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Influence of pH and ionic strength on the antibacterial effect of hyaluronic acid/chitosan films assembled layer-by-layer

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Abstract

Hyaluronic acid (HA)/chitosan (CHI) films were assembled by LbL using different conditions of pH and ionic strength (IS) in order to obtain stable surfaces to avoid the adhesion and proliferation of *Pseudomonas aeruginosa* and *Staphylococcus aureus*. The results showed that pH and IS were key synthesis variables for obtaining different features, such as wettability, thickness and the availability of functional groups. The antibacterial effect was more effective against *S. aureus* with a reduction of approximately 3, 4, and 1.5 log reduction after 4, 8 and 24 hours of culture time, respectively. In the case of *P. aeruginosa*, the films presented a lower bacterial reduction: 1 log reduction in times evaluated. In conclusion, the results of the antibacterial effect against *S. aureus* after 24 hours, suggest that the HA/CHI films