BOOK OF ABSTRACTS

11th International Symposium on
RECENT ADVANCES IN FOOD ANALYSIS

November 5–8, 2024

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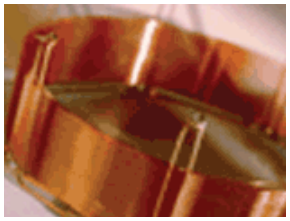
Jana Pulkrabová, Monika Tomaniová, Stefan van Leeuwen, Michele Suman, Michel Nielen and Jana Hajšlová

Editors



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M5
MICROWAVE-ASSISTED EXTRACTION AND SAPONIFICATION TO INCREASE THE THROUGHPUT IN FOOD QUALITY ANALYSIS

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The sample preparation step often represents the most time-consuming step in the whole analytical workflow, although it remains the most important to prevent contamination, improve accuracy, and minimize the risk of results distortion. Despite that, most of the methods, especially when dealing with highly fatty foods are still long, solvent and time-consuming. This is particularly true when saponification is involved to favorize the enrichment of minor compounds. To simplify and speed up this step, microwave-assisted solvent extraction (MASE) and microwave-assisted saponification (MAS) offer a reliable and efficient alternative. Several processes can take advantage of microwave heating, reducing time and solvent, enabling the lab to have a greener and more cost-effective approach. This work presents the optimization of a rapid MAS method for the robust analysis of sterols in lipids. Moreover, the tedious TLC purification to isolate sterols is replaced by a more practical and faster SPE purification, followed by derivatization prior to the final GC(×GC)-FID analysis.

Keywords: microwave-assisted extraction, saponification, green analysis, food quality