

ABSTRAK

Gangguan fungsi ginjal merupakan salah satu masalah kesehatan global dengan angka prevalensi yang tinggi dan penyebab yang beragam, salah satunya akibat nefrotoksisitas obat. Rifampisin, sebagai antibiotik lini pertama dalam terapi tuberkulosis, diketahui dapat menyebabkan kerusakan ginjal. Penelitian ini bertujuan untuk mengetahui efek nefroprotektif dari ekstrak etanol bawang putih (*Allium sativum* L.) terhadap tikus putih jantan (*Rattus norvegicus*) yang diinduksi rifampisin.

Penelitian dilakukan secara eksperimental *in vivo* dengan melibatkan 25 ekor tikus yang dibagi menjadi lima kelompok, yaitu kelompok kontrol normal, kontrol negatif (rifampisin saja), dan tiga kelompok perlakuan yang masing-masing menerima rifampisin serta ekstrak etanol bawang putih dengan dosis 50 mg/kgBB, 120 mg/kgBB, dan 300 mg/kgBB selama 10 hari. Parameter yang diamati meliputi kadar Blood Urea Nitrogen (BUN), serum kreatinin, berat relatif ginjal, serta gambaran histopatologi ginjal.

Hasil penelitian menunjukkan bahwa rifampisin menyebabkan peningkatan signifikan kadar kreatinin, yang menandakan gangguan fungsi ginjal. Pemberian ekstrak etanol bawang putih mampu menurunkan kadar kreatinin secara signifikan ($p < 0,001$) dan memperbaiki kondisi jaringan ginjal secara histologis. Efek protektif ini diduga berasal dari kandungan senyawa aktif seperti flavonoid, saponin, dan allicin yang memiliki sifat antioksidan dan antiinflamasi.

Dapat disimpulkan bahwa ekstrak etanol bawang putih memiliki efek nefroprotektif terhadap kerusakan ginjal akibat rifampisin, dengan dosis 300 mg/kgBB menunjukkan perlindungan paling optimal.

Kata kunci: Bawang putih, nefroprotektif, rifampisin, tikus putih, kreatinin, histopatologi ginjal.

ABSTRACT

Kidney dysfunction is a serious global health problem with high prevalence and multiple causes, one of which is drug-induced nephrotoxicity. Rifampicin, a first-line antibiotic in tuberculosis therapy, has been identified as a potential cause of renal damage. This study aimed to investigate the nephroprotective effect of ethanol extract of garlic (*Allium sativum* L.) on male white rats (*Rattus norvegicus*) induced with rifampicin.

The study was conducted using an *in vivo* experimental design involving 25 rats divided into five groups: normal control, negative control (rifampicin only), and three treatment groups that received rifampicin in combination with garlic ethanol extract at doses of 50 mg/kgBW, 120 mg/kgBW, and 300 mg/kgBW for 10 consecutive days. Observed parameters included Blood Urea Nitrogen (BUN) levels, serum creatinine levels, relative kidney weight, and kidney histopathological features.

The results showed that rifampicin significantly increased serum creatinine levels, indicating impaired kidney function. However, administration of garlic extract significantly reduced creatinine levels ($p < 0.001$) and improved kidney tissue structure as shown in histopathological analysis. The protective effect is presumed to be due to the presence of bioactive compounds such as flavonoids, saponins, and allicin, which possess antioxidant and anti-inflammatory properties.

It can be concluded that the ethanol extract of garlic exhibits nephroprotective properties against rifampicin-induced kidney damage, with the 300 mg/kgBW dose providing the most optimal protective effect.

Keywords: Garlic extract, nephroprotective, rifampicin, white rats, creatinine, kidney histopathology.