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Targeted analysis of biomarkers for the screening of botanicals in herbal food supplements by LC-MS/MS

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Botanicals and botanical preparations intended for human consumption as food supplements and related products are widely marketed with various health claims. Such herbal preparations are easily available to consumers through several distribution channels: OTC in pharmacies, in supermarkets, herbalist's shops or via the Internet. There are some general concerns with respect to botanicals and botanical preparations mainly relating to quality and safety issues. In this context, problems related to undeclared, unauthorized or toxic botanicals in food supplements is of growing importance worldwide, because these preparations have generally not been through a rigorous drug testing process. Furthermore, there is a need to conduct anti-fraud analyses by confirming the presence of the declared botanicals. Chemical methods already exist for the detection of plants but they are usually specific for a few plants only. In this study, a generic procedure was developed for the multi-targeted screening of biomarkers in selected botanicals. The analytical approach combined high performance liquid chromatography with hybrid mass spectrometry (Q-Trap) operating in the information dependent acquisition mode which generated MS/MS spectra that can be compared with an in-house library. Each plant was characterized with at least one biomarker, which in turn was identified with its retention time, two specific transitions and their corresponding ratio as well as three enhanced product ion scans. This method enabled identification of 115 biomarkers intended to characterize 90 selected plants.

Biography

Philippe Christen has completed his PhD at the University of Geneva and his postdoctoral studies at London University School of Pharmacy. He is senior scientist at the University of Geneva. His area of interest includes Natural product chemistry, Development of analytical methods for herbal food supplements, Natural products with antiparasitic activity. He is the author of more than 120 papers in reputed journals and serving as an editorial board member of *Phytochemical Analysis*.

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