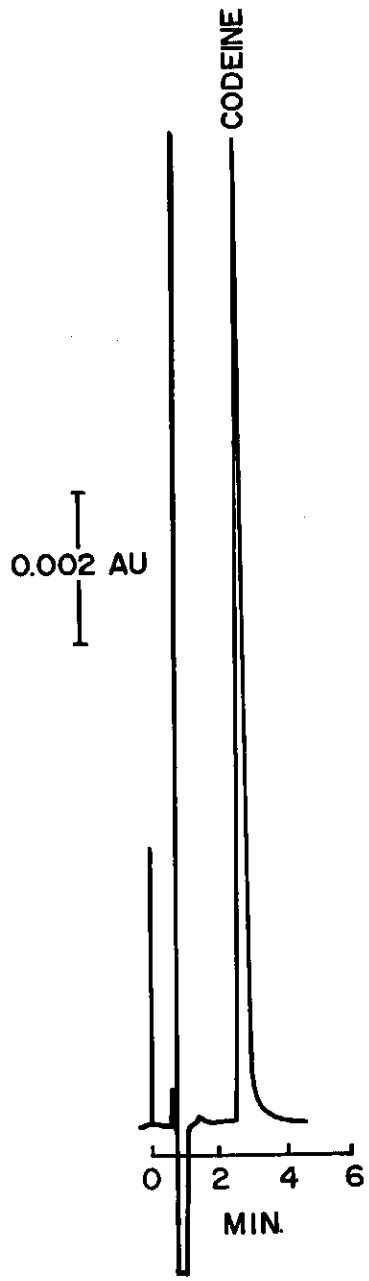

Figure 2. Chromatogram of 500 ng standard codeine.

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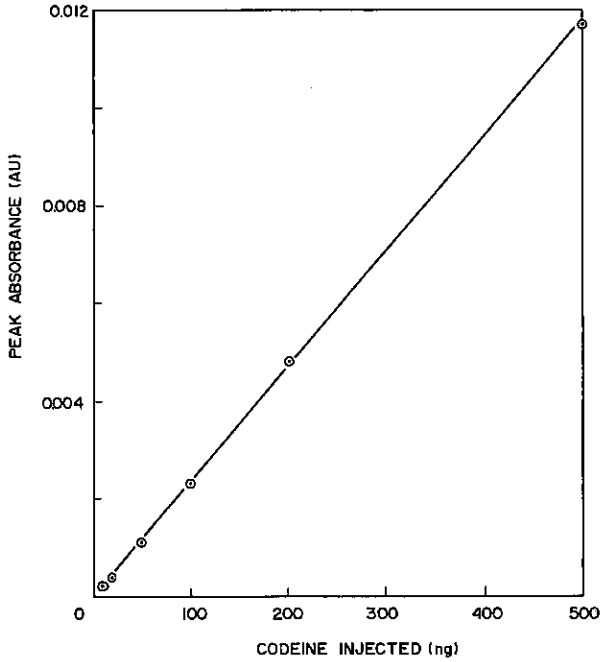

Figure 3. Calibration curve for codeine standards.