Waters
Lab Highlights
An Internal Communication
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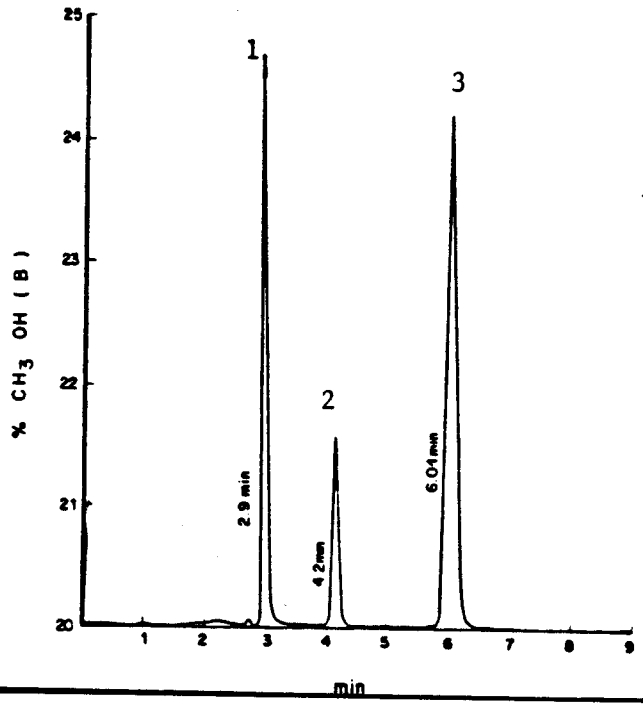
THE MONITORING OF AN ENZYMATIC REACTION BY LC AND RADIAL COMPRESSION

A simple, quick and efficient analytical method has been reported by Ladron DeGuevara et al. (1) for the monitoring of the enzymatic conversion of DL-phenylhydantoin to D-phenylglycine.

The D-phenylglycine produced by this patented enzymatic process is an important starting material in the production of ß-lactam antibiotics such as semi-synthetic penicillins and cephalosporins.

Figure 1

Column:	Radial-PAK™ µBONDAPAK™ C_{18} (8mm X 10cm)
Holder:	Z-Module™ Radial Compression Module
Detector:	212nm with M490 Programmable Multiwavelength Detector
Mobile Phase:	Gradient Elution (Curve No. 5, M680 Gradient Controller) 20 to 25% methanol in 20mM sodium phosphate buffer, pH 6.8 over 9 minutes.
Flow Rate:	1.5 ml/min.



1. D-phenylglycine
2. Impurity
3. DL-phenylhydantoin

MILLIPORE
Waters Chromatography Division
34 Maple St. / Milford, MA 01757 / 617-478-2000
Chuck Phoebe

Figure 1 shows a 10µl injection of a standard mixture (2.5µg of D-phenylglycine plus 5µg of DL-phenylhydantoin). Figures 2 and 3 show the results obtained at the start and at the end of the enzymatic reaction, respectively.

Figure 2

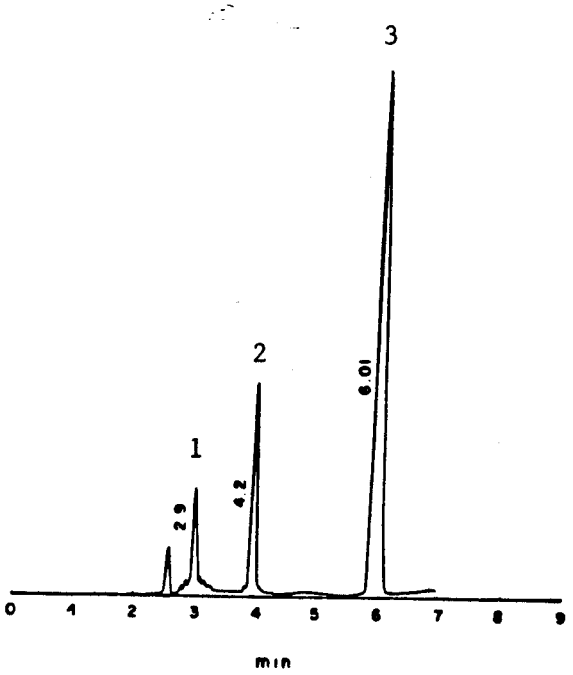
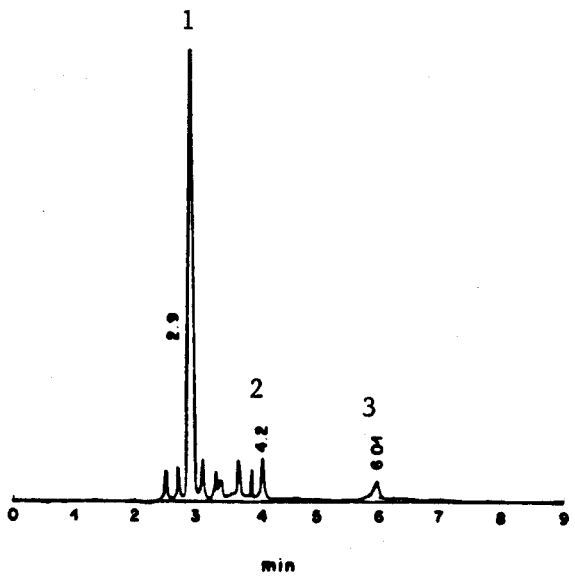


Figure 3



This quick and efficient analytical method is now the standard method used at the Centro de Ingenieria Genetica y Biotecnologia, UNAM, for the monitoring of the enzymatic conversion of DL-phenylhydantoin into D-phenylglycine.

1. Ladrcn De Guevara, O. , Quintero, R., and Padilla, P., J. Chromatogr., 329 (l985) 428-433.