

A New Ionic Liquids-based Monolithic Column for Analysis of Caffeine and Theophylline

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In order to improve the selectivity of monolithic column, a new ionic liquids-based monolithic column (150 × 4.6 mm I.D.) is synthesized. Characteristic and evaluation are investigated by scanning electron microscopy and determination of caffeine and theophylline in HPLC. Scanning electron microscopy images show that this monolithic column has a porosity structure. At the condition of mobile phase was 0.06 mol/L Na₂HPO₄ (pH 9.0) and flow rate was 0.7 mL/min. A good linear relationship was demonstrated when the concentrations of caffeine and theophylline were in the range of 0.1~60.0 µg/mL. These two compounds can obtain better resolution on the ILs-based monolithic column than non-ILs monolithic column, and the recoveries ranged from 97.40 % to 108.00 % and the inter-day and intra-day relative standard deviations were less than 5%. The HPLC method, developed in this study, was proved to be acceptable for drugs assay, and this ILs-based monolithic column as the stationary phase was a potential tool for future HPLC separation.