ABSTRAK

Nyeri merupakan respon tubuh akibat kerusakan jaringan yang umumnya ditangani menggunakan analgesik. Penggunaan analgesik sintetik dalam jangka panjang dapat menimbulkan efek samping sehingga diperlukan alternatif analgesik dari bahan alam. Daun sirih merah (*Piper crocatum*) diketahui mengandung flavonoid, alkaloid, tanin, dan saponin yang diduga memiliki aktivitas analgesik. Penelitian ini bertujuan untuk mengetahui efek analgesik dan besar aktivitas analgesik infusa daun sirih merah pada mencit betina galur Swiss dengan metode *writhing test*. Penelitian ini merupakan penelitian eksperimental murni dengan rancangan acak lengkap pola searah menggunakan 25 ekor mencit betina galur Swiss yang dibagi menjadi lima kelompok, yaitu kontrol negatif (aquadest), kontrol positif (asetosal 65 mg/KgBB), serta kelompok perlakuan infusa daun sirih merah dosis 833,3 mg/KgBB, 1666,6 mg/KgBB, dan 3333,3 mg/KgBB. Nyeri diinduksi menggunakan asam asetat 1% secara intraperitoneal, kemudian jumlah geliat diamati setiap 5 menit selama 1 jam. Data dianalisis menggunakan uji *Shapiro-Wilk*, *Levene*, One Way ANOVA, dan dilanjutkan uji *Bonferroni* dengan tingkat kepercayaan 95%. Hasil penelitian menunjukkan bahwa infusa daun sirih merah memiliki efek analgesik yang ditandai dengan penurunan jumlah geliat dan peningkatan persen proteksi nyeri. Persentase proteksi pada dosis 833,3 mg/KgBB, 1666,6 mg/KgBB, dan 3333,3 mg/KgBB berturut-turut sebesar 68,87%; 75,16%; dan 86,16%. Seluruh kelompok perlakuan berbeda bermakna terhadap kontrol negatif ($p<0,05$). Dosis 3333,3 mg/KgBB menunjukkan efek analgesik paling optimal dan sebanding dengan kontrol positif. Berdasarkan hasil penelitian dapat disimpulkan bahwa infusa daun sirih merah (*Piper crocatum*) memiliki aktivitas analgesik pada mencit betina galur Swiss.

Kata kunci: daun sirih merah, infusa, analgesik, *writhing test*.

ABSTRACT

Pain is a body response caused by tissue damage and is generally treated using analgesic drugs. Long-term use of synthetic analgesics may cause side effects; therefore, alternative analgesics derived from natural ingredients are needed. Red betel leaf (*Piper crocatum*) is known to contain flavonoids, alkaloids, tannins, and saponins which are suspected to possess analgesic activity. This study aimed to determine the analgesic effect and the magnitude of analgesic activity of red betel leaf infusion on female Swiss mice using the *writhing test* method. This study was a true experimental study with a completely randomized one-way design using 25 female Swiss mice divided into five groups: negative control (aquadest), positive control (acetosal 65 mg/KgBW), and treatment groups receiving red betel leaf infusion doses of 833.3 mg/KgBW, 1666.6 mg/KgBW, and 3333.3 mg/KgBW. Pain was induced using 1% acetic acid intraperitoneally, and the number of writhes was observed every 5 minutes for 1 hour. Data were analyzed using Shapiro-Wilk, Levene, One Way ANOVA, and Bonferroni tests with a 95% confidence level. The results showed that red betel leaf infusion had analgesic activity indicated by a decrease in the number of writhes and an increase in pain protection percentage. The percentages of pain protection at doses of 833.3 mg/KgBW, 1666.6 mg/KgBW, and 3333.3 mg/KgBW were 68.87%, 75.16%, and 86.16%, respectively. All treatment groups were significantly different from the negative control group ($p<0.05$). The dose of 3333.3 mg/KgBW showed the most optimal analgesic effect and was comparable to the positive control. Based on the results, it can be concluded that red betel leaf infusion (*Piper crocatum*) has analgesic activity in female Swiss mice.

Keywords: red betel leaf, infusion, analgesic, *writhing test*.