

عنوان مقاله:

Fabrication of magnesium fluoridated hydroxyapatite nanoparticle-polycaprolactone nanocomposite via electrospinning

محل انتشار:

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خلاصه مقاله:

The electrospinning technique provides non-wovens to the order of few nanometers with large surface areas, ease of functionalisation for various purposes and superior mechanical properties. Also, the possibility of large scale productions combined with the simplicity of the process makes this technique very attractive for many different applications. However, a key precondition is the ability to obtain bead-free fibres with diameters in the nanoscale range. At present the most normally used solvent for electrospinning PCL is chloroform, but this only leads to fibres in the microscale range. Consequently various solvent systems were studied in this study. The solvent mixture ethanol/chloroform was found to allow for nanofibers with a diameter several times smaller than the solvent chloroform. Also, it is hypothesized that magnesium fluoridated hydroxyapatite nanoparticles - poly (ϵ -caprolactone) (PCL) nanocomposite tissue scaffolds can be made more bioactive by using magnesium fluoridated hydroxyapatite nanoparticle. Increasing content of magnesium in structure changes degradation rate. The overall objective of this study is to fabricate and characterize electrospun magnesium fluoridated hydroxyapatite nanoparticle - poly (ϵ -caprolactone) (PCL) nanocomposite scaffold as substrates for bone tissue engineering. The electrospun .nanocomposite was characterized by SEM, XRD, TEM and Mechanical testing

کلمات کلیدی:

nanocomposite; magnesium fluoridated hydroxyapatite nanoparticle; electrospinning; tissue engineering

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