

EFEK EKSTRAK PEGAGAN (*Centella asiatica* (L.)) TERHADAP KADAR IL-1 β : STUDI PADA SEL RAW 264.7

ABSTRAK

Latar Belakang: Inflamasi merupakan respons tubuh terhadap kerusakan, dengan interleukin-1 β (IL-1 β) sebagai salah satu mediator utamanya. Kelebihan IL-1 β dapat memicu berbagai penyakit kronis. Natrium diklofenak sebagai obat antiinflamasi non-steroid efektif, namun memiliki efek samping. Pegagan (*Centella asiatica*) dikenal memiliki senyawa aktif seperti asam asiatik yang berpotensi menurunkan IL-1 β . Namun, studi mengenai efeknya pada sel RAW 264.7 masih terbatas. **Tujuan:** Mengetahui pengaruh pemberian ekstrak pegagan (*Centella asiatica* (L.)) terhadap kadar interleukin-1 β (IL-1 β) pada sel RAW 264.7 **Metode:** Penelitian ini adalah penelitian eksperimental murni dengan desain *post-test only with control group*. Sel RAW 264.7 sebanyak 35 well pada 6-well plate dibagi menjadi 7 kelompok secara acak yaitu kelompok A (kontrol normal), kelompok B (kontrol negatif), kelompok C (perlakuan induksi LPS dengan terapi ekstrak pegagan 250 ppm), kelompok D (perlakuan induksi LPS dengan terapi ekstrak pegagan 500 ppm), kelompok E (perlakuan induksi LPS dengan terapi ekstrak pegagan 1000 ppm), Kelompok F (perlakuan induksi LPS dengan terapi natrium diklofenak 20 ppm), kelompok G (perlakuan DMSO 0,1%). Supernatan sel diambil setelah 24 jam perlakuan dan dinilai kadar IL-1 β menggunakan ELISA. Kadar IL-1 β dilakukan analisis menggunakan uji *One way ANOVA*. **Hasil:** Rerata kadar IL-1 β pada setiap kelompok, yaitu kelompok A=1105,489 ng/L; kelompok B=1212,996 ng/L; kelompok C=1362,316 ng/L; kelompok D=1336,934 ng/L; kelompok E=1350,739 ng/L; kelompok F=1233,938 ng/L; kelompok G=1258,485 ng/L. Terdapat perbedaan kadar IL-1 β yang signifikan antar kelompok yang ditunjukkan dengan nilai $p=0.008$ pada uji *One Way ANOVA*. Uji *post-hoc Tukey HSD* menunjukkan perbedaan signifikan antara kelompok A dengan kelompok C, D, E. **Kesimpulan:** Terdapat pengaruh pemberian ekstrak pegagan (*Centella asiatica* (L.)) terhadap kadar IL-1 β pada sel RAW 264.7

Kata Kunci: IL-1 β , *Centella asiatica* (L.), Sel RAW 264.7

EFFECT OF PEGAGAN EXTRACT (*Centella asiatica* (L.)) TOWARDS INTERLEUKIN-1 β (IL-1 β) LEVEL: A STUDY ON RAW 264.7 CELLS

ABSTRACT

Background: Inflammation is the body's response to damage, with interleukin-1 β (IL-1 β) being one of its key mediators. Excess IL-1 β can lead to various chronic diseases. Diclofenac sodium, a commonly used non-steroidal anti-inflammatory drug (NSAID), is effective but associated with side effects. *Centella asiatica* (pegagan) is known to contain active compounds such as asiatic acid, which may reduce IL-1 β levels. However, studies on its effect on RAW 264.7 cells remain limited. **Objective:** To determine the effect of *Centella asiatica* (L.) extract on IL-1 β levels in RAW 264.7 cells. **Methods:** This was a true experimental study with a post-test only with control group design. A total of 35 wells of RAW 264.7 cells in 6-well plates were randomly divided into 7 groups: Group A (normal control), Group B (negative control), Group C (LPS-induced + 250 ppm *Centella asiatica* extract), Group D (LPS-induced + 500 ppm extract), Group E (LPS-induced + 1000 ppm extract), Group F (LPS-induced +20 ppm diclofenac sodium), and Group G (0.1% DMSO). After 24 hours of treatment, the cell supernatant was collected, and IL-1 β levels were measured using ELISA. IL-1 β levels were analyzed using One-Way ANOVA. **Results:** The mean IL-1 β levels in each group were: Group A = 1105.489 ng/L; Group B = 1212.996 ng/L; Group C = 1362.316 ng/L; Group D = 1336.934 ng/L; Group E = 1350.739 ng/L; Group F = 1233.938 ng/L; Group G = 1258.485 ng/L. A significant difference in IL-1 β levels between groups was found ($p = 0.008$, One-Way ANOVA). Tukey HSD post-hoc test showed a significant difference between Group A and Groups C, D, and E. **Conclusion:** *Centella asiatica* (L.) extract has an effect on IL-1 β levels in RAW 264.7 cells.

Kata Kunci: IL-1 β , *Centella asiatica* (L.), RAW 264.7 Cells