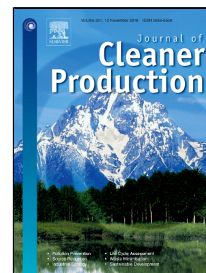


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Techno-economic Analysis of Downstream Processes in Itaconic Acid Production from Fermentation Broth



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2 Fermentation Broth

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12 Highlights

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14 A techno-economic analysis was done to determine itaconic acid production costs.

15 Recovery of itaconic acid was simulated with different recovery methods.

16 Crystallization, adsorption, reactive extraction, and electro dialysis were compared.

17

18 Abstract

19

20 Itaconic acid is a biomolecule with potential application in various products, substituting
21 feedstocks within the petrochemical industry. Simulations of different downstream trains were
22 done to compare the method currently used in industry for recovery of itaconic acid with a)
23 adsorption, b) reactive extraction and c) electro dialysis, to evaluate the most advantageous
24 process considering production costs. In these simulations, adsorption is the method with greater
25 potential to substitute the crystallization as the main downstream method, followed by reactive
26 extraction, which showed values close to those of crystallization. The only non-competitive
27 method was electro dialysis. The processing costs of itaconic acid were estimated at 1.13 US\$ kg⁻¹

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