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Dispersive liquid-liquid microextraction combined with acetonitrile stacking through capillary electrophoresis for the determination of three selective serotonin reuptake inhibitor drugs in body fluids

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Dispersive liquid-liquid micro-extraction was combined with acetonitrile stacking in CE for the identification of three selective serotonin reuptake inhibitors (Citalopram, Fluoxetine and Fluvoxamine) in human fluids such as urine and plasma. Parameters that affect the extraction and stacking efficiency, such as the type and volume of the extraction and disperser solvent, extraction time, salt addition for dispersive liquid-liquid micro-extraction and sample matrices, pH and concentration of the separation buffer for stacking, were investigated and optimized. Under optimum conditions, the enrichment factors were in the range of 1195-1441. Limits of detection ranged from 1.4 to 1.7 nM for the target analytes. Calibration graphs displayed satisfied linearity with R^2 greater than or equal to 0.9978 and relative standard deviations of the peak area analysis were in the range of 2.9%-5.0% (n=3). Recovery of all tricyclic antidepressant drugs from urine and plasma were in the range of 77%-117% and 79%-106%, respectively. The findings of this study show that dispersive liquid-liquid micro-extraction-acetonitrile stacking-capillary electrophoresis is a rapid and convenient method for identifying tricyclic antidepressant drugs in urine and plasma.

Biography

Ming Mu Hsieh has completed his PhD in Chemistry from National Taiwan University, Taiwan in 2002. He is currently working as a Professor of National Kaohsiung University in 2012. He has published more than 40 papers in reputed journals. His current research includes the development of pre-treatment (off-line) and analytical techniques for small molecules by capillary electrophoresis.

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