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Original Paper

Separation of complex mixtures of fluorobenzoic acids by capillary electrophoresis

Fluorobenzoic acids are important intermediates in the synthesis of antibacterial drugs. Conditions for the separation of mixtures of twenty-five acids by CE have been optimized. A set of conditions with phosphate buffer (pH 3.1), successive multiple ionic-polymer layer (SMIL) coating capillary, and negative separation voltage provided a short time separation based on the difference in the acidic dissociation constant (pK_a) of the sample acids. Addition of ACN to the separation solution improved the selectivity resulting in a broader distribution of migration times of the samples. The addition of tetradecyltrimethylammonium chloride below the CMC was also effective in changing the migration pattern of fluorobenzoic acids. Furthermore, practical utility was demonstrated through quantitative studies on the optimized condition including the durability of the SMIL coating.

Keywords: Antibacterial drugs / Benzoic acids / Polybrene / Quinolone carboxylic acid / SMIL coating capillary

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