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ANALYSIS OF MULTI-CLASS CONTAMINANTS IN ENVIRONMENTAL WATER SAMPLES BY FABRIC PHASE SORPTIVE EXTRACTION COUPLED WITH GAS CHROMATOGRAPHY-MASS SPECTROMETRY (FPSE-GCMS)

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A rapid extraction and cleanup method using selective fabric phase sorptive extraction (FPSE) combined with gas chromatography mass spectrometry (GCMS) has been developed and validated for the determination of multi-class contaminants, ethyl paraben (EP), butyl paraben (BP), diethyl phthalate (DEP), dibutyl phthalate (DBP), lidocaine (LIDO), prilocaine (PRI), triclosan (TRI) and bisphenol A (BIS A) in various aqueous samples. Some important parameters such as kind and volume of extraction solvent and extraction time were investigated and optimized. Calibration curves were obtained in the concentration range 0.1-500 ng/mL. Under the optimum conditions the limits of detection (LODs) were in the range 0.029 ng/mL to 0.045 ng/mL. This method was validated by analyzing the compounds in spiked aqueous samples at different levels with recoveries ranged from 83% to 94% and relative standard deviations of less than 10%. The developed method was applied for the determination of the analytes in real tap water, municipal water, ground water, sewage water and sludge water samples. It has great potential in the preconcentration of trace analytes in complex matrix.

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