Research Article

Hepatoprotective Effect of Papaya Seed Ethanol Extract on Rifampicin Isoniazid-Induced Rats

Efek Hepatoprotektif Ekstrak Etanol Biji Pepaya pada Tikus yang Diinduksi Rifampisin dan Isoniazid

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ABSTRACT

Hepatotoxicity induced by anti-tuberculosis drugs, including rifampicin and isoniazid (AT-DILI, Anti Tuberculosis-Drug Induced Liver Injury), is an adverse reaction followed by significant morbidity. Several in vivo and in vitro research has confirmed that papaya seeds contain various non-essentials, minerals, and fiber. Carica papaya role in disease prevention through modulation of various processes, such as anti-inflammatory, anti-diabetes, immunomodulatory activity, and antioxidant activity, suggests a role in neutralizing free radical generation and ultimately preventing pathogenesis. This study aimed to determine the hepatoprotective effect of ethanol extract of papaya seeds on rifampicin and isoniazid-induced rats. The experimental animals in this study were divided into eight groups, including normal group, negative group 1, negative group 2, negative group 3, positive group, treatment group I (papaya seed ethanol extract dose of 100 mg/kgBW), treatment group II (papaya seed ethanol extract dose of 300 mg/kgBW), and treatment group III (papaya seed ethanol extract dose of 500 mg/kgBW), then the rats were dissected, and blood was taken for AST, ALT, ALP, GGT, and Bilirubin level measurements. The results showed that papaya seed ethanol extract could reduce ALT, AST, ALP, GGT, and Bilirubin levels that were significantly different (P <0.05) than those in the negative control group. Flavonoid contains in the extract ethanol carica papaya has vital role to prevent the liver toxicity caused by isoniazid and rifampicin.

Keywords: Hepatoprotective, isoniazid, rifampicin

ABSTRAK

Hepatotoksitas yang diinduksi oleh obat anti tuberculosis, termasuk rifampisin dan isoniazid (AT-DILI, Anti Tuberculosis-Drug Induced Liver Injury), merupakan reaksi merugikan yang diikuti dengan morbiditas yang signifikan. Beberapa penelitian in vivo dan in vitro telah mengkonfirmasi bahwa biji pepaya mengandung berbagai non-essensial, mineral, dan serat. Peran biji pepaya dalam pencegahan penyakit melalui modulasi berbagai proses, seperti anti-inflamasi, anti-diabetes, aktivitas imunomodulator, dan aktivitas antioksidan, menunjukkan peran dalam menetralkan pembentukan radikal bebas dan pada akhirnya mencegah patogenesis. Penelitian ini bertujuan untuk mengetahui efek hepatoprotektif ekstrak etanol biji pepaya terhadap tikus yang diinduksi rifampisin dan isoniazid. Hewan coba dalam penelitian ini dibagi menjadi delapan kelompok, yaitu kelompok normal, kelompok negatif 1, kelompok negatif 2, kelompok negatif 3, kelompok positif, kelompok perlakuan I (ekstrak etanol biji pepaya dosis 100 mg / kgBB), kelompok perlakuan II. (ekstrak etanol biji pepaya dosis 300 mg / kgBB), dan kelompok perlakuan III (ekstrak etanol biji pepaya dosis 500 mg / kgBB), kemudian tikus dibedah, diambil darahnya untuk AST, ALT, ALP, GGT, dan Pengukuran tingkat bilirubin. Hasil penelitian menunjukkan bahwa ekstrak etanol biji pepaya mampu menurunkan kadar ALT, AST, ALP, GGT, dan Bilirubin yang berbeda nyata (P <0.05) dibandingkan dengan kelompok kontrol negatif. Flavonoid yang terdapat pada ekstrak etanol biji papaya memiliki peranan pencegahan toksisitas hati akibat paparan isoniazid dan rifampicin.

Kata Kunci: Hepatoprotektif, isoniazid, rifampicin

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