NOVEL PARTICLES BASED ON STRONG INTERMOLECULAR INTERACTIONS BETWEEN POLYMERS AND LOW MOLECULAR WEIGHT MOLECULES

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Strong molecular interactions play an important role in many biological processes and in the formation of new materials. In particular, non-covalent interactions between polymers and low molecular weight molecules can lead to self-assembly and formation of insoluble complexes, which can be unitized as building blocks for new materials or for stabilization of more complex soft matter systems. In this talk several examples of the use of intermolecular attraction for design of novel biobased particles will be presented. Strong H-bond formation and hydrophobic interactions will be used to design various colloidal particles, microcapsules for delivery of bioactive ingredients, and for stabilization of foams and emulsions. We will discuss the preparation, characterization, stability and application of these particles.

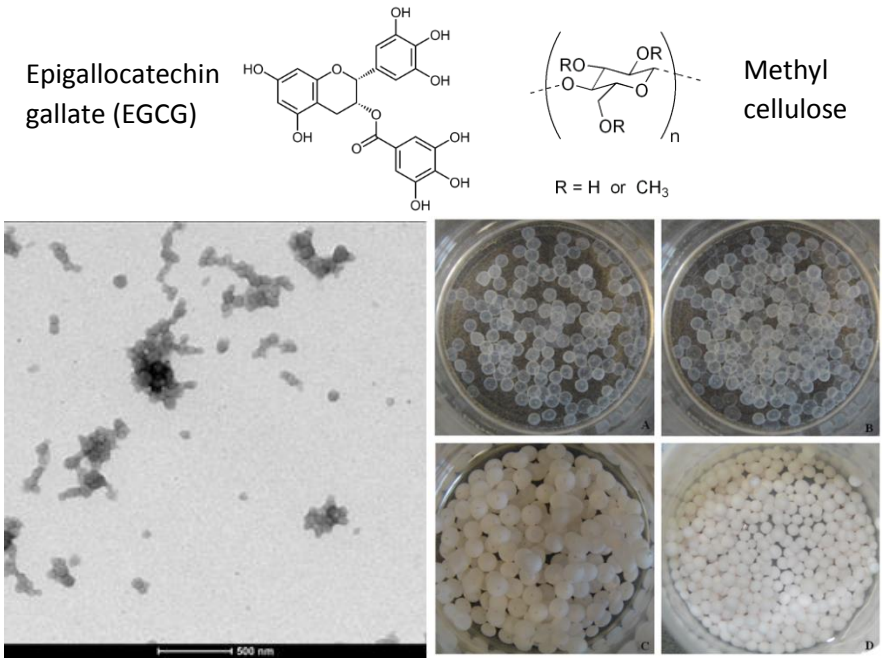

Figure 1 – Colloidal particles (left) and microcapsules (right) from EGCG-methyl cellulose complexes.