Abstract: Background and Objectives: Cholera toxin (CT) is a protein secreted by the bacterium Vibrio cholerae. CT is responsible for the harmful effects of cholera infection. The cholera toxin is made up of two protein subunits: one A subunit (enzymatic), and five B subunits (receptor binding). Cholera toxin B subunit (CTB) is a remarkable protein in many aspects: it is a vaccine candidate, strong mucosal adjuvant, and an inducer of oral tolerance. The objective of this study was to produce high pure recombinant CTB and to assay its reactivity with native antibody.

Material and methods: ctxB gene of Vibrio cholera 62013 was isolated by PCR and cloned into pQE30 vector. E.coli M15 strain was used as an expression host. The recombinant protein was purified by Ni2+–NTA resin. The Antigenicity of protein was evaluated by western blot analysis by using of antibody against native CTB.

Results: Expression of ctxB gene in the host produced considerable amount of protein. Single band of the recombinant protein was observed in SDS-PAGE after purification that indicates high pure protein. Result of western blot analysis revealed that antibody against native CTB can identify recombinant protein.

Conclusions: Single band of recombinant CTB in SDS-PAGE demonstrate effective and appropriate method of purification. In western blotting, the reaction of native antiserum with recombinant CTB demonstrates the presence of common epitopes between native and recombinant CTB proteins. Recombinant CTB could be used as a strong mucosal adjuvant and/or could be a practical strategy for producing oral vaccines.