

عنوان مقاله:

Characterization and optimization of using calendula officinalis extract in fabrication of polycaprolactone-gelatin electrospun nanofibers for wound dressing applications

محل انتشار:

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خلاصه مقاله:

Wound dressing applications of nanofibers is a progressive field of research which could be enhanced by using medicinal plant extract to bring some more advantages. Here we optimized the electrospinning method for fabrication of polycaprolactone-gelatin mixed with a medicinal plant extract, calendula officinalis. Characterization techniques including Fourier-transform infrared spectroscopy (FTIR), scanning electron microscope (SEM), Atomic force microscopy (AFM), and contact angle analysis were performed on the electrospun nanofibers to achieve the best formulation proper for wound dressing. In results, the concentration ۱۲ % (W/V) with applied voltage of ۲۰ KV and ۱۳ cm of distance between needle and collector, does poses the lowest diameters with highest porosity among others. The hydrophilicity of the nanofibers was enhanced by adding the calendula extract. In addition, the analysis of mechanical strength showed that the elasticity of PCL/Gelatin/Calendula nanofibers are still acceptable. Overall, the results of characterization tests were approved that the electrospun nanofibers of PCL/Gelatin/Calendula does have appropriate characteristics to be used as wound dressing and could be suggested to clinicians.

کلمات کلیدی:

Nanofiber, Gelatin, Polycaprolactone, calendula officinalis, Wound

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