

# STRONTIUM ADSORPTION AND DESORPTION ON BACTERIAL CELLULOSE/HYDROXYAPATITE MATRIXES FOR OSSEOINTEGRATION.

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The biomaterials field has been extensively explored in an attempt to obtain materials with improved physical and chemical properties, mainly for biomedical applications. Strontium has similar action to calcium ions in the bone formation process. This study aimed to evaluate a hybrid material, formed of bacterial cellulose and hydroxyapatite (HAp), for adsorption and desorption of strontium (Sr), aiming osseointegration. This hybrid material was immersed in strontium solutions to evaluate their adsorption and desorption potential, investigating the solution pH effect (2 to 6). The strontium amount was quantified by Atomic Absorption Spectrometry (AAS) and the matrix solids were characterized by Fourier Transform Infrared Spectroscopy (FTIR) and Scanning Electron Microscopy (SEM). The equilibrium adsorption was reached in two hours, with an adsorption capacity of about 20 mg Sr(II)/g at pH 4,0. The desorption results showed that strontium was completely released within 30 minutes, using phosphate buffer as eluent. The FTIR of bacterial cellulose and hybrid material suggests that the presence of the HAp crystals affected the hydroxyl groups on cellulose chain. SEM images showed the morphology of cellulose fibers and hydroxyapatite deposition (globular form) on the cellulose surface producing the hybrid material. Based in this results we can concluded that the hybrid material has strontium adsorption capacity and this phenomenon occurs mainly on the adsorbent surface.

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## **References**

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