

Chromatographic removal of DNA from protein solutions by cationic polymer beads

(カチオン性高分子微粒子を用いたタンパク質水溶液からの DNA の選択除去)

大学院自然科学研究科 助授 坂田 眞砂代
" 教授 國武 雅司

概要 :

Drugs produced using recombinant gene technology often contain nucleic acids (DNA) as impurities. Such contaminants must be removed from solutions used for injection, because the influence of such DNA on the living body has not been fully clarified. Various techniques for DNA removal described in the patent literature are not broadly applicable, as they are tailored to meet specific product requirements. To remove DNA from a solution of high-molecular weight compounds, such as proteins, the adsorption method has proven to be most effective. This review intends to discuss various methods of chromatographic removal and separation of DNA from protein solutions using cationic polymer adsorbents. We will first discuss chromatographic properties of various DNA-specific polymer adsorbents, and then describe effects of adsorbent's pore size, its amino-group content, its surface pK_a value, and buffer's condition on removal of DNA from a protein solution. Finally, we will discuss how to optimize a method of removal DNA without affecting the recovery of important compounds, such as proteins.

(Current Pharmaceutical Analysis, Vol.3, pp.170-179, 2007.6)