

## INTISARI

Pencabutan gigi merupakan tindakan yang sering dilakukan dalam praktik kedokteran gigi. Luka pasca pencabutan gigi memicu respon tubuh untuk melakukan proses kompleks yang disebut penyembuhan luka. Salah satu indikator penyembuhan luka adalah re-epitelisasi yang dapat diukur melalui ketebalan epitel. Ekstrak daun sirih merah mengandung tanin, flavonoid, dan saponin yang diduga mampu mempercepat proses penyembuhan luka dan menginisiasi re-epitelisasi. Penelitian ini bertujuan untuk mengetahui re-epitelisasi pada proses penyembuhan luka pasca pencabutan gigi insisivus tikus Wistar setelah aplikasi topikal ekstrak 40% daun sirih merah.

Dua puluh tujuh ekor tikus Wistar jantan usia 2-3 bulan dengan berat 150-250 gram dibagi menjadi tiga kelompok, yaitu kontrol negatif (aplikasi akuades), kontrol positif (aplikasi *povidone iodine*), dan perlakuan (aplikasi ekstrak 40% daun sirih merah). Pencabutan gigi dilakukan menggunakan ekskavator dan klem kemudian bahan diaplikasikan dengan menggunakan mikropipet sebanyak 20  $\mu$ l pada soket sebanyak 1 kali sehari selama 14 hari. Tiga ekor tikus pada setiap subkelompok dikorbankan pada 3, 7 dan 14 hari pasca pencabutan gigi kemudian dibuat preparat histologis dengan pengecatan *Hematoxylin Eosin*. Preparat diamati menggunakan mikroskop cahaya yang terhubung *Optilab® Viewer* perbesaran 100x kemudian diukur ketebalan epitelnya dari lapisan basal hingga korneum dengan *ImageRaster®*.

Analisis *two-way ANOVA* menunjukkan adanya perbedaan ketebalan epitel yang signifikan antar bahan aplikasi dan waktu pengamatan. Uji *Post Hoc* Tukey HSD menunjukkan bahwa ketebalan epitel kelompok perlakuan lebih tinggi secara signifikan ( $p < 0,05$ ) dibandingkan kelompok kontrol positif dan negatif. Kesimpulan penelitian ini yaitu aplikasi topikal ekstrak 40% daun sirih merah berpengaruh signifikan dalam mempercepat re-epitelisasi ditandai dengan meningkatnya ketebalan epitel soket pasca pencabutan gigi dan berefek lebih baik daripada *povidone iodine* setelah diaplikasikan 14 hari.

**Kata kunci :** daun sirih merah, pencabutan gigi, penyembuhan luka, re-epitelisasi

## ABSTRACT

Tooth extraction is a common procedure in dentistry. The wound caused by tooth extraction triggers the body's response to undergo a complex and dynamic process called wound healing. One indicator of wound healing is re-epithelialization, which can be measured by the thickness of the epithelium. Red betel leaf extract contains tannins, flavonoids, and saponins that are believed to be able to accelerate the wound healing process and initiate re-epithelialization. This study aimed to examine the re-epithelialization in the process of wound healing after incisor tooth extraction in Wistar rats following topical application of 40% red betel leaf extract.

Twenty-seven male Wistar rats aged 2-3 months, weighing 150-250 grams were divided into three groups: negative control (application of aquades), positive control (application of povidone iodine), and treatment group (application of 40% red betel leaf extract). Tooth extraction was performed using an excavator and clamp, and the material was applied as much as 20  $\mu$ l using a micropipette to the socket once a day for 14 days. Three rats in each group were sacrificed at 3, 7, and 14 days after tooth extraction, and histological preparations were made with Hematoxylin Eosin staining. The preparations were observed using light microscope connected to Optilab® Viewer with 100x magnification, and the thickness of the epithelium from the basal layer to the corneum was measured using ImageRaster®.

The two-way ANOVA analysis shows a significant difference in epithelial thickness between the application material and observation time. The Tuckey HSD test shows that the epithelial thickness of the treatment group is significantly higher ( $p < 0.05$ ) than that of the positive and negative control groups. The conclusion of this study is that the topical application of 40% red betel leaf extract has a significant effect on accelerating re-epithelialization marked by an increase in the thickness of the epithelium socket after tooth extraction and has better effectiveness than povidone iodine after 14 days of application.

**Keywords :** red betel leaf, tooth extraction, wound healing, re-epithelialization