



NEW TOPICAL FORMULATION TO SKIN WOUND HEALING USING *COPAIFERA LANGSDORFFII*

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Skin wounds have significant impact in investment of public resources [1]. In the United States, for example, the costs with skin wound healing reach \$25 billion every year. The wound healing mechanism involves a sequence of molecular and cellular process divided in 3 different phases: inflammatory, proliferative and remodeling [2]. Although there are products in the market to the treatment of injuries, they're expensive and the results of treatments are controversial. Due to reports of popular knowledge about *Copaifera langsdorffii* as anti-inflammatory, antimicrobial and skin wound healing agent, we used the hydroalcoholic extract of the leaves (EH) and oleoresin (OR) ointment formulations to study the skin wound healing mechanisms of the plant as a natural and cheaper alternative treatment. Male Wistar rats were induced to lesions of 2cm of diameter in the back of animals (CEEA-IBB/UNESP 413/12) and divided in groups (n=8) lanette, collagenase, EH 1; 5 and 10% or OR 1; 5 and 10%. Lesions were treated once a day during 3, 7 and 14 days. Wound retraction was analyzed every day. Skin samples of animals were collected to histological and immunohistochemistry analysis of HE, COX-2, PCNA, myofibroblast and VEGF in three regions: wound edges, wound center and normal skin after each period of treatment. The areas of labeled cells were quantified. Analyses were submitted to ANOVA and Tukey with p<0.05. The results of retraction showed that the best treatment was EH10% compared to lanette and collagenase after 7 and 14 days. HE analysis demonstrated higher number of cells labeled in the border of wounds in EH and OR1; 5 and 10% after 3 days, with decrease in this number after 7 days. The immunohistochemistry analysis showed increase in the cells of the border and center of the lesions immunolabeled with PCNA, myofibroblast and VEGF in EH10% and OR10% after 3 and 14 days, while COX-2 didn't showed statistical difference. According to our data, the treatments with EH10% and OR10% showed wound healing activity by proliferation of cells, retraction mediated by myofibroblast and increase in vessel number, indicating that *Copaifera langsdorffii* EH and OR may be used in treatment of skin wounds.

- [1] Bayat, A., Mcgrouter, D.A., Ferguson, M.J.W. 2003. Skin scarring. BMJ. 326: 88–92.
- [2] Fikru, A., Makonnen, E., Eguale, T., Debella, A., Abie Mekonnen, G. 2012. Evaluation of in vivo wound healing activity of methanol extract of *Achyranthes aspera* L. J. Ethnopharmacol. 143: 469–474.