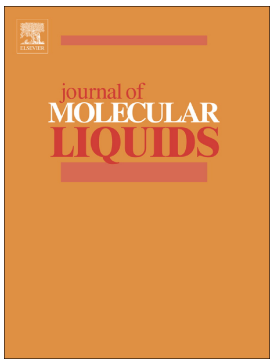

Modern approaches in dispersive liquid-liquid microextraction (DLLME) based on ionic liquids: A review

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PII: S0167-7322(17)35656-8
DOI: doi:10.1016/j.molliq.2018.03.043
Reference: MOLLIQ 8817

To appear in: *Journal of Molecular Liquids*

Received date: 23 November 2017
Revised date: 8 March 2018
Accepted date: 11 March 2018

Please cite this article as: I. Rykowska, J. Ziemblińska, I. Nowak , Modern approaches in dispersive liquid-liquid microextraction (DLLME) based on ionic liquids: A review. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), doi:10.1016/j.molliq.2018.03.043

Modern approaches in dispersive liquid-liquid microextraction (DLLME) based on ionic liquids: a review

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Abstract

Dispersive liquid-liquid microextraction (DLLME) has become a very popular environmentally benign sample-preparation technique, due to its simplicity, speed of operation and low consumption of solvent and reagent. It has attracted much interest from scientists working in separation science, and much improvement has been made since its introduction in 2006.

We describe the combined use of different types of ionic liquid dispersive liquid–liquid microextraction (IL-DLLME) such as META IL-DLLME (magnetic effervescent tablet-assisted ionic liquid dispersive liquid-liquid microextraction), *in-situ* MR-IL-DLLME (*in situ* magnetic retrieval ionic liquid dispersive liquid–liquid microextraction), and MIL-DLLME (magnetic ionic liquid-based dispersive liquid–liquid microextraction) methods as well as the green aspects of these techniques. In addition, we discuss practical applications of IL-DLLME to determine organic compounds and metals in a variety of matrices e.g., in water, food, biological samples, cosmetics and other products.

Keywords: dispersive liquid-liquid microextraction, ionic liquid, food, water, biological material