

Corrosion Resistance of Zinc Incorporated and Magnesium Incorporated Hydroxyapatite Coating on Surgical Grade Titanium Alloy

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Abstract

The present study is about the corrosion resistance behaviour of zinc incorporated and magnesium incorporated hydroxyapatite coated titanium alloy. Zinc incorporated and magnesium incorporated hydroxyapatite coatings were obtained on titanium alloy by the hydrothermal method. The formation and the morphology of the coating have been characterized by Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction analysis (XRD) and field emission scanning electron spectroscopy (FESEM- EDAX) techniques. The corrosion resistance of the coated titanium alloy substrate was investigated in Ringer's solution by electrochemical techniques. R_t values obtained for the Zn-HAp coated on titanium alloy is found to be greater as 233.3 ohm cm^2 than that of the uncoated titanium alloy (11.32 ohm cm^2).

Keywords: Hydrothermal deposition, Hydroxyapatite, Zn incorporated HAp, Mg incorporated HAp, corrosion resistance.