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IMPROVEMENT OF THE BALANCE BETWEEN A REDUCED STRESS SHIELDING AND BONE INGROWTH BY BIOACTIVE COATINGS ONTO POROUS TITANIUM SUBSTRATES

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ABSTRACT

Commercial pure titanium is known as good substitute for cortical bone tissue. Nevertheless, stress-shielding and the lack of osseointegration are still some limitations to solve. In this study, porous titanium substrates were manufactured by space-holder technique (50 vol% of NH_4HCO_3 with particle size between 250 and 355 μm). The obtained stiffness and yield strength of specimens were compatible with cortical bone tissue. The substrates were coated with three layers of Bioglass® 45S5 (BG) by dripping sedimentation, a new and economic technique. The porosity and surface characterization were performed by Archimedes' method,