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## Development of a multicomponent method for the analysis of banned substances in cosmetic products by GC-MS/MS

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A new method based on solid phase extraction (SPE) followed by GC-MS has been developed for determination of 40 substances prohibited in the EU in water miscible matrices. The effect of several factors, including sorbent type, salt addition, washing step and elution solvent, on the system response was tested using Taguchi experimental design approach during optimization. Application of the statistical analysis on Taguchi's signal to noise ratios helped to find the optimal values of relevant factors for most compounds. In the optimized procedure, 60 mg of sample dissolved in water was directly extracted by a/the preconditioned SPE column, eluted with 600  $\mu$ L of Ethyl Acetate, and after dilution, the extract was analyzed by GC-MS/MS without any further cleaning or concentration step. Accuracy, precision, detection limits and repeatability were evaluated during method validation. To test the method reliability, analyte recoveries were determined on spiked real samples including shampoos, shower gels, and face-wash gels. Resulting analyte recoveries varying from 40 to 110 %, repeatability (RSD) from 5 to 20 % and quantitation limits in  $\mu$ g/g range confirmed suitability of this method for routine testing of cosmetic products.

## Biography

Autor graduated from Charles University in 2012. He has been working as analytical chemist in National Institute of Public Health since graduated and has been studying PhD since 2013.

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