

Optical resolution of phenylalanine by ultrafiltration using the phenylalanine-imprinted membrane

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Abstract

Molecularly imprinted polymers have received much attention and extensively studied by many authors during recent years, because of their potential applications for polymeric receptor and membrane uses.¹⁾ However, there are only a few studies on the separation of optical isomers from their racemates using polymeric membranes. The resolution of optical isomers from the racemates is becoming important for the production of pharmaceuticals and food products, because the use of a pure chiral compound of medicines is known to reduce and avoid harmful side effects.²⁾ But most of separation and purification process are using expensive techniques and time consuming process, which also require skilled personnels. The aim of this work is to develop a cost effective process for the optical resolution of phenylalanine using a more simple technique and find its applications in the industrial processes.

In the present study, ultrafiltration experiments for the optical resolution of phenylalanine using MIP membrane were performed in a phenylalanine racemic solution. The permeate flux of the solution containing racemic phenylalanine was maintained almost constant during the ultrafiltration process. It was found that L-phenylalanine was preferentially adsorbed in the membrane matrix at pH 2, 4, 6.

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References

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