

ABSTRACT

THE EFFECT OF LEAD ACETATE INDUCTION TOWARDS WORKING MEMORY OF MALE RAT (*Rattus norvegicus*) STRAINS *Sprague dawley*

By

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Background: Besides developing economic sector, industrial development in Indonesia could results in environment pollution. One of the industrial residual product is lead. Lead is one kind of heavy metal and neurotoxic which could causing impairment of working memory. This study aims to determine the effect of lead acetate induction towards working memory of male rat (*Rattus norvegicus*) strains *Sprague dawley*.

Methods: This study used 24 male rats (*Rattus norvegicus*) strains *Sprague dawley* aged 2-3 months that were divided into 4 groups induced by lead acetate for 7 days. The control group (K) that does not get induced by lead acetate, group 1 induced by 50 mg/kg lead acetate (P1), group 2 induced by 100 mg/kg lead acetate (P2), and group 3 induced by 200 mg/kg lead acetate (P3). Working memory assessed using Radial Arm Maze with prior exercise 2 times for 2 days. The results were counted as *percentage* of correct choices as the number of arms and analyzed using Kruskal Wallis test.

Results: The results of the average number of working memories are K: 79.1%, P1: 62.5%, P2: 60.4%, P3: 45.8%. The result obtains significant influence with p value=0.010.

Conclusion: Induction of lead acetate affecting the working memory of male rat (*Rattus norvegicus*) strains *Sprague dawley*.

Keywords: Lead, Radial Arm Maze, Working Memory

ABSTRAK

PENGARUH INDUKSI PLUMBUM ASETAT TERHADAP MEMORI KERJA PADA TIKUS PUTIH JANTAN (*Rattus norvegicus*) GALUR *Sprague dawley*

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Latar belakang: Perkembangan industri di Indonesia selain mengembangkan sektor ekonomi juga dapat memberikan dampak negatif seperti pencemaran lingkungan. Salah satu produk sampingan pabrik yang mencemari lingkungan adalah plumbum. Plumbum merupakan logam berat dan neurotoksik yang dapat menurunkan memori kerja. Penelitian ini bertujuan untuk mengetahui pengaruh induksi plumbum asetat terhadap memori kerja tikus putih jantan (*Rattus norvegicus*) galur *Sprague-dawley*.

Metode: Penelitian ini menggunakan 24 ekor tikus putih (*Rattus norvegicus*) jantan galur *Sprague-dawley* berusia 2-3 bulan terbagi ke dalam 4 kelompok yang diinduksi dengan plumbum asetat selama 7 hari, yaitu kelompok kontrol (K), kelompok perlakuan 1 dosis 50 mg/kg (P1), kelompok perlakuan 2 dosis 100 mg/kg (P2) dan kelompok perlakuan 3 dosis 200 mg/kg (P3). Memori kerja dinilai menggunakan alat *Radial Arm Maze* dengan latihan 2 kali selama 2 hari. Data yang didapatkan merupakan persentase jumlah lengan yang benar dimasuki tikus dan dianalisis menggunakan uji Kruskal Wallis.

Hasil penelitian: Hasil rerata nilai memori kerja pada K: 79,1%, P1: 62,5%, P2: 60,4%, P3: 45,8% didapatkan pengaruh yang bermakna dengan nilai $p=0.010$.

Simpulan: Induksi plumbum asetat dapat mempengaruhi memori kerja tikus putih (*Rattus norvegicus*) jantan galur *Sprague-dawley*.

Kata kunci: Memori Kerja, Plumbum, *Radial Arm Maze*