



Electrospun polymeric nanofibres as wound dressings: A review

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ABSTRACT

Skin wounds have significant morbidity and mortality rates associated. This is explained by the limited effectiveness of the currently available treatments, which in some cases do not allow the reestablishment of the structure and functions of the damaged skin, leading to wound infection and dehydration. These drawbacks may have an impact on the healing process and ultimately prompt patients' death. For this reason, researchers are currently developing new wound dressings that enhance skin regeneration. Among them, electrospun polymeric nanofibres have been regarded as promising tools for improving skin regeneration due to their structural similarity with the extracellular matrix of normal skin, capacity to promote cell growth and proliferation and bactericidal activity as well as suitability to deliver bioactive molecules to the wound site. In this review, an overview of the recent studies concerning the production and evaluation of electrospun polymeric nanofibrous membranes for skin regenerative purposes is provided. Moreover, the current challenges and future perspectives of electrospun nanofibrous membranes suitable for this biomedical application are highlighted.

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1. Introduction

Electrospun nanofibres have been applied in the biomedical field, as drug delivery systems [1–3] as well as 3D constructs for tissue regeneration of cartilage [4], bone [5], heart valves [6,7], muscle [8,9], neural tissue [10] and skin [11,12] (see Fig. 1 for further details).

When a skin injury occurs, it is extremely important to re-establish, as quickly as possible, the skin's structure and functions

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