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Cyclodextrin-assisted dispersive liquid-liquid micro-extraction combined with sweeping capillary electrophoresis for the determination of Carbamazepine and Clobazam

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A sensitive method for the determination of Carbamazepine and Clobazam using Cyclodextrin-Assisted Dispersive Liquid-Liquid Micro-Extraction (CA-DLLME) coupled with Capillary Electrophoresis (CE) was developed. Cyclodextrin A and chloroform were used as the dispersive agent and extraction solvent, respectively. After the extraction, carbamazepine and clobazam were analyzed using CE with UV detection. The detection sensitivity was further enhanced through the use of sweeping technique. Under optimal extraction and stacking conditions, the calibration curves were linear over a concentration range of 2-40 ng/mL for carbamazepine and clobazam. The limits of detection (LODs) at a signal-to-noise ratio of 3 were 5 ng/mL and 6 ng/mL for carbamazepine and clobazam, respectively. An approximately 3757 to 4675 fold improvement in sensitivity was observed for the two analytes compared with the injection of a standard solution without the CA-DLLME and sweeping procedures. This developed method was successfully applied to the determination of Carbamazepine and Clobazam in human urine samples.

Biography

Sarah Y Chang has her expertise in Analytical Chemistry. She has developed new analytical methods for the determination of drugs in biological samples by capillary electrophoresis and matrix-assisted laser desorption/ionization mass spectrometry.

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