Table 1. Paraproteins Identified by Immunofixation (IF) and Immunoelectrophoresis (IEP)

<table>
<thead>
<tr>
<th>Concen, g/L</th>
<th>n</th>
<th>Heavy chain</th>
<th>Light chain</th>
<th>Heavy chain</th>
<th>Light chain</th>
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<td>6</td>
<td>6</td>
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<td>2</td>
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<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
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<td>2</td>
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</tr>
</tbody>
</table>

al. (12), I did not find the technique susceptible to technical artefacts. Immunofixation on cellulose acetate deserves wider use for identification of monoclonal gammopathies in the clinical laboratory.

References


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Adsorption of Thiocyanate by Anion-Exchange Resins and Its Analytical Application

To the Editor:
We have reported (Clin. Chem. 25: 678–681, 1979) a method for determination of thiocyanate in body fluids, which is based on adsorption of thiocyanate by the anion-exchange resin "Lewatit MP 7080" (E. Merck AG, Darmstadt, F.R.G.). The adsorbed thiocyanate is then eluted with sodium perchlorate and quantified colorimetrically by a modified König reaction. The high affinity for thiocyanate of this resin is apparently not based on an anion-exchange mechanism but probably is related to the chaotropic effect of thiocyanate.

Unfortunately, batches of Lewatit MP 7080 received after 1980 had a lesser affinity for thiocyanate, making them useless for our thiocyanate assay. E. Merck AG told us in a letter (1981) that the manufacturing procedure for Lewatit MP 7080 had indeed been changed, giving a product with the same functional groups as the original resin but with a different matrix. No further details were given.

We now report that other weakly basic anion-exchange resins containing a polystyrene matrix may replace Lewatit MP 7080 in our method for thiocyanate determination. Such resins are AG3-X4A (Bio-Rad Laboratories, Richmond, CA), Amberlite IRA-95 and Amberlyst A-21 (Rohm and Haas Co., Philadelphia, PA), and Dowex MWA-1 (Dow Chemical Co., Midland, MI). For maximum thiocyanate affinity the resin must be pretreated as described in our original communication, by heating at 100°C for 12 h.

The matrix is important for thiocyanate adsorption, as demonstrated by the fact that the weakly basic anion-exchange resin Amberlite IR-45 (Rohm and Haas), which contains a chloromethylated polystyrene matrix, binds thiocyanate less efficiently than the aforementioned resins. Moreover, the weakly basic resin Amberlite IRA-68 (Rohm and Haas), which has a polyacrylic matrix, has practically no affinity for thiocyanate under the conditions of our assay. The same was true for Amberlite IRC-50 (Rohm and Haas), a weakly acid cation-exchange resin with a polyacrylic matrix. A polystyrene resin without ion exchange groups ("Bio Beads SM 2," Bio-Rad Laboratories) has a small but significant affinity for thiocyanate. In contrast, the strongly basic anion-exchange resins Amberlite IRA-400 and Amberlite IRA-410 (Rohm and Haas) bind thiocyanate so strongly, presumably by electrostatic forces, that they are unsuitable for use in our thiocyanate assay.

In conclusion: thiocyanate is bound to certain weakly basic anion-exchange resins with a polystyrene matrix at a high pH, where an ion-exchange mechanism is impossible. This effect may be used for analytical purposes and illustrates the possible importance of the matrix for separations on ion-exchange resins. Consequently, manufacturers of such resins should not change their manufacturing procedures without notice to their customers, even if the changes do not involve the functional groups of the resin.

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High-Yield Transfer of Extract to a Thin-Layer Chromatographic Plate

To the Editor:
Quantitative thin-layer chromatography is an inexpensive, rapid, and versatile technique of analysis, having