

INTISARI

Inflamasi timbul sebagai bentuk pertahanan tubuh namun mengganggu apabila terjadi dalam jumlah berlebih dan jangka waktu lama. Kandungan bioaktif organik sulfur bawang putih efektif mengeliminasi bakteri dan menurunkan inflamasi disertai perbaikan jaringan. Penelitian ini bertujuan mengkaji pengaruh perbedaan gel ekstrak bawang putih (GEB) konsentrasi 20% dan 40% serta interaksinya dengan lama paparan terhadap jumlah sel leukosit polimorfonuklear (PMN) dan makrofag pulpa gigi terinfeksi.

Jenis penelitian *true experimental laboratory* dengan *post-test only control group design* pada 36 molar atas kanan dan kiri tikus *Sprague Dawley* dengan *Lesion Sterilization and Tissue Repair* (LSTR), yang sebelumnya diinduksi *lipopolysaccharide* (LPS), dibagi dalam 12 kelompok berdasarkan perlakuan yaitu, basis gel, *triple antibiotics paste* (TAP), GEB konsentrasi 20% dan 40% serta lama paparan hari ke-1, 3, 5 lalu diamati jumlah PMN dan makrofag. Hasil dianalisis dengan *Two-way ANOVA* tingkat signifikansi 95% diikuti uji *Least Significant Difference* (LSD).

Hasil penelitian menunjukkan rerata jumlah sel PMN dan makrofag pada GEB konsentrasi 40% lebih rendah dibandingkan 20% namun tidak berbeda signifikan ($p > 0,05$). Kesimpulan penelitian ini diperoleh GEB konsentrasi 40% dan 20% tidak memiliki perbedaan dalam menurunkan jumlah sel PMN dan makrofag. Interaksi konsentrasi GEB dan lama paparan tidak memiliki pengaruh terhadap jumlah PMN sebaliknya terdapat pengaruh interaksi konsentrasi GEB dan lama paparan terhadap jumlah makrofag.

Kata Kunci: gel ekstrak bawang putih (GEB), sel leukosit polimorfonuklear (PMN), sel makrofag, konsentrasi

ABSTRACT

Inflammation arises as a form of defence but is disturbing when it occurs in excessive amounts and for a long period of time. The bioactive organic sulphur content of garlic effectively eliminates bacteria and reduces inflammation accompanied by tissue repair. This study aims to examine difference effect of 20% and 40% concentrations of garlic extract gel (GEB), duration of exposure on days 1, 3, and 5 and their interactions on the number of polymorphonuclear leucocytes (PMN) and macrophages of infected pulp.

This research was a true experimental laboratory with post-test only control group design on 36 right and left upper molars of Sprague Dawley rats with Lesion Sterilisation and Tissue Repair (LSTR), previously induced by lipopolysaccharide (LPS), divided into 12 groups based on the treatment, namely, gel base, triple antibiotics paste (TAP), 20% and 40% concentration of GEB and duration of exposure day then observed the number of PMN and macrophages. Results were analysed by Two-way ANOVA at 95% significance level followed by Least Significant Difference (LSD) test.

Research results showed that the mean number of PMN cells and macrophages at 40% concentration was lower than 20% GEB but not significantly different ($p > 0.05$). The conclusion of this study that the concentration of 40% and 20% GEB has no difference in reducing the number of PMN cells and macrophages. The interaction of the concentration GEB and the duration of exposure had no effect on the number of PMNs, while there was an interaction effect of the concentration GEB and the duration of exposure on the number of macrophages.

Keywords: Garlic extract gel (GEB), polymorphonuclear leukocyte (PMN), macrophage, concentration