

Benefits of ethanol based noni leaf (*morinda citrifolia* l.) extract on oral mucosal wound healing by examination of fibroblast cells

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Abstrak

Wound healing is a biological response that occurs following a trauma or pathologic condition of the oral mucosa. Wounds require proper management so they may heal faster and without complication. The number of fibroblast cells seen in the oral mucosa is a strong indicator of wound healing. In the remodelling phase of wound healing, fibroblast cell proliferation decreases as collagen fibres are synthesized. Noni leaf (*Morinda citrifolia* L.), a part of the noni plant, is traditionally used to heal soft tissue wounds in Indonesia. The leaves have potential chemical compounds that may be useful in the wound repair process.

Objective: This paper aims to examine the effect of ethanol based pastes of the Indonesian noni leaf on oral mucosa wound healing by investigating visual wound closure and fibroblast cell counts in Wistar rats.

Methods: Rats were divided into 2 control groups and 4 treatment groups. The pastes were formulated in concentrations of 2.5%, 5%, 10%, and 20% and were applied onto wounds of the oral mucosa of the rats. One control group was given no medication and the other control group had an ethanol gel with a concentration of 10% noni leaf extract applied to their intraoral wounds.

Result: Result revealed that all groups treated with noni leaf paste experienced better wound closure ($p < 0.05$) when compared to the control groups. Fibroblast cell counts showed little significance amongst all groups ($p = 0.143$), however fibroblast cell counts of groups treated with noni leaf paste, of all concentrations, were lower than both control groups.

Conclusion: These results suggest that topical application of noni leaf paste promotes better oral mucosa wound healing than gel formulas but shows no significant difference in the amounts of fibroblasts during the remodelling phase.