

**FABRICATION, INVESTIGATIONS OF STRUCTURE AND IN VITRO STUDIES
OF HYDROXYAPATITE-COATED ELECTRON BEAM MELTED TITANIUM
SUBSTRATE**

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Coating based on biocompatible hydroxyapatite (HA) was deposited by radio-frequency (RF) magnetron sputtering. Electron beam melting (EBM) was proposed for fabrication of titanium alloy Ti-6Al-4V porous coin-like discs scaffolds. The scaffolds with HA coating were characterized by Scanning Electron microscopy, X-ray diffraction, wettability measurements. HA coating showed a nanocrystalline structure with the crystallites of an average size of 32 ± 9 nm. In according to in vitro assessment, the thin HA coating stimulated the attachment and proliferation of cells. Human mesenchymal stem cells cultured on the HA-coated scaffold also formed mineralized nodules.

Keywords: *Hydroxyapatite, RF-magnetron sputtering, Electron beam melting, in vitro study.*