

Microspheres of chitosan and polyphosphate

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The study of system with chitosan and phosphate have shown interesting applications such as bacterial inhibition¹ and bone regeneration²⁻³. In this work, we present some results concerning to preparation of the microspheres obtained from oppositely charged polyelectrolytes, chitosan (cationic polymer) and polyphosphate (anionic polymer). The microspheres were prepared by mixing of aqueous solutions chitosan and polyphosphate. The molar ratio polyphosphate(PP)/chitosan(CH) and the solubility conditions of chitosan in acetic acid solutions (from 1% to 10% v/v) are essential to be success to preparation of microspheres. We evaluated molar ratio PP/CH from 10 to 1000. Vibrational Spectroscopy, Raman spectroscopy Thermogravimetric Analysis and Luminescence were used to characterize the microspheres. The polyphosphate is almost 30% in mass of the microsphere. The europium luminescence showed that the interaction among the chitosan and polyphosphate solutions is essentially electrostatic. The results suggested the polyphosphate as external component (surface) and the chitosan as internal component (core) of the microspheres.

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