Waters
Lab Highlights
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## LITERATURE CORNER

# COMPLETE ANALYSIS OF A COUGH MIXTURE IN 18 MINUTES

A recent paper (1) published by the Quality Control Department of an Australian pharmaceutical manufacturer reports the simultaneous determination of acetaminophen, guaifenesin, pseudoephedrin, pholcodine, and four paraben preservatives in commercial cough mixtures by HPLC. A Model 204 ALC with dual-channel 440 detector and Model 730 Data Module were employed for the analysis. Chromatographic conditions were as follows:

Column: μ BONDAPAK™ $C_{18}$, 30 cm X 3.9 mm

Mobile Phase: MeOH:$H_2O$:Acetic Acid (45:55:2), containing 0.005M PIC® B8 Reagent

Flow Rate: 2.5 ml/min

Detection: UV at 254 (Pseudoephedrine) and 280 nm

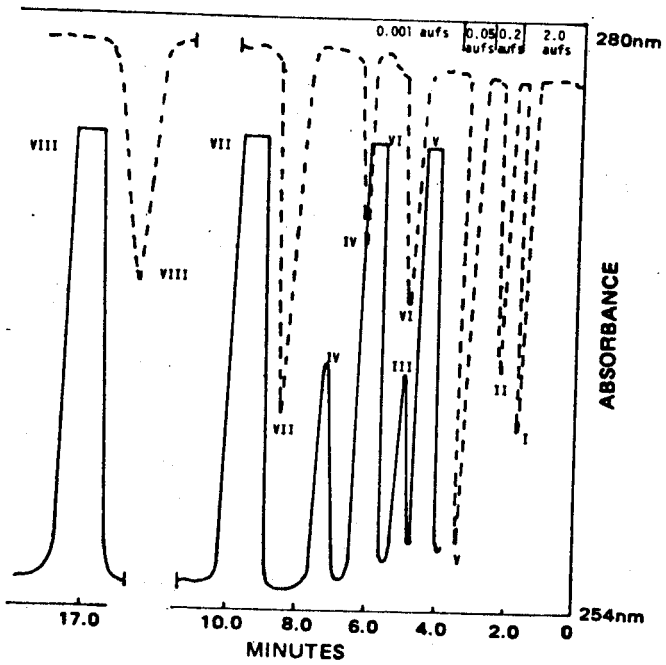


**Figure 1**—*High-performance liquid chromatogram of a cough preparation. Peaks I-VIII are acetaminophen, guaifenesin, pseudoephedrine hydrochloride, pholcodine, methyl-butyl paraben, respectively.*

TABLE 1

TYPICAL ASSAY RESULTS OF COMMERCIAL PREPARATIONS

| Sample[a] | ACETAMINOPHEN (I) | GUAIFENESIN (II) | PSEUDOEPHEDRINE HYDROCHLORIDE (III) | PHOLCODINE (IV) | METHYL PARABEN (VI) | PROPYL PARABEN (VII) |
|---|---|---|---|---|---|---|
| 1 | 100.0 | 100.1 | 100.3 | 100.0 | 101.5 | 101.2 |
| 2 | 102.4 | 98.8 | 99.2 | 98.3 | 100.0 | 101.8 |
| 3 | 98.9 | 98.5 | 101.0 | 99.5 | 100.5 | 97.3 |
| 4 | 100.0 | 97.0 | 98.2 | 101.1 | 97.7 | 98.5 |
| Mean Recovery[b] | 100.6 | 98.1 | 100.0 | 100.6 | 99.2 | 99.9 |
| SD[c] | 1.5 | 1.6 | 1.5 | 2.3 | 1.8 | 2.1 |

a Recoveries expressed as percent of theoretical.
b Calculated from nine replicates.
c Standard deviations of a single determination calculated from nine replicates.

"The analytical results demonstrate the ability of ion-pair reversed-phase HPLC to simultaneously assay four actives and four paraben preservatives. A particular advantage of the method is the minimum time required for sample preparation and analysis of the complete separation requiring only 18 minutes. The method has been successfully used on a routine basis for over six months. Special column clean-up procedures have not been required during this time and no significant loss of column performance has been observed."

Tom Tarvin

1. L. Carnevale, J. Pharm. Sci., Vol 72, No. 2 (1983) p. 196-198.