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**FIBROBLAST AND OSTEOBLAST CELL ADHESIVE BEHAVIOR ON TITANIUM ALLOY COATED WITH DIAMOND FILM**

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It is known that titanium alloys have mechanical strengths comparable to steels and high corrosion resistance. Also, they have the advantage of promoting osseointegration in medical and dental implants. This work aims to demonstrate the adhesion of fibroblast cells and osteoblasts on the surface of Ti-6Al-4V alloy. For that, different conditions of Ti like smooth, rough and diamond coating were studied here. This work used conventional surface characterization techniques such as morphological surveys, atomic composition by scanning electron microscopy (SEM) and energy dispersion X-rays, Raman spectroscopy and measurements of arithmetic and quadratic roughness by atomic force microscopy. The diamond film thickness is 1 micrometer, covering the entire Ti surface, chemical analyses of the interface showed silicon presence, and the roughness changes among the surface conditions have shown interference in the adhesion of the cell. The biological tests were prepared using cell culture of HFF-1 type human fibroblasts in a medium Dubecco's Modified Eagle Medium supplemented with Fetal Bovine Serum and gentamicin using Cell line MC3T3-E1 pre-osteoblast with Alpha-Mem medium. The data about cytotoxicity assays and cell viability conciliated with the SEM images has shown a breakthrough improvement in this type of coating over the surface alloy in terms of corrosion resistance and bio compatibility.