PENGARUH NANOEMULSI PURWOCENG TERHADAP KADAR ENZIM TRANSAMINASE, VOLUME HEPAR DAN HISTOPATOLOGI HEPAR TIKUS PUTIH WISTAR JANTAN PASCA INDUKSI STRES *PARADOXICAL SLEEP DEPRIVATION*

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ABSTRAK

Gangguan tidur akibat pengurangan durasi tidur dapat menimbulkan kerusakan multi organ melalui mekanisme stres oksidatif yang berkontribusi pada perkembangan dan temuan patologis penyakit hati. Purwoceng (*Pimpinella pruatjan* Molk.) memiliki aktivitas antioksidan dan potensinya dapat ditingkatkan dalam teknologi nanoemulsi. Tujuan penelitian untuk mengetahui pengaruh nanoemulsi purwoceng terhadap kadar enzim transaminase, volume hepar dan histopatologi hepar tikus putih Wistar jantan pasca induksi stres *Paradoxical Sleep Deprivation* (PSD) selama 96 jam. Penelitian berupa eksperimental dengan desain *post-test only with control group* pada 24 ekor tikus yang dibagi menjadi 6 kelompok perlakuan, yaitu kelompok A adalah PSD, kelompok B adalah PSD dan *sleep recovery*, kelompok C adalah PSD dan ekstrak purwoceng 25 mg/300 gBB/hari, kelompok D adalah PSD dan nanoemulsi purwoceng 25 mg/300 gBB/hari, kelompok E adalah PSD dan nanoemulsi purwoceng 50 mg/300 gBB/hari, serta kelompok F adalah PSD dan nanoemulsi purwoceng 75 mg/300 gBB/hari. Kadar SGPT dan SGOT serum diukur dengan metode *UV test*, hepar diambil untuk mengukur volume dan dinilai kerusakannya menggunakan skor *Manja Roenigk*. Data dianalisis dengan uji *One Way ANOVA* dan dilanjutkan uji *Post Hoc Bonferroni*. Tidak terdapat perbedaan bermakna pada rerata kadar SGPT (p=0,307), kadar SGOT (p=0,412) dan volume hepar (p=0,227), serta terdapat perbedaan yang bermakna pada rerata skor *Manja Roenigk* antara kelompok B dibanding kelompok D (p=0,010), kelompok E dan F (p=0,000). Perlakuan nanoemulsi purwoceng tidak mempengaruhi enzim transaminase dan volume hepar, tetapi mempengaruhi gambaran histopatologi hepar pasca induksi PSD.

Kata kunci: nanoemulsi purwoceng, *sleep deprivation*, transaminase, histopatologi.

THE EFFECT OF PURWOCENG NANOEMULSION ON TRANSAMINASE ENZYME LEVELS, LIVER VOLUME AND HEART HISTOPATHOLOGY OF WISTAR WHITE RATS POST INDUCTION OF PARADOXICAL SLEEP DEPRIVATION STRESS

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ABSTRACT

Sleep disturbances due to reduced sleep duration can cause multi-organ damage through oxidative stress mechanisms that contribute to the development and pathological findings of liver disease. Purwoceng (Pimpinella pruatjan Molk.) has antioxidant activity and its potential can be increased in nanoemulsion technology. The purpose of this study was to determine the effect of purwoceng nanoemulsion on transaminase enzyme levels, liver volume and liver histopathology of male Wistar rats after stress induction of Paradoxical Sleep Deprivation (PSD) for 96 hours. The study was an experimental study with a post-test only design with a control group on 24 rats which were divided into 6 treatment groups, namely group A was PSD, group B was PSD and sleep recovery, group C was PSD and purwoceng extract 25 mg/300 gBB/ day, group D was PSD and purwoceng nanoemulsion 25 mg/300 gBB/day, group E was PSD and purwoceng nanoemulsion 50 mg/300 gBB/day, and group F was PSD and purwoceng nanoemulsion 75 mg/300 gBB/day. Serum SGPT and SGOT levels were measured by UV test method, liver was taken to measure volume and assessed for damage using the Manja Roenigk score. Data were analyzed by One Way ANOVA test and continued with Bonferroni Post Hoc test. There was no significant difference in the mean SGPT level (p=0,307), SGOT level (p=0,412) and liver volume (p=0,227), and there was a significant difference in the mean score of Manja Roenigk between group B compared to group D (p=0,010), groups E and F (p=0,000). Purwoceng nanoemulsion treatment did not affect the transaminase enzyme and liver volume, but did affect the histopathological picture of the liver after PSD induction.

Keywords: purwoceng nanoemulsion, sleep deprivation, transaminase, histopathology.