
IN VITRO SYNTHESIS OF APATITE COATINGS ON TITANIUM ALLOY SP-700 TO IMPROVE BIOCOMPATIBILITY

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Titanium and its alloys are commonly used in the biomedical industry for their superior strength, corrosion resistance, machineability, fatigue resistance, elastic moduli, and biocompatibility; however, endosseous implants struggle with osteointegration due to poor adhesion between the implant and the receiver's bone. It is known that by synthesizing a bone-like apatite surface coating, integration of the implant with surrounding bone is not only quicker, promoting shorter recovery times, but also reduces interface stress concentrators creating a more robust implant. This study focused on synthesizing an apatite coating via the sodium titanate method on the titanium alloy SP-700 which is a contender to be used as an implant material having a similar elastic modulus to bone. The synthesized coatings, which formed after treatment in simulated body fluid solution were characterized for topography and elemental composition using SEM/EDS analyses. The results of this study show that it is possible to synthesis thin apatite layers on the surface of SP-700 with a topography conducive to improving bone growth onto the surface of the implant.