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Induced liquid/liquid extraction-A new sample preparation strategy in Analytical chemistry

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In opposition to traditional liquid/liquid extraction (tLLE), there is a new separation approach known as induced or assisted liquid/liquid extraction (iLLE or aLLE) in which phase separation is induced through the manipulation of a variety of factors. In iLLE, the mixture of a water miscible organic solvent and water can be separated to form two phases through various means, from lowering temperature, to adding a non-polar solvent, an inorganic or organic salt, or even a sugar to the mixture. The different iLLE methods each have unique features and applications. iLLEs are widely considered to be more gentle and homogeneous extractions than tLLEs. iLLE phase separation theories have been explored and numerous applications have been reported. While iLLE is still a relatively new approach to sample preparation, many applications have already been developed for use in the food industry, environmental sciences, chemical engineering, and pharmaceutical research and development. As a new sample preparation strategy, iLLE can be an invaluable tool for scientists in developing novel assays and improving efficiency. For example, iLLE extract can be analyzed directly with widely used reversed phase liquid chromatography (rpLC) because of the compatibility of iLLE extract with rpLC. Green chromatography methods can be developed without the use of hazardous extraction solvents such as chloromethane. Environmental impact is lessened because iLLE methods utilize less toxic reagents than tLLE methods while maintaining the same efficacy. Along with an overview of the various theories involved in iLLE, methods will be discussed.

Biography

Jun Zhang, is employed by Abbott Laboratories as a principal research scientist in Global Pharmaceutical Research and Development division, Jun Zhang has been in analytical chemistry research for last two decades. He has authored or co-authored more than thirty research articles, and one book chapter. He holds one US patent. He speaks regularly on national and international conferences. He reviews research articles for more than thirty journals. Zhang also holds editor in chief, associate editor and editorial board member of four scientific journals.

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