

分离工程

牛血清白蛋白为分离剂超滤拆分色氨酸的机理和模型 (I)

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摘要 以牛血清白蛋白(BSA)作为手性选择剂,利用膜超滤法拆分色氨酸(Trp)可以达到良好的手性分离效果。系统地研究了溶液pH值、温度、色氨酸和BSA的初始浓度、超滤压力等因素对分离效果的影响,指出除pH值外,温度对分离效果同样具有显著的影响。并依据pH值和温度对BSA空间结构和色氨酸带电性质的影响规律,定性分析了BSA拆分色氨酸对映体的机理。pH值主要通过影响BSA的空间构象和色氨酸的带电性质影响分离效果,温度则主要通过影响BSA的空间结构影响分离效果。

关键词 [牛血清白蛋白](#) [色氨酸](#) [超滤](#) [手性拆分](#)

分类号

Mechanism and model of chiral separation of tryptophan by ultrafiltration using BSA (I)

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Abstract

Chiral separation of tryptophan(Trp) by ultrafiltration using bovine serum albumin (BSA) as the selector realized good separation result.The influence of pH value, temperature, initial concentration of tryptophan and BSA as well as the pressure difference of ultrafiltration on the chiral separation process was examined systematically in the present work.The experimental results showed that the influence of pH and temperature on the process was significant.The mechanism of chiral separation was analyzed qualitatively and the influence of pH and temperature was discussed in view of the conformation of BSA and electric charge of tryptophan in the solution, because pH value and temperature played critical roles in the conformation of BSA and electric charge of tryptophan.

Key words [bovine serum albumin](#) [tryptophan](#) [ultrafiltration](#) [chiral separation](#)

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