

Purification of histidine-tagged nucleocapsid protein of Nipah virus using immobilized metal affinity chromatography

ABSTRACT

Nucleocapsid (N) protein of Nipah virus (NiV) is a potential serological marker used in the diagnosis of NiV infections. In this study, a rapid and efficient purification system, HisTrap™ 6 Fast Flowpacked bed column was applied to purify recombinant histidine-tagged N protein of NiV from clarified feedstock. The optimizations of binding and elution conditions of N protein of NiV onto and from Nickel Sepharose™ 6 Fast Flow were investigated. The optimal binding was achieved at pH 7.5, superficial velocity of 1.25 cm/min. The bound N protein was successfully recovered by a stepwise elution with different concentration of imidazole (50, 150, 300 and 500 mM). The N protein of NiV was captured and eluted from an inlet N protein concentration of 0.4 mg/ml in a scale-up immobilized metal affinity chromatography (IMAC) packed bed column of Nickel Sepharose™ 6 Fast Flow with the optimized condition obtained from the method scouting. The purification of histidine-tagged N protein using IMAC packed bed column has resulted a 68.3% yield and a purification factor of 7.94.

Keyword: Nucleocapsid protein; Nipah virus; Immobilized metal affinity chromatography; *Escherichia coli*