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Technical and economic considerations of cell culture harvest and clarification technologies.

Abstract

Bioprocessing for biopharmaceutical production has made significant technological strides in the past decades. Intensification of upstream cell culture processes has led to higher cell densities, enabling smaller bioreactors to provide equivalent or higher throughput than larger, lower titer systems. These high-intensity cultures increase the burden on harvest separations, which may shift some of the technical and economic benefits and drawbacks of a given harvest technology. With these changes in mind, a review was conducted covering the basics of operations for highlighted harvest technologies and potential factors a bioprocess engineer might consider in selecting an appropriate technology for their intensifying processes. We provide insight into how current upstream trends will impact economics of these two harvest methods and how this will influence harvest technology selection of new corporate entrants. Considering the changing and diverse landscape of bioprocessing, there is likely no one-size-fits-all solution and many factors must be carefully weighed for appropriate harvest separations selection.

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