INTISARI

Gingiva merupakan jaringan yang menutupi tulang alveolar, melingkupi geligi, dan tersusun oleh epitelium dan jaringan ikat yang mudah mengalami perlukaan akibat berbagai macam faktor. Adanya luka menimbulkan respon penyembuhan luka yang bertujuan mengembalikan integritas jaringan. Kepadatan serabut kolagen merupakan salah satu tanda terjadinya proses penyembuhan luka sehingga kekuatan serta integritas struktural luka akan meningkat. Daun pepaya banyak digunakan untuk penyembuhan luka karena memiliki zat aktif seperti flavonoid, saponin, papain, dan vitamin C. Penelitian ini bertujuan untuk mengetahui pengaruh gel ekstrak etanolik daun pepaya *(Carica papaya* L.*)* 70% terhadap kepadatan serabut kolagen pada luka gingiva *Rattus norvegicus*.

Sebanyak 27 ekor tikus *Rattus norvegicus* jantan usia 6-8 minggu dengan berat 200-250 gram secara acak dibagi menjadi 3 kelompok, yaitu kelompok kontrol positif (Aloclair®), kelompok kontrol negatif (CMC-Na 2%), dan kelompok perlakuan (gel ekstrak etanolik daun pepaya 70%). Tikus selanjutnya diberi perlukaan pada gingiva labial regio incisivus mandibular menggunakan *punch biopsy* berdiameter 3 mm. Aplikasi bahan dilakukan sebanyak 2 kali sehari selama 14 hari. Pada 3, 7, dan 14 hari pasca perlukaan sebanyak 3 ekor tikus pada masing-masing kelompok dikorbankan dan dilanjutkan pembuatan preparat histologis dengan pengecatan *Trichrome Mallory* untuk memberi warna kebiruan pada serabut kolagen. Pengamatan dilakukan menggunakan mikroskop binokuler pada 5 lapang pandang dan dianalisis menggunakan *software ImageJ*. Data hasil penelitian dianalisis menggunakan uji *Two-Way* ANOVA dan LSD pada $p<0,05$.

Hasil penelitian menunjukkan kelompok perlakuan memiliki persentase kepadatan serabut kolagen tertinggi pada semua waktu pengamatan. Pada uji *Two-Way* ANOVA terdapat perbedaan yang bermakna antarkelompok aplikasi dan antarwaktu pengamatan. Kesimpulan dari penelitian ini adalah aplikasi gel ekstrak etanolik daun pepaya *(Carica papaya* L.*)* 70% meningkatkan kepadatan serabut kolagen pada luka gingiva *Rattus norvegicus* dengan perbedaan yang bermakna terjadi pada 7 hari pasca perlukaan.

Kata kunci : ekstrak daun pepaya, penyembuhan luka gingiva, serabut kolagen.

ABSTRACT

Gingiva is a tissue which covers alveolar bone and the teeth, which is composed of epithelium and connective tissue vulnerable to injuries that can occur due to several factors. The presence of injury will trigger injury recovery response, which intends to restore the integrity of the tissue. Collagen fibre density is an indicator of recovery process that has occurred, which consequently lead to the increase of strength and structural integrity of the injury. Papaya leaf is an alternative that has been commonly used for injury healing due to its active substance such as flavonoid, saponin, papain, dan vitamin C. The aim of this study was to investigate the influence of ethanolic papaya leaves extract gel (*Carica papaya* L.*)* 70% towards collagen fibre density in gingiva *Rattus norvegicus* injuries.

A total of 27 male *Ratus norvegicus* rats aged 6-8 weeks and weight 200-250 grams were randomly classified into three different groups which are: positive control group (Aloclair®), negative control group (CMC-Na 2%), and treatment group (ethanolic papaya leaves extract gel 70%). The rats were given treatments through injury using a 3 mm *punch biopsy* to the labial gingiva of the mandibular incisor region.The material application was conducted twice a day for 14 days. On the third, seventh, and fourteenth day after the injury, three rats from each group were sacrificed and the study proceeded with histological preparations with *Trichrome Mallory* staining which stained collagen fibre to a blue colour. Observations were conducted through binocular microscope with five fields of view and analysed through *Image*J software. Results of the study were analysed using two way ANOVA and LSD $p<0.05$.

Results of the study indicated that the treatment group had the highest average of collagen fibre density among the groups. *Two-Way* ANOVA test revealed that there was a significant difference among groups and during the observation period ($p<0.05$). Study concluded that the application of 70% ethanolic papaya leaves extract gel (*Carica papaya* L.*)* increased collagen fibre density in *Rattus norvegicus'* gingival wound healing. The density of the collagen fibers of the treatment group was significantly increased 7 days after the injury.

Keywords : papaya leaf extract, gingiva injury recovery, collagen fibres