Waters
Lab Highlights
An Internal Communication of Applications and Techniques
LAH 0330 11/86
AN/PS/QC/DR/AD

STABILITY-INDICATING ASSAY OF DIAZEPAM (VALIUM®) TABLETS BY LIQUID CHROMATOGRAPHY

Diazepam (I) is a member of the benzodiazepines which, as a class of drugs, are used as anxiolytics, sedatives, hypnotics, anticonvulsants and skeletal muscle relaxants. Emery and Kowtko, of Hoffman-LaRoche, Inc. report (1) the development of an LC procedure for the analysis of diazepam in tablet formulations. This specific and stability indicating procedure separates diazepam from its manufacturing precursor, 7-chloro-1,3-dehydro-5 phenyl-2H-1,4-benzodiazepin-2-one (II), and the decomposition product 3-amino-6-chloro-1-methyl-4-phenylcarbostyril (III) and 2-methylamino-5-chlorobenzophenone (IV). The sample preparation is minimal, involving the addition of an internal standard, benzene, to the weighed tablet mass, extraction of the active compound with methanol, filtration and injection into the liquid chromatograph.

Figure 1 shows the separation of a synthetic mixture of compounds I-IV and the internal standard.

Chromatographic Conditions:

Column:	µBondapak™ C18 (3.9mm X 30cm)
Eluent:	methanol:water (65:35)
Flow Rate:	0.5 ml/min
Detection:	254 nm

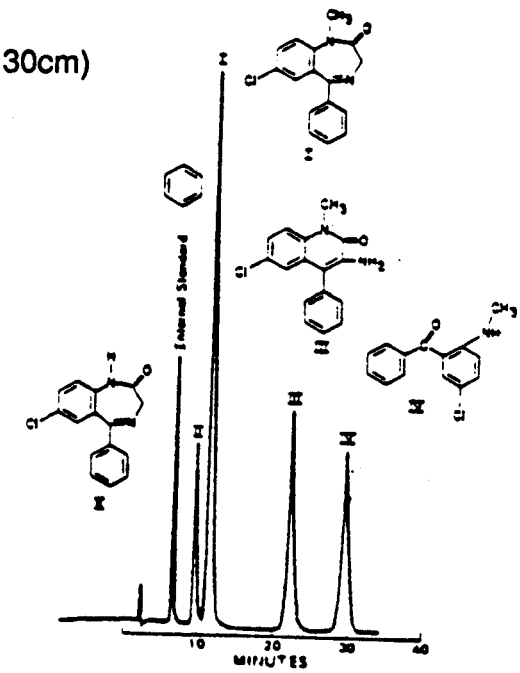

Figure 1

1. Emery, Margaret and Kowtko, June, J. Pharm. Sci. 68 (8), 1185-1187 (1979).

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