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Interpolyelectrolyte complexes of Eudragit® e PO with sodium alginate as potential carriers for colonic drug delivery: Monitoring of structural transformation and composition changes during swellability and release evaluating

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Abstract

Background: With a view to the application in oral colon drug delivery systems, swelling and release behavior of synthesized interpolyelectrolyte complexes (IPEC) between sodium alginate and Eudragit® EPO were investigated. Method: The microenvironmental changes in IPECs structure as a function of pH during swellability testing were investigated using FT-IR spectroscopy and elementary analysis. Results: All samples of IPECs (Z 0.661.25) during swelling were transformed to a similar structure with approximately the same composition. The release of the model drug diclofenac sodium was significantly delayed from matrices made up of the IPECs and independent from the composition of polycomplexes. Conclusion: According to the obtained results, these IPECs can be considered to have potential in colonic drug delivery as combined pH- and time-dependent systems. © 2009 Informa UK, Ltd.

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Keywords

Alginate, Colon drug delivery, Diclofenac sodium, Eudragit® E PO, Interpolyelectrolyte complex