Electrophoretic Mobilities of Dextran Sulfate

by

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Abstract

An experimental program was undertaken to determine the electrophoretic mobilities of dextran sulfate. With this information, the effective molecular charge was determined as a function of radius. These results will permit more precise modeling of glomerular filtration and added insight to proteinuric diseases.

To determine the electrophoretic mobilities, dextran sulfate was hydrolyzed, radioactively labeled, and fractionated using gel chromatography. Electrophoresis of the labeled dextran sulfate was performed on polyacrylamide gels of various concentrations. The free mobility was determined by extrapolation to zero gel concentration. The effective molecular charge was calculated by using the Nernst-Planck equation.

For dextran sulfate with a radius of 20 to 40 Å, the free mobility was found to be a constant with a value of 1.635 (mm/min)/(V/mm). The effective molecular charge over the same radii varied linearly from 4.42 to 8.84 equivalents.

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