

**PENGARUH EKSTRAK DAUN JAMBU BIJI (*Psidium guajava* L.)
TERHADAP GAMBARAN HISTOPATOLOGI HEPAR
TIKUS WISTAR (*Rattus norvegicus*) MODEL
HIPERKOLESTEROLEMIA**

ABSTRAK

Latar Belakang: Hiperkolesterolemia adalah masalah kesehatan global dengan prevalensi tinggi, berkontribusi pada kondisi seperti *Non Alcoholic Fatty Liver Disease* (NAFLD) dan *Non Alcoholic Steatohepatitis* (NASH). Terapi konvensional, meskipun efektif, memiliki efek samping. Ekstrak daun jambu biji (*Psidium guajava* L.) diketahui memiliki efek hepatoprotektif dan antioksidan, namun penelitian tentang pengaruhnya pada histopatologi hepar dalam konteks hiperkolesterolemia masih terbatas.

Tujuan: Untuk mengetahui pengaruh pemberian ekstrak daun *Psidium guajava* terhadap gambaran histopatologi hepar tikus Wistar (*Rattus norvegicus*) model hiperkolesterolemia.

Metode: Penelitian ini merupakan penelitian eksperimental dengan model *post test only control design*. Eksperimen menggunakan rancangan acak lengkap empat kelompok. Analisis data dilakukan secara univariat dan bivariat. Sampel penelitian terdiri dari 28 ekor tikus Wistar, terbagi menjadi 7 ekor tikus pada masing-masing kelompok. Tikus diinduksi dengan diet tinggi lemak selama 2 minggu untuk membentuk kondisi hiperkolesterol, lalu diberikan perlakuan dengan sonde ekstrak jambu biji selama 2 minggu. Setelah diterminasi, dilakukan pemeriksaan skor histopatologis pada hepar tikus. Analisis bivariat dilakukan dengan uji *One Way ANOVA* dan *post hoc LSD*.

Hasil: Analisis univariat menunjukkan rata-rata skor kerusakan hepar tertinggi pada kelompok kontrol sakit ($4,00 \pm 0,632$) dan terendah pada kelompok yang menerima ekstrak daun jambu biji sebelum induksi hiperkolesterol ($1,33 \pm 1,366$). Analisis bivariat menunjukkan perbedaan signifikan antara kelompok kontrol sehat dan kontrol sakit ($p = 0,00$), serta antara kontrol sakit dan kelompok perlakuan dengan ekstrak daun jambu biji ($p = 0,00$). Ekstrak daun jambu biji terbukti mengurangi kerusakan hepar akibat hiperkolesterol, mendukung potensinya sebagai agen amelioratif dan hepatoprotektif.

Kesimpulan: Pemberian ekstrak daun jambu biji (*Psidium guajava*) terbukti berpengaruh terhadap skor histopatologis hepar pada tikus Wistar putih yang diinduksi hiperkolesterol. Hasil ini didasari oleh adanya perbedaan signifikan secara statistik pada skor histopatologis hepar pada keempat kelompok secara keseluruhan.

Kata kunci: Diet tinggi lemak, hiperkolesterolemia, histopatologi hepar, *Psidium guajava*.

THE EFFECT OF GUAVA LEAF EXTRACT (*Psidium guajava* L.) ON THE HISTOPATHOLOGICAL CHARACTERISTICS OF THE LIVER IN WISTAR RATS (*Rattus norvegicus*) WITH HYPERCHOLESTEROLEMIA MODEL

ABSTRACT

Background: Hypercholesterolemia is a global health issue with high prevalence, contributing to conditions such as Non Alcoholic Fatty Liver Disease (NAFLD) & Non Alcoholic Steatohepatitis (NASH). Conventional therapies, although effective, have side effects. Guava leaf extract (*Psidium guajava*) is known for its hepatoprotective & antioxidant effects, but research on its impact on liver histopathology in the context of hypercholesterolemia remains limited.

Objective: To investigate the effect of *Psidium guajava* leaf extract on the histopathological picture of the liver in Wistar rats (*Rattus norvegicus*) with a hypercholesterolemia model.

Methods: This experimental study used a post-test only control design. The experiment utilized a completely randomized design with four groups. Data analysis was performed univariately & bivariately. The research sample consisted of 28 Wistar rats, divided into 4 groups of 7 rats each. The rats were induced with a high-fat diet for 2 weeks to induce hypercholesterolemia, followed by treatment with guava leaf extract via gavage for 2 weeks. After termination, histopathological scoring of the liver was performed. Bivariate analysis was conducted using One-Way ANOVA & post hoc LSD tests.

Results: Univariate analysis showed the highest mean liver damage score in the sick control group (4.00 ± 0.632) & the lowest in the group receiving guava leaf extract before hypercholesterolemia induction (1.33 ± 1.366). Bivariate analysis revealed significant differences between the healthy control & sick control groups ($p = 0.00$), as well as between the sick control & the guava leaf extract treatment group ($p = 0.00$). Guava leaf extract was found to reduce liver damage due to hypercholesterolemia, supporting its potential as an ameliorative & hepatoprotective agent.

Conclusion: The administration of *Psidium guajava* leaf extract significantly influenced the histopathological score of the liver in Wistar rats induced with hypercholesterolemia. This result is supported by significant statistical differences in the histopathological liver scores across the four groups overall.

Keywords: High fat diet, hypercholesterolemia, liver histopathology, *Psidium guajava*.