FH P 1

Isoljavanje i sinergizam pri ekstrakciji salicilne kiseline iz vodenih rastvora

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Ispitivan je uticaj NaCl, KCl i $(NH_4)_2SO_4$ na ekstrakciju salicilne kiseline iz vodenih rastvora dietil-etrom, kao i efekat sinergizma pri ekstrakciji binarnim smešama dietil-etar/1-butanol iz vodenih rastvora koji sadrže NaCl. Konstante isoljavanja za ispitivane soli opadaju u nizu $K_s((NH_4)_2SO_4) > K_s(NaCl) > K_s(KCl)$, a dobijene vrednosti su uporedive sa literaturnim vrednostima koje su dobijene merenjem rastvorljivosti salicilne kiseline. Najveća vrednost koeficijenta sinergizma dobijena je pri ekstrakciji binarnom smešom u kojoj je molski udeo dietil-etra 0,568. Međutim, najefikasnija ekstrakcija salicilne kiseline (najveća vrednost distribucionog koeficijenta) postignuta je pri ekstrakciji binarnom smešom u kojoj je molski udeo dietil-etra 0,778. Razultati dobijeni u ovom radu mogu se koristiti za poboljšanje efikasnosti ekstrakcije salicilne kiseline, što je značajno kod pripreme uzoraka za analizu različitim metodama. Takođe se ovi rezultati mogu koristiti za bolju fizičko-hemijsku karakterizaciju salicilne kiseline.

Salting-out and synergism in the extraction of salicylic acid from aqueous solutions

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The influence of NaCl, KCl, and $(NH_4)_2SO_4$ on the extraction of salicylic acid from aqueous solutions with diethyl ether, as well as synergic effects in the extraction of salicylic acid with diethyl ether/1-butanol binary solvent mixtures from aqueous solutions containing NaCl, were investigated. The salting-out constants for the salts investigated were ordered as $K_s((NH_4)_2SO_4) > K_s(NaCl) > K_s(KCl)$ and the obtained values are comparable with literature data obtained by the salicylic acid solubility measurements. The highest value of synergic coefficient was obtained for a binary solvent mixture containing 0.568 mole fraction of diethyl ether. However, the most efficient extraction of salicylic acid (highest value of distribution ratio) was achieved with the binary solvent mixture with 0.778 mole fraction of diethyl ether. The results obtained in this study may be used for improving extraction efficiency of salicylic acid which is important in the sample preparation step for its determination by various methods. Also, these results may be used for a better physicochemical characterization of salicylic acid.