



# XIV Annual CICS-UBI Symposium



## Abstract Book



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## 4. PHENOLIC COMPOUNDS: A NOVEL APPROACH TO REDUCE EGG ALLERGENICITY?

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### ABSTRACT

Hen's egg allergy has been climbing in all countries due to eggs ubiquity in foodstuffs. This allergy is an IgE mediated reaction that affects mainly infants and young children. So far, the processes used to decrease the allergenicity of egg proteins, such as cooking, thermal processing, storage and enzymatic digestion have not been totally effective. Previous studies demonstrated that proteins form complexes with phenolic compounds, so the aim of this work was to analyze the effect of these compounds in ovalbumin (OVA) conformation and its possible application to reduce eggs allergenicity. OVA was incubated at different temperatures with phenolic compounds (caffeic, chlorogenic, ferulic, gallic and tannic acids; resveratrol and quercetin) and was analyzed by circular dichroism (CD), Attenuated Total Reflection-Fourier Transform Infra-Red (ATR-FTIR) spectroscopy and fluorescence. Changes in the secondary structure of OVA were evidenced by CD and ATR-FTIR. Also, protein fluorescence decreased with increasing concentrations of phenolic compounds. The thermodynamic analysis suggested that electrostatic interactions are important in the binding process, and the quenching mechanism occur by contact. This was confirmed by docking where the phenolic compounds bind specifically to some regions of the protein, including those with the allergenic epitopes.

**Keywords:** Egg allergy, Hypoallergenic eggs, Interactions, Ovalbumin.