INTISARI

Latar Belakang: Stres menyebabkan pelepasan ROS yang memicu tubuh menghasilkan enzim antioksidan (SOD-2). Mediator stres juga dapat meningkatkan produksi TGF-β1 yang berperan dalam fibrosis hepar. Pegagan (*Centella asiatica*) diduga memiliki efek hepatoprotektif pada hepar yang diinduksi oleh stres, tetapi mekanisme efek pegagan terhadap ekspresi SOD-2 dan TGF-β1 pada injuri hepar yang diinduksi stres masih belum diketahui.

Tujuan: Mengkaji efek ekstrak etanol daun pegagan (*Centella asiatica*) terhadap ekspresi SOD-2 dan TGF-β1 pada hepar tikus putih pascastres listrik kronis.

Metode: Penelitian ini menggunakan rancangan penelitian *the post test only control design study*. Dua puluh empat tikus putih (*Sprague Dawley)* jantan (2-3 bulan, 160-270 gram) dibagi menjadi 4 grup: kontrol (KT), ekstrak etanol daun pegagan 600 mg/kgBB/hari (PG), stres listrik (ST), dan ekstrak etanol daun pegagan 600 mg/kgBB/hari + stres listrik (ST-PG). Kelompok kontrol diberi akuades per oral selama 28 hari. Stres diinduksi stres listrik dengan cara menempatkan tikus dalam kotak yang lantainya dapat mengalirkan listrik selama 10 menit setiap hari. Setelah 28 hari, tikus diterminasi dan diambil organ heparnya. Ekspresi SOD-2 dan TGF-β1 diperoleh dengan menggunakan metode *Reverse Transcriptase*-PCR. Data dianalisis menggunakan *software* ImageJ dan diuji secara statistic menggunakan uji *One-way* ANOVA pada SPSS versi 16.0.

Hasil Penelitian: Analisis RT-PCR menunjukkan bahwa kelompok ST memiliki ekspresi SOD-2 lebih rendah dibandingkan kelompok PG dan KT. Kelompok ST-PG memiliki ekspresi SOD-2 lebih tinggi dibandingkan kelompok ST. Meskipun secara statistik tidak memiliki perbedaan yang signifikan ($p>0,05$). Ekspresi TGF-β1 secara statistik tidak berbeda antar kelompok ($p>0,05$).

Kesimpulan: Pegagan (*Centella asiatica*) tidak memiliki pengaruh yang signifikan terhadap ekspresi SOD-2 dan TGF-β1 pada hepar tikus pascastres listrik kronis.

Kata Kunci: Stres kronis, fibrosis hepar, SOD-2, TGF-β1, dan *Centella asiatica.*

ABSTRACT

Background: Stress causes releasing of ROS that trigger the body to produce antioxidant enzymes (SOD-2). Stress mediators increase the production of TGF-β1 which played role in hepatic fibrosis. *Centella asiatica* (CA) has hepatoprotective effect on hepatic-induced by stress, however the mechanism of CA effect on the SOD-2 and TGF-β1 expression in the stress-induced liver injury is unknown.

Objective: This study aimed to investigate the effect of ethanol extract of *Centella asiatica* leaf on SOD-2 and TGF-β1 expression in white rat's liver following chronic electrical stress.

Method: This study was post-test only control design study. Twenty four male (*Sprague Dawley*) white rats (2-3 months old, 160-270 grams) were divided into 4 groups: control (KT), ethanol extract of pegagan leaf 600 mg/kgBB/day (PG), electrical stress (ST) , and ethanol extract of CA leaf 600 mg/kgBB/day + electrical stress (ST-PG). Stress were induced by electrical stress by putting a white rat in a box cage whose floor can drain electricity for 10 minutes every day. After 28 days, the rats were terminated and liver were harvested. The expressions of SOD-2 and TGF-β1 were obtained using Reverse Transcriptase-PCR method. Data were analyzed using ImageJ software and tested statistically using One-way ANOVA on SPSS version 16.0 software.

Result: RT-PCR analysis revealed ST group had lower expression of SOD-2 compared to PG and KT. ST-PG group had higher SOD-2 expression compared to ST group. However statistically were not significant difference ($p>0,05$). TGF-β1 expression were not statistically different among the groups ($p>0,05$).

Conclusion: Pegagan (*Centella asiatica*) does not have an effect on SOD-2 and TGF-β1 in white rat's liver following chronic electrical stress.

Keywords: Chronic stress, hepatic fibrosis, SOD-2, TGF-β1, and *Centella asiatica*.