

Two-step purification strategy for enhanced recovery of recombinant hepatitis B surface antigen from *Pichia pastoris*

ABSTRACT

Univariate screening on factors affecting the purification performance of recombinant hepatitis B surface antigen (HBsAg) on ion exchange chromatography (IEC) and size exclusion chromatography (SEC) and the establishment of a two-step purification strategy were performed. Amongst four IEC adsorbents examined, the use of Q Sepharose XL IEC adsorbent under optimized conditions together with optimized SEC purification was able to efficiently purify HBsAg. An established purification strategy comprising the two techniques further demonstrated adaptability for scale-up operations with a final total purification factor (PF) of 94.82 ± 16.20 , HBsAg purity of 95.48% and recovery yield of 78.07%.

Keyword: Gel filtration; Hepatitis B surface antigen; Ion exchange chromatography; *Pichia pastoris*; Protein purification strategy