Short Communication

Electrochemical Corrosion and Mechanical Properties of Two Biomedical Titanium Alloys

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The electrochemical corrosion and mechanical properties of two biomedical titanium alloys (Ti-13Nb-13Zr and Ti-15Mo) are investigated by means of electrochemical impedance spectroscopy (EIS) and a material testing system (MTS). The EIS results obtained in aerated Ringer's solution show that Ti-13Nb-13Zr has a higher corrosion resistance than Ti-15Mo. Consequently, of the two alloys, Ti-13Nb-13Zr has superior biocompatibility. Furthermore, the Quasi-static testing results reveal that Ti-13Nb-13Zr also has superior mechanical properties at strain rates in the range of $10^{-3} \sim 10^{-1} \text{ s}^{-1}$.

Keywords: electrochemical, corrosion, Ti-13Nb-13Zr alloy, Ti-15Mo alloy, mechanical properties, strain rate.

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