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Effect of Pore Fraction on Compressive Strength of Macrochannelled Hydroxyapatite by Extrusion Process

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3-D macrochannelled-hydroxyapatite (HA) was fabricated by extrusion process In order to improve the powder characteristics for extrusion process, HA powder was calcined at 900°C for 1 h in air Initial feedrod, which was composed of HA and carbon black, was extruded at 120°C through asymmetric square reduction die After the first extrusion, the individual piece aligned in turns, warm-pressed, and then mounted again After binder burnout, the billet was sintered at 1350°C for 1h in air Uniform 35 vol% 1-D and 50, 60, 66, 75% 3-D with a diameter of 600 μm were formed on dense HA through the removal of carbon black The effects of pore fraction on the compressive strength of macrochannelled hydroxyapatite are investigated

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In vitro Evaluation of Strontium Substituted Calcium Phosphate Biphasic Ceramics

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Strontium substituted calcium phosphate ceramics were fabricated by co-precipitation method The Sr ions were added up to 8 mol% to replace the Ca ions of calcium phosphates After calcinations, the Sr containing powders were crystallized into apatite and TCP, i e the Biphasic Calcium Phosphates(BCP) were formed The amount of TCP increased with increasing the Sr addition The lattice parameters of the calcined powders increased gradually with the substitution of Sr in both a and c axis However, the obtained values deviated slightly from the calculated ones at higher additions because of the partial substitution of Sr ion The osteoblast-like cells cultured on the Sr-substituted BCP spread and grew actively The proliferation rate and Alkaline Phosphate activity(ALP) of the cells were higher in the samples containing more Sr additions Those observations confirmed the enhanced cell viability and differentiation of the Sr-substituted BCP ceramics