

## ABSTRAK

### **PENGARUH PEMBERIAN TOPIKAL GEL EKSTRAK ETANOL DAUN CARICA (*Carica pubescens*) TERHADAP KADAR *Tumor Necrosis Factor Alpha* (TNF- $\alpha$ ) PADA PROSES PENYEMBUHAN LUKA INSISI GINGIVA (Studi *In vivo* pada Tikus Galur Wistar)**

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Luka insisi gingiva menimbulkan kerusakan struktur anatomi gingiva. Fase awal penyembuhan luka yang sangat penting adalah fase inflamasi yang melibatkan sitokin proinflamasi TNF- $\alpha$ . TNF- $\alpha$  meningkat 6-24 jam pasca luka, apabila tidak segera menurun maka menyebabkan inflamasi yang berkepanjangan. Daun *Carica pubescens* diketahui mengandung flavonoid yang memiliki efek antiinflamasi. Tujuan penelitian ini adalah mengetahui pengaruh pemberian topikal gel ekstrak etanol daun *Carica pubescens* terhadap kadar TNF- $\alpha$  pada penyembuhan luka insisi gingiva tikus galur Wistar. Jenis penelitian ini adalah eksperimental laboratoris *in vivo* dengan *posttest-only control group design*. Sampel berjumlah 30 tikus galur Wistar jantan, dibagi menjadi 5 kelompok yaitu kelompok perlakuan gel ekstrak etanol daun *Carica pubescens* konsentrasi 12,5%, 25%, 50%, kontrol positif *Aloclair* gel, dan kontrol negatif CMC-Na 5%. Pengambilan sampel jaringan gingiva dilakukan hari ke-3 pasca luka insisi dan pemberian perlakuan untuk dilakukan pemeriksaan kadar TNF- $\alpha$  dengan metode ELISA. Hasil pengukuran kadar TNF- $\alpha$  pada kelompok gel ekstrak etanol daun *Carica pubescens* 12,25%, 50%, kontrol positif *Aloclair* gel, dan kontrol negatif CMC-Na 5% secara berturut-turut adalah  $86,44 \pm 26,70$ ,  $98,63 \pm 36,58$ ,  $101,58 \pm 33,43$ ,  $88,74 \pm 27,08$ ,  $179,46 \pm 85,88$  pg/ml. Hasil penelitian menunjukkan bahwa pemberian gel ekstrak etanol daun *Carica pubescens* menurunkan kadar TNF- $\alpha$  signifikan ( $p < 0,05$ ) dibandingkan kontrol negatif dan tidak terdapat perbedaan pengaruh yang signifikan ( $p > 0,05$ ) dengan kontrol positif. Pemberian gel ekstrak etanol daun *Carica pubescens* konsentrasi 12,5% menurunkan TNF- $\alpha$  yang paling baik. Kesimpulan penelitian ini adalah terdapat pengaruh pemberian gel ekstrak etanol daun *Carica pubescens* terhadap kadar TNF- $\alpha$  pada proses penyembuhan luka insisi gingiva tikus galur Wistar.

**Kata Kunci:** *Carica pubescens*; Luka insisi gingiva; TNF- $\alpha$ .

## **ABSTRACT**

### **THE EFFECT OF TOPICAL APPLICATION OF CARICA LEAF (*Carica pubescens*) ETHANOLIC EXTRACT GEL ON Tumor Necrosis Factor Alpha (TNF- $\alpha$ ) LEVEL IN GINGIVAL WOUND HEALING PROCESS (*In vivo* study in Wistar Rats)**

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*Gingival wound from incision procedure causes damage to the anatomical structure of the gingiva. Inflammation phase is a very important in initial wound healing process that involve the proinflammatory cytokines such as TNF- $\alpha$ . TNF- $\alpha$  level increases in 6-24 hours after trauma and if doesn't immediately decrease will cause prolonged inflammation. *Carica pubescens* leaves contain flavonoid compound which is known to have antiinflammatory effect. The objective of this study was to determine the effect of *Carica pubescens* leaf ethanolic extract gel as a topical application on TNF- $\alpha$  level in incision gingiva wound Wistar rats healing process. The study was *in vivo* experimental laboratory research with posttest-only control group design. Thirty male Wistar rats were divided into 5 groups: treatment groups of *Carica pubescens* leaf ethanol extract gel with concentration of 12.5%, 25%, 50% respectively, positive control group treated with Aloclair gel, and negative control group treated with CMC-Na 5%. Gingiva tissue samples were collected in the third day after incision and treatment followed with TNF- $\alpha$  level measurement using ELISA method. The results of the measurement of TNF- levels in the treatment group of *Carica pubescens* leaf ethanol extract gel with concentration of 12.5%, 25%, 50%, positive control group treated with Aloclair gel, and negative control group treated with CMC-Na 5% were  $86.44 \pm 26.70$ ,  $98.63 \pm 36.58$ ,  $101.58 \pm 33.43$ ,  $88.74 \pm 27.08$ ,  $179.46 \pm 85.88$  pg/ml respectively. The results showed that the application of *Carica pubescens* leaf ethanol extract gel reduced the levels of TNF- $\alpha$  significantly ( $p < 0.05$ ) compared to the negative control and there was no significant difference ( $p > 0.05$ ) with the positive control group. The application of *Carica pubescens* leaf ethanol extract gel with a concentration of 12,5% had the best result in reducing TNF- $\alpha$  levels. The conclusion of this study is there was an effect of topical application of *Carica pubescens* leafs ethanolic extract gel on TNF- $\alpha$  level in incision gingival wound Wistar rats healing process.*

**Keywords:** *Carica pubescens*; gingival incision wound; TNF- $\alpha$ .