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Supported liquid membrane for *in situ* removal of chiral amines produced by biocatalysis in cascade reactions

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The technology of SLM has been explored since 1990s, and it is widely applied for water treatment, and ink systems on printers. Even though, there are many investigations for optimization to removal of key substances in several processes. The application of SLM technology in bioprocess for chiral amines is reported as vanguard group here, in Sweden. The application of this technology for removal of chiral amines was firstly reported regards the higher production of amines within the process with omega transaminase. In the present work, we thoroughly discuss the factors influencing the performance of the SLM system and considerations for its successful use. The hollow fibres inside the membrane contactor is discussed regards to the composition of the polymeric material, lifetime for stability, flow rate of phases, pore size and wall thickness. Moreover, the system is further improved by implementing continuous control of the reactor pH using the amine donor substrate, and temperature of the phases passing through the SLM unit to maintain the extraction performance, allowing the accumulation of 1.0 M (121 g/l) product in the stripping phase during operation for 91 h. This result means improvement of 3-fold in productivity, compared to the process without SLM.

Biography

Bianca Ayres is Biochemical Engineer, has completed her PhD in 2014 from University of Campinas, in São Paulo, Brazil. She has completed Post-doctoral studies from Lund University in Sweden. She has published papers about biocatalysis using renewable resources to produce biopolymers of acrylic and propionic acid with sugars. The application of SLM has been investigated in bioprocess coupling enzymes acting in cascade reactions.

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