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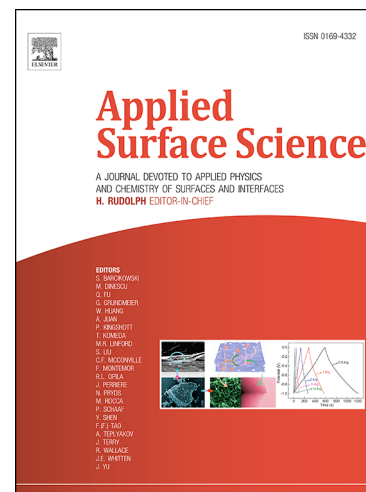
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Microstructure, chemical and biological performance of boron-modified TiCaPCON films

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Graphical abstract

Highlights

Effect of B on microstructure, chemical, and biological characteristics of TiCaPCON films

B-doped films consisted of Ti(C,N), TiB₂, BN, TiO₂, Ti₂O₃, CaO, and BN_xO_y phases

Additional surface modifications led to the formation of either TiO_x or BO_x topmost layers

All boron-containing films were not toxic for cells regardless of their surface composition

Only sample with B₂O₃ top-layer exhibited a high antibacterial activity.

Abstract

The fabrication of biologically safe materials with enhanced antibacterial characteristics is of great significance. Here we propose B-based therapeutic strategy which offers a good alternative to the widely used approach based on the introduction of most famous bactericidal

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