

**PENGARUH NANOEMULSI PURWOCENG TERHADAP MEMORI SPASIAL
DAN SEL CA1 HIPOKAMPUS TIKUS WISTAR JANTAN ALBINO PASCA
PARADOXICAL SLEEP DEPRIVATION**

Rangga Wisnu Wardhana¹, Fitranto Arjadi², Tuti Sri Suhesti³

1. Magister Ilmu Biomedis, Fakultas Kedokteran, Universitas Jenderal Soedirman
2. Departemen Anatomi Fakultas Kedokteran, Universitas Jenderal Soedirman
3. Departemen Biologi Farmasi, Fakultas Farmasi, Universitas Jenderal Soedirman

Alamat korespondensi : ranggakhan87@gmail.com

ABSTRAK

Tujuan : Mengetahui efek PSD dan Purwoceng pada hipokampus. **Metode :** Pengujian memori spasial dengan MWM, jumlah sel CA1 dengan disektor fisik, volume dengan metode Cavalieri. Dari 24 wistar terpilih, terbagi 6 kelompok : PSD dengan *sleep recovery* (A), tanpa *sleep recovery* (B), ekstraksi Purwoceng 25 mg (C), nanoemulsi Purwoceng 25 mg (D), 50 mg (E), dan 75 mg (F). Analisis statistik menilai sebelum-sesudah perlakuan dengan *Paired t-test*, antar perbedaan dosis Purwoceng dengan *One Way ANOVA*. **Hasil :** Terdapat tren pemanjangan MWM pra- dan pasca PSD di hampir semua kelompok. Pasca pemberian Purwoceng, tren pemendekan ada di D dan E, pemanjangan di C dan F. Namun, tidak ada perbedaan pada kriteria tersebut (rata-rata p value $> 0,05$). Kelompok A, B, dan D dipilih untuk stereologi, namun tidak ada perbedaan secara hasil ($p > 0,05$). Walau begitu, terdapat perbedaan antar dosis perlakuan terhadap MWM test ($p < 0,000$), dengan hasil terpendek pada D. **Kesimpulan :** Tidak terdapat perbedaan bermakna antara PSD dan nanoemulsi Purwoceng terhadap penurunan kemampuan memori spasial, jumlah total sel CA1 piramidal dan volume hipokampus pada wistar coba. Terdapat perbedaan antar dosis perlakuan nanoemulsi Purwoceng terhadap perbaikan memori spasial wistar coba, dengan dosis nanoemulsi 25 mg yang terbaik.

Kata Kunci : Paradoxical Sleep Deprivation, Nanoemulsi, Purwoceng, Kemampuan Memori Spasial, Hipokampus

Alamat Korespondensi : Rangga Wisnu Wardhana, Mahasiswa Pascasarjana Magister Ilmu Biomedis, Fakultas Kedokteran, Universitas Jenderal Soedirman. Jln. Dr. Gumbreg, Purwokerto Barat, Banyumas, Jawa Tengah, Indonesia. E-mail : ranggakhan87@gmail.com

THE CORRELATION OF PURWOCENG NANOEMULSION IN SPATIAL MEMORY AND HIPPOCAMPAL CA1 CELLS IN WHITE MALE RATS AFTER PARADOXICAL SLEEP DEPRIVATION

Rangga Wisnu Wardhana¹, Fitranto Arjadi², Tuti Sri Suhesti³

1. Biomedical Programme, Faculty of Medicine, Jenderal Soedirman University
2. Departement of Anatomy, Fakultas of Medicine, Jenderal Soedirman University
3. Departement of Pharmaceutical Biology, Faculty of Pharmacy, Jenderal Soedirman University

Correspondence Address : ranggakhan87@gmail.com

ABSTRACT

Purpose : To investigate the impact of PSD and Purwoceng on rat hippocampal. **Method :** We examine spatial memory by MWM test, physical dissector for number CA1 cells and Cavalieri's method for volume. Total 24 white male rat divided into six group : PSD with sleep recovery (A), without sleep recovery (B), non nanoemulsion 25 mg (C), nanoemulsion 25 mg (D), 50 mg (E), and 75 mg (F). The measurement of pre-post PSD and Purwoceng was using Paired t-test, and One Way ANOVA for differential dose of Purwoceng. **Result :** There was lengthening trends MWM test in almost entire group. After administration of Purwoceng, the shortening trends of MWM test was found in D and E, while lengthening one in C and F. But there was no difference in all criteria above (average p-value > 0,05). Group A, B, and D was chosen as the representative groups to evaluate stereologically. The result had showed no difference between those groups (p>0,05). Nevertheless, there are significant impact among various dose of Purwoceng extraction in white male rats with shortening MWM test (p 0,000), with group D was the shortest one. **Conclusion :** There is no difference impact between PSD and Purwoceng with the degeneration of spatial memory ability, number of CA1, and volume in white male rats. Nevertheless, there is some differences among various of dose in Purwoceng extraction with spatial memory, with the dose 25 mg of Purwoceng nanoemulsion as the most better one.

Keyword : Paradoxical Sleep Deprivation, Nanoemulsion, Purwoceng, Spatial Memory, Hippocampus

Correspondence Address : Rangga Wisnu Wardhana, Master of Biomedical Science, Postgraduate Student, Faculty of Medicine, Jenderal Soedirman University, Jln. Dr. Gumbreg, West Purwokerto, Banyumas, Central Java, Indonesia. E-mail : ranggakhan87@gmail.com