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Histomorphometric Evaluation Of The Effect Of Semi-Solid Formulation Of Conocarpus Erectus Leaves On Fibroblasts And Inflammatory Cells In The Process Of Tissue Remodeling

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ABSTRACT

Introduction: The wound can be defined as a skin lesion caused by chemical, physical or biological factors leading to cutaneous discontinuity. Based on the healing process, the evolution of the wounds can be mentioned as acute and chronic. Healing is the tissue repair process coordinated by biochemical and histological factors to restore tissue integrity. Since ancient times, medicinal plants have been used as a therapeutic resource, contributing to the treatment and prevention of various diseases. The species *Conocarpus erectus* Linnaeus, popularly known as “mangue de botão”, is found in the mangrove and stands out for presenting analgesic, anticancer, antimicrobial and hepatoprotective properties. **Objective:** Evaluate the ability of semi-solid formulations of *C. erectus* leaves through the histomorphometry of fibroblasts and inflammatory cells in the tissue remodeling process of cutaneous wounds in Wistar rats. **Methodology:** For the evaluation of the cicatrizing activity were obtained formulations containing 10% of the hydroalcoholic extract of the dry and fresh leaves of *C. erectus* (FHFCS and FHFCE 10%, respectively), manipulated within the standards and quality control for medicaments in the Laboratory of Pharmacotoxicological Prospecting of Bioactive Products of Universidade Federal de Pernambuco. To evaluate the healing activity, excisional cutaneous wounds were surgically made in the dorsal midline of the cervical region of Wistar rats ($n = 5$), these were standardized (6 mm^2) and performed with animals previously anesthetized, after tricotomy and adequate antisepsis. Then, the wounds were treated with daily topical application ($\pm 95 \text{ mg}$) of the preparations according to the experimental design: Group I (Negative Control - Lanette Cream); Group II (10% FHFCS); Group III (10% FHFCE); Group IV (Dexpanthenol - Positive Control) for 14 days. The histological preparations were submitted to a staining technique by Hematoxylin-Eosin (H.E.) for counting inflammatory cells and fibroblasts. The histological images were captured by digital camera coupled to the optical microscope, under fixed focus and field clarity, obtaining 06 fields per slide with final magnification of 400X and the photomicrographs evaluated through ImageJ 1.50 d software. The results were submitted to the Tukey test and the p value was considered significant for $p < 0.0001$. **Results:** The treatment with FHFCS and FHFCE (10%) presented statistical difference ($****p < 0.0001$) from the increase of fibroblast cells, as well as decrease of inflammatory cells of the animals submitted to the excisional wound model when compared to control group. **Conclusion:** The FHFCS and FHFCE formulations (10%) showed a reduction in the inflammatory process and healing through a fibroplasia, due to the increase of fibroblasts, which is responsible for the production of collagen and to maintain connective tissue integrity, being important factors for the repair tissue.

Keywords: *Conocarpus erectus*; Healing; Fibroblasts; Inflammatory Cells; Histomorphometry.

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