

ABSTRAK

EFEK EKSTRAK ETANOL KAYU MANIS (*Cinnamomum burmanii*) TERHADAP PROFIL HISTOPATOLOGI HATI DAN KADAR SGOT/SGPT PADA TIKUS YANG DIINDUKSI STREPTOZOTOCIN

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Latar Belakang: Diabetes melitus (DM) merupakan penyakit metabolik yang ditandai hiperglikemia akibat gangguan sekresi atau kerja insulin. Hiperglikemia yang berkepanjangan dapat menyebabkan komplikasi, termasuk gangguan fungsi hati akibat stres oksidatif yang ditandai dengan peningkatan kadar Serum Glutamic Oxaloacetic Transaminase (SGOT), Serum Glutamic Pyruvic Transaminase (SGPT), serta perubahan histopatologi berupa degenerasi sel hepatosit. Kayu manis (*Cinnamomum burmanii*) mengandung senyawa bioaktif seperti sinamaldehyd dan flavonoid yang bersifat antidiabetes dan antioksidan. Penelitian ini bertujuan mengevaluasi efek ekstrak kayu manis terhadap kadar SGOT, SGPT, dan profil histopatologi hati pada tikus yang diinduksi streptozotocin.

Metodologi: Penelitian eksperimental dengan desain *pre-test and post-test control group* menggunakan tikus jantan galur Wistar yang diinduksi streptozotocin (STZ). Hewan uji dibagi menjadi enam kelompok, yaitu kelompok sehat, STZ, metformin, serta ekstrak etanol kayu manis dosis 150, 300, dan 600 mg/kgBB. Parameter yang diamati meliputi kadar SGOT dan SGPT pada hari ke-0, 3, 7, 14, dan 21 serta gambaran histopatologi hati dengan pewarnaan Hematoksin–Eosin menggunakan metode skoring Mitchel. Data dianalisis dengan uji One-Way ANOVA dan Tukey serta uji Kruskal–Wallis dan Mann–Whitney

Hasil Penelitian: Induksi STZ menyebabkan peningkatan signifikan kadar SGOT dan SGPT serta kerusakan histopatologi hati berupa degenerasi sel hepatosit. Pemberian ekstrak kayu manis pada semua dosis menunjukkan penurunan kadar SGOT dan SGPT dan mampu memproteksi hati yang ditandai dengan penurunan derajat degenerasi sel dibandingkan kelompok STZ.

Kesimpulan: Ekstrak etanol kayu manis (*Cinnamomum burmanii*) dengan dosis 150 mg/kgBB mampu menurunkan kadar SGOT dan SGPT serta memproteksi hati pada tikus yang diinduksi streptozotocin.

Kata Kunci: Kayu manis, Streptozotocin, SGOT, SGPT, Histopatologi hati

ABSTRACT

EFFECTS OF CINNAMON (*Cinnamomum burmanii*) ETHANOL EXTRACT ON LIVER HISTOPATHOLOGICAL PROFILE AND SGOT/SGPT LEVELS IN RATS INDUCED BY STREPTOZOTOCIN

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Background: Diabetes mellitus (DM) is a metabolic disorder characterized by hyperglycemia due to impaired insulin secretion or action. Prolonged hyperglycemia can lead to various complications, including liver dysfunction caused by oxidative stress, which is indicated by elevated levels of Serum Glutamic Oxaloacetic Transaminase (SGOT), Serum Glutamic Pyruvic Transaminase (SGPT), and histopathological changes such as hepatocyte degeneration. Cinnamon (*Cinnamomum burmanii*) contains bioactive compounds, including cinnamaldehyde and flavonoids, which exhibit antidiabetic and antioxidant properties. This study aimed to evaluate the effect of cinnamon extract on SGOT and SGPT levels and liver histopathological profiles in streptozotocin-induced rats.

Methods: This experimental study employed a pre-test and post-test control group design using male Wistar rats induced with streptozotocin (STZ). The animals were divided into six groups: healthy control, STZ control, metformin, and ethanol extract of cinnamon at doses of 150, 300, and 600 mg/kg body weight. The observed parameters included SGOT and SGPT levels measured on days 0, 3, 7, 14, and 21, as well as liver histopathological examination using Hematoxylin–Eosin staining with the Mitchel scoring method. Data were analyzed using One-Way ANOVA followed by Tukey's test, and the Kruskal–Wallis and Mann–Whitney tests.

Results: STZ induction significantly increased SGOT and SGPT levels and caused liver histopathological damage characterized by hepatocyte degeneration. Administration of cinnamon extract at all doses reduced SGOT and SGPT levels and exerted a hepatoprotective effect, as indicated by a decrease in the degree of cell degeneration compared to the STZ group.

Conclusion: Ethanol extract of cinnamon (*Cinnamomum burmanii*) at a dose of 150 mg/kgBW can reduce SGOT and SGPT levels and protect the liver in mice that induce streptozotocin.

Keywords: Cinnamon, Streptozotocin, SGOT, SGPT, Liver histopathology.