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Effect of Topical Areca Palm Nuts Hydroalcoholic Extract on Burn Wound Healing in Rats

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Abstract

Background and objectives: Wound healing is a complex and dynamic process that begins immediately after tissue injury and continues until the wound has healed and been remodeled. Applying the most effective methods of burn repair is an ongoing challenge in medicine. Recent investigations and animal studies demonstrate that Areca palm, a slender palm from the Arecaceae family, nuts have multiple therapeutic properties including anti-ulcerogenic and wound healing effects. The present study was planned to evaluate the possible burn wound healing effect of hydroalcoholic extract of Areca palm nuts in rats. Material and methods: In this experimental study, 40 male Wistar albino rats were examined in five groups of eight receiving silver sulfadiazine cream 1% (reference standard), eucerin (positive control), 5% and 10% ointments of Areca palm nut hydroalcoholic extract (treatment groups) for 14 days. Negative control group received no treatment. Burn wounds were made on the dorsal part of the animals' necks. Wound contraction rate and histopathologic study of wound sites after sacrificing the rats were performed. Data were analyzed using SPSS software version 22. Results: On the 14th day, wound contraction rate (WCR) was significantly higher in rats treated with Areca palm 10% extract ointment compared with 5% extract, positive and negative control groups ($P < 0.001$) and SSD ($P=0.01$). Application of 10% extract ointment on burn wound sites showed complete healing and slight tissue inflammation and edema.Conclusion: These results suggest that the hydroalcoholic extract of Areca palm nuts could accelerate the wound healing process. Further study is required to identify the compounds responsible for its wound healing properties and to understand the mechanism of action.

Key words: Areca catechu, burn wound, wound contraction.