This study is related to effect of titania addition on the microstructural and mechanical properties of hydroxyapatite-alumina composites. The rates of titania and alumina changes between wt%0.5-2.5 and wt%2.5 and 5, respectively. The powders were well mixed, pelleted and sintered at various temperatures between 900°C and 1300°C with dwell time 4 h. For microstructural examinations XRD and SEM were used. Density, hardness and compressive strength measurements were carried out to evaluate mechanical properties of sintered samples. All of microstructural and mechanical test were also performed monolithic HA. Experimental results show that ?-TCP, ?-TCP, calcium aluminates and calcium titanate phases were detected besides the main phase of HA, depending on the rate of alumina and titania powders and also sintering temperatures. The highest density and also hardness values were obtained for pure HA, however, the highest compressive strength were obtained for HA-2.5A-0.5T ternary composites sintered at 1200°C.

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Keywords: Hydroxyapatite, Sintering, Alumina, Titania

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