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## Designing the Phase's Densities of Aqueous Biphasic Systems Composed of Ionic Liquids to Act as Adequate Concentration Platforms

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### PURPOSE OF THE ABSTRACT

Aqueous biphasic systems (ABS) composed of ionic liquids (ILs) have been largely investigated as extraction and concentration platforms for a wide variety of solutes from different samples. However, one of their major drawbacks when used as concentration platforms relies on the recovery of the IL-rich phase containing the target solutes, which usually corresponds to the lower density, upper phase. In this work, ILs composed of cholinium-based cations and bistriflimide as the counter-ion were synthesized, characterized and used in the formation of ABS combined with inorganic salts. These ILs allow creating ABS in which the denser, lower phase corresponds to the IL-rich phase, thus permitting their proper use as concentration platforms within liquid-liquid microextraction approaches. The respective ternary phase diagrams were determined, and these ABS were then evaluated as concentration techniques for commonly used pesticides found in fruits, namely, acetamiprid, imidacloprid, thiacloprid and thiamethoxan. This type of pesticides is used at various stages of cultivation and post-harvest storage. Therefore, their monitoring is crucial for a proper assessment of human exposure and consumption. Liquid chromatography coupled with mass spectrometry (LC-MS) is commonly employed to identify and quantify these pesticides in fruits. In this work, it is shown that IL-based ABS can be used in liquid-liquid microextraction as concentration platforms of pesticides, and as such, these chemicals can be quantified by more expedite equipment.

## FIGURES

FIGURE 1

FIGURE 2

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### KEYWORDS

Aqueous Biphasic Systems | Ionic Liquid | Pesticides | Phase Density

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### BIBLIOGRAPHY