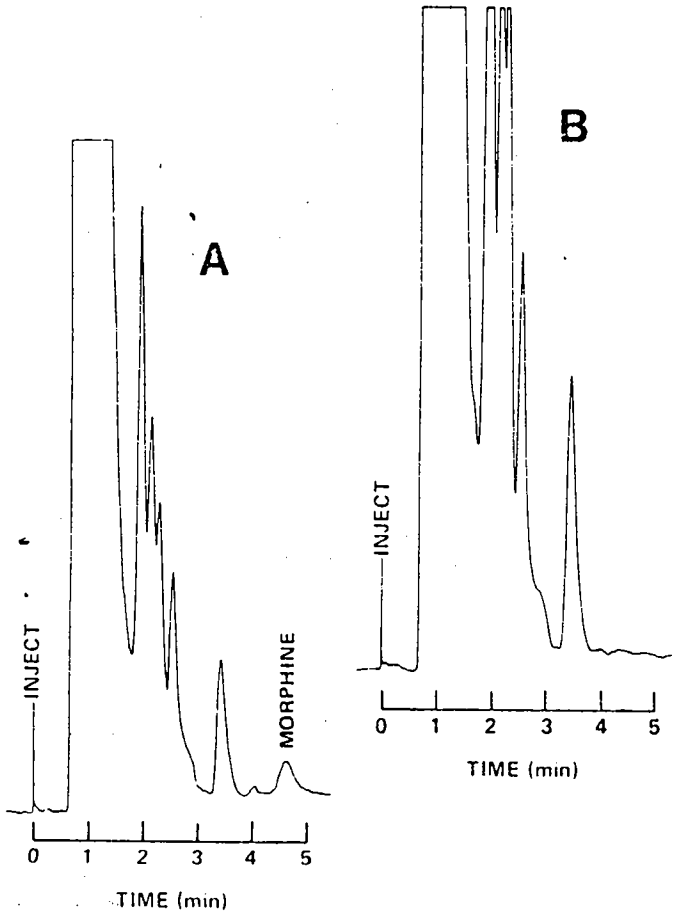
Liquid chromatography is an excellent means for analyzing drugs in biological fluids and offers great potential to the forensic toxicologist. Since many drug metabolites are very polar (water-soluble), LC is a valuable technique for their separation. The analysis of drugs in combination with their metabolites is also useful for disease recognition and complete characterization of toxicological samples.

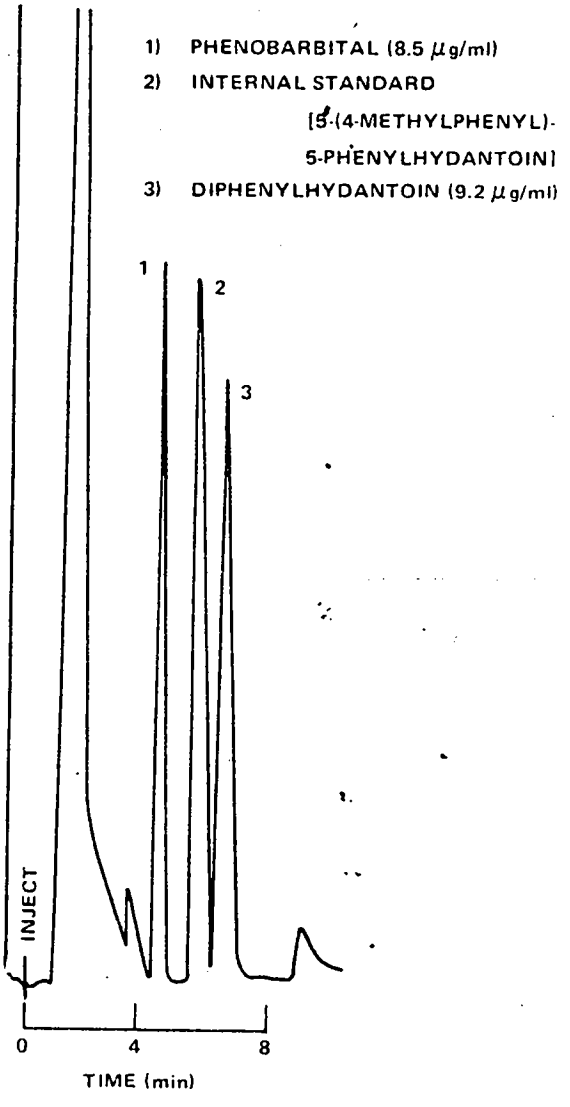
The chromatograms illustrate the analysis of morphine in hydrolyzed bile fluid. By adjusting the mobile phase to get optimum retention of the morphine, the drug was well resolved from the other bile fluid components. Hence, direct injection of the bile fluid samples was possible. Sample A has tested positively for morphine by other analytical methods, whereas sample B did not. LC confirmed these findings and provided a rapid analysis with minimum sample preparation.

Column: μ Bondapak C_{18}
Solvent: 30 : 70 CH_3CN : 0.1% $(NH_4)_2CO_3$
Flow rate: 3 ml/min.
Detection: U.V., 254 nm.



The LC analysis of phenobarbital and diphenylhydantoin in human plasma has been accomplished by S. Atwell, V. Green, and W. Haney.[3]. A complete discussion of their work is contained in N60, "Simultaneous Determination of Phenobarbitol and Diphenylhydantoin in Plasma." These drugs are prescribed in combination as anticonvulsants and are also frequently involved in overdose cases. Their analysis by LC eliminates derivatization, required by GC. In addition, use of a reverse-phase system avoids an extraction procedure.

Column: μ Porasil
Solvent: 310 : 9.7 : 1 : 0.1
$CHCl_3$: Dioxane : 2 propanol : AcOH
Flow rate: 1.5 ml/min.
Detection: U.V., 254 nm.



(3) S. Atwell, V. Green and W. Haney, *J. Pharm. Science*, 64 806 (1975)