

3<sup>rd</sup> International Conference on

# Food & Beverage Packaging

July 16-18, 2018 | Rome, Italy



## Tanja Cirkovic Velickovic

*Ghent University Global Campus, Incheon, South Korea*

### Interactions of major catechin of green tea with food proteins

Naturally occurring polyphenols can form complexes with globular proteins and such interaction may result in complexation, protein unfolding and precipitation. Major green tea catechin, EpiGalloCatechin-3-Gallate (EGCG) is a major polyphenol of green tea. We have investigated binding force, binding strength and binding places for EGCG to major food allergens: 2S albumins of peanut, ovalbumin, alfa-lactalbumin and beta-lactoglobulin. The effects of glycation of beta-lactoglobulin via Maillard reaction on the binding capacity for EGCG have also been studied. Binding constants were measured by the method of fluorophore quenching. Binding of EGCG was confirmed by Circular Dichroism (CD), Fourier Transform Infrared Spectroscopy (FTIR) and microcalorimetry. The binding sites were examined by molecular docking. Uptake of EGCG/allergen complexes by monocytes was studied by flow cytometry. EGCG binds to major food allergens of peanut, egg and milk with a binding constant in the range of  $10^4 \text{ M}^{-1}$ . Glycation of beta-lactoglobulin and Ca-depletion did not significantly influence the binding constant of EGCG for the examined proteins. Conformational changes were observed for both native and glycated proteins upon complexation with EGCG. Complexation of proteins with EGCG slows down uptake of proteins by monocytes. EGCG binds to major food allergens and induces conformational changes and slows down uptake by monocytes. Those effects could be relevant for the processes of allergic sensitization and allergic inflammation in the gastrointestinal tract.

### Biography

Tanja Cirkovic Velickovic has completed her PhD from Belgrade University and Postdoctoral studies from Karolinska Institute, Department of Medicine. She is the Head of the Center of Excellence for Molecular Food Science of the University of Belgrade; Professor of Biochemistry at the Department of Biochemistry of University of Belgrade; and Professor of Food Chemistry of Ghent University and Ghent University Global Campus, Korea. She has published more than 85 papers in reputed journals.

[tanja.velickovic@ghent.ac.kr](mailto:tanja.velickovic@ghent.ac.kr)