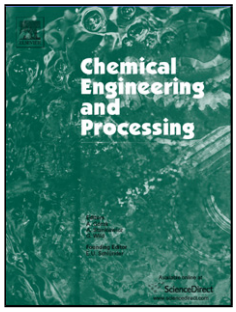

Title: Production and purification of glutamic acid: A critical review towards process intensification

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Production and purification of glutamic acid: a critical review towards process intensification

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ABSTRACT

Amidst growing environmental awareness and stringent discharge regulations, chemical and allied process industries are now desperately seeking replacement of the conventional, polluting processes by clean and green processes. In this context, production and purification of amino acids like L-glutamic acid assumes significance. Concerned conventional process involves several steps like fermentation, centrifugation, carbon adsorption, evaporation, crystallization, ion-exchange and so on to get glutamic acid in desired concentration and purification. Despite its tremendous potential for large scale use in a wide variety of applications, cost□effective production of high purity glutamic acid has remained a challenge for decades, mainly due to several downstream processing steps and the associated cost factors. With emergence of tailor-made membranes and modules, possibility of using membranes in downstream purification of glutamic acid appears imminent with expectation of a turnaround in amino acid manufacturing industry. The present manuscript through a brief yet comprehensive review of the very critical aspects of glutamic acid production and purification, attempts to direct research efforts towards process intensification encompassing the concepts of green processing, compact and flexible design with promise of more economically attractive production with better quality.

Keywords: L-glutamic acid, Membrane system, Green technology, process intensification

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