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COMPARATIVE STUDY ON ROSMARINIC ACID SEPARATION BY REACTIVE EXTRACTION WITH AMBERLITE LA-2 AND D2EHPA 2. KINETICS OF THE INTERFACIAL REACTIONS

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Abstract

The study on the kinetics of reactive extraction of rosmarinic acid with two extractants, Amberlite LA-2 and D2EHPA, underlined the strong influence of extractant type, solvent polarity, and 1-octanol content on the relative magnitude of the diffusional or kinetic resistances and on the interfacial reaction rate. Thus, indifferent of the extractant type, the highest values of interfacial mass flows and reaction rates have been reached for extraction in dichloromethane. The addition of 1-octanol in the solvent phase led to the increase up to two times of the interfacial reaction rates only for the reactive extraction with Amberlite LA-2. This effect is amplified by reducing the solvent dielectric constant. In the case of extraction with D2EHPA, the rate of the interfacial reaction is not modified in presence of 1-octanol. The values of interfacial reactions rates between the rosmarinic acid and the two extractants calculated with the proposed kinetic equations are in concordance with the experimental results, the standard deviations varying between $\pm 5.03\%$ for reactive extraction with D2EHPA and $\pm 5.76\%$ for extraction with Amberlite LA-2.

Key words: Amberlite LA-2, di-(2-ethylhexyl) phosphoric acid, reactive extraction, rosmarinic acid

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