Contribution ID : **97** Type : **Poster**

# Protein-polysaccharide complex coacervates as carriers of bioactive molecules

Protein-polysaccharide complexes have been used in various food applications such as fat replacers, meat analogues [1], encapsulation of bioactive ingredients [2], and for enhancing foam and gel stability [3]. Studying these complexes at the microstructural level is important as a way to understand the origin of their functional and physicochemical characteristics [4]. β-Lactoglobulin (Blg) and pectin has been selected as model protein and polysaccharide respectively. Blg has been chosen as it is a major component of whey protein, its molecular properties are well-known and due to its ability to bind to various ligands. Pectin is selected as it is widely used as a functional ingredient in food products [5]. The microstructure and interactions of the complex coacervates formed by the Blg and pectin interactions has been previously established by isothermal titration calorimetry (ITC), circular dichroism (CD), intrinsic fluorescence spectroscopy, small angle X-ray scattering (SAXS) and small angle neutron scattering (SANS) [4,6]. In this study, curcumin is used to study the entrapment in these coacervate systems. The binding constant of curcumin to Blg has been determined by intrinsic fluorescence spectroscopy and confirmed by induced circular dichroism. SAXS and SANS methods will be employed to investigate these complexes formed at the microstructural level. The understanding of the structural data and interactions can then be related to the active release of the compounds and ultimately aim at seeing if these complex coacervates can be effectively used as carriers for bioactive molecules for targeted delivery in the human gut.

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## Topic


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**Session Classification :** Poster Session

**Track Classification :** Soft Matter