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BIOPROCESSING OF RECOMBINANT E.COLI PRODUCING β-GLUCURONIDASE ENZYME

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Chapter 8

Optimization of Crossflow Nanofiltration for Separation And Concentration of β-Glucuronidase Enzyme

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1. Introduction

Filtration is a pressure driven separation process that uses membranes to separate components in a liquid solution or suspension based on their size and charge differences. Filtration can be broken down into two different operational modes that are Normal Flow Filtration and Tangential Flow Filtration. Normally, membrane based Tangential Flow Filtration (TFF) unit operations are used for separation of cells from a product, concentration of cells, removal of cell debris from cell, concentration of protein solutions, exchange or removal of salts or salts in a protein solution, and removal of viruses from protein solutions (Wang, 2001; Iverson, 203). Tangential Flow Filtration is also called as Cross Flow Filtration (CFF).

Crossflow filtration can be further subdivided into categories based on the size of components being separated. One of the most widely used to separate protein from buffer components for buffer exchange, desalting, or concentration is ultrafiltration. Membrane