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Determination of 3-(4'-methylbenzylidene)camphor and its metabolite 3-(4'-carboxybenzylidene)camphor in human semen by solid-phase extraction and liquid chromatography tandem mass spectrometry

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3-(4'-methylbenzylidene)camphor has been used for many years as an UV filter in sunscreen cosmetic products to protect users from the UV solar radiation. UV filters are considered safe for topical application if they are employed under the established conditions. However, some studies reveal that these compounds may be absorbed through the skin, metabolized in the human body and finally excreted [1]. Its percutaneous absorption may result in different adverse health effects, such as photoallergy, endocrine disruption or carcinogenicity. The studies related to the metabolism of 3-(4'-methylbenzylidene)camphor are very scarce, and they are only focused in its determination in urine and plasma. To better elucidate the metabolic behavior of this UV filter, it is recommended to study a larger number of biological matrices. Specifically, it has been recently suggested that UV filters may affect semen quality [2], so the research of this biological fluid becomes more interesting.

In order to provide further insights into the study of the percutaneous absorption of 3-(4'-methylbenzylidene)camphor, the aim of this work is to develop an analytical method based on SPE and LC-MS/MS, to determine the total (i.e., free plus conjugated) content of 3-(4'-methylbenzylidene)camphor and its main metabolite 3-(4'-carboxybenzylidene)camphor in human semen. The developed method was successfully validated and finally applied to the analysis of semen samples from two volunteers who topically applied a laboratory-made sunscreen cream containing 3-(4'-methylbenzylidene)camphor.

Biography

Alberto Chisvert has completed BSc from Faculty of Chemistry, University of Valencia, in 1999; PhD from Department of Analytical Chemistry, University of Valencia, in 2003. He is Associate Professor of the Department of Analytical Chemistry of University of Valencia. At present, he has published more than 60 articles in reputed journals, and more than 10 book chapters. Moreover, he is the Co-Editor of the book *Analysis of Cosmetic Products* (Elsevier, 2007). He is Editorial Board Member of *Advances in Analytical Chemistry*, *American Journal of Analytical Chemistry*, *Chromatography Research International*, *International Journal of Analytical Chemistry* and *Journal of Trace Analysis in Food and Drugs*, and is a regular Reviewer of more than 27 journals. His research areas are focused on both liquid and gas chromatography coupled to mass spectrometry, liquid- and solid-phase micro-extraction, in bio-analysis and cosmetic, pharmaceutical and environmental analysis.

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