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RAPID SOLID LIQUID DYNAMIC EXTRACTION IS A FORERUNNER TECHNIQUE IN GREEN CHEMISTRY FOR THE SOLID-LIQUID EXTRACTION SECTOR. TWENTY YEARS REPORT

D. Naviglio¹, M. Ciaravolo¹, P. Scarano², M.M. Salvatore¹, R. Mozzillo¹, F. De Paola¹, A. Andolfi¹, G. De Tommaso¹, M. Gallo³

¹*Dipartimento di Scienze Chimiche - Università degli Studi di Napoli Federico II, Napoli, Italy*

²*Dipartimento di Scienze e Tecnologie, Università del Sannio, Benevento, Italy*

³*Dipartimento di Medicina Molecolare e Biotecnologie Mediche, Università degli Studi di Napoli Federico II, Napoli, Italy*

In the past, liquid/solid extractions were performed with systems that required the use of different solvents, such as the Soxhlet method. Currently, everything has changed with the introduction of tools that reduce extraction times, reduce solvent consumption, improve extraction efficiency and reduce environmental impact (green extractions). All this is based on a new way of thinking about chemistry, the so-called green chemistry, based on the prevention of pollution that involves the development of systems that use and produce substances that are of lower risk for human health and low environmental impact. Exploiting the principles of green chemistry means implementing a series of principles that reduce or eliminate the use and production of hazardous substances during all stages of processing. In this context, the Rapid Dynamic Liquid Solid Extraction (RSLDE), through the use of the Naviglio extractor, represents a forerunner technique in the field of green extractions. The extraction takes place by generating a negative pressure gradient from the inside towards the outside of the solid matrix, so it can be conducted at room temperature or even sub-environment (Naviglio, 2003). Literature data have shown the versatility of RSLDE in various fields of application: pharmaceutical, cosmetic, herbalist, food and beverage and not least of food waste. Furthermore, the reproducibility of the extraction on the same matrix in weight terms was tested and comparison experiments were conducted with the other extraction techniques, which showed a higher recovery in favour of the RSLDE, as well as a higher extract quality and in no case it was detected alteration of thermolabile substances.

References

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