

Immobilization of rhodamine 6G in calcium alginate microcapsules based on aromatic-aromatic interactions with poly(sodium 4-styrenesulfonate)

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Immobilization of rhodamine 6G in calcium alginate microcapsules was achieved using the polyanion bearing negatively charged aromatic groups poly(sodium 4-styrenesulfonate) as complexing agent. The immobilization of the dye by this method finds its basis on the stabilization of the dye/polymer complex by short-range aromatic-aromatic interactions, which are resistant to the cleaving effect of highly concentrated electrolytes. On the contrary, direct immobilization of the dye in the microcapsules resulted unsuccessful due to its high diffusion coefficient in the aqueous medium, and complexation with poly(sodium vinylsulfonate) did not improve the immobilization, since the corresponding complex is based on long-range electrostatic interactions, which are easily cleaved under the high ionic strength conditions of the microcapsule formation reaction. Thus, the present investigation represents a proof of concept on the use of aromatic-aromatic interactions between polyelectrolytes bearing c