Over expression of Ric c 1, an allergenic 2S Albumin Storage Protein from *Ricinus communis*

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**INTRODUCTION:** Isoforms of 2S albumin from castor beans, Ric 1 and Ric c 3 are storage and defense castor bean proteins that present allergenic properties. Continuous IgE-epitopes were identified in both proteins. The cross reaction between these allergens and IgE, is mediated glutamic acid. Molecular modeling demonstrated that, replacing strategic glutamic acid residues by Leucine could be reduce the allergenicity of these proteins. The aim of this study was obtain recombinants (Ric c 1 and mutant Glu-Leu Ric c 1) to validate molecular modeling studies. **MATERIALS AND METHODS:** DNA extraction was performed using the DNeasy \(^\text{®}\) Plant kit and DNA was subjected to PCR. The PCR product was inserted into the cloning vector pJET1.2 and this was used to transform *E.coli* JM109 bacteria. To accomplish expression of the recombinant protein genes were cloned into the vector pET 32 EK LI and these used to transform *E. coli* (DE3). The induction of recombinant protein was carried out by adding IPTG to culture. Recombinant proteins were purified by affinity chromatography on Ni-NTA column. Confirmation of purification was by SDS-PAGE and by immunoblotting with anti-2S albumin. **DISCUSSION AND RESULTS:** The recombinant (rRic c1), was produced by this heterologous natively folded proteins system and the expression of 2S albumin was confirmed by immunoblotting; sequencing the gene and mutant recombinant protein are underway. **CONCLUSION:** The theoretical molecular modeling studies have shown that it is feasible to make these isoforms least allergenic, therefore the molecular study is essential to validate the theory.

**Keyword:** *Ricinus communis*, 2S albumin, allergy, Ric c 1

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