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Authors: Zhina Hadisi, Jhamak Nourmohammadi, Seyed Mahdi Nassiri



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The antibacterial and anti-inflammatory investigation of *Lawsonia Inermis*-gelatin-starch nano-fibrous dressing in burn wound

Zhina Hadisi¹, Jhamak Nourmohammadi^{1,*}, Seyed Mahdi Nassiri²

1- *Faculty of New Sciences and Technologies, Department of Life Science Engineering, University of Tehran, Tehran, Iran.*

2- *Department of Clinical Pathology, Faculty of Veterinary Medicine, University of Tehran.*

*** Corresponding Author:** Jhamak Nourmohammadi; PhD.

Department of Life Science Engineering, Faculty of New Sciences and Technologies, University of Tehran, P.O. Box: 14395-1561, Tehran, Iran.

Tel: +98-21-86093264

Email: J_nourmohammadi@ut.ac.ir

Highlights

- Henna-gelatin-oxidized starch nanofibers wound dressing were prepared.
- The fiber diameter was reduced with increasing henna content.
- Cell attachment, proliferation and collagen secretion enhanced with henna.
- Henna-loaded nanofibers accelerated burn wound closure with reducing inflammation.

Abstract

The aim of this study was to develop a new bioactive gelatin-oxidized starch nanofibers containing *Lawsonia Inermis* (henna) for treating second-degree burn wounds. Continuous, smooth, and bead-free fibers were obtained when the gelatin-starch ratio was 70/30. Additionally, the fiber diameter was reduced with increasing henna content. The successful loading of henna in the gelatin-oxidized starch nanofibers was approved using Fourier transform infrared spectroscopy and Differential scanning calorimetry. Moreover, the addition of henna to the gelatin-oxidized starch nanomatrix enhanced fibroblasts attachment, proliferation, collagen secretion, and

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