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## DIRECT SEPARATION OF PROPIONIC ACID FROM *Propionibacterium acidipropionici* BROTHS BY REACTIVE EXTRACTION 1. INTERFACIAL MECHANISM AND INFLUENCING FACTORS

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### Abstract

The reactive extractions of propionic acid with TOA dissolved in three solvents with different dielectric constants (dichloromethane, butyl acetate, n-heptane) without and with 1-octanol as phase modifier have been comparatively analyzed. The results indicated that the mechanism of the interfacial reaction between acid and extractant is controlled by the organic phase polarity. In absence of 1-octanol, the structures of the extracted complexes are RCOOH.Q<sub>2</sub> for dichloromethane and butyl acetate, respectively (RCOOH)<sub>2</sub>Q<sub>4</sub> for n-heptane. These structures are modified by adding 1-octanol and become RCOOH.Q for extraction in dichloromethane or butyl acetate, respectively RCOOH.Q<sub>2</sub> for extraction in n-heptane. Although the presence of 1-octanol improves the extraction efficiency, it leads to the reduction of extraction constants for all considered solvents, influence that is more significant for n-heptane.

*Key words:* distribution coefficient, extraction constant, propionic acid, reactive extraction, solvent polarity

*Received: January 2012; Revised final: March 2012; Accepted: March 2012*

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