

PP 8 - Synthesis and Morphological Investigation of Colloidal PECs from Polysaccharides

A. Drogoz^(1,2), A. Domard⁽²⁾, L. David⁽²⁾, T. Delair⁽¹⁾

⁽¹⁾Unité mixte CNRS-Biomerieux UMR 2714-ENS de Lyon- 46 allée d'Italie, 69364 Lyon Cedex-France ⁽²⁾Laboratoire des Matériaux Polymères et des Biomatériaux, UMR CNRS 5627, ISTIL, Domaine Scientifique de la Doua, 15 Bd. Latarjet, 69622 Villeurbanne Cedex-France

Among all biomedical engineering materials, natural polymers such as polysaccharides have found a widespread use due to their biocompatibility.

Our strategy to design nano-scaled biodegradable colloids was based on the self-assembly of chitosan with oppositely charged polyelectrolytes like dextran sulfate, κ -carrageenan or alginate. The process consists in mixing at room temperature dilute solutions of polycation and polyanion, no surfactant was added.

Non stoichiometric complexes were formed and, according to the polymer in excess, positive or negative charged particules were obtained. The physico-chemical properties of the colloid depended on the nature of the polyion.

QELS experiments shown a dependence of the particle size as a function of ionic strength, suggesting a core-shell structure.

This core-shell structure was confirmed by SAXS, AFM and electron microscopy. Investigation by SAXS show the présence of diffuse interface whose thickness decreased as the charge neutralization increased.