


RESEARCH ARTICLE

Optimization of a dispersive liquid–liquid microextraction method followed by UHPLC analysis for fluoxetine quantification in environmental water resources

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Fluoxetine is the most prescribed drug for treatment of depression. Recently, its presence in aquatic environment has been receiving a growing interest as several studies assessed its effects on aquatic fauna. Therefore, it's important to have an analytical method capable of monitoring these compounds at low concentrations. In this study, a new method was developed based on dispersive liquid–liquid microextraction to preconcentrate fluoxetine in a small volume of water sample (6 mL) before chromatographic analysis using ultra high performance liquid chromatography with fluorescence detection. Effect of composition and volume of extracting mixture, sample pH, vortexing time and salt addition were evaluated. Optimization of extraction conditions lead to an enrichment factor of 61 ± 18 . After extraction optimization, recovery percentages of fluoxetine spiked into different water matrices between 83–110% were obtained. For the optimized method, the calibration curve was obtained in the range of 160–2500 ng/L with a limit of detection of 98.9 ng/L and a limit of quantification of 329.8 ng/L.

KEYWORDS

antidepressants, fluoxetine, microextraction, water matrix