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MECHANICAL CHARACTERISATION OF THE PM HYDROXYAPATITE-BASED BIOCOMPOSITES ELABORATED BY TWO STEPS SINTERING

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Abstract: The paper focuses on the mechanical characterization of porous biocomposites based on HAP nanopowders (<200nm) respectively micronic powders particles (30-50 µm) as matrix, reinforced by TiH_2 (10-25% mass; 100-150µm) as foaming agent. Another foaming agent used is $CaCO_3$ (5-15% mass). The mixture homogenization was made in a Fritsch-Pulverisette 6 type planetaty mill (n = 200 rot/min, for 30 minutes). The green compacts were processed by unilateral cold compaction at 120-170 MPa. The two steps sintering (TSS) technology has been applied to the green parts. The mechanical characteristics (compression modulus G [MPa] and ultimate compression strength σ_{UTS} [MPa]) were studied using the universal mechanical testing machine INSTRON 3382 and compared with the mechanical characteristics of the human bone.

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