

# Chemometric optimization of the extraction and derivatization of parabens for their determination in water samples by rotating-disk sorptive extraction and gas chromatography mass spectrometry

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© 2017 Elsevier B.V. A combination of rotating disk sorptive extraction (RDSE) using Oasis® HLB as the sorbent phase and gas chromatography mass spectrometry (GC-MS) has been performed for the determination of four of the most widely used parabens: methylparaben, ethylparaben, propylparaben and n-butylparaben. The extraction and derivatization of the analytes in water samples were optimized by using factorial (screening) and Doehlert designs, thus reducing the number of analyses with the concomitant reduction of time, reagents, waste, samples and cost. Thus, a RDSE method using 20 mL of sample was performed. The disk was rotated at 2900 rpm for 70 min at room temperature. After a desorption step and evaporation of solvent, a derivatization method using 5  $\mu$ L of N-methyl-N-(trimethylsilyl)trifluoroacetamide (MSTFA) for 15 min at room temperature was used previously to inject the final extract into GC-MS. The detection limits and precision (%RSD) were lower than 0.05  $\mu$ g L<sup>-1</sup> and 9.7% for