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Improved Quality of Healed Wounds with Topical Application of Eurycoma Longifolia Jack Root Extract Hydrogel
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Abstract

INTRODUCTION: Collagen is the key component of the extracellular matrix that plays a critical role in the strength and quality of the healed wound. Eurycoma longifolia Jack root extract (TA) has been documented as an anti-inflammatory, antioxidant, and antimicrobial agent that may improve the quality of healed wounds. The objective of this study is to investigate the effect of topical application of TA hydrogel on the quality of the healed skin in rats. **MATERIALS AND METHODS:** Twenty male Sprague Dawley rats were grouped into 4 groups: Negative control, Hydrocyn® aqua gel positive control, vehicle (Xanthan) hydrogel, and Eurycoma longifolia Jack (TA) hydrogel. Treatments were applied twice daily starting on wounding day until day 21. An excisional wound was created on the back of 20 rats. Tissue samples of the healed skin were collected for histological examination by measuring the epidermal and dermal thicknesses and evaluating the collagen fibre quality by VVG stain. **RESULTS:** The TA hydrogel group had the thickest newly formed epidermis compared with the other experimental groups. For the dermal thickness, compared with the vehicle (xanthan) hydrogel group, TA hydrogel, and Hydrocyn aqua® gel positive control groups showed significantly increased thickness with p values 0.020 and 0.045, respectively. Histologically TA hydrogel group showed a significant increase in mixed-oriented collagen fibres, and fascicular collagen bundles and showed profound collagen density. **CONCLUSION:** TA hydrogel improved the quality of healed skin by increasing the epidermal/dermal thicknesses and enhancing the quality of newly produced collagen fibres. It can be considered a promising and effective wound-healing agent. © (2023). All Rights Reserved.

Author Keywords

collagen; dermal/epidermal thickness; Eurycoma longifolia jack; Wound Healing

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31

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