Periplasmic Expression and One-step Purification of Urease Subunit B of *Helicobacter pylori*

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Background & Objectives: UreB, a subunit of urease enzyme, is one of the most investigated vaccine-candidates of *Helicobacter pylori*. Hence, easy access to highly purified UreB protein will facilitate advances in therapeutic or preventive era. The present study represents a novel and simple purification Methods for extracellular production of recombinant urease subunit B to achieve this goal.

Methods: ureB gene from *H. pylori* 26695 was first amplified by PCR and then cloned into pET-26b(+) expression vector.

Results: UreB was expressed as a soluble, N-terminal pelB and C-terminal hexahistidine-tagged fusion protein (UreB-6His) in Escherichia coli BL21 (DE3) through isopropylthio-β-D-galactoside (IPTG) induction and was secreted into the periplasmic space. Identity of the expressed protein was confirmed by sodium dodecyl sulphate–polyacrylamide gel electrophoresis (SDS-PAGE) and western blot analysis using anti-His monoclonal antibody.UreB-6His protein was extracted from the periplasm of E. coli by osmotic shock treatment and was purified in one step by Nickel affinity chromatography.

Conclusion: In conclusion, the present protocol is easier to perform; more time effective and low cost than earlier Methods.

Keywords: Periplasmic Expression; Urease Subunit B; Helicobacter Pylori