The Effect of Papaya Leaf Extract Gel (*Carica papaya*) on Interleukin-1β Expression and Collagen Density (Col1A1) in the Back Incision Wound Healing of Wistar Rats (*Rattus norvegicus*)

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ABSTRACT

Background: Wound care is indispensable. Papaya leaves have the potential to accelerate wound healing. The current study aims to analyze the effect of papaya leaf extract gel concentration on IL-1β expression decrease and collagen density (Col1A1) increase in the back incision wound healing of wistar rats.

Methods: This research is true experimental with post-test only control group design. The samples are 30 female wistar rats with a back incision wound. They are grouped into 5 groups: negative control (rats with back incision wounds and given NaCl 0.9%), positive control (rats with back incision wounds given povidone iodine 10%), treatment groups 1, 2, and 3, each of whose back incision wounds are given papaya leaf extract gel concentrations of 10%, 20%, and 30% respectively. The treatment is administered once every 24 hours topically for 7 days and sacrificed on days 1, 3, and 7. The tissue samples are stained with Immunohistochemistry and analyzed using Image-J at 10 field of view with 400x magnification and a bar scale of 5 µm. The data are analyzed by using One-Way ANOVA, Tukey HSD, and Pearson Correlation tests with SPSS.

Results: The three concentrations of papaya leaf extract gel have a gradual decrease in IL-1β expression and increase in Col1A1 expression. The higher the concentration of the papaya leaf extract gel given, the lower the IL-1β expression and the greater the Col1A1 expression.

Conclusions: There is a significant correlation between the concentration of the administered papaya leaf extract gel to the IL-1β and Col1A1 expression.

Keywords: *Carica papaya*, Collagen density, Col1A1, IL-1β, Wound incision, Wound healing

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