Introduction: Bovine β-lactoglobulin (β-Lg) is a globular protein containing 162 amino acid residues with a molecular weight of 18.3 kDa. It belongs to the lipocalin family sharing similar structure and function. The biological function of β-Lg has not been fully known although this protein has an ability to bind many hydrophobic ligands such as retinol. β-Lg has been known as a major milk allergen. Many studies have been done in order to decrease its allergenicity properties.

In the present study β-Lg was mutated on its major epitopes to decrease the allergenicity of this protein.

Method: The mutant plasmid was injected in yeast Pichia pastoris and subsequently the production and purification of recombinant mutant protein has been done. The allergenicity properties of mutant β-lg were compared with native one using ELISA techniques.

Results: The binding of IgE from cow's milk allergy (CMA) patients to recombinant mutant β-LG using ELISA techniques showed that nearly 70% of CMA patients sensitized to β-LG, it was observed that the mutation caused a decrease in its recognition by IgE.

Conclusions: It can be concluded that the mutation on the major epitopes of β-LG is associated with weaker binding of IgE from CMA patients to the mutated protein.