

FROM FOOD-GRADE MATERIALS TO SELF-ASSEMBLED MICROENCAPSULATION SYSTEMS

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Targeted and controlled delivery of drugs or probiotics is a major goal for the pharmaceutical and food industry. For efficient smart delivery, microcapsules should have sufficient (mechanical) stability, a well defined permeability to the encapsulated material, present a release trigger mechanism, and ideally be monodisperse. Also, especially for food applications, its shell has to be food-grade and inexpensive.

We investigated the production of microcapsules using layer-by-layer adsorption of oppositely charged polysaccharides, proteins, and proteins fibrils or colloidal particles under acidic conditions. While the size of the microcapsule is determined by the template droplet (which is tuned by membrane emulsification), its mechanical strength, and possibly its permeability, is controlled by the number and composition of the adsorbed layers. During the presentation, we will discuss details on the production (using also a novel microfluidic device) and characterization of these novel microcapsules in relation to the various building blocks that were used.

References.

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