

INTISARI

EFEK HEPATOPROTEKTIF EKSTRAK ETANOL DAUN PEGAGAN (*Centella asiatica sp.*) PADA JARINGAN HEPAR PASCASTRES LISTRIK KRONIS: KAJIAN EKSPRESI BAX DAN SOD-1 PADA JARINGAN HEPAR TIKUS PUTIH (*Sprague Dawley*)

Latar Belakang: Apoptosis sel hepar merupakan salah satu patofisiologi molekular berbagai jenis penyakit hepar. Stres dapat memicu apoptosis sel melalui overekspresi gen BAX dan stres oksidatif tidak terkontrol akibat regulasi kadar glukokortikoid serum. Pegagan (*Centella asiatica sp.*) diketahui dapat meningkatkan rasio Bcl-2/BAX dan kadar protein SOD-1.

Tujuan: Mengkaji pengaruh pemberian ekstrak etanol pegagan terhadap ekspresi gen BAX dan SOD-1 pada hepar tikus pascastres listrik kronis.

Metode Penelitian: Dua puluh empat ekor (2-3 bulan dan 160-270 gram) tikus putih galur *Sprague Dawley* dibagi ke dalam 4 kelompok (6 tikus/grup): kelompok tanpa perlakuan (KT), kelompok dengan ekstrak pegagan 600 mg/kg BB (CEA), kelompok dengan stres listrik kronis 28 hari (ST), dan kelompok dengan stres listrik kronis 28 hari yang diberi ekstrak pegagan 600 mg/kg BB (ST-CEA). Ekspresi BAX dan SOD-1 didapatkan dari jaringan hepar tikus menggunakan metode RT-PCR dan rerata dihitung dengan program ImageJ. Analisis statistik rerata diuji dengan *one-way ANOVA* pada program SPSS Statistic versi 19.

Hasil Penelitian: Hasil analisis RT-PCR memperlihatkan tendensi ekspresi BAX pada kelompok ST yang lebih tinggi dibandingkan dengan kelompok CEA dan KT meskipun perbedaan tersebut tidak bermakna. Kelompok ST juga memiliki ekspresi SOD-1 tertinggi. Perbedaan rerata ekspresi BAX dan SOD-1 antara kelompok ST dan ST-CEA tidak bermakna ($p > 0,05$).

Kesimpulan: Pemberian ekstrak etanol daun pegagan tidak mempengaruhi ekspresi gen BAX dan SOD-1 pada jaringan hepar pascastres.

Kata Kunci: pegagan, BAX, SOD-1, stres listrik kronis, hepar

ABSTRACT

HEPATOPROTECTIVE EFFECT OF ETHANOL EXTRACT OF PEGAGAN (*Centella asiatica* sp.) LEAF ON POST-CHRONIC ELECTRIC STRESS HEPATIC TISSUE: BAX AND SOD-1 EXPRESSION STUDIES ON HEPATIC TISSUE OF WHITE RATS (*Sprague Dawley*)

Background: Hepatic cell apoptotic is one of the molecular pathophysiology of various liver diseases. Stress induces oxidative stress temporary upregulating serum glucocorticoid level and BAX overexpression that has to apoptosis. Pegagan (*Centella asiatica* sp.) is known to increase ratio of Bcl-2 / BAX) and SOD-1 protein level.

Objective: This study is aimed to investigate the effect of ethanol extract of pegagan on BAX and SOD-1 gene expressions in hepatic tissue of post-chronic electrical stress rats.

Methods: Twenty four (2-3 months and 160-270 grams) white rats *Sprague Dawley* strain were divided into 4 groups (6 rats for each groups): untreated groups (KT), group with 600 mg/kg-BW of pegagan extract supplementation (CEA), groups with 28-day chronic electrical stress (ST), and group with 28-day chronic electrical stress plus 600 mg/kg-BW of pegagan extract supplementation (ST-CEA). Expression of BAX and SOD-1 were determined from hepatic tissue using RT-PCR device. Mean of the genes expression were determined using Image J software and statistically analyzed by one - way ANOVA on SPSS 19.0 software.

Result: RT-PCR analysis resulted a tendency of high expression of BAX in ST group compared to CEA and K although there were no significant difference. ST group also had higher SOD-1 expression. There were no significant difference between ST and ST-CEA in BAX and SOD-1 expression.

Conclusion: Ethanol extract of pegagan does not have any effect on expression of BAX and SOD-1 gene in hepatic tissue after stress.

Keywords: pegagan, BAX, SOD-1, chronic electrical stress, liver.