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Polymer inclusion membranes (PIMs) as an alternative solid phase extraction (SPE) material: Comparison studies between batch and flow procedure

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A membrane can be considered as a selective barrier between two phases; in recent years, membrane-based processes have been a subject of high interest in many fields, like biotechnology, treatment of wastewater and others [1]. This is due to the high advances in the development of membrane-based separation processes as an attractive alternative to conventional separation processes. Membrane research has attracted considerable efforts in recent years to provide a better understanding of membrane-based separation and improve its efficiency. This line of investigation has led to the development of polymer inclusion membranes (PIMs) which are thin, flexible and stable polymeric films that can selectively separate chemical species of interest [2]. PIMs are usually fabricated by casting them from solutions containing an extractant, a plasticizer and a base-polymer.

Given the essential need for metal ions determination in various fields, the use of PIMs can be considered of high interest as an alternative to solid phase extraction (SPE) in the separation and/or preconcentration of a metal ion.

In the present work, a novel approach for SPE of Zn(II) is described which is based on the use of a PIM containing di-(2-ethylhexyl)phosphoric acid (D2EHPA). A comparison between a batch and a flow system is presented.

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