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Chitosan Based Hydrogels and Their Applications for Drug Delivery in Wound Dressings: A Review

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Abstract

Advanced development of chitosan hydrogels has led to new drug delivery systems that can release their active ingredients in response to environmental stimuli. This review considers more recent investigation of chitosan hydrogel preparations and the application of these preparations for drug delivery in wound dressings. Applications and structural characteristics of different types of active ingredients, such as growth factors, nanoparticles, nanostructures, and drug loaded chitosan hydrogels are summarized.

Keywords: Chitosan hydrogel, Wound dressing, Drug delivery, Growth factor, Nanoparticles.

Highlights

- This review presents the application of chitosan as an effective material for biomedical applications.
- Various preparation methods of chitosan hydrogels have been reviewed.
- Chitosan hydrogels incorporated with growth factors accelerate treating chronic wounds.
- Nanostructure drugs as a new growing field have significant effect on wound healing.
- Essential oils and other chemical drugs are also reviewed in this paper.

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