

分离工程

混合模式吸附层析从猪血浆中分离免疫球蛋白

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摘要

混合模式吸附层析是一种新型的生物分离方法, 通常结合了静电和疏水相互作用, 具有非盐依赖的吸附特性, 在高盐和低盐条件下, 都可以高效吸附目标蛋白。本文将混合模式吸附用于从猪血浆中分离免疫球蛋白, 首先比较了不同沉淀法从猪血浆中去除纤维蛋白原, 确定了最佳硫酸铵沉淀条件; 进一步考察了混合模式吸附剂对猪血免疫球蛋白的静态和动态吸附性能, 确定了吸附和解吸条件; 最后采用混合模式吸附层析, 从硫酸铵沉淀的上清液中直接分离免疫球蛋白, 得率为 $11.5 \text{ mg} \cdot 8226 \text{ ml}^{-1}$ 血浆, SDS-PAGE凝胶图像分析纯度达到77.4%, 为猪血资源的综合利用提供了新方法。

关键词

[混合模式吸附层析](#) [免疫球蛋白](#) [猪血](#) [沉淀](#) [纤维蛋白原](#)

分类号

Separation of immunoglobulin from porcine plasma with mixed-mode adsorption chromatography

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Abstract

Mixed-mode adsorption chromatography is a new kind of bioseparation technology, which normally combines the electrostatic and hydrophobic interactions. It has a unique property of salt-independent adsorption that can adsorb the target protein efficiently under either high-salt or low-salt condition. In the present work mixed-mode adsorption was used to separate immunoglobulin from porcine plasma. Firstly different methods were compared to precipitate the fibrinogen from porcine plasma, and the precipitation with ammonium sulfate was optimized. Then the adsorption isotherm and kinetics of mixed-mode adsorbent for immunoglobulin were investigated, and the conditions of adsorption and desorption were determined. Finally the mixed-mode adsorption chromatography was used to separate immunoglobulin directly from the supernate of ammonium sulfate precipitation. The yield was about $11.5 \text{ mg} \cdot 8226 \text{ ml}^{-1}$, and the purity of immunoglobulin reached about 77.4% with the image analysis of SDS-PAGE. The process developed in the present work provided a new way for the comprehensive utilization of porcine plasma resources.

Key words

[mixed-mode adsorption chromatography](#) [immunoglobulin](#) [porcine plasma](#) [precipitation](#) [fibrinogen](#)

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