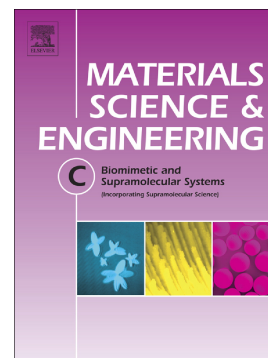


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**Influence of the incorporation of the antimicrobial agent polyhexamethylene biguanide on the properties of dense and porous chitosan-alginate membranes**

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Abstract

This work is a continuation of a previous study which described the development of dense and porous chitosan-alginate polyelectrolyte complexes through the addition of different amounts of Pluronic F68 to the polymeric mixture. The present study consisted in the incorporation of an antimicrobial agent, polyhexamethylene biguanide (PHMB), to the previously developed system. PHMB was incorporated at 1 and 10% (w/w) with high incorporation efficiencies, varying from 72 to 86%. Release profiles in phosphate buffered saline were evaluated using the Korsmeyer-Peppas equation, which suggested a quasi-Fickian diffusion mechanism for all obtained formulations. The maximum release percentage was approximately 15% as a result from the high affinity between PHMB and the polysaccharides. The obtained polyelectrolyte complexes were able to prevent the growth of both *Staphylococcus aureus* and *Pseudomonas aeruginosa* on their surfaces, being considered potentially effective wound dressings.

Keywords: Polyhexamethylene biguanide; antimicrobial; chitosan; alginate; membranes; wound dressings.

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