

LAB CONNECTIONS

LC-TRANSFORM®

INTERFACING CHROMATOGRAPHY WITH SPECTROSCOPY

Identification Of Synthetic Drugs and Drug Intermediates

AN-1

Chromatography is intensively used in the development, manufacture, and quality control of virtually all pharmaceutical compounds. Applications include the monitoring of synthesis reactions, analysis of starting materials, analysis of by-products, and impurity profile development. Finished product assay frequently involves procedures to isolate individual components of a formulation, and verify their identity.

Chromatography, while useful in providing quantitative data, has significant limitations regarding qualitative identity. Virtually the only information that characterizes a chromatographic eluant is its elution time. This time is used to impute the identity of a peak. If another species is co-eluting simultaneously, it probably will escape detection.

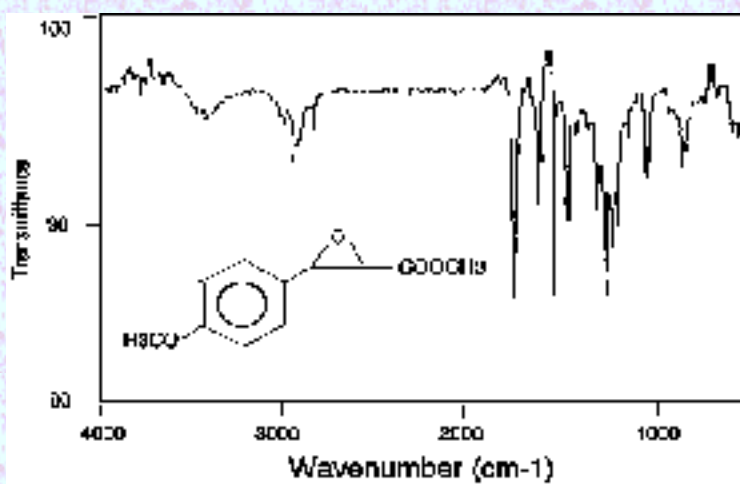


Figure 1. Diltiazem® racemic precursor

LC-Transform can be extremely valuable in providing rapid identification information, and evidence of eluted peak purity. Shown here are two examples of the use of the LC-Transform in the identification of chromatographic eluants.

Diltiazem® is an important cardiovascular regulator. The starting material for this drug is a racemic aromatic compound. The figure below shows the spectrum obtained with the LC-Transform of the chromatographic eluant .

The second figure is the spectrum of an AZT derivative.* This was obtained as the eluant of a normal phase hexane/chloroform chromatography system.

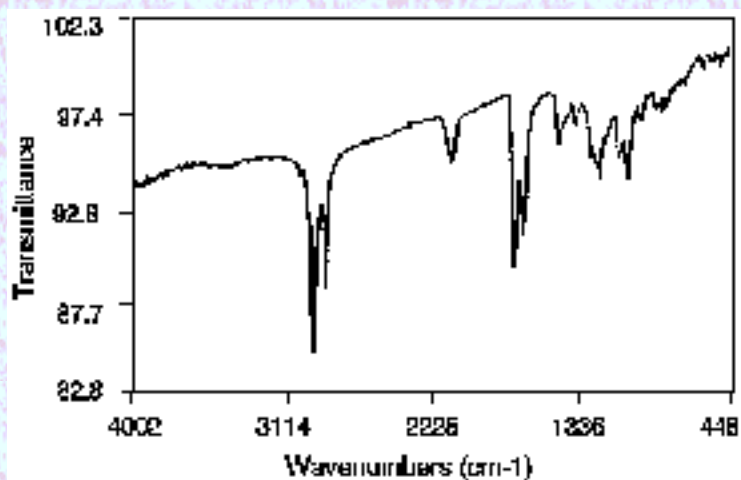


Figure 2. AZT ® derivative

*LC-Transform data courtesy of Dr. Phyllis Brown and John Imari, University of Rhode Island.

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