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Practical Optimization Method for Dual-flow Countercurrent Extraction : Purification of Glycyrrhizin*

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An optimization method for the dual-flow countercurrent extraction of a mixture, the components of which show a concentration dependency in its distribution ratio, has been developed. As an experimental demonstration, commercial glycyrrhizin (about 90% purity) was purified to 99.8% with high recovery using a two-phase system (1-butanol and 0.1M NaCl) in the presence of 0.02M tetra-n-butylammonium hydroxide, and under the optimum conditions of the present method. To acquire 90.0% recovery of glycyrrhizin in an organic extract, the flow rate of the organic solvent was calculated to be 0.943 ml/min (aqueous solvent. 1.06 ml/min). Extraction performed at the derived flow rates obtained 87.2% recovery of glycyrrhizin in the organic extract, showing the propriety of the optimization method.

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