

**PENGARUH PAPARAN SUB-KRONIK TIMBAL (Pb) TERHADAP
KADAR *GLUTATHIONE* (GSH) PADA HEPAR TIKUS WISTAR JANTAN
(*Rattus norvegicus*)**

ABSTRAK

Pendahuluan: Pencemaran logam berat saat ini menjadi permasalahan yang cukup parah. Timbal merupakan bahan kimia berbahaya yang mengganggu ekosistem makhluk hidup dan memicu stres oksidatif melalui pembentukan *reactive oxygen species* (ROS). Antioksidan diperlukan untuk mengurangi stres oksidatif. Salah satu antioksidan yang dibutuhkan adalah *glutathion* (GSH). Tujuan penelitian untuk mengetahui pengaruh paparan sub-kronik timbal asetat (Pb) terhadap kadar *glutathion* (GSH) pada hepar Tikus Wistar Jantan.

Metode: Penelitian ini menggunakan metode *true experimental* dengan rancangan *post test only with control group design*. Sebanyak 45 ekor tikus jantan dibagi menjadi lima kelompok secara acak dengan dosis (10; 25; 50; 75mg/KgBB/hari) dan tiga subkelompok durasi (35, 40, 45 hari). Paparan timbal asetat diberikan secara oral setiap hari. Pada akhir perlakuan, tikus diterminasi kemudian diukur kadar GSH dengan metode Ellman. Analisis statistik menggunakan Uji *One Way ANOVA* untuk dosis dan *Welch ANOVA* untuk durasi.

Hasil: Hasil pengaruh dosis paparan timbal menggunakan uji *One Way ANOVA* didapatkan $p < 0.001$ ($p < 0.05$). Hasil pengaruh durasi paparan timbal menggunakan *Welch ANOVA* didapatkan nilai $p = 0.793$ ($p > 0.05$) untuk kelompok kontrol, kelompok perlakuan 1 nilai $p = 0.023$, perlakuan 2 nilai $p = 0.022$, perlakuan 3 nilai $p = 0.008$, perlakuan 4 nilai $p = 0.015$ ($p < 0.05$).

Kesimpulan: Paparan timbal dengan berbagai dosis dan durasi memberikan pengaruh signifikan terhadap penurunan kadar GSH hepar pada tikus Wistar Jantan (*Rattus norvegicus*).

Kata Kunci : Timbal Asetat, Stres Oksidatif, GSH, Tikus Wistar Jantan

EFFECT OF SUB-CHRONIC EXPOSURE OF LEAD (Pb) ON GLUTATHIONE (GSH) LEVELS IN THE LIVER OF MALE WISTAR RATS (*Rattus norvegicus*)

ABSTRACT

Introduction: Heavy metal pollution is currently a serious problem. Lead is a harmful environmental chemical that disrupts ecosystems of living things and triggers oxidative stress through the formation of *reactive oxygen species* (ROS). Antioxidants are necessary to reduce oxidative stress. One of the antioxidants needed is *glutathione* (GSH). The purpose of the study was to determine the effect of sub-chronic exposure to lead acetate (Pb) on *glutathione* (GSH) levels in the liver of male Wistar rats.

Methods: This study used a *true experimental* method with a *post test only design with control group design*. A total of 45 male mice were randomly divided into five groups by dose (10; 25; 50; 75mg/KgBB/day) and three subgroups of duration (35, 40, 45 days). Lead acetate exposure is administered orally daily. At the end of the treatment, the mice were terminated and their GSH levels were measured using the Ellman method. Statistical analysis used the *One Way ANOVA* Test for dose and *Welch ANOVA* for duration.

Results: The effect of the dose of lead exposure using the *One Way ANOVA* test was obtained $p < 0.001$ ($p < 0.05$). The results of the effect of the duration of lead exposure using *Welch ANOVA* were obtained a value of $p = 0.793$ ($p > 0.05$) for the control group, treatment group 1 $p\text{-value} = 0.023$, treatment 2 $p\text{-value} = 0.022$, treatment 3 $p\text{-value} = 0.008$, treatment 4 $p\text{-value} = 0.015$ ($p < 0.05$).

Conclusions: Exposure to lead at various doses and durations had a significant effect on the reduction of hepatic GSH levels in male Wistar rats (*Rattus norvegicus*).

Keywords : Lead Acetate, Oxidative Stress, GSH, Male Wistar Rats