

عنوان مقاله:

Plant scaffolds: a green solution for tissue engineering

محل انتشار:

اولین کنگره بین المللی مهندسی بافت و پزشکی بازساختی ایران (سال: 1397)

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خلاصه مقاله:

There have been recent investigations to develop new biomaterials to the precisely mimic 3D structure of mammalian organs for tissue engineering; however, nutrient transport in complex engineered human tissues still remains a challenge. Since lack of functional vascular network in bioengineered scaffolds is a limiting factor for clinical application, a great deal of interest has been focused recently on using plant-derived cellulose materials as implantable scaffolds. It is believed that the diversity of plants in terms of architecture could be used to mimic the complex structure of mammalian tissue which is not yet feasible with present methods. Cellulose as the most abundant natural biocompatible polysaccharide is consisted of plant cell walls and has been demonstrated to promote wound healing; exhibiting potential for tissue engineering application. Cellulose scaffolds are produced easily and could be created with different physicochemical and geometrical properties. Plant-derived materials are also biocompatible, cost-effective and could produce natural extracellular matrix and promote vascularization. For example, plant tissues such as the spinach leaf, with a high amount of vasculature, seem to be appropriate for a highly vascularized tissue like cardiac tissue. Meanwhile, the tubular structure of the stem of *impatiens capensis* probably acts better as an arterial graft. Here we review the recent plant-based scaffolds and the potential of .development of decellularized plant scaffolds for tissue engineering

کلمات کلیدی:

Tissue engineering, Decellularization, Plant scaffolds

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