Construct Recombinant Fragments Beta-toxin Gene from Clostridium perfringens

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Background & Objectives: *Clostridium perfringens* types B and C secrete Beta-toxin that causes necrotic enteritis in humans or livestock. Death in individuals with this disease is over 50%. Vaccines against *C. perfringens* type B and C are currently manufactured using beta toxin produced by the virulent C. perfringens strain itself. Different researchers suggested that protections of animal with necrotic enteritis are related to exposure of them to pathogenic strains of Clostridium perfringens. In this work for achieving the effective components for production of higher immunity, two regions of beta-toxin gene (cbp) were selected by bioinformatic tools with higher most antigenicity than others.

Methods: The specific primers were designed and these regions were amplified and cloned by using TA cloning technique in PTZ57RT. These two fragments were subcloned into the vector of pET-21a(+). The constructed plasmids were confirmed by related PCR and restriction digestion techniques. The recombinant pET21a was transformed into *E.coli* BL21 (DE3). The recombinant proteins productions were induced with 1 mM IPTG and the results were examined by Western blotting.

Results: Specific bands in expected positions were confirmed the successful cloning and expression.

Conclusion: With respect to the results, these recombinant peptides with high antigencity can be used for production of specific recombinant antibodies and new generation of vaccines and also ELISA application.

Keywords: *Clostridium perfringens*; β-toxin; Recombinant