

PENGARUH EKSTRAK PEGAGAN (*Centella asiatica*) TERHADAP JUMLAH ERITROSIT DAN KADAR HEMOGLOBIN TIKUS PUTIH (*Rattus norvegicus*) YANG TERPAPAR ELEKTROMAGNETIK TELEPON SELULER

ABSTRAK

Latar Belakang: Paparan gelombang elektromagnetik dari telepon seluler dapat memicu stres oksidatif yang berdampak buruk bagi kesehatan, termasuk mempengaruhi jumlah eritrosit dan kadar hemoglobin. *Centella asiatica* memiliki aktivitas antioksidan yang berpotensi melindungi sel darah dari kerusakan tersebut. **Tujuan:** Mengetahui pengaruh pemberian ekstrak pegagan (*Centella asiatica*) terhadap jumlah eritrosit dan kadar hemoglobin tikus putih (*Rattus norvegicus*) yang terpapar elektromagnetik telepon seluler. **Metode Penelitian:** Penelitian ini menggunakan metode *true experimental* dengan desain *post-test only control group* pada 30 tikus Wistar jantan yang dibagi menjadi 5 kelompok. Kelompok 1 menjadi kontrol tanpa ekstrak *Centella asiatica* dan tanpa paparan elektromagnetik. Kelompok 2 mendapat paparan elektromagnetik telepon seluler 2100 MHz selama 2 jam/hari melalui panggilan *WhatsApp*. Kelompok 3, 4, dan 5 diberikan ekstrak *Centella asiatica* (125, 250, 500 mg/kgBB) sebelum paparan. Jumlah eritrosit dan kadar hemoglobin diukur menggunakan *Hematology Analyzer* dan data dianalisis dengan uji *One Way ANOVA* dan *ANOVA Welch*. **Hasil:** Rerata jumlah eritrosit kelompok 1=7,43 juta/ μ L, 2=8,28 juta/ μ L, 3= 8,07 juta/ μ L, 4=6,51 juta/ μ L, dan 5=6,69 juta/ μ L. Rerata kadar hemoglobin kelompok 1=13,7 g/dL, 2=14,8 g/dL, 3=14,6 g/dL, 4=12,1 g/dL, dan 5=12,15 g/dL. Uji *One Way ANOVA* jumlah eritrosit menunjukkan $p=0,000$ dan uji *ANOVA Welch* kadar hemoglobin menunjukkan nilai $p=0,002$. **Kesimpulan:** Pemberian ekstrak pegagan (*Centella asiatica*) memberikan pengaruh signifikan terhadap jumlah eritrosit dan kadar hemoglobin tikus putih (*Rattus norvegicus*) yang terpapar elektromagnetik telepon seluler.

Kata kunci: Kadar hemoglobin; jumlah eritrosit; *Centella asiatica*; paparan elektromagnetik; telepon seluler; tikus Wistar

**THE EFFECT OF PEGAGAN (*Centella asiatica*) EXTRACT ON
ERYTHROCYTE COUNT AND HEMOGLOBIN LEVELS IN WHITE RATS
(*Rattus norvegicus*) EXPOSED TO MOBILE PHONE ELECTROMAGNETIC**

ABSTRACT

Background: Exposure to electromagnetic waves from mobile phones triggered oxidative stress that adversely affected health, including altering erythrocyte count and hemoglobin levels. *Centella asiatica* possessed antioxidant activity that might have protected blood cells from such damage. **Objective:** To determine the effect of *Centella asiatica* extract on erythrocyte count and hemoglobin levels in white rats (*Rattus norvegicus*) exposed to mobile phone electromagnetic. **Method:** This study used a true experimental with a post-test only control group design on 30 male Wistar rats that were divided into five groups. Group 1 was the control without *Centella asiatica* extract and without electromagnetic exposure. Group 2 received 2100 MHz mobile phone electromagnetic exposure for 2 hours/day through a WhatsApp call. Groups 3, 4, and 5 were given *Centella asiatica* extract (125, 250, 500 mg/kgBW) before exposure. Erythrocyte count and hemoglobin levels were measured using a Hematology Analyzer, and the data were analyzed using One Way ANOVA and Welch ANOVA. **Results:** The mean erythrocyte counts for groups 1, 2, 3, 4, and 5 are 7.43 million/ μ L, 8.28 million/ μ L, 8.07 million/ μ L, 6.51 million/ μ L, and 6.69 million/ μ L. The mean hemoglobin levels for groups 1, 2, 3, 4, and 5 are 13.7 g/dL, 14.8 g/dL, 14.6 g/dL, 12.1 g/dL, and 12.15 g/dL. The One-Way ANOVA test for erythrocyte count shows p-values=0,000 and the Welch ANOVA test for hemoglobin level show p-values=0,002. **Conclusion:** Administration of *Centella asiatica* extract has a significant effect on erythrocyte count and hemoglobin levels in white rats (*Rattus norvegicus*) exposed to mobile-phone electromagnetic.

Keywords: Hemoglobin level; erythrocyte count; *Centella asiatica*; electromagnetic exposure; mobile phone; Wistar rats