# Purification of recombinant nucleocapsid protein of Newcastle disease virus from unclarified feedstock using expanded bed adsorption chromatography

## Abstract

In the present work, a single-step purification of recombinant nucleocapsid protein (NP) of the Newcastle disease virus (NDV) directly from unclarified feedstock using an expanded bed adsorption chromatography (EBAC) was developed. Streamline 25 column (ID = 25 mm) was used as a contactor and Streamline chelating adsorbent immobilized with Ni2+ ion was used as affinity adsorbent. The dynamic binding capacity of Ni2+-loaded Streamline chelating adsorbent for the NP protein in unclarified feedstock was found to be 2.94 mg ml−1 adsorbent at a superficial velocity of 200 cm h−1. The direct purification of NP protein from unclarified feedstock using expanded bed adsorption has resulted in a 31% adsorption and 9.6% recovery of NP protein. The purity of the NP protein recovered was about 70% and the volume of processing fluid was reduced by a factor of 10. The results of the present study show that the IMA-EBAC developed could be used to combine the clarification, concentration and initial purification steps into a single-step operation.

**Keyword:** NP protein, NDV, IMA-EBAC, Escherichia coli, Dynamic binding capacity