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**MICROSTRUCTURAL CHARACTERIZATION AND ELASTICITY MODULUS OF Ti-25Ta-Zr ALLOY**

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Titanium is a transition metal that has an allotropic transformation around 883 °C. Below this temperature, its crystalline structure is a hexagonal compact (? phase). Above this temperature, it has a body-centered cubic crystalline structure (? phase). Zirconium has an allotropic transformation similar to titanium at around 862 °C, and tantalum has a body-centered cubic crystalline structure. The objective of this study was to produce Ti-25wt%Ta alloys as a base material, which varied the zirconium concentration among 0, 5, 10, 20, 30, 40 and 50wt%, with the aim of biomedical applications. The alloys were prepared in an arc-melting furnace. The microstructural analysis was performed by x-ray diffraction and optical and scanning electron microscopy. The mechanical properties were analyzed by microhardness and Young's modulus measurements X-ray measurements revealed the presence of the ?" phase in the alloy without Zr; the ?"+? phases for alloys with 5, 10, 20, 30 and 40 wt% Zr. These results were corroborated by the microscopy results. The hardness of the alloy was higher than that of cp-Ti due to the action of Zr and Ta as hardening agents. The samples have a smaller elasticity modulus than cp-Ti. REFERENCES: 1 Kuroda, P. A. B., Buzalaf, M. A. R., & Grandini, C. R. (2016). Effect of molybdenum on structure, microstructure and mechanical properties of biomedical Ti-20Zr-Mo alloys. Materials Science and Engineering: C, 67, 511-515. 2 Correa, D. R. N., et al (2015). Effect of the substitutional elements on the microstructure of the Ti-15Mo-Zr and Ti-15Zr-Mo systems alloys. Journal of Materials Research and Technology, 4(2), 180-185. ACKNOWLEDGEMENTS: The authors thank FAPESP and CNPq for the financial support