Waters
Lab Highlights
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RAPID PURIFICATION OF "BIOASSAY-GRADE" QUINOLINES

TEN GRAMS PURIFIED TO GREATER THAN 99.9% IN LESS THAN TEN MINUTES

Purity levels greater than 99.9% have been easily obtained by researchers at the Naylor Dana Institute for Disease Prevention (American Health Foundation) using the PrepLC™/System 500 Preparative Liquid Chromatograph. This high purity level is required for critical structure-activity studies of quinoline and methyl quinolines currently being performed at the institute. The present bioassay of quinolines is needed to further define the previously reported tumorigenicity of the compounds. Quinoline is an important industrial chemical as well as being found in low levels in cigarettes, cigarette smoke, and in the suspended particulate matter of air in various geographic regions.

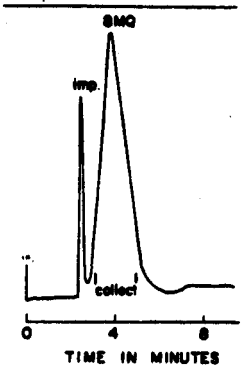
In the recently published paper by Dong, et al. (1) it was stated that **"the purification of 10 grams of 8 methyl quinoline was achieved in less than 10 minutes, a good indicator of the capabilities of PrepLC."** Figures 1 and 2 show this dramatic accomplishment.

The authors further state "This technique [using the PrepLC/System 500] allowed us to purify 4 quinolines [10-40 gram amounts of each] within 3 h." The throughput, efficiency, time and economic savings of the PrepLC technique is far superior to any other conventional separation technique such as zone refining spinning band distillation, preparative gas chromatography, or various other forms of LC.

The level of purity obtained and the convenience of the PrepLC technique suggest that all compounds should be purified by PrepLC before bioassay. Again quoting from the authors "The use of such a PrepLC system is expected to save time, effort, and solvents for similar separations and cleanup problems."

FIGURE 1

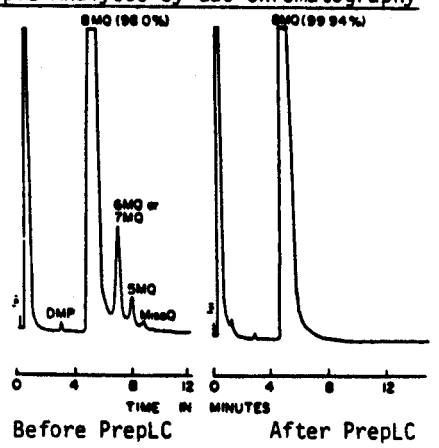
PrepLC Purification



Column: PrepPAK®-500/Silica Solvent: 1% EtOH in $CHCl_3$
Flow: 300 ml/min Sample: 10 grams

FIGURE 2

Sample Analyses by Gas Chromatography



Before PrepLC After PrepLC

1) M. Dong, et al., J. Chromatogr., 150, 269 (1978)

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