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TOCOTRIENOL-RICH FRACTION FORMULATION ENHANCES WOUND HEALING IN STREPTOZOTOCIN-INDUCED DIABETIC RATS

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Background:

Impaired wound healing is a well-documented phenomenon in experimental and clinical diabetes. Emerging evidence favours the involvement of free radicals in the pathogenesis of diabetes-related healing deficit. This study assessed the effect of topical administration of 0.5% tocotrienol-rich fraction formulation, which is a well known antioxidant on wound healing by using streptozotocin-induced diabetic rats.

Material and Methods:

The wound healing effect of TRF formulation was investigated by using excisional skin-wound model produced on the back of streptozotocin-induced Sprague-Dawley male rats. Animals were then randomized to the following treatment: 0.5% TRF formulation or its vehicle (base cream). Treatments were applied once daily. Wound areas were serially photographed on different days and the photos were analyzed with digital image analyzer software to measure wound area. The animals were killed on the 10th day post treatment. The wounded skin tissues were used for analysis of total protein content.

Results:

Wounds treated with TRF formulation showed better wound contraction on the 8th day post treatment (TRF formulation $0.0493 \pm 0.00898 \text{ cm}^2$; vehicle $0.0989 \pm 0.01263 \text{ cm}^2$). Furthermore, TRF formulation treatment increased total protein content in the wounded tissue (TRF formulation $79.046 \pm 10.58 \text{ mg/ml}$; vehicle $56.57 \pm 6.93 \text{ mg/ml}$).

Conclusion:

Our result indicates that 0.5% TRF formulation enhances wound healing in experimental diabetes-impaired wounds.

Keywords:

wound healing, diabetes, tocotrienol-rich fraction