عنوان مقاله:

Poly (lactic-co-glycolic)/nanostructured merwinite porous composites for bone tissue engineering: II. structural and in vitro characterization

محل انتشار:

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نویسندگان:

Ali Nadernezhad - *Faculty of Biomedical Engineering, Amirkabir University of Technology (Tehran Polytechnic), Iran*

Bahman Torabinejad - *Nanotechnology and Advanced Materials Division, Materials and Energy Research Center, Iran*

Masoud Hafezi - *Nanotechnology and Advanced Materials Division, Materials and Energy Research Center, Iran*

Mohamadreza Baghban-Eslaminejad - *Department of Stem Cells and Developmental Biology at Cell Sciences Research Center, Royan Institute for Stem Cell Biology and Technology, Iran*

Fatemeh Bagheri - *Department of Stem Cells and Developmental Biology at Cell Sciences Research Center, Royan Institute for Stem Cell Biology and Technology, Iran*

Farhood Najafi - *Department of Resin and Additives, Institute for Color Science and Technology, Iran*

خلاصه مقاله:

Several characteristics of a novel PLGA/Merwinite scaffold were examined in the present study to evaluate the possible applications in bone tissue regeneration. Physical and mechanical properties, as well as degradation behavior and in vitro bioactivity of porous scaffolds produced by solvent casting and particle leaching technique were also characterized. Results showed that incorporation of merwinite particles into the porous polymer structure had a significant effect on cell viability in such a way that cell densities increased by increasing the merwinite content in the scaffolds after ۳ and ۷ days of culture. In contrast, mechanical analysis showed that the presence of merwinite had an adverse effect on the compressive strength of porous structures, due to the lack of formation of a chemical bond at the polymer-ceramic interface and non-homogenous distribution of the ceramic particulates through the matrix. Incorporation of the merwinite particles caused about ۳۵% decrease in the compressive strength in samples containing ۳۰ wt% merwinite, compared to pure PLGA porous scaffolds.

کلمات کلیدی:

PLGA, merwinite, Bone tissue engineering, in vitro characterization, mechanical properties